



# Hirose Connectors Guide

- 1.The contents of this publication are current as of the date of publication.
- 2.Additional product information on any of the products in this publication may be obtained directly from our web site: <http://www.hirose-connectors.com> or by requesting the Customer Drawing from the nearest Hirose office.
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Connectors

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Board-to-Wire  
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Connectors

Optical Connectors  
and Devices

Microwave  
Components

# Please Use HIROSE ONLINE Catalog.

<http://www.hirose-connectors.com>

Search for connectors and other products of HIROSE ELECTRIC using HIROSE ONLINE catalog. You can retrieve Hirose products information by :

- Application (Automotive, Digital Camera, Notebook PC)
- Product Category (Circular Connectors, Rectangular Connectors, Coaxial Connectors)
- Feature (No. of Contacts, Current Rating, Impedance, Terminal Pitch)
- Part Number or Hirose's Number (Type the Part Number:example "FH23-15S-0.3SHAW(51)" or "586-1316-7 (51)" in the text box.)
- Alphabetical Listing of connector series (Example: "F" for FH12, FH19, FX11 series)

The following is the example of [Automotive] searched by Application.

**Automotive**

Copy machine

Digital Camera

Notebook PC

Mobile Phone

Personal Digital Assistant

Plasma Display Panel

Router & LAN Switch

**Welcome to HIROSE Connectors**

■ Search by Application [Automotive]

Antenna Connectors

LAN Connectors

ECU Connectors

**HID Lamp Connectors**

**HID Lamp**

1. Bring the pointer close to the connector category on the left side.

2. The appropriate connectors used in the application will flash on the illustration.

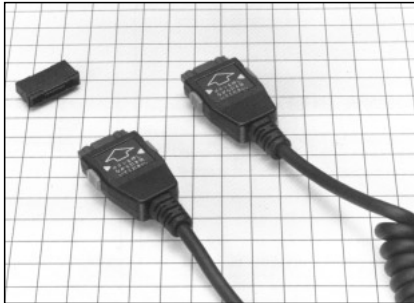
3. Click the connector category on the left side, and the recommended connectors will be displayed.

HIROSE ONLINE Catalog is continuously updated !  
Visit us to see latest products.

# Typical Products for Camera-equipped Flip Phone

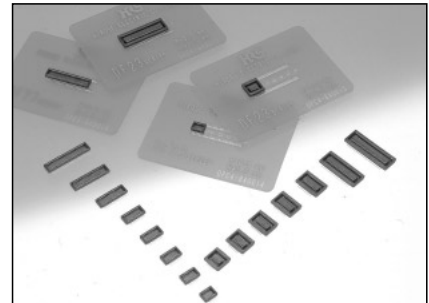
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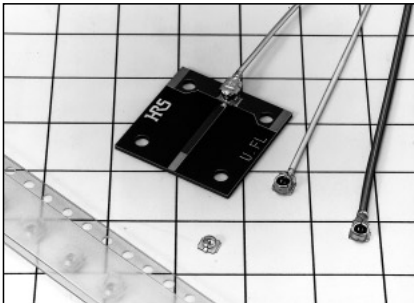
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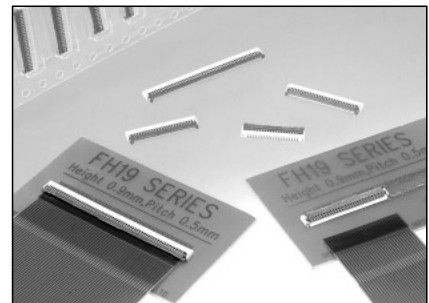
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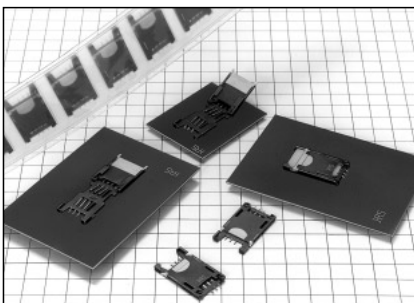
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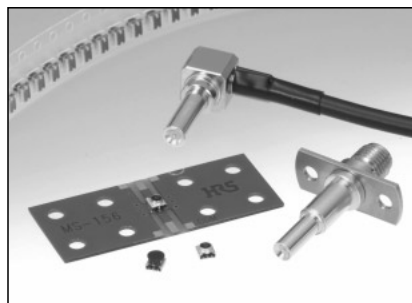
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## RF Coaxial Switches

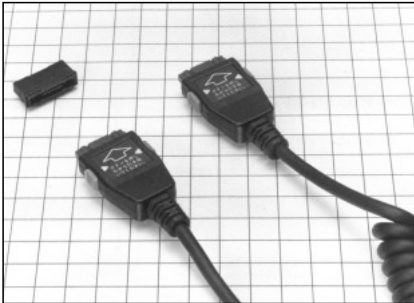
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# Typical Products for Mobile Phone

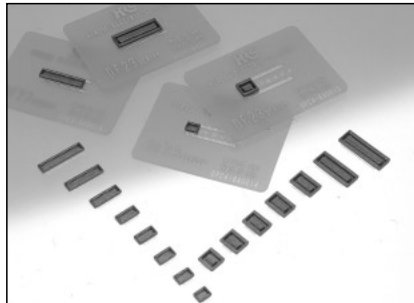
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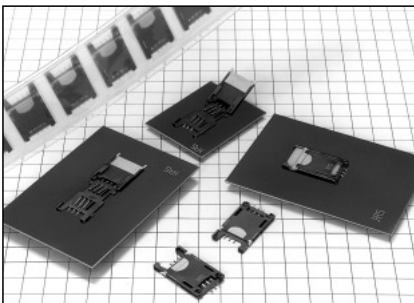
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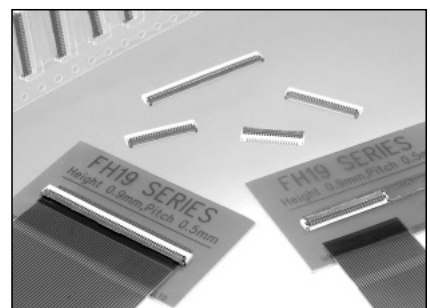
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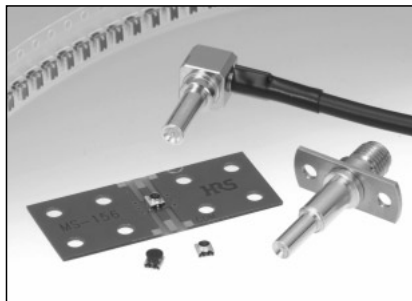
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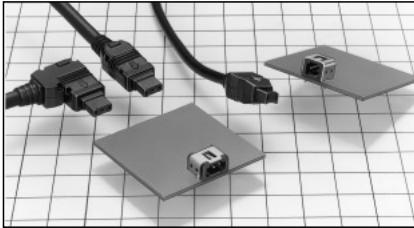




# Typical Products for Notebook PC

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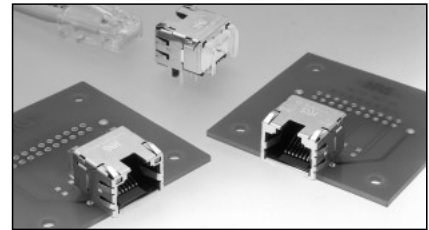
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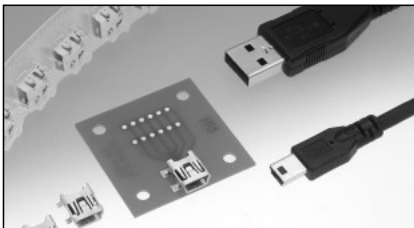
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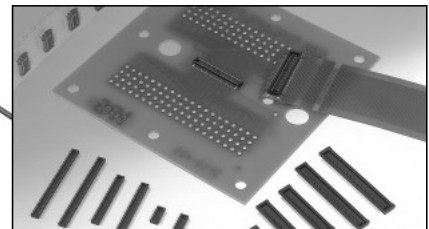
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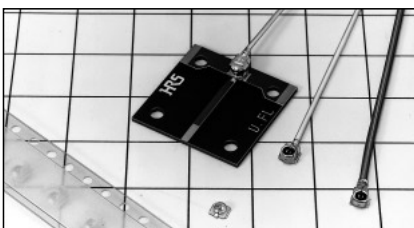
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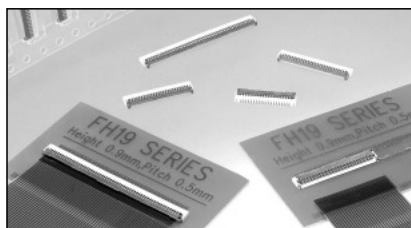
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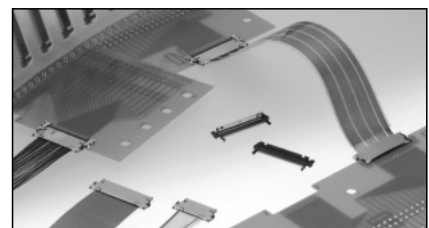
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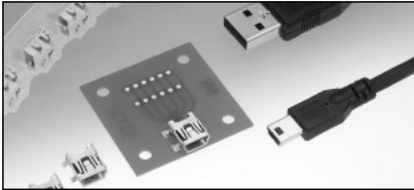
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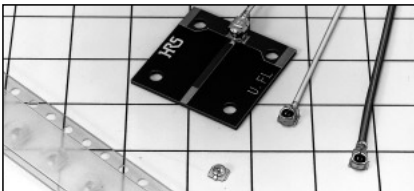
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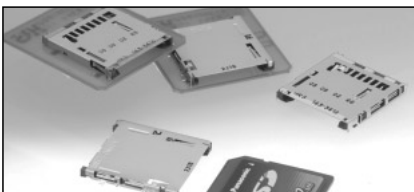
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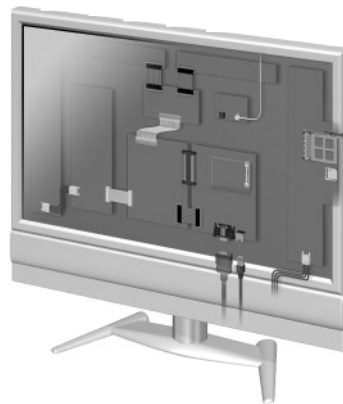
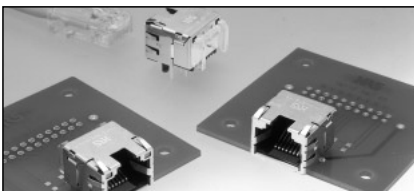
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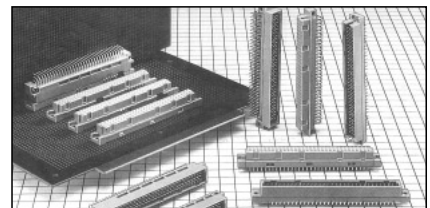
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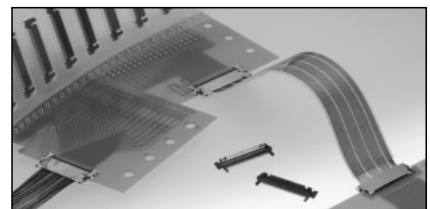
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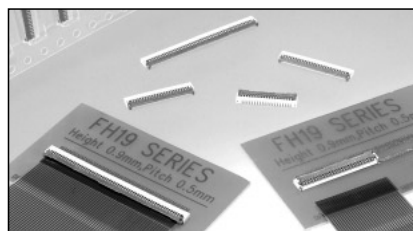
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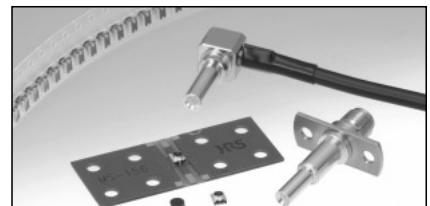
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## RF Coaxial Switches

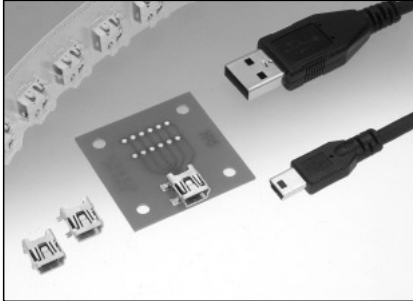
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# Typical Products for Digital Camera

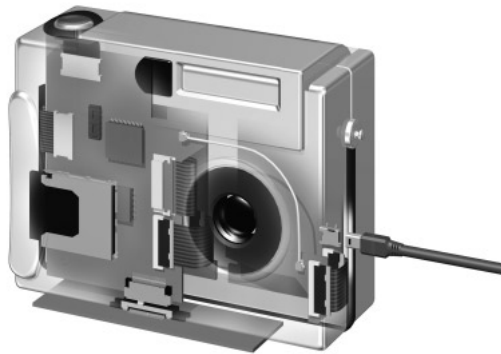
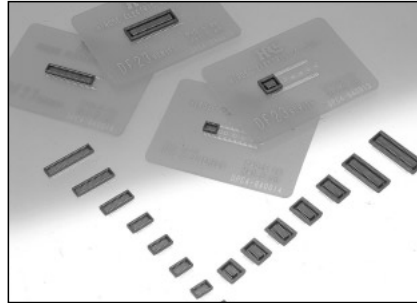
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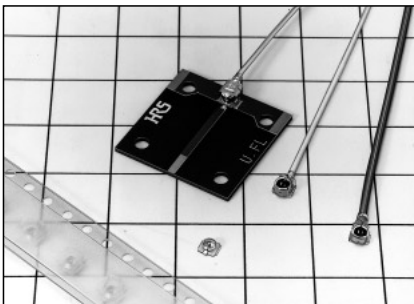
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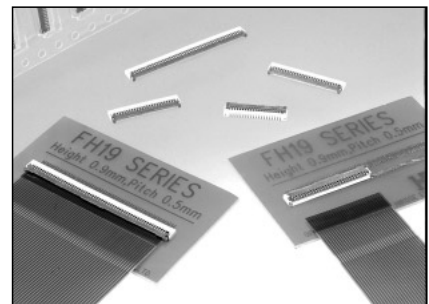
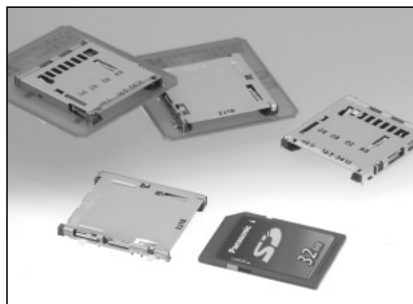


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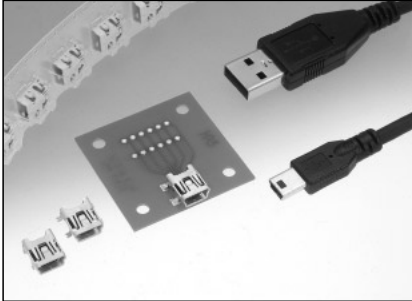
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# Typical Products for Digital Video Camera

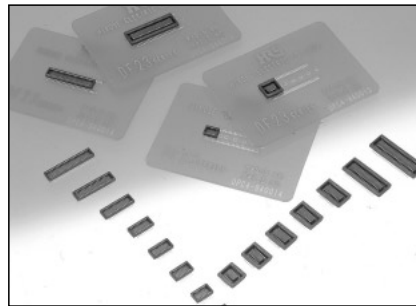
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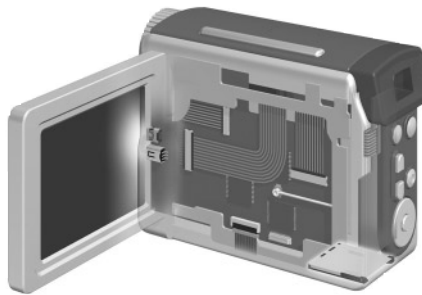
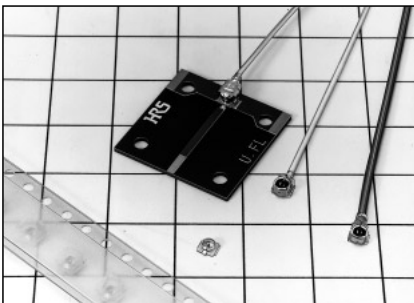
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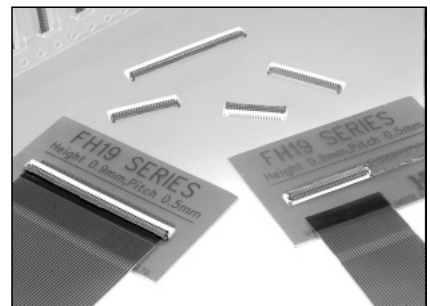
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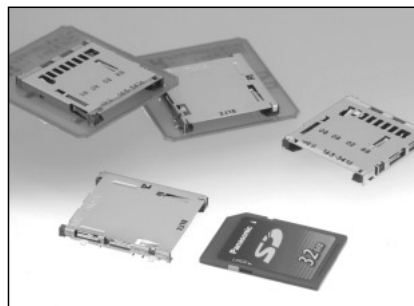
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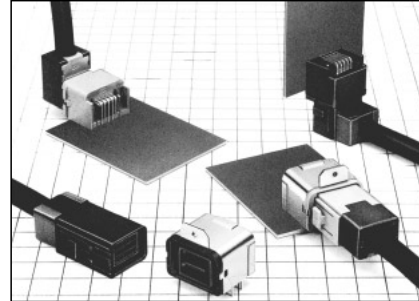
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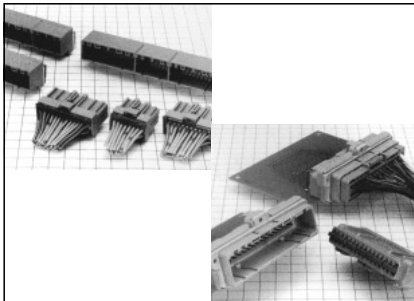
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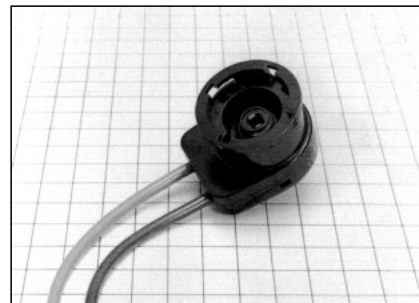
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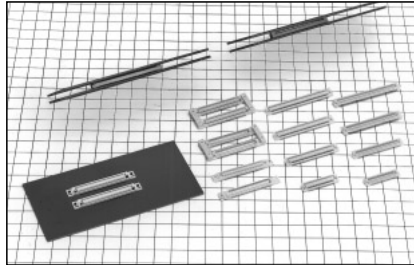
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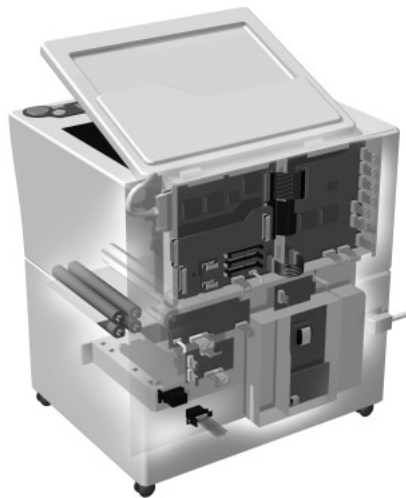
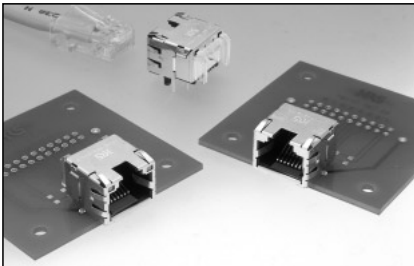
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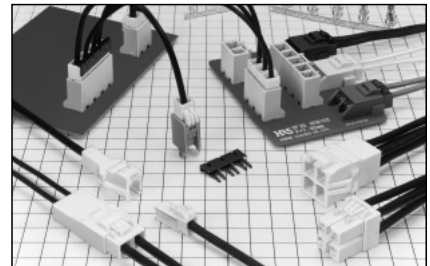
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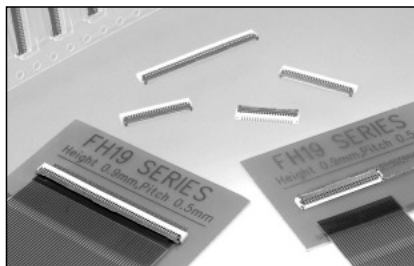
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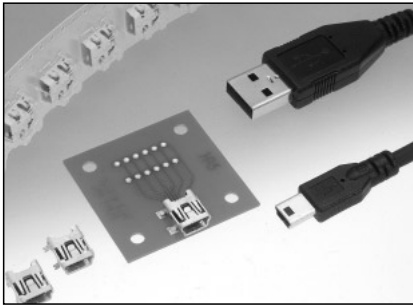
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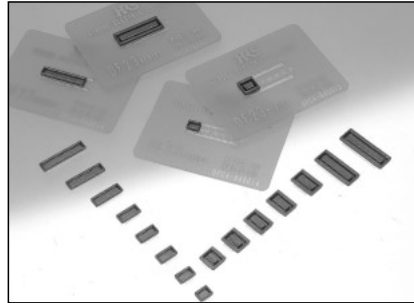
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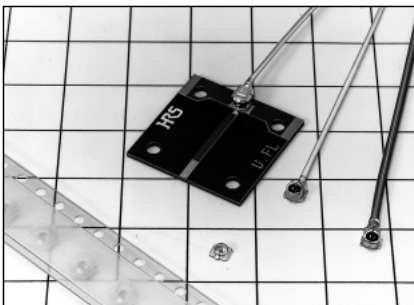
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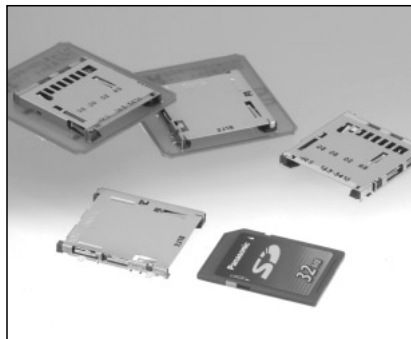
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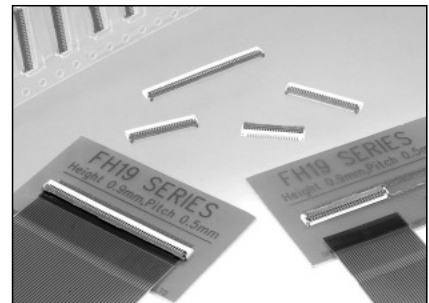
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## FPC/FFC Connectors

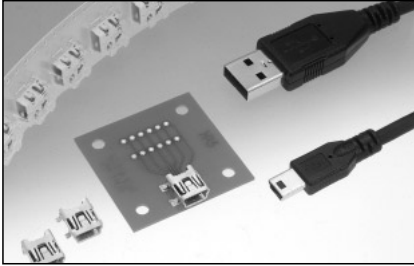
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# Typical Products for PDP

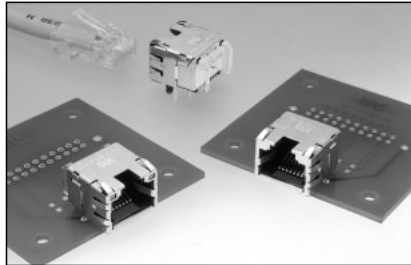
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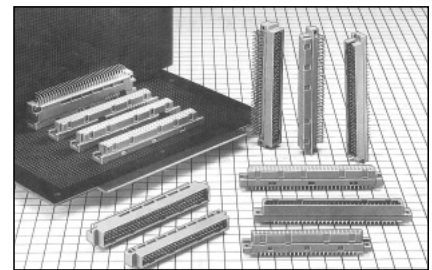
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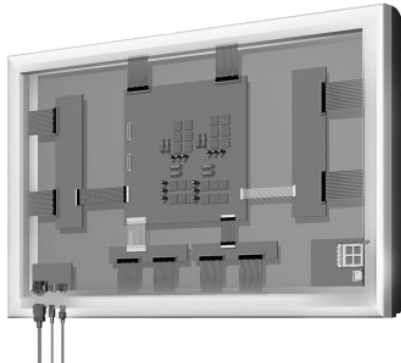
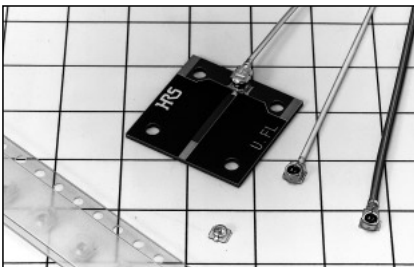
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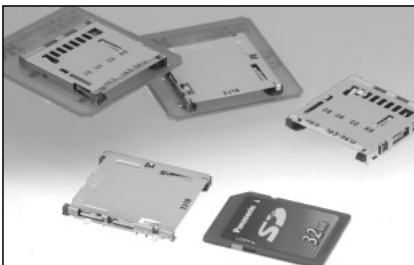
## Conxial Connectors

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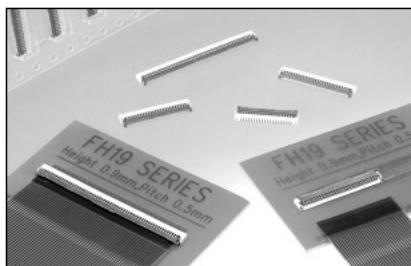
## Memory Card

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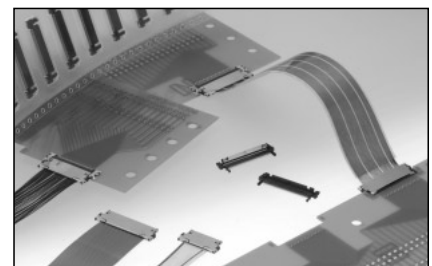
## FPC/FFC Connectors

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## Board-to-Wire Connectors

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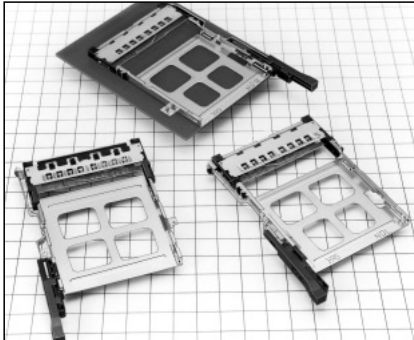




# Typical Products for Router & LAN Switch

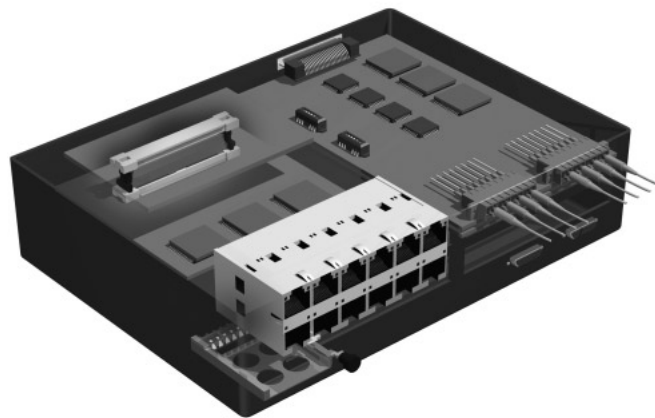
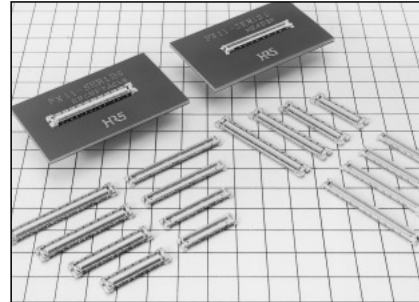
## Memory Card

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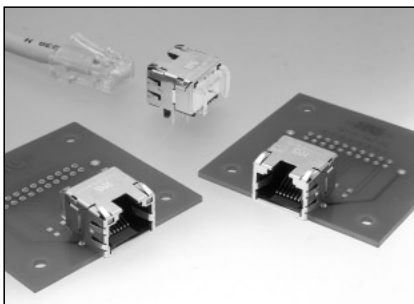
## Board-to-Board Connectors

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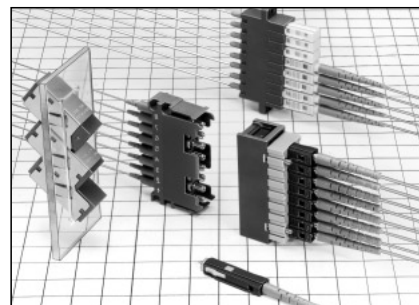
## Modular Connectors

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## Optical Connectors and Devices

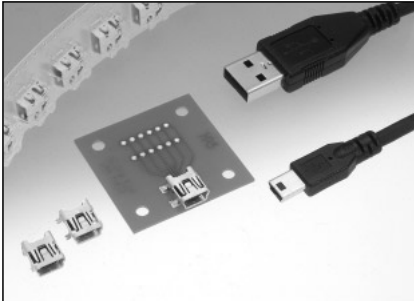
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# Typical Products for DVD Recorder

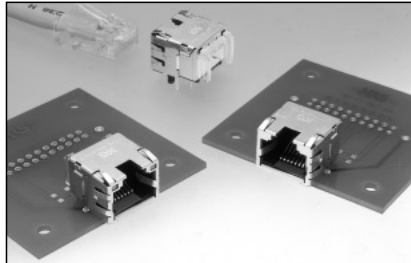
## Rectangular Connectors

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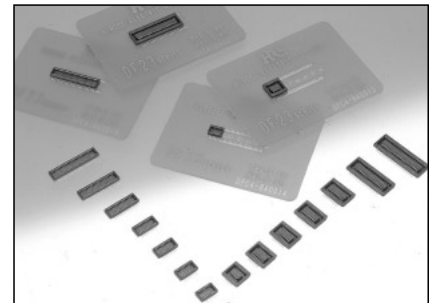
## Modular Connectors

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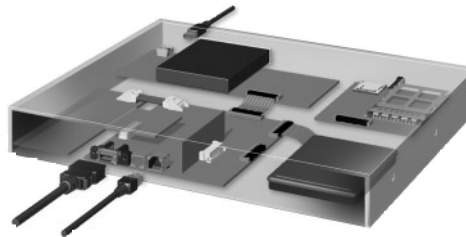
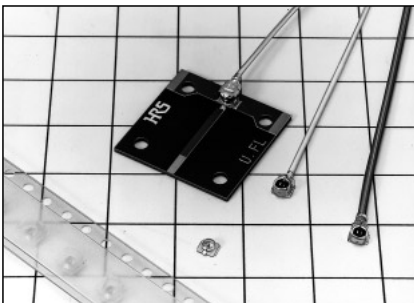
## Board-to-Board Connectors

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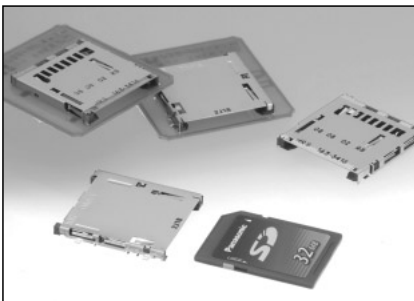
## Coaxial Connectors

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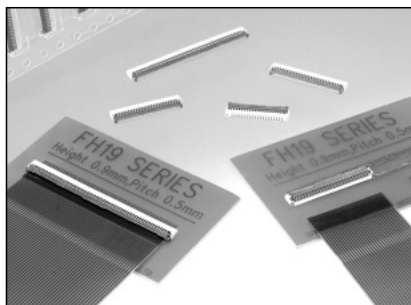
## Memory Card

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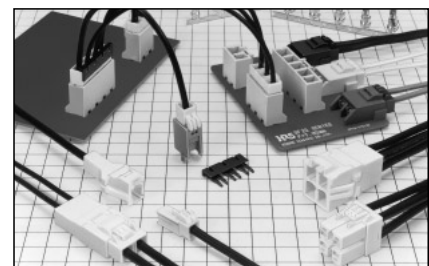
## FPC/FFC Connectors

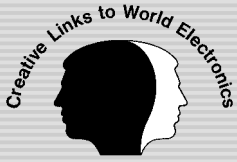
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## Board-to-Wire Connectors

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# Circular Connectors



# Circular Connectors



## Metal Connectors

Type	Current rating	Shell Size (mm)	Series Name	Page
Small Multi-contact connectors	5,10	12,15,21,24,31	RM	17
Small Multi-contact Waterproof connectors	5,10	12,15,21,24,31	RM-W	17
JIS C 5432 (Japanese industrial standard) connectors	3,5,10,30	13,16,21,25	JR	18
JIS C 5432 (Japanese industrial standard) Waterproof connectors	3,5,10,30	13,16,21,25	JR*W	18
JIS B 6015 connectors compliant to MIL-C-5015	13,23,46	10,18,20,22,24	H/MS	19
Metal connectors	2,3,4,7,10,20,30,40	12,14,16,21,25,28,35	HS	19
Multi-contact connectors for FA-related equipment	2	12	HR22	20
Waterproof connectors for power distribution equipment	10,15	26	HR21	20

## Metal Connectors

Type	Current rating	Shell Size (mm)	Series Name	Page
Small push-pull connectors (General purpose type)	2	7,10,13	HR10A	21
Small push-pull connectors	2	7,10	HR10	21
Waterproof multi-contact connectors conforming to 4202 (FA sensor connectors) standards	3	8,9	HR24	22
Connectors for audio equipment	3,4,5,10,15	16	HA	22
Small bayonet lock connectors	2	9	HR11	23
World smallest multi connectors	1	7,9	HR25	23
Small push-pull lock connectors with grounding	2	8	MXR	24
Small screw lock connectors	1A: 4, 6 and 7 pos.	10	SR30	24
Small push-on connectors	0.5	4	SR38	25

## Plastic Connectors

Type	Current rating	Shell Size (mm)	Series Name	Page
Miniature waterproof plastic connectors	2,5	6,7,8	HR30	25
One-piece molding connectors	1,5	10,14	HR12	26
One-piece molding connectors	1A	10,12	RP6	26
RP13 type Push-pull lock connectors	2A	12	RP13	27
RP17 type Push-pull lock connectors	5A(AWG#18 to 22),2A(AWG#24 to 30)	13	RP17	27
RP31 type connectors with coaxial switch	2A	10	RP31	28
RP type connectors	5A: 3,6 and 7 pos., 1A: 4 pos.	7,12	RP	28

## Device net Connectors

Type	Current rating	Shell Size (mm)	Series Name	Page
Interface connectors for factory automation network compliant to Device net	10,12		HR31	29

## AC power supply Connectors

Type	Current rating	Shell Size (mm)	Series Name	Page
RP34L type connectors for the AC power supply (Low profile type)	5A	5	RP34L	29
RP34 type connectors for the AC power supply	3A	8	RP34	30

## Small Multi-contact connectors

### RM Series



#### Features

- Hirose's unique multi-pin circular connector to satisfy the high-performance and downsizing demands of all equipment.
- Excellent electrical and mechanical performance is ensured by diallyl phthalate resin applied for insulation.
- The lock mechanisms with thread coupling type, bayonet sleeve type (size 12 only), or quick detachable type (size 15) are available.
- Metal shell circular connectors, plugs, receptacles and jacks, available in different shell size, number of contacts, locking mechanism, etc.

#### Applications

Measurement equipment, FA and control equipment, Broadcast equipment, Mobile communications base stations, Radio communications equipment

#### Specifications

Item	Requirements
No. of Positions	2-3-4-5-6-7-8-10-12-15-20-31-40-55
Current rating (A)	5-10
Shell Size (dia.)	12-15-21-24-31
PCB Mount Type	Through hole
Contact Plating	Silver
Operating Temperature Range (°C)	-25 to 85
Insulator	Diallyl phthalate (UL94V-0, Color: Black)
Applicable Cable (mm)	Cable clamp Dia.:5 to 8,6.5 to 11.5, Dia.:4,5,6,7,8,9,12,14,16,18, Solder pot inner dia.:1.1,1.7, Conductor:AWG#20 to #24,#24 to #28, Applicable cable dia.:15,19,26,
Termination Type	Crimp, solder
Accessories	Cable bushing, cap for plug, cap for receptacle
Remarks	Square flange receptacle available, automatic crimp machine, crimp tool, extraction tool

## Small Multi-contact Waterproof connectors

### RM-W Series



#### Features

- Wide variety of types are available to use the most suitable connectors for each application.
- Plug engaged with a receptacle meets IP67 waterproof standards. (Waterproof receptacle also satisfies IP67 standards)
- Assembly right angle plug can be extracted the cable to every direction of 360-degree.

#### Applications

Mobile communications base station, FA and control equipment, Measurement equipment.

#### Specifications

Item	Requirements
No. of Positions	2-3-4-5-6-8-10-12-15-20-26-31-40-55
Current rating (A)	5-10
Shell Size (dia.)	12-15-21-24-31
PCB Mount Type	Through hole
Contact Plating	Gold, Silver
Operating Temperature Range (°C)	-25 to 85
Insulator	Diallyl phthalate (UL94V-0, Color: Black)
Applicable Cable (mm)	Cable clamp Dia.:7 to 10
Termination Type	Crimp, solder
Remarks	Mating waterproof (IP67)

## JIS C 5432 (Japanese industrial standard) connectors

### JR Series



#### Features

- Meeting JIS C 5432 (Japanese industrial standard) for Electronic Equipment Circular Connectors.
- Excellent performance both electrically and mechanically.
- Five-key in the fitting section to ensure smooth mating.

#### Applications

Machine tools, FA-related equipment, Communications equipment

#### Specifications

Item	Requirements
No. of Positions	3-4-5-7-8-10-14-16-24-26
Current rating (A)	3-5-10-30
Shell Size (dia.)	13-16-21-25
Contact Plating	Silver
Operating Temperature Range (°C)	-25 to 85
Insulator	Phenol (UL94V-0, Color: Black), epoxy (Color: greenish brown)
Applicable Cable (mm)	Solder pot inner dia.:1.1,1.7,3.4,Conductor:AWG#16 to #20,#20 to #24,#24 to #28(Crimp)
Termination Type	Crimp, solder
Industry Standard	JIS
Accessories	Cap for receptacle, cable clamp
Remarks	Bayonet mating type available, automatic crimp machine, crimp tool, extraction tool

## JIS C 5432 (Japanese industrial standard) Waterproof connectors

### JR\*W Series



#### Features

- Meeting JIS C 5432 (Japanese industrial standard) for Electronic Equipment Circular Connectors.
- Waterproof structure (IP67 or more), so that water will not penetrate inside when placed underwater to a depth of 1.8m for 48 hours.
- Provided with outer metal plated with black chromium to prevent corrosion.
- Five-key in the fitting section to ensure smooth mating.
- A versatile variety of models with four types of shell size, and the number of pins selectable from 12 types.

#### Applications

Machine tools, FA-related equipment, Communications equipment

#### Specifications

Item	Requirements
No. of Positions	3-4-5-7-8-10-16-24
Current rating (A)	3-5-10-30
Shell Size (dia.)	13-16-21-25
Contact Plating	Silver
Operating Temperature Range (°C)	-25 to 85
Insulator	Phenol (UL94V-0, Color: Black), epoxy (Color: greenish brown)
Applicable Cable (mm)	Solder pot inner dia.:1.1,1.7,3.4,Conductor:AWG#20 to #24,#24 to #28,#16 to #20(Crimp)
Termination Type	Crimp, solder
Accessories	Cable clamp
Remarks	Mating waterproof (IP67), automatic crimp machine, crimp tool, extraction tool

# JIS B 6015 connectors compliant to MIL-C-5015

## H/MS Series



### Features

- Conforming to MIL-C-5015 (US army standard) requirements; models JIS B 6015 (Electric Equipment for Machine Tools); Compatible with MS connectors.
- Models incorporating a protective circuit (grounding terminal) complying with T-V (DIN VDE 0627) requirements available.
- Right angle plug ensuring ease of wiring with a sectioned shell.
- Waterproof male contacts receptacle prevents penetration of water into the interior of the equipment.
- Plug and receptacle perfectly satisfies IP67F waterproof requirements or more.

### Applications

NC machine tools, FA-related equipment, Communications equipment, Measurement equipment, Vehicles, vessels, Computers and related equipment, Medical equipment, Broadcast equipment

### Specifications

Item	Requirements
No. of Positions	2-3-4-6-7-8-17-19
Current rating (A)	13-23-46
Shell Size (dia.)	10-18-20-22-24
Contact Plating	Silver
Operating Temperature Range (°C)	-40 to 125
Insulator	PPS, PBT (UL94V-0, Color: Black), Silicone rubber (Color: Black)
Applicable Cable (mm)	Solder pot inner dia.:1.8,2.6,2.9,4,4.5,5.3,Conductor:AWG#24 to #28(Crimp)
Termination Type	Crimp, solder
Industry Standard	MIL
Accessories	Cable clamp
Remarks	Mating waterproof, waterproof receptacle (IP67F), non-waterproof type available, automatic crimp machine, crimp tool, extraction tool

# Metal connectors

## HS Series



### Features

- Generally called metal connector and most widely used as standard multi-pin circular connector.
- Sturdy and simple in construction.
- Mechanically and electrically stable.
- Employed as standard parts by NTT and set manufacturers.

### Applications

Power supplies for industrial equipment, Devices for communications stations

### Specifications

Item	Requirements
No. of Positions	2-3-4-5-6-7-8-10-12-16-20
Current rating (A)	2-3-4-7-10-20-30-40
Shell Size (dia.)	12-14-16-21-25-28-35
Contact Plating	Silver, nickel
Operating Temperature Range (°C)	-25 to 85
Insulator	PPS (UL94V-0, Color: Black), Phenol (Color: Brown)
Applicable Cable (mm)	Solder pot inner dia.:1.2,1.5,1.8,2.0,5.0(Receptacle side6),1.8(Receptacle side5),Crimp terminal inner dia.4.7,Solder pot inner dia.4.0(Receptacle side3.0)
Termination Type	Solder
Accessories	Cap for receptacle

## Multi-contact connectors for FA-related equipment

### HR22 Series



#### Features

- Models of waterproof structure (compatible with models not of waterproof structure) are available, so that water will not penetrate inside when placed underwater to a depth of 1.8 m for 48 hours.
- Locking mechanism with an anti-loosening spring in a screw coupling.
- Receptacle that can be mounted quickly on the panel surface by tightening a nut.
- Shell with a cord bushing for increased cable curvature and protection against wire breakage when the cable is bent.
- Designed with a maximum plug diameter of 21mm for high-density mounting of 20-pin connectors.

#### Applications

NC machine tool, FA-related equipment, Communications equipment, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	20
Current rating (A)	2
Shell Size (dia.)	12
Contact Plating	Silver
Operating Temperature Range (°C)	-25 to 85
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:8.5(Non-waterproof),10(Waterproof),Conductor:AWG#24 to #28(Crimp)
Termination Type	Crimp, solder
Remarks	Mating waterproof type available, automatic crimp machine, crimp tool, extraction tool

## Waterproof connectors for power distribution equipment

### HR21 Series



#### Features

- Waterproof plug and receptacle prevent penetration of water into the interior of the equipment, so that the resin filling time is contracted with an increase in work efficiency.
- Stopper maintaining the clearance between the female terminals and insulator, preventing the female terminals from wobbling, and providing stable contact construction.
- Terminal solder pot in the same direction insuring improvement in wiring work.
- Thermoplastic resin used for the insulator in consideration of the resistance of fall impact.
- Chrome-plated connector sheath in consideration of environment resistance.

#### Applications

Power distribution equipment, Switches, Substation, Control equipment

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8
Current rating (A)	10-15
Shell Size (dia.)	26
Contact Plating	Gold, nickel
Operating Temperature Range (°C)	-25 to 85
Insulator	PPS (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:12.5 to 14,Conductor:3.5mm <sup>2</sup> max.(2pos only),2mm <sup>2</sup> max.
Termination Type	Solder
Accessories	Waterproof cap, cap
Remarks	Waterproof plug, waterproof receptacle (IP67)



## Small push-pull connectors (General purpose type)

### HR10A Series



#### Features

- Inexpensive, economical connector compatible with the HR10.
- Comes with rubber bushing to prevent damage from cable bending.
- Special hand tool to uniformly crimp the cable clamp to ensure increased cable clamp force.
- Connection ring incorporating a grid knurl is slip preventive.
- Provided with silver-plated standard terminals. Gold-plated terminals are available as well.

#### Applications

Computers, Peripheral and terminal equipment, Medical equipment, AV equipment, Radio equipment, Measurement equipment, CCD cameras

#### Specifications

Item	Requirements
No. of Positions	4-5-6-10-12-20
Current rating (A)	2
Shell Size (dia.)	7-10-13
PCB Mount Type	Through hole
Contact Plating	Gold, silver
Operating Temperature Range (°C)	-25 to 85
Insulator	Polyamide (Color: Black), PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:5,7,Solder pot inner dia.:0.8,Conductor:AWG#26 max.(Solder),AWG#26 to #30(Crimp)
Termination Type	Crimp, solder
Accessories	Cap
Remarks	Connection tools, automatic crimp machine, crimp tool, extraction tool

## Small push-pull connectors

### HR10 Series



#### Features

- The most compact model is as slender as a cigarette, in consideration of compactness, high-density mounting, high reliability, light weight, rigidity, and ease of transportation.
- One-touch, push-pull coupling mechanism ensuring easy and quick insertion and extraction.
- The shell incorporates five-key mating guide to prevent insertion mistakes.
- Provided with gold-plated standard terminals.

#### Applications

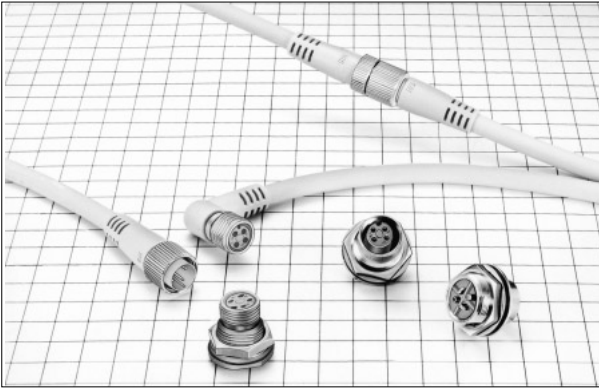
Computers, Peripheral and terminal equipment, Medial equipment, AV equipment, Radio equipment, Measurement equipment, CCD cameras

#### Specifications

Item	Requirements
No. of Positions	4-6-12
Current rating (A)	2
Shell Size (dia.)	7-10
PCB Mount Type	Through hole
Contact Plating	Gold
Operating Temperature Range (°C)	-25 to 85
Insulator	Polyamide (Color: Blue)
Applicable Cable (mm)	Dia.:5,7,Solder pot inner dia.:0.8,Conductor:AWG#26 max.(Solder)
Termination Type	Solder
Accessories	Cap
Remarks	Connection tools, automatic crimp machine, crimp tool, extraction tool

## Waterproof multi-contact connectors conforming to 4202 (FA sensor connectors) standards

### HR24 Series



#### Features

- General purpose connector conforming to 4202 (FA sensor connector) standards of the NECA (Nippon Electric Control Equipment Industries Association).
- Plug engaged with a receptacle or a jack meets IP67 waterproof standards, and also oil proof.
- Insulating wall provided between receptacle terminals to prevent short circuiting resulting from barbed wires at the time of wire soldering.
- DC and AC connectors available; straight and right-angle connectors with cable available with a cable diameter of 4.4 or 6.8mm.
- Receptacles are mounted to panels in two ways (i.e., front mounting and back mounting) and directly to sensors with or without screws.

#### Applications

Sensors, Limit switches, Proximity switches, Photoelectric switches, Pressure switches

#### Specifications

Item	Requirements
No. of Positions	4-5
Current rating (A)	3
Shell Size (dia.)	8-9
PCB Mount Type	Through hole
Contact Plating	Gold, silver
Operating Temperature Range (°C)	-40 to 85
Insulator	PBT (UL94V-0, Color: Gray)
Applicable Cable (mm)	Solder pot inner dia.:1,1.1,1.4
Termination Type	Solder
Industry Standard	NECA, Device Net
Accessories	Cap
Remarks	Mating waterproof (IP67)

## Connectors for audio equipment

### HA Series



#### Features

- Latch-lock circular connector for audio equipment.
- Provided with a grounding function to prevent external noise.
- Two types of plug-side cable clamp mechanisms are selectable along with the receptacle-side connectors in four sizes according to the design and mounting space requirement.
- The lock release levers in the plug receptacle come in two types that are selectable according to the application.
- An high-fidelity model is available, using terminals made from 6N high-purity oxygen-free copper.

#### Applications

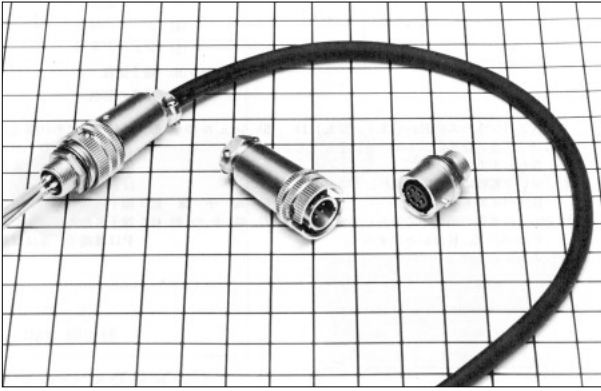
Microphones, Microphone mixers, Broadcasting equipment

#### Specifications

Item	Requirements
No. of Positions	3-4-5-7
Current rating (A)	3-4-5-15
Shell Size (dia.)	16
PCB Mount Type	Through hole
Contact Plating	Gold, silver
Operating Temperature Range (°C)	-25 to 70
Insulator	Polyamide or PBT or synthetic rubber (Color: Gray or Black)
Applicable Cable (mm)	Dia.:4 to 6
Termination Type	Solder
Remarks	Cannon plug type, High sound quality type (3 pos.) available

## Small bayonet lock connectors

### HR11 Series



#### Features

- Compact, lightweight, sturdy, and highly reliable multi-pin circular connector with a connector outside diameter of 14.7mm.
- Bayonet lock mechanism ensuring high insertion and extraction operability.
- Five-key mating guide to prevent insertion mistakes.
- Plugs, receptacles, and jacks of male and female terminal types are available.
- Enhanced packaging density using hexagon headed nut tightening mechanism to fix the receptacle to the panel.

#### Applications

Communications equipment, Broadcast equipment, Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
No. of Positions	4-6
Current rating (A)	2
Shell Size (dia.)	9
Contact Plating	Silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polyamide (Color: Black)
Applicable Cable (mm)	Dia.:4.5 to 5.5,Solder pot inner dia.:0.8
Termination Type	Solder

## World smallest multi connectors

### HR25 Series



#### Features

- Compact, high-density circular connector with a maximum of 20 contacts into a maximum outside diameter of 12.5mm.
- Connector with a push-pull locking mechanism in consideration of operability and a screw locking mechanism with vibration resistance.
- Structure with the pins located safely so that pins will not be damaged if male pins are inserted incorrectly.
- Rubber gasket to the panel mounting part of the receptacle to prevent the penetration of water into the interior of the set.
- Gold-plated contacts to maintain contact stability.

#### Applications

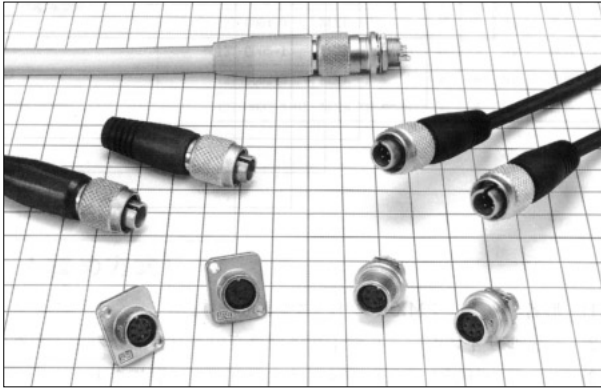
CCD cameras, Measurement equipment, A variety of sensors, On-vehicle radio communications equipment, Medical equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8-12-16-20
Current rating (A)	1
Shell Size (dia.)	7-9
PCB Mount Type	Through hole
Contact Plating	Gold
Operating Temperature Range (°C)	-25 to 85
Insulator	PPS (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:.5,Conductor:AWG#28 max.(Solder),Dia.:.7,Conductor:AWG#28 max.(Solder),AWG#30,32(Crimp)
Termination Type	Crimp, solder
Remarks	Automatic crimp machine, crimp tool, extraction tool

## Small push-pull lock connectors with grounding

### MXR Series



#### Features

- Use of aluminum alloy for the shell contributing to the compact lightweight design with an outside diameter of 13.9mm and a ground terminal provided.
- One-touch, push-pull locking mechanism for quick insertion and extraction and high-density mounting.
- The metal portion of the shell forms part of the contacting structure to satisfy FCC requirements.
- Sequential construction with one of the three pins designed to come in contact before the other two pins.
- Models include plugs that can be cable clamped by just tightening the cable tube with no special tools required.

#### Applications

VTR cameras, System cameras, Audio equipment

#### Specifications

Item	Requirements
No. of Positions	3-4-6-8
Current rating (A)	2
Shell Size (dia.)	8
PCB Mount Type	Through hole
Contact Plating	Gold
Operating Temperature Range (°C)	-25 to 85
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:5,8,Solder pot inner dia.:0.9
Termination Type	Solder
Remarks	Connection tools, automatic crimp machine, crimp tool, extraction tool,Cable crimp tool, tightening tool

## Small screw lock connectors

### SR30 Series



#### Features

- Compact circular connector for use in the microphone circuitry of compact wireless communications equipment.
- Maximum outside diameter of 15mm.
- Streamlined design well suited for compact devices.
- Bushings are provided for the cable ends to prevent disconnection damage from bending.

#### Applications

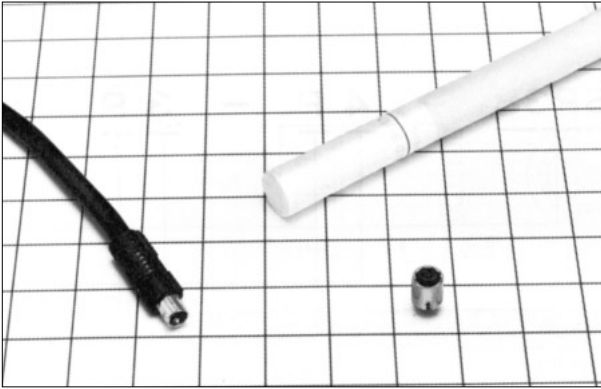
High-grade transceivers, ITV cameras, Radio equipment, Compact electronic devices

#### Specifications

Item	Requirements
No. of Positions	4-6-7
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold, silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polyacetal (Glass reinforced)
Applicable Cable (mm)	Dia.:4,3,5,2,5,7,5,5,Solder pot inner dia.:0.8(Plug),0.9(Jack, receptacle)
Termination Type	Solder
Accessories	Metal clamp, cap
Remarks	Crimp tool, connection tools

## Small push-on connectors

### SR38 Series



#### Features

- Connector with a standard outside diameter of 5.3mm (excluding protruding parts) for compact interfaces allowing space-saving installation.
- Simple locking mechanism.
- With contact surfaces on both plug and receptacle in consideration of shielding performance.
- Provided with a plug that can be assembled with no special tools required, thus ensuring ease of wiring.

#### Applications

AV equipment, Measurement equipment, Sensors, A variety of electronic devices

#### Specifications

Item	Requirements
No. of Positions	3
Current rating (A)	0.5
Shell Size (dia.)	4
PCB Mount Type	Through hole
Contact Plating	Silver
Operating Temperature Range (°C)	-15 to 60
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:3.5,Solder pot inner dia.:0.5
Termination Type	Solder

## Miniature waterproof plastic connectors

### HR30 Series



#### Features

- Compact and low height yet meeting IP67 waterproof requirements.
- Plastic shell is lightweight and less expensive than conventional metal connectors.
- Easy to operate with push-pull locking mechanism.
- Cable clamp construction with the cable tube tightened.
- Five guide keys and white mark painted at the mating position assuring quick insertion and extraction with ease.

#### Applications

Measurement equipment, Communications equipment, Compact electronic devices

#### Specifications

Item	Requirements
No. of Positions	3-6-10-12
Current rating (A)	2-5
Contact Plating	Gold
Operating Temperature Range (°C)	-25 to 85
Insulator	PPS (UL94V-0, Color: Black), PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:3.5 to 4.3,4.2 to 5,6.2 to 7,Solder pot inner dia.:0.8,1.1,Conductor:AWG#26 to #30(Crimp)
Termination Type	Crimp, solder
Accessories	Cap
Remarks	Mating waterproof, (IP67), Tightening collar for back shell, connection tools, automatic crimp machine, crimp tool, extraction tool

## One-piece molding connectors

### HR12 Series



#### Features

- Plugs with an outside diameter range from 12 to 16mm respond to the compact, lightweight, and high-density mounting needs of electronic devices.
- Shield mechanism with built-in metal parts; HR12 (20 pins) and HR212 are models of reinforced EMI protection.
- Snap-lock mechanism ensuring ease of insertion and extraction, and prevents the connector from disconnection due to shock or vibration.
- The plug cable ends has a bellows of mono-block construction preventing conductor disconnection damage from bending.
- A versatile assortment of models with both straight and right angle plugs and receptacles available.

#### Applications

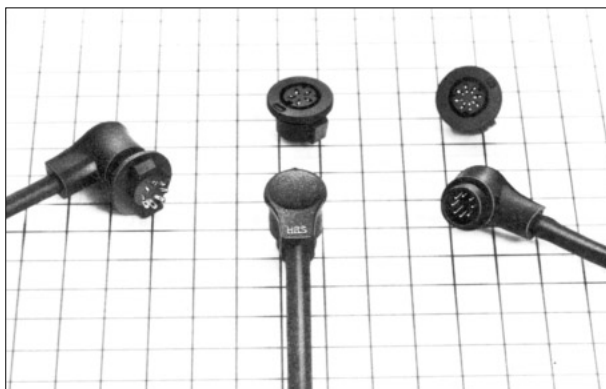
Office equipment, VTR, Audio equipment, Communications equipment, Automobile equipment

#### Specifications

Item	Requirements
No. of Positions	4-5-8-10-20
Current rating (A)	1,5
Shell Size (dia.)	10-14
PCB Mount Type	Through hole
Contact Plating	Gold, silver, tin
Operating Temperature Range (°C)	-15 to 60
Insulator	PBT (UL94V-0, Color: Black), polycarbonate (UL94V-1, Color: Black)
Applicable Cable (mm)	Conductor:AWG#26 to #30(Crimp),Dia.:4.8mm,Conductor:AWG#26 max.(Solder)
Termination Type	Crimp, solder
Accessories	Stopper plate, spacer
Remarks	Plug assembly type available, automatic crimp machine, crimp tool, extraction tool

## One-piece molding connectors

### RP6 Series



#### Features

- L-shaped plug featuring low height coupling with receptacle of approximately 15mm above the mounting panel.
- Receptacle not protruding from the equipment.
- Receptacle connected to the panel by one-touch pushing without any screws required.
- Plug shell designed for ease of holding for insertion and extraction.
- Cable length and end treatment finished according to the customer's specifications.

#### Applications

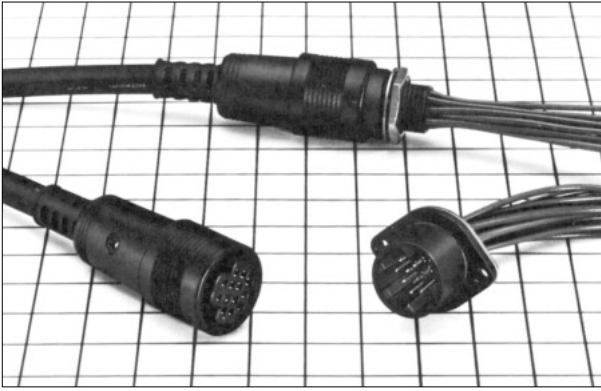
Electronic view finders of VTR cameras connection, VTR remote control equipment connection, AV equipment

#### Specifications

Item	Requirements
No. of Positions	5-8-10
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polyamide (UL94V-1, Color: Black)
Applicable Cable (mm)	Conductor:AWG#26 to #30
Termination Type	Crimp, solder
Remarks	Automatic crimp machine, crimp tool, extraction tool

## RP13 type Push-pull lock connectors

### RP13 Series



#### Features

- Compact, lightweight, rigid, highly reliable circular connector with an outside diameter of 16.9mm developed in response to increasing needs for more compact equipment.
- One-touch, push-pull locking mechanism for quick insertion and extraction and high-density mounting.
- Multi-slot key mating guide to prevent insertion mistakes.
- Lightweight yet rigid outer shell made of strong glass fiber polycarbonate resin.
- Models with electrostatic measures available.

#### Applications

VTR equipment, Office equipment, Radio communications equipment, Industrial equipment, VTR monitors

#### Specifications

Item	Requirements
No. of Positions	13-15-20
Current rating (A)	2
PCB Mount Type	Through hole
Contact Plating	Gold, silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polycarbonate (UL94V-0, Color: Black)
Applicable Cable (mm)	Solder pot inner dia.:4.7,5.7,6.1,6.4,7.1,7.5,8.1, Conductor:AWG#18 to #22,AWG#24 to #28
Termination Type	Crimp
Remarks	Right angle through hole type available, electrostatic protection type available, automatic crimp machine, crimp tool, extraction tool

## RP17 type Push-pull lock connectors

### RP17 Series



#### Features

- One-touch, push-pull locking mechanism for quick insertion and extraction and high-density mounting.
- Using 5A cable to 3 pins out of the 12 pins, and 2A cable to the rest of the pins (9 pins).
- Multi-slot key mating guide to prevent insertion mistakes.
- Simple and slender appearance with a cable clamp built in.
- Indicates the mating position mark white, thus assuring quick connection and disconnection with ease.

#### Applications

Camcorder, portable Radio communications equipment, Remote control equipment, Audio equipment, Measurement equipment, Copying machines, Printers

#### Specifications

Item	Requirements
No. of Positions	12
Current rating (A)	2-5
PCB Mount Type	Through hole
Contact Plating	Silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polycarbonate (UL94V-0, Color: Black) or PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Cable clamp inner dia.:5.3,6.1, Conductor:AWG#18 to #22,#24 to #30
Termination Type	Crimp
Remarks	Electrostatic protection type available, automatic crimp machine, crimp tool, extraction tool

## RP31 type connectors with coaxial switch

### RP31 Series



#### Features

- Compact, lightweight, and rigid circular plastic connector developed for mobile telephones.
- 10-pin circular compound connector with a built-in coaxial switch.
- One-touch push-pull coupling mechanism ensuring easy and quick insertion and extraction.
- Five-key mating guide to prevent insertion mistakes.
- One-touch, push-pull lock for high-density mounting.

#### Applications

Mobile telephone

#### Specifications

Item	Requirements
No. of Positions	10
Current rating (A)	2
PCB Mount Type	Through hole
Contact Plating	Silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polycarbonate (UL94V-0, Color: Black)
Applicable Cable (mm)	Cable clamp inner dia.:5.2, Conductor:AWG#26 to #30
Termination Type	Crimp
Remarks	Automatic crimp machine, crimp tool, extraction tool

## RP type connectors

### RP Series



#### Features

- Plastic connector for consumer electronic equipment.
- Low-cost, light-weight, and stable consumer electronic equipment.
- One-touch, push-on locking mechanism ensures ease of insertion and extraction.

#### Applications

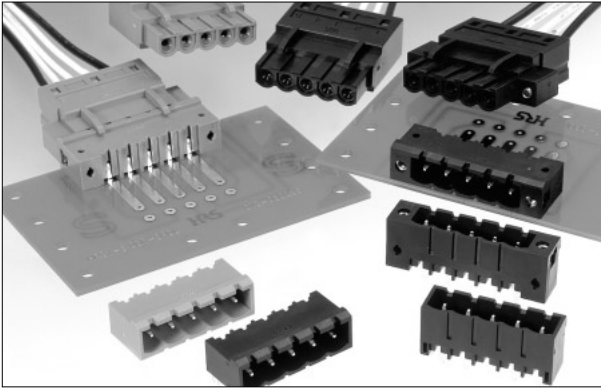
Consumer electronic equipment

#### Specifications

Item	Requirements
No. of Positions	3-4-6-7
Current rating (A)	5-1(4 pos.)
PCB Mount Type	Through hole
Contact Plating	Silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polyamide (Color: Black or Blue), polyacetal (Color: Black or Gray)
Applicable Cable (mm)	Solder pot inner dia.:1.4,0.9
Termination Type	Solder



## Interface connectors for factory automation network compliant to Device net HR31 Series



### Features

- Conforming to Device-Net standards as FA network standards (Terminal contact block: Gold plated).
- Crimping wiring connects the connector securely by just inserting the connector into the housing after crimping wiring.
- Housing with pin numbers specified in order to prevent mistakes in wiring.
- Plug connector 4.8mm lower than that of any other manufacturers' competitive products, thus achieving the height as low as 10.2mm.
- Screw lock model ensures perfect locking.

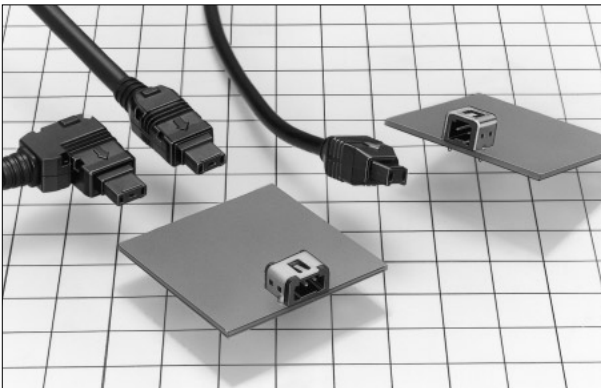
### Applications

Power supply and communications blocks of FA-related equipment

### Specifications

Item	Requirements
No. of Positions	5
Current rating (A)	10-12
PCB Mount Type	Through hole
Contact Plating	Tin-lead
Operating Temperature Range (°C)	-40 to 100
Insulator	PBT (UL94V-0, Color: Black or Green)
Applicable Cable (mm)	Conductor:1.04 to 2.63mm <sup>2</sup> ,0.25 to 1.65mm <sup>2</sup>
Applicable PCB Thickness (mm)	1.6
Industry Standard	Device Net
Remarks	Crimp tool, extraction tool

## RP34L type connectors for the AC power supply (Low profile type) RP34L Series



### Features

- Compact, lightweight plastic connector for the AC power supply adapter interfaces of notebook PCs.
- Compact low-profile receptacle with an installation height of 6.1mm (2-pin type) or 5mm (3-pin type) and a depth of 7mm.
- Snap-locking mechanism with a click audible when the connector is fully mated.
- Strong against cable twisting and scooping.
- Sequential construction with one of the three pins designed for a grounding terminal that comes in contact before the other two pins.

### Applications

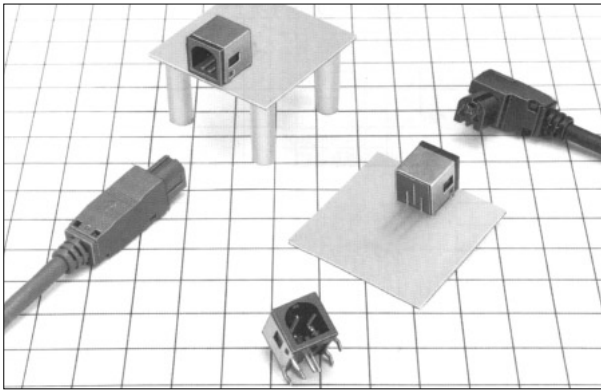
Notebook PCs, Portable terminal equipment, AV equipment

### Specifications

Item	Requirements
No. of Positions	2-3
Current rating (A)	5
PCB Mount Type	Through hole
Contact Plating	Palladium, silver
Operating Temperature Range (°C)	-25 to 85
Insulator	Polyamide (UL94HB, Color: Black), PPS (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:4, Conductor:AWG#18 to #22
Termination Type	Crimp
Remarks	Automatic crimp machine, crimp tool, extraction tool

# RP34 type connectors for the AC power supply

## RP34 Series



### Features

- Compact, lightweight, 3- and 4-pin plastic connectors for the AC adapter interfaces of notebook PCs.
- Snap-locking mechanism for ease of insertion and extraction.
- PCB-mounting receptacle with a mating side of 10 x 10mm (for 3 pins) or 10 x 11mm (for 4 pins) with a depth of 11.3mm.
- Sequential construction with one of the three or four pins designed for a grounding terminal that comes in contact before the other two or three pins.
- A snap-fit assembling method for plug, thus eliminating the use of screws and ensuring ease of assembling.

### Applications

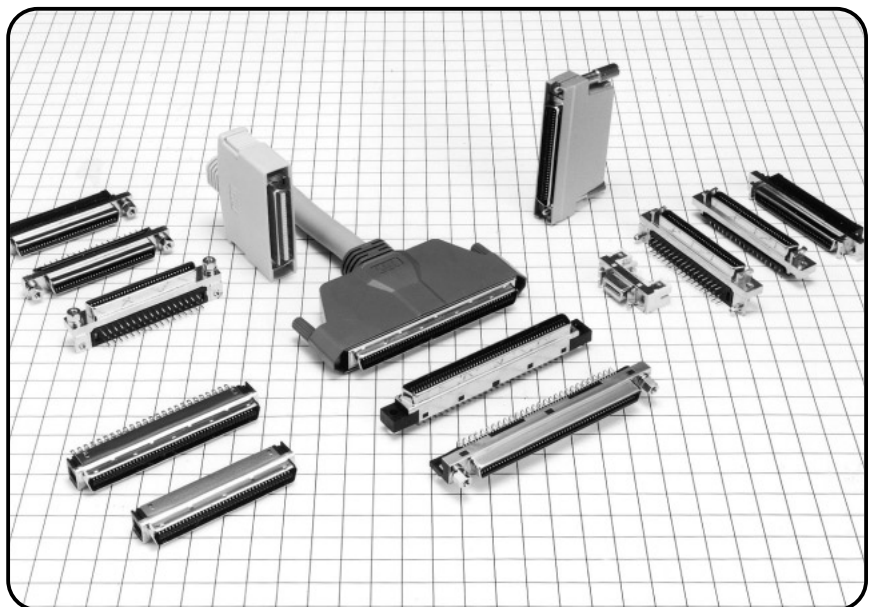
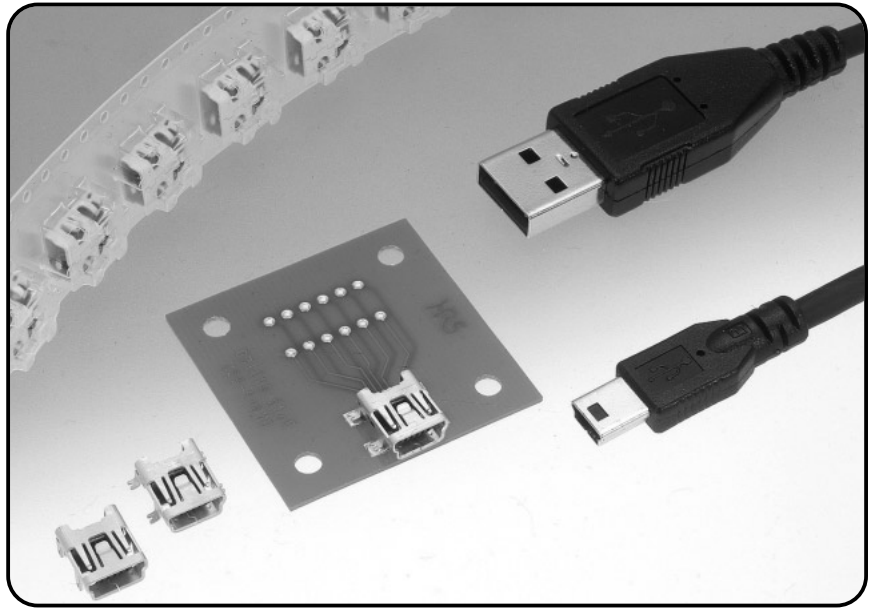
Notebook PCs, Portable terminal equipment, AV equipment, Office equipment, Communications equipment

### Specifications

Item	Requirements
No. of Positions	3-4
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Silver
Operating Temperature Range (°C)	-10 to 60
Insulator	Polycarbonate (UL94V-0, Color: Black), PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Cable clamp inner dia.:4.4, Conductor:AWG#18 to #22
Termination Type	Crimp
Remarks	Automatic crimp machine, crimp tool, extraction tool

- Circular Connectors
- Rectangular Connectors
- Coaxial Connectors
- Memory Card
- Modular Connectors
- Card Edge Connectors
- Board-to-Board Connectors
- Board-to-Wire Connectors
- FPC/FFC Connectors
- Optical Connectors and Devices
- Microwave Components

# Rectangular Connectors



# Rectangular Connectors



## Subminiature Interface Connectors

Type	Series Name	Page
Connectors compliant to USB 2.0 standard	UX	33
Interface connectors for miniature, portable terminal devices	ST	33
Interface connectors for mobile phone	MQ138	34
20,000 times of mating cycle, interface connectors for portable equipment	3500	34
0.8mm pitch, SMT ultra small interface connectors	3200	35
1.27mm pitch interface connectors for electrostatic discharge (ESD) protection	3100	35
1.78mm pitch connectors for hand-held terminals	QM	36

## Interface connectors for AC power supply

Type	Series Name	Page
Micro-miniature interface connectors for AC power supply/signaling	MQ172	36

## Docking station connectors

Type	Series Name	Page
0.6mm pitch, docking station connectors	EX80	37

## Interface Connectors

Type	Series Name	Page
High-speed differential signal connectors	EXT	37
D-configuration connectors for digital broadcasting equipment	DX*LM	38
Connectors compliant to ANSI SCSI standard	DX*M	38
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Ribbon contact connectors	RC	39
2.54mm pitch crimp/IDC connectors	DN	40

## D-sub Connectors

Type	Series Name	Page
D-sub right angle receptacle	RD*D	40
D-sub space saving type receptacle	RD*G	41
D-sub receptacle with a built-in ferrite core	RD*F	41
D-sub right angle receptacle	RD*B	42
D-sub straight through hole type connectors	SD	42
D-sub solder type connectors	HD	43
D-sub connectors, IDC termination	FD*D	43
D-sub connectors, IDC termination	FD	44
D-sub crimp type connectors	CD	44
D-sub connectors with coaxial contact	JDM	45
D-sub cover for electromagnetic interference (EMI) protection	CTH	45
D-sub plastic cover	CTF	46

## High-current Connectors

Type	Current rating	Series Name	Page
High-current connectors	2.5A, 50A, 200A	PS	46

## Multi-positions Standard type Connectors

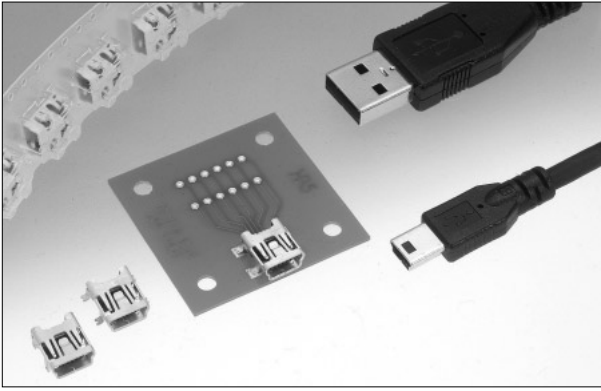
Type	Current rating	Series Name	Page
Hirose Unique Samicon connectors	3A	1600	47
Hirose Unique Minicon connectors	5A	1300	47

## Power Connectors for Industrial equipments, Business machines

Type	Current rating	Series Name	Page
Power supply connectors for industrial equipment	10A	PX	48
Rack/panel crimp connectors (13A max.)	13A	QR/P	48
Rack/panel crimp connectors (13A max.)		QR/P1	49
Rack/panel crimp connectors (3A max.)	3A	QR/P4	49
Rack/panel crimp connectors (10A max.)	1A	QR/P6	50
Rack/panel crimp connectors (3A max.)	3A	QR/P8	50

## Connectors compliant to USB 2.0 standard

### UX Series



#### Features

- Certified to perform as required in USB 2.0 Standard.
- Performs at transmission speeds up to 480Mbps and ideal for connecting PC peripheral devices.
- The distance between twisted pairs conductors is of equal electrical length, resulting in zero theoretical skew.
- Without using heat shrinkable tubing suppresses impedance disturbance at the terminal section.
- The plug incorporates a build-in snap-lock feature, providing tactile verification of the full and secure mating of plug and receptacle.

#### Applications

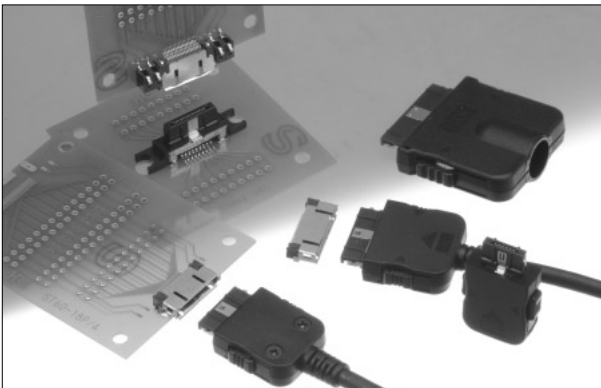
PC peripheral devices, Information terminals, PDA's, Digital cameras, MP3 players

#### Specifications

Item	Requirements
No. of Positions	5
Current rating (A)	1
PCB Mount Type	SMT, through hole
Generic Name	USB2.0
Terminal Pitch (mm)	0.8
Operating Temperature Range (°C)	-30 to 75
Insulator	Synthetic resin (UL94V-0, Color: Black)
Applicable Cable (mm)	Cable dia.:3.5 to 4.0,4.1 to 4.6
Industry Standard	USB2.0 UL 94V-0

## Interface connectors for miniature, portable terminal devices

### ST Series



#### Features

- Strong mating strength with solid locking system allows 49N max. pull of X, Y and Z direction.
- 4 keying structure prevents upside down insertion.
- Most suitable for interface of portable equipment.
- A lot of varieties to support various kinds of connections with peripheral equipment.
- Soldering wiring plug is possible to use any type of cables.

#### Applications

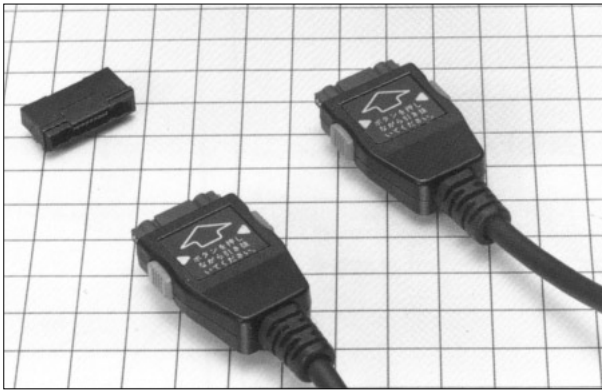
Mobile phone, Digital camera, Notebook PC

#### Specifications

Item	Requirements
No. of Positions	4-10-18-22-24-36
Current rating (A)	0.5-1-2
PCB Mount Type	SMT
Terminal Pitch (mm)	0.5-1
Operating Temperature Range (°C)	-30 to 80
Insulator	Synthetic resin (UL94V-1, Color: Black)

## Interface connectors for mobile phone

### MQ138 Series



#### Features

- Interface connector for cellular phones.
- Master plug mating with the PDC type cellular phones.
- Used to connect cellular phones and peripheral devices.
- Uses general purpose solder wiring.
- Use of coaxial connectors is possible.

#### Applications

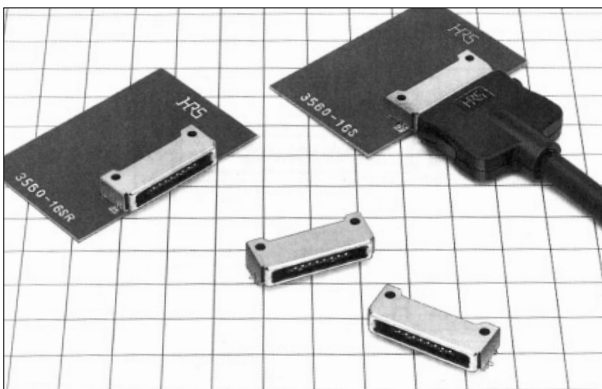
Mobile phone

#### Specifications

Item	Requirements
NO. OF POSITIONS	13
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	1
Operating Temperature Range (°C)	-30 to 70
Insulator	Synthetic resin (UL94V-0, Color: Brown)
Applicable Cable (mm)	Cable dia.:4.8,5,2
Accessories	Bushing, clamp metal, label
Remarks	Coaxial connector

## 20,000 times of mating cycle, interface connectors for portable equipment

### 3500 Series



#### Features

- Compact interface connector with shield ensuring insertion and extraction life of 20,000 cycles.
- Contacts' structure of highly reliable, two-contact bellows type.
- Use of a new box-bending structure for the metal shell supporting EMI protection and making a tough connector.
- ESD protection is provided by the over-mold plug cover incorporating an integrated push button structure.

#### Applications

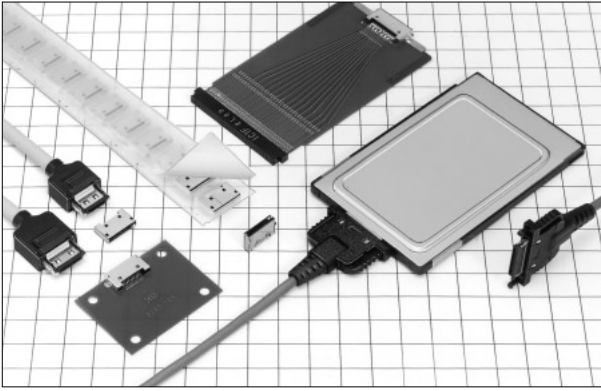
Hand-held terminals, PDA equipment, Notebook PC, Mobile communications equipment, Office equipment, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	10-16
Current rating (A)	1
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.8
Operating Temperature Range (°C)	-40 to 85
Insulator	Synthetic resin (UL94V-1, Color: Black)
Applicable Cable (mm)	Conductor:AWG#28(7/0.127) Cable dia.:.5mm(10 pos.),Cable dia.:.5.9mm(16 pos.)
Remarks	IDC connection tool, cable clamp tool

## 0.8mm pitch, SMT ultra small interface connectors

### 3200 Series



#### Features

- Low-profile interface connector that the receptacle is 2.9 mm high from the PCB.
- The molded plug connector is designed to cover the metal shell for electrostatic discharge (ESD) protection.
- 0.8 mm pitch single row SMT ensures ease of PCB mounting.
- Mating with the space-saving latch locks on both sides to support compact design.
- Reinforcing fixtures are available in 0.5, 1, and 1.5 mm lengths depending on PCB thickness.

#### Applications

PDA, Office equipment, Mobile communications equipment

#### Specifications

Item	Requirements
No. of Positions	8-10
Current rating (A)	0.5
PCB Mount Type	SMT
Terminal Pitch (mm)	0.8
Operating Temperature Range (°C)	-30 to 70
Insulator	Synthetic resin (UL94V-0, Color: Black)
Applicable Cable (mm)	Cable dia.:5.2mm max.,Conductor:AWG#28 max.(8 pos.) Cable dia.:5.4mm max.,Conductor:AWG#28 max.(10 pos.)
Remarks	Cable clamp tool

## 1.27mm pitch interface connectors for electrostatic discharge (ESD) protection

### 3100 Series



#### Features

- Low-profile interface connector that the receptacle is 7 mm high from the PCB.
- The molded plug connector is designed to cover the metal shell for electrostatic discharge (ESD) protection.
- The cantilever profile of the female contact ensures low insertion and extraction force with a long life.
- Sequence mechanism to enable the shield to contact first with the mating part.
- The effective mating length is long enough (2 mm).

#### Applications

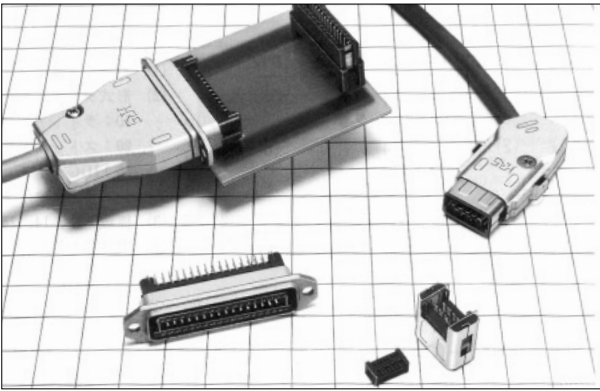
Office equipment, Communications equipment, Electrical household appliances

#### Specifications

Item	Requirements
No. of Positions	6-8-12-14-16
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	1.27
Operating Temperature Range (°C)	-25 to 60
Insulator	PBT (UL94V-0, Color: Black), polycarbonate (UL94V-0, Color: Black or White)
Applicable Cable (mm)	Cable clamp dia.:5.8, 6.2, 6.7, 7.0, Conductor:AWG#26 to 30
Remarks	IDC connection tool

## 1.78mm pitch connectors for hand-held terminals

### QM Series



#### Features

- The opening and wiring sections of terminals are both in a 1.78-mm grid contact position supports compact and high density.
- Bellows contacts provides excellent mechanical strength against twisting and scooping with 1,000 insertion and extraction times guaranteed.
- IDC cable termination to save wiring effort.
- The dip connectors can be grounded to the PCB to protect from EMI/FRI and snapped onto the PCB.
- Die-cast zinc alloy shell reduces the penetration of internal and external EM noises.

#### Applications

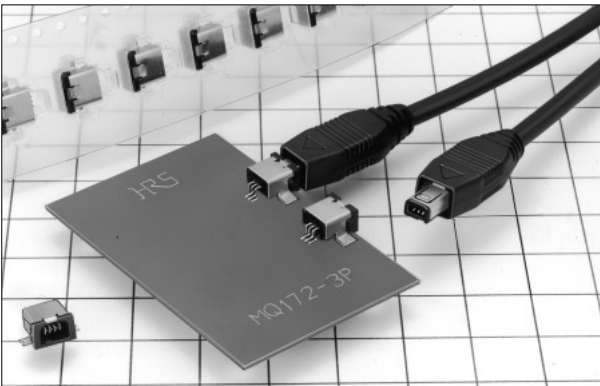
Hand-held terminals, Peripheral and terminal equipment

#### Specifications

Item	Requirements
No. of Positions	8-14-26-32
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	1.78
Operating Temperature Range (°C)	-55 to 85
Insulator	PET (Color: Black)
Applicable Cable (mm)	0.89mm pitch ribbon cable (IDC), conductor: AWG#30(7/0.1)
Accessories	Cover with lock, cover, stopper plate
Remarks	IDC connection tool

## Micro-miniature interface connectors for AC power supply/signaling

### MQ172 Series



#### Features

- Micro-miniature interface connectors for power supply/signaling.
- Compact, low-height construction (3-contact type) with dimensions of 3.9mm(H) x 6.4mm (W) x 6mm (D).
- The 2-point contact design that provides a contact which is resistant to vibration and shocks.
- Compact yet unique contact design ensures high current capacity (3A for 3-contact type).
- Use of a snap-lock system provides the sensation of locking at the time of insertion.

#### Applications

Personal Digital Assistant (PDA), Mobile Phones, Personal Handyphone System (PHS), Notebook PCs, and Electronic measurement equipment

#### Specifications

Item	Requirements
No. of Positions	3-4
Current rating (A)	2-3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.8
Operating Temperature Range (°C)	-30 to 75
Insulator	Synthetic resin (UL94V-0, Color: Black)
Applicable Cable (mm)	Dia.:3.5, Conductor:AWG#24 to 32
Remarks	Cable clamp tool



## 0.6mm Pitch, docking station connectors

### EX80 Series



#### Features

- The effective mating length of 1.5mm is long enough for mating/unmating operation.
- Ground terminals placed on both sides of guide boss ensure ground function.
- Plug contacts has 3-step sequence structure including ground contact.
- Supporting 2.5Gbps signal transmission (PCI express).
- Self alignment is +/-1.2mm in the direction of XY (+/-0.7mm for shutter type).

#### Applications

PC, Work Station

#### Specifications

Item	Requirements
No. of Positions	54-100-240
Current rating (A)	0.5
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.6
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP
Remarks	Receptacle (With shutter) available

## High-speed differential signal connectors

### EXT Series



#### Features

- The construction supports high-speed differential signals such as LVDS, IEEE 1394, and USB 2.0.
- Batch wiring of cables to the plug using solder paste.
- The wiring portion of the plug is secured by the molding which prevents short circuits without the use of shrink tubing.
- The 65-conductor connector incorporates 6 power supply terminals designed to connect 2A power lines.
- The receptacle is made to drop into the board, which results in a height dimension, including the PCB, of 5.6mm.

#### Applications

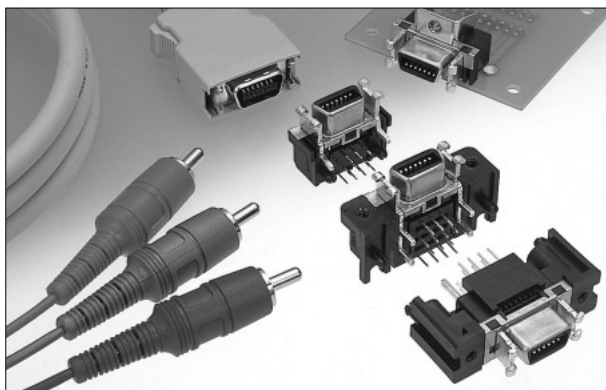
PCs, Workstations

#### Specifications

Item	Requirements
No. of Positions	65-71
Current rating (A)	0.5
PCB Mount Type	SMT
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0)
Applicable Cable (mm)	Insulation dia.0.7 max.
Accessories	Cover

## D-configuration connectors for digital broadcasting equipment

### DX\*LM Series



#### Features

- D-configuration connector used in connections for digital image broadcast conforming to EIAJ RC-5237 standards.
- Extension of the mating and locking area by 1.5 mm has allowed the DXLM Series to be mounted on panels up to 3 mm thick.
- HIROSE's unique design makes reliable ground connection in sequence, with metal shell first, then the board circuit.
- Deflecting force of the side protrusion on the bottom of the connector provides superior retention to the PCB, thus preventing leaning forward during handling.
- Solid metal grounding posts soldered to the PCB creates extremely strong retention to the PCB.

#### Applications

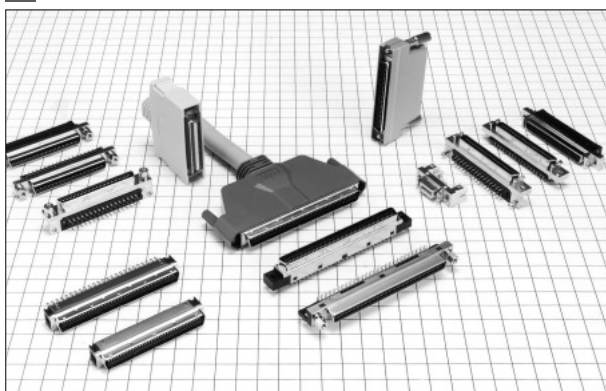
Digital broadcast TVs, Set top boxes (STB), DVDs, LCD TVs

#### Specifications

Item	Requirements
No. of Positions	14
Current rating (A)	1
PCB Mount Type	Through hole
Generic Name	D-configuration Connectors
Terminal Pitch (mm)	1.27
Operating Temperature Range (°C)	-25 to 70
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Conductor:AWG#30(7/0.1),AWG#28(7/0.127),Conductor:AWG#28(7/0.127)

## Connectors compliant to ANSI SCSI standard

### DX\*M Series



#### Features

- Ribbon (bellows) contacts provides excellent mechanical strength with smooth insertion and extraction.
- At the time of mating, the shell contacts earlier than the terminals, thus preventing the set from breaking due to static electricity.
- Die-cast zinc or stainless steel cover case prevents noise.
- Right angle dip type with ferrite incorporated for noise prevention.
- The ESD protection over mold cover case is provided with a one-touch lock and screw lock.

#### Applications

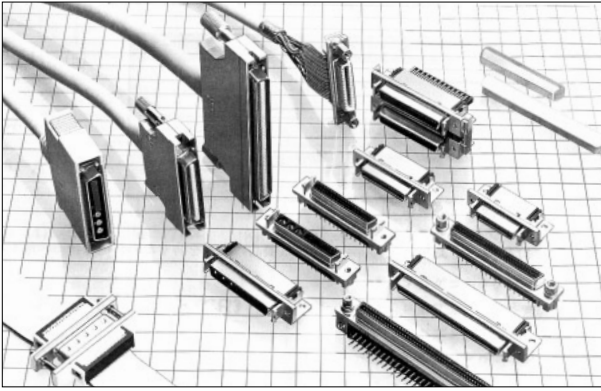
Computers, Office equipment, Measurement equipment, Communications equipment, Control equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	14-20-26-36-50-68-80-100-110
Current rating (A)	0.5
PCB Mount Type	Through hole
Generic Name	Half pitch connector
Contact Plating	Gold
Terminal Pitch (mm)	1.27
Operating Temperature Range (°C)	-55-0 to 50-85
Insulator	Synthetic resin
Applicable Cable (mm)	(I/O cable)Conductor:AWG#30(7/0.1),AWG#28(7/0.127),(Ribbon cable)Conductor:AWG#28(7/0.127)
Accessories	Cover, termination
Remarks	IDC connection tool, automatic discrete cable combing machine

## 1.27mm pitch IDC connectors

### DX Series



#### Features

- Ribbon (bellows) contacts provides excellent mechanical strength with smooth insertion and extraction.
- At the time of mating, the shell contacts earlier than the terminals, thus preventing the set from breaking due to static electricity.
- Die-cast zinc alloy cover case and receptacle shell are sturdy and reduce the penetration of external EM noise.
- The effective contact length is 2.3 mm with excellent contact stability.
- Plug and receptacle shells for coaxial contacts for radio frequency use and a shielded plug-in models for unit-to-unit connections are available.

#### Applications

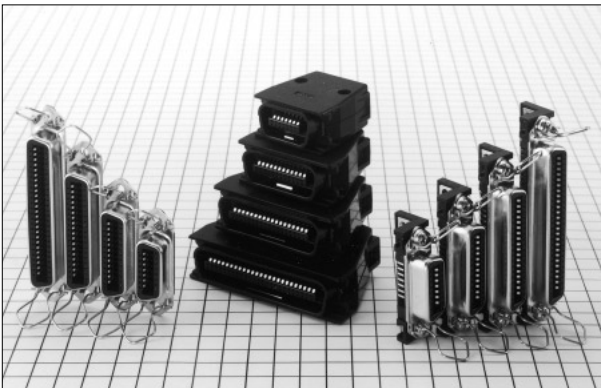
Computers, Office equipment, Measurement equipment, Communications equipment, Control equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	20-26-28-36-50-60-68-80-100-132 3(Coaxial connector type only)
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	1.27
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT or substitute (UL94V-0, Color: Black)
Applicable Cable (mm)	(I/O cable)Conductor:AWG#30(7/0.1),AWG#28(7/0.127),(Ribbon cable)Conductor:AWG#28(19/0.08,7/0.127)
Accessories	Cover, cap
Remarks	IDC connection tool, automatic discrete cable combing machine

## Ribbon contact connectors

### RC Series



#### Features

- Ribbon contact connector.
- Ideally suited for printer interface (conforming to CENTRONICS standards).
- Products with EMI (electromagnetic interference) protection are available.
- UL-approved products are available.
- Products with electrostatic discharge (ESD) protection are available.

#### Applications

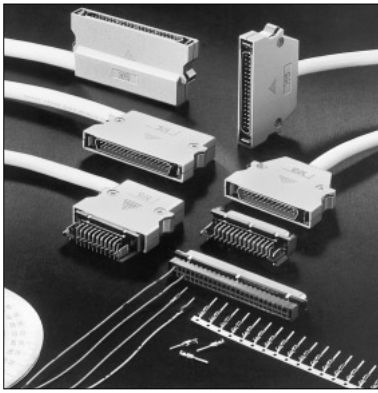
Computers, Peripherals and terminals, Communications equipment, Printer interface

#### Specifications

Item	Requirements
No. of Positions	14-24-36-50
Current rating (A)	1-3
PCB Mount Type	Through hole
Generic Name	Centronics (36 pos.)
Contact Plating	Gold
Terminal Pitch (mm)	2.16
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	1.27mm pitch ribbon cable,Conductor:AWG#28(7/0.127)
Industry Standard	IEEE UL
Accessories	Cap (36 pos.), cover
Remarks	With ferrite type (RC10(F) series), electrostatic protection type (RC10H series), IDC connection tool

## 2.54mm pitch crimp/IDC connectors

### DN Series



#### Features

- 2.54-mm grid contact position can be directly dip-soldered to PCBs.
- One-touch lock mechanism ensures perfect operation.
- The cover case is made of die-cast aluminum to shield against electromagnetic waves, which ensures noise prevention.
- Provided with a dip soldering connector incorporating a snap clamp for temporarily fixing the connector on the PCB.
- Stable quality due to the contact design based on HIROSE's field-proven SM series (D sub connectors).

#### Applications

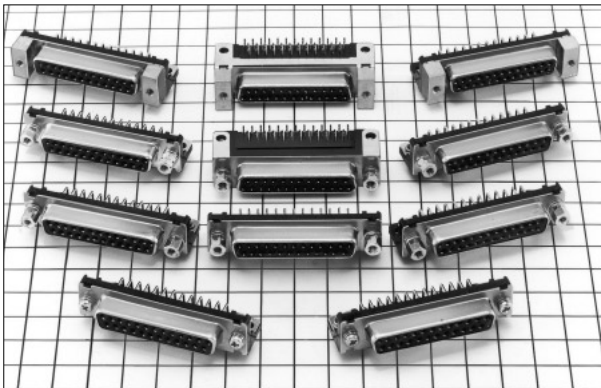
Office equipment, Communications equipment, Measurement equipment, Control equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	20-26-36-50
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	(IDC)1.27mm pitch ribbon cable, Conductor:AWG#28(7/0.127),AWG#26(7/0.16) (Crimp)AWG#26 to 28
Accessories	Cover
Remarks	Automatic crimp machine, crimp tool, IDC connection tool

## D-sub right angle receptacle

### RD\*D Series



#### Features

- Simple construction of single mold.
- Designed to be directly connected to the circuits on PCBs in parallel, which ensures high-density mounting and allows convenience of cable plug connection.
- Provided with rectangular and hexagonal mating locking bases and a simple lock pin to tack on PCB.
- Saves gold by plating contacts with gold and PCB-contacting parts with solder.
- Various accessories, such as a dedicated mating locking screw and a mis-insertion prevention pin, are available.

#### Applications

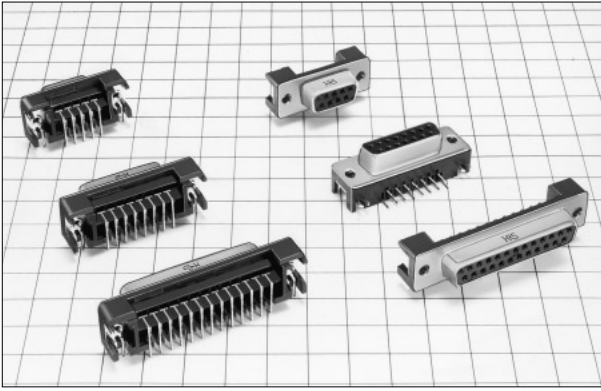
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37
Current rating (A)	3
PCB Mount Type	Through hole
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Mis-insertion prevention pin, locking screw, cap

## D-sub space saving type receptacle

### RD\*G Series



#### Features

- 35% space-saving achieved in the depth and mounting area with a weight reduction of approximately 10% in comparison with the conventional RD\*D model.
- For smoother insertion and withdrawal, reliable partly gold-plated tulip-shaped contacts are used.
- The lock pin grounding system that solders directly to the PCB eliminates screws to secure the PCB.
- A lock pin length for 1.2- and 1.6-mm-thick PCBs with a dip post length of 3.5 or 2.8 mm.
- Connector design allows ease of robotic insertion.

#### Applications

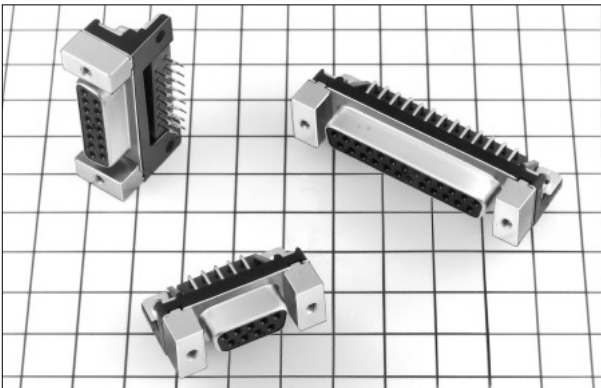
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25
Current rating (A)	3
PCB Mount Type	Through hole
Generic Name	D-sub connector
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Mis-insertion prevention pin, locking screw, cap
Remarks	Space saving type

## D-sub receptacle with a built-in ferrite core

### RD\*F Series



#### Features

- Conventional RD\*D model with a built-in ferrite core for EMI protection.
- The ferrite effectively attenuates conduction noise.
- The same as the conventional RD\*D model in mounting dimension and PCB hole pattern.
- Provided with a hexagonal mating locking base.
- Products with simple lock pins to tack on PCB. are available.

#### Applications

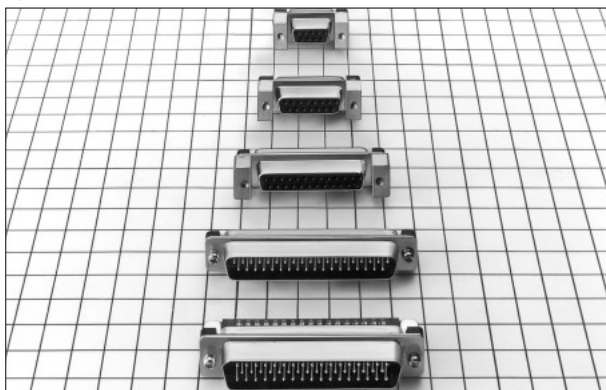
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25
Current rating (A)	3
PCB Mount Type	Through hole
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Mis-insertion prevention pin, locking screw, cap
Remarks	With ferrite type

## D-sub right angle receptacle

### RD\*B Series



#### Features

- Mounted in parallel on the PCB for ease of connection to the cable plug.
- High-density mounting enabled by direct connection to the circuit on the PCB.
- UL-approved synthetic resin provides superior heat and chemical resistance.
- For smoother insertion and withdrawal, reliable partly gold-plated tulip-shaped contacts are used.
- A wide variety of combinations with cable connectors available, such as soldering, crimping, and ribbon IDC termination.

#### Applications

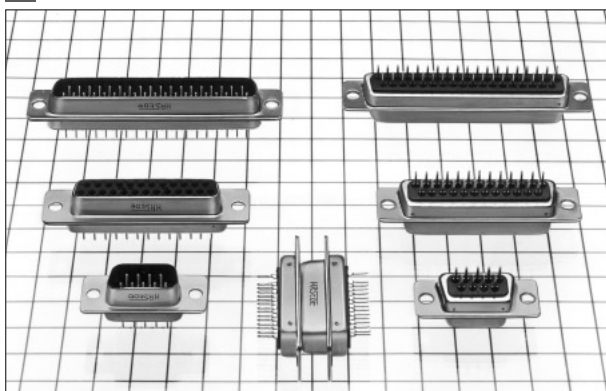
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37-50
Current rating (A)	3
PCB Mount Type	Through hole
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Mis-insertion prevention pin, locking screw, cap

## D-sub straight through hole type connectors

### SD Series



#### Features

- D-sub connectors designed to be mounted vertically to PCBs.
- Saves gold by plating contacts with gold and PCB-contacting parts with solder.
- Directly mountable on PCBs for mounting labor saving in high density and easily connectable to cable plugs.
- A wide variety of combinations with cable connectors available, such as soldering, crimping, and ribbon IDC termination.
- Uses insulation made from highly heat- and chemical-resistant glass-containing PBT resin (UL94V-0).

#### Applications

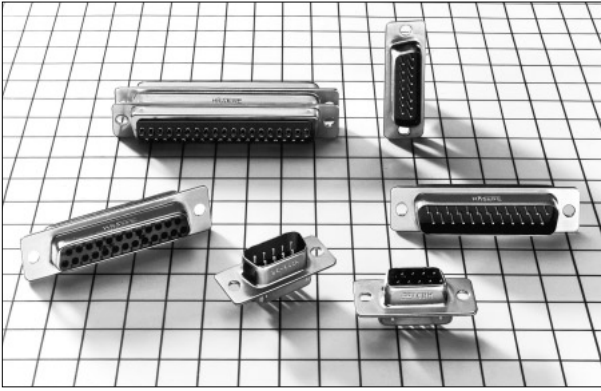
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37-50
Current rating (A)	3
PCB Mount Type	Through hole
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Spring lock, sliding lock, locking screw, cap

## D-sub solder type connectors

### HD Series



#### Features

- Press pin type ensures ease of soldering of a variety of stranded and solid wires.
- Wiring side of solder cup construction ensures ease of wiring work up to a wire size of AWG#20.
- A dimple-processed shell is available for improvement in mating and conductivity.
- Uses insulation made from highly heat- and chemical-resistant glass-containing PBT resin (UL94V-0).
- Various plug cases, such as CTF and CTH, are available.

#### Applications

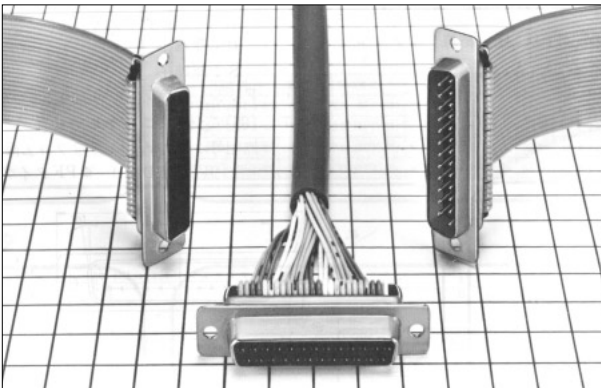
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37-50
Current rating (A)	3
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Spring lock, sliding lock, screw lock, locking screw, clamp, cap, cover

## D-sub connectors, IDC termination

### FD\*D Series



#### Features

- D-sub connector for 1.27mm pitch and 1.38mm pitch ribbon cable IDC termination.
- Cable termination side is 30% lower-profile in comparison with FD series, ideal for the downsizing of the equipment.
- The cable IDC pitch is 1.38 mm, but IDC pitch of 1.27 mm is possible with a cable slit jig used.
- The presser plate of the ribbon cable is fixed with a metal bar strongly and securely.
- Discrete cable can be pressed to the low-profile model with a multi-core cable crimping device.

#### Applications

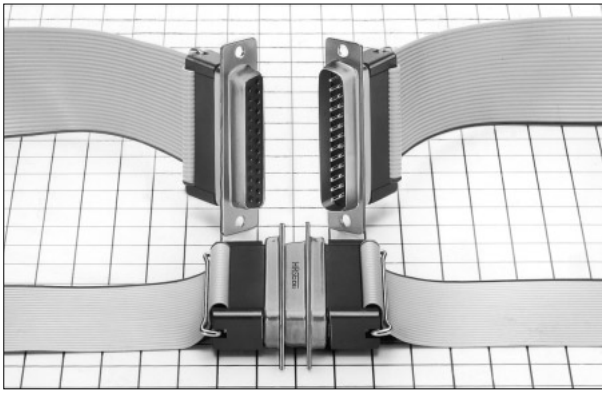
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37
Current rating (A)	1
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	1.27mm or 1.38mm pitch ribbon cable, Conductor: AWG#28(7/0.127)
Industry Standard	MIL
Accessories	Spring lock, sliding lock, screw lock, locking screw, clamp, cap, cover
Remarks	IDC connection tool

## D-sub connectors, IDC termination

### FD Series



#### Features

- D-sub connector for 1.27mm pitch standard ribbon cable IDC termination.
- Fixes the cable securely by fixing the ribbon cable clamp with a metal plate in the connector.
- The connector can be chassis- or panel-mounted on the front or back.
- The cable IDC pitch is 1.27 mm (standard) for ease of connecting standard ribbon cables.
- Ease to connect cables by following the same IDC termination and connection procedures as those for HIROSE's other ribbon cable connectors. Special pressing of connection wire only for this series is not required.

#### Applications

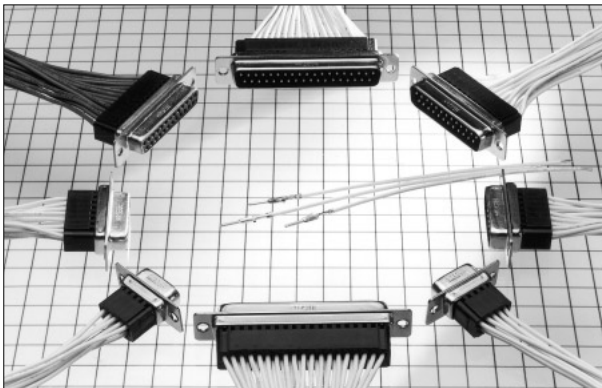
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37
Current rating (A)	1
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	1.27mm or 1.38mm pitch ribbon cable, Conductor: AWG#28(7/0.127)
Industry Standard	MIL
Accessories	Spring lock, sliding lock, screw lock, locking screw, clamp, cap, cover
Remarks	IDC connection tool

## D-sub crimp type connectors

### CD Series



#### Features

- SM-series (D-sub) crimp-type connectors.
- A dimple-processed shell is available for improvement in mating and conductivity.
- The connector can be chassis- or panel-mounted on the front or back.
- Requires no special withdrawal jig (push the retainers from the connector side to insert or withdraw the connector).
- Uses an insulator made from highly heat- and chemical-resistant UL-approved PBT synthetic resin.

#### Applications

Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

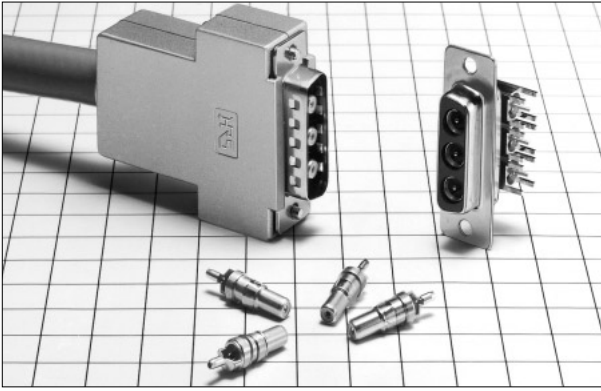
#### Specifications

Item	Requirements
No. of Positions	9-15-25-37
Current rating (A)	3
Generic Name	D-sub connector
Contact Plating	Gold
Terminal Pitch (mm)	2.74-2.77
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Conductor: AWG#20 to 24, AWG#24 to 28
Industry Standard	MIL
Accessories	Spring lock, sliding lock, screw lock, locking screw, clamp, cap, cover
Remarks	Automatic crimp machine, crimp tool



## D-sub connectors with coaxial contact

### JDM Series



#### Features

- Connector unit with a coaxial cable insertion hole on the shell that is as large as the D-sub connector.
- Available in various types of soldering coaxial contact including straight dip soldering and right angle dip soldering, and compatible with all types of housing.
- EMI protection with the use of a dedicated plug case made of a die-cast zinc alloy.
- Compact and sturdy metal shell.
- Uses insulation made from highly heat- and chemical-resistant epoxy and PPS resins.

#### Applications

Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

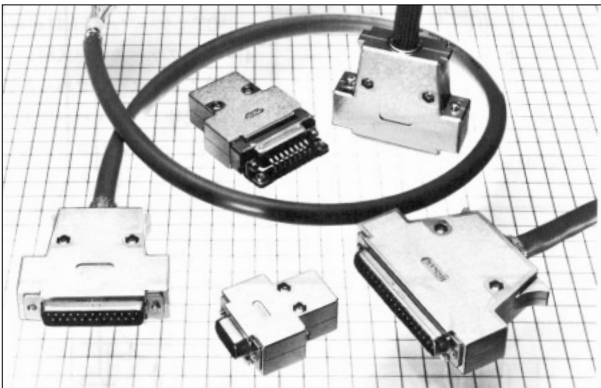
#### Specifications

Item	Requirements
No. of Positions	5W1,7W2,3W3,25W3,27W2
Current rating (A)	5
PCB Mount Type	Through hole
Generic Name	D-sub connector
Contact Plating	Gold
Operating Temperature Range (°C)	-55 to 85
Insulator	Epoxy, PPS
Applicable Cable (mm)	RG-196/U,2.5C-2V, RG-187/U, RG-188/U, 1.5C-2V, 1.5D-QEW, RG-58/U
Industry Standard	MIL-MIL, NDS
Accessories	Coaxial connector, cover
Remarks	Coaxial connector extraction tool

Note: 5W1 indicates 4: signal, 1: coaxial contact.

## D-sub cover for electromagnetic interference (EMI) protection

### CTH Series



#### Features

- Plug case with electromagnetic interference (EMI) protection.
- Standard screw-type locking mechanism providing a strong and secure lock.
- Plated (UL746C) ABS resin (UL94V-2) enables strong and excellent shielding characteristics.
- Enhanced shielding effectiveness by clamping the cable shielding part with two types of clamps sandwiched between the plug cases.
- The clamp has a screw to ground the drain wire.

#### Applications

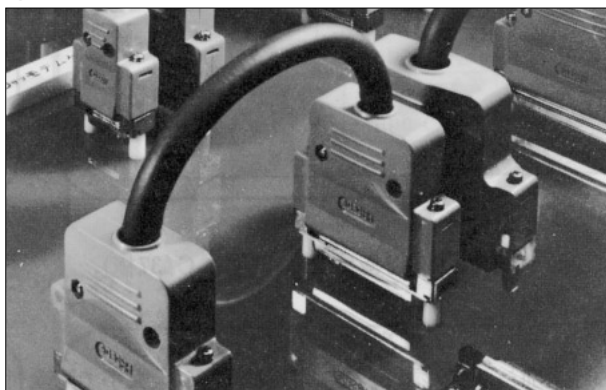
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37
Generic Name	D-sub cover
Operating Temperature Range (°C)	-55 to 85
Applicable Cable (mm)	Dia.: 7 to 12
Insulator	ABS
Industry Standard	MIL
Accessories	Screw lock
Remarks	Finish: Nickel plated

## D-sub plastic cover

### CTF Series



#### Features

- Screw type locking mechanism for plug case provides a strong and secure lock.
- The plug case material is made of ABS resin that is lightweight and sturdy.
- Spring locking, sliding locking, and screw locking mechanism as D-sub accessories are available.
- A clamp metal and dust cap as D-sub accessories are available.
- Rectangular and hexagonal locking devices are selectable according to the panel mounting style.

#### Applications

Computers, Peripherals and terminals, Control equipment, Measurement equipment, Communications equipment, FA equipment

#### Specifications

Item	Requirements
No. of Positions	9-15-25-37-50
Generic Name	D-sub cover
Operating Temperature Range (°C)	-55 to 85
Insulator	ABS (2.5PB 6/2 color)
Applicable Cable (mm)	Dia.:7 to 12
Accessories	Screw lock
Remarks	Material: ABS

## Large current connector

### PS Series



#### Features

- Compound of 2 types of power supply contacts corresponding to IN and OUT current capacity in rectification unit of power supply equipment and signal contacts to control units.
- 3-step sequence can be chosen with sequence structure power contacts.
- Hot plug of low power supply contacts is the measure for charge.
- Bellows structure of signal contacts prevent buckling.
- Reliable crimping connection with cables.

#### Applications

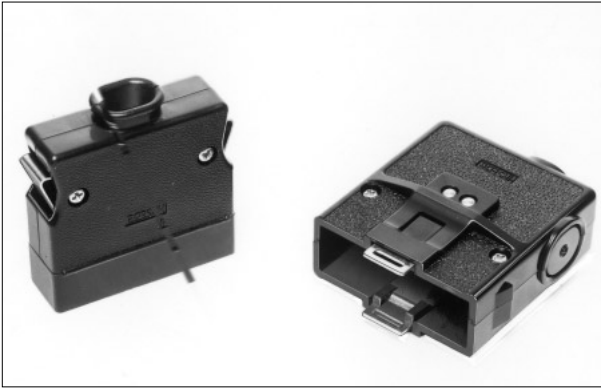
Power supply connector for industrial equipment

#### Specifications

Item	Requirements
No. of Positions	2-42(Power 4, single 32, power 4)
Current rating (A)	2.5-50-200
Operating Temperature Range (°C)	-55 to 125
Insulator	RBT (UL94V-0)
Accessories	Floating screw, dust cap, partition

## Hirose Unique Samicon connectors

### 1600 Series



#### Features

- HIROSE's originally designed connector.
- Products conforming to NTT specifications (Spec number 1931) are available.
- No plug cases or stopper brackets are required with the plastic lock used.
- Combinations in a wide variety are possible as required, such as soldering, wrapping, and crimping cable connector mated with dip connector.
- Uses insulation made from highly heat- and chemical-resistant materials.

#### Applications

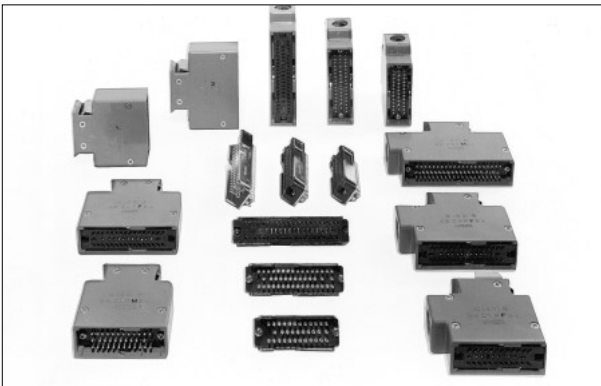
Computers, Peripherals and terminals, Control equipment, Measurement equipment, Signal devices, Communications equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	8-12-16-20-24-28-34-45-60
Current rating (A)	3
PCB Mount Type	Through hole
Generic Name	Samicon
Contact Plating	Gold, silver
Terminal Pitch (mm)	2.5
Insulator	Diallyl phthalate (glass reinforced, color: blue)
Applicable Cable (mm)	Conductor:(Wrapping)AWG#26 to 30 Solid wire,(Crimp)AWG#24 to 28
Industry Standard	NTT
Accessories	Cover, stopper bracket, cap, stopper, handle, deep bracket, plastic lock, polarizing key
Remarks	Crimp tool, contact extraction tool

## Hirose Unique Minicon connectors

### 1300 Series



#### Features

- Products conforming to NTT specifications (Spec number 1931) are available.
- The plug case is rugged and has a push-button lock mechanism to ensure reliable connection.
- The plug case is of side-locking and top-touch locking type (NTT spec and HIROSE's original).
- The top-touch locking plug case made of ABS resin is lightweight and sturdy with a holding strength of 30 kg.
- HIROSE's original side locking plug case has a cable inlet opening for both vertical and horizontal.

#### Applications

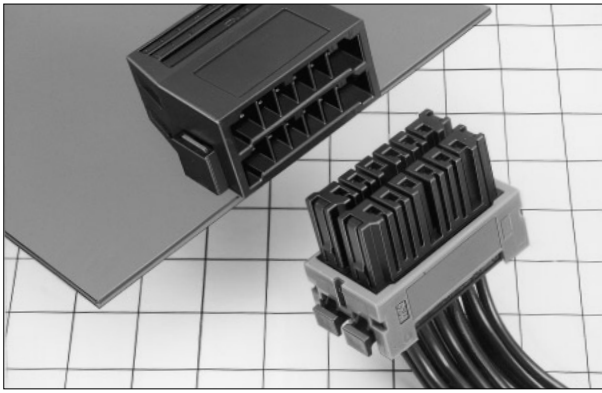
NTT touch-tone telephones, NTT station equipment, Data communications indoor equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8-12-16-20-24-28-34-45-60
Current rating (A)	5
PCB Mount Type	Through hole
Generic Name	Minicon
Contact Plating	Gold, silver
Terminal Pitch (mm)	3.5
Insulator	Epoxy (Color: greenish brown)
Applicable Cable (mm)	Conductor:(Wrapping)0.32 to 0.5 Solid wire
Industry Standard	NTT
Accessories	Cover, stopper bracket, handle

## Power supply connectors for industrial equipment

### PX Series



#### Features

- Large-current power supply connector withstanding a voltage of 2200V AC max. and a rated current of 10A/contact (60A/6 contacts).
- The opening section is keyed to prevent misalignment of plugs in parallel applications.
- Three point contact terminals with gold plating is environment resistant and ensures high reliability.
- Use of dedicated crimping tools will make harness work easier. One tool crimps both AWG#16 and AWG#18 wire.
- Release of contact lock can easily be performed with dedicated jig, which facilitates the wiring modification after assembly.

#### Applications

Power supply connector for industrial equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8-12
Current rating (A)	10
PCB Mount Type	Through hole
Contact Plating	Gold
Operating Temperature Range (°C)	-55 to 105
Insulator	PBT (UL94V-0)
Applicable Cable (mm)	Conductor:AWG#16,18
Industry Standard	UL,CSA,TUV
Accessories	Simple type plug holder cover
Remarks	Automatic crimp machine, crimp tool, contact extraction tool

## Rack/panel crimp connectors (13A max.)

### QR/P Series



#### Features

- Plug-in connection rectangular multi-contact rack/panel connector. Connects or disconnects the power supply or signal circuits between the unit and rack.
- The crimp-type pins are bellows sexless contact with smooth insertion and extraction ensured, while a stable contact pressure is ensured with a wide contact area.
- The two pairs of opposed contacts at both ends (4 electrodes) in the housing are spaced apart from signal contacts for power circuits.
- The metal guide pin withstands coupling shock.
- The receptacle housing is fixed securely to the panel or rack through floating bushings to ensure smooth insertion and extraction.

#### Applications

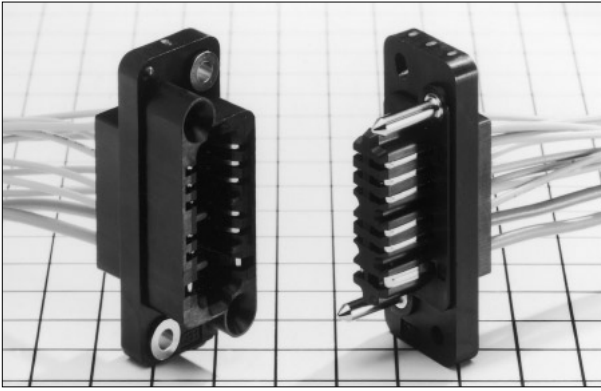
PPC, communications equipment, Automatic vending machines, Measurement equipment, Industrial equipment, Distribution boards

#### Specifications

Item	Requirements
No. of Positions	4-8-12-16-24
Current rating (A)	7-13
Contact Plating	Gold
Operating Temperature Range (°C)	-10 to 60
Insulator	PBT (UL94V-0, Color: Blue)
Applicable Cable (mm)	Conductor:AWG#14 to 16,AWG#18 to 24
Industry Standard	UL,CSA,TUV
Remarks	Automatic crimp machine, crimp tool, applicator, extraction tool

## Rack/panel crimp connectors (13A max.)

### QR/P1 Series



#### Features

- Compact type of plug-in connection rectangular multi-contact rack/panel connector QR/P1 for high-density mounting.
- Blade contacts ensure dealing with tolerance of the coupling length.
- Compact crimping contacts due to separate power contacts from signal contacts.
- One opposed pair (in 12 contacts), 2 pairs (in 8, 16, and 24 contacts), and 3 pairs (in 32 contacts) are spaced apart from signal contacts so that they can be used as power supply contacts.
- Guide pins are metal to be strong against accidental coupling shock, and receptacle securely mounted to the panel or rack through floating bushings to ensure smooth insertion and extraction.

#### Applications

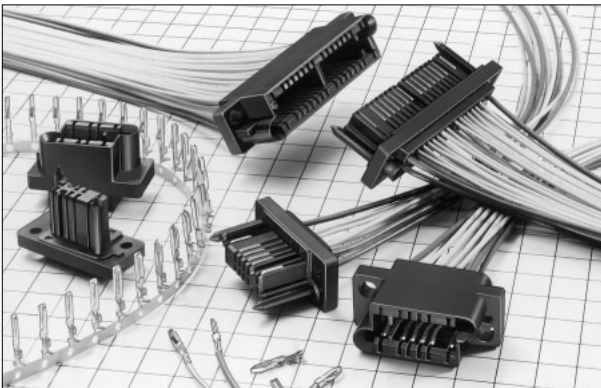
PPC, communications equipment, Automatic vending machines, Measurement equipment, Industrial equipment, Distribution boards

#### Specifications

Item	Requirements
No. of Positions	8-12-16-24-32
Current rating (A)	Signal 3A, Power 13A
Contact Plating	Gold
Operating Temperature Range (°C)	-10 to 60
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Conductor: (For power) AWG#14 to 16, AWG#18 to #24 (For signal) AWG#20 to 24, AWG#24 to #28
Industry Standard	UL, CSA, TUV
Remarks	Automatic crimp machine, crimp tool, applicator, extraction tool

## Rack/panel crimp connectors (3A max.)

### QR/P4 Series



#### Features

- Compact type of plug-in connection rectangular multi-contact rack/panel connector QR/P1 for high-density mounting.
- Compact design with guide pins integrated with insulator.
- The connectors mounted to racks or panels with stepped screws and surface terminal contact ensure ease of insertion and extraction.
- Approved by UL, CSA, and TÜV (partly). Uses flame-retardant insulator (UL94V-0).
- The female housing construction is available to finger test (conforming to UL standard 1950).

#### Applications

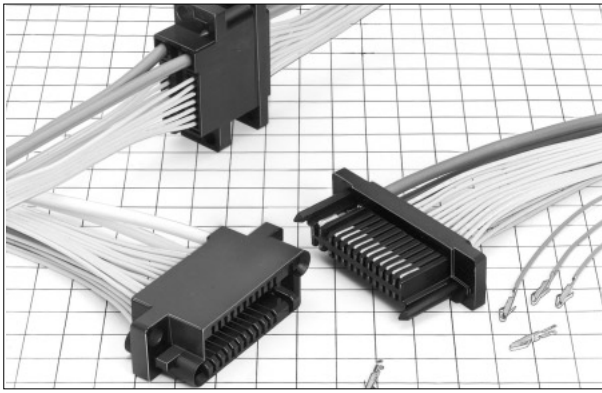
PPC, communications equipment, Automatic vending machines, Measurement equipment, Industrial equipment, Distribution boards

#### Specifications

Item	Requirements
No. of Positions	8-12-16-24-32-40
Current rating (A)	3
Operating Temperature Range (°C)	-10 to 60
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Conductor: AWG#20 to 24, AWG#24 to 28
Industry Standard	UL, CSA, TUV
Remarks	Automatic crimp machine, crimp tool, applicator, extraction tool

## Rack/panel crimp connectors (10A max.)

### QR/P6 Series



#### Features

- Compact type of plug-in connection rectangular multi-contact rack/panel connector QR/P1 for high-density mounting.
- Approved by UL, CSA, and TÜV.
- The opposed contacts at one end of the connector in the housing are used for power supply. Uses flame-retardant insulator (UL94V-0).
- Separate crimping terminals for power supply use and signal use. Compact design the guide pins integrated with insulator.
- Blade contacts ensure dealing with tolerance of the coupling length, and connectors are mounted to racks or panels with stepped screws for easy mating and unmating.

#### Applications

PPC, communications equipment, Automatic vending machines, Measurement equipment, Industrial equipment, Distribution boards

#### Specifications

Item	Requirements
No. of Positions	6-12-16-24
Current rating (A)	Signal 3A, Power 13A
Operating Temperature Range (°C)	-25 to 120
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Conductor: (For power) AWG#14 to 16, AWG#18 to #24 (For signal) AWG#24 to 28
Industry Standard	UL, CSA, TUV
Remarks	Automatic crimp machine, crimp tool, applicator, extraction tool

## Rack/panel crimp connectors (3A max.)

### QR/P8 Series



#### Features

- The plug-in connection rectangular multi-contact rack/panel connector of this series is about 20% smaller in length than that of the QR/P4 Series with the same number of contacts.
- Approved by UL, CSA, and TÜV.
- Two pairs of power supply contacts on both sides are located at the guide pin reinforcing section of the housing to realize compact design.
- Blade contacts ensure dealing with tolerance of the coupling length, and connectors are mounted to racks or panels with stepped screws for easy mating and unmating.
- Compact design with guide pins integrated with insulator.

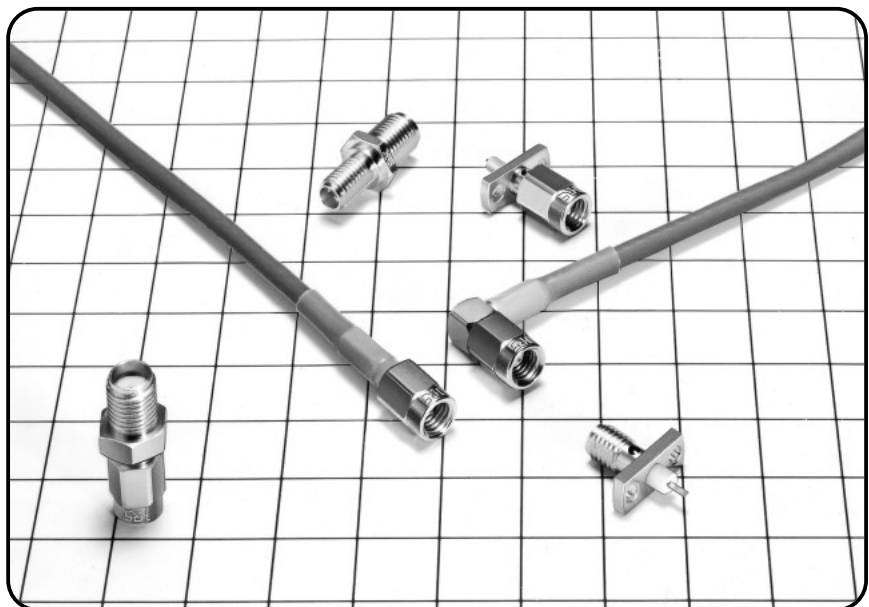
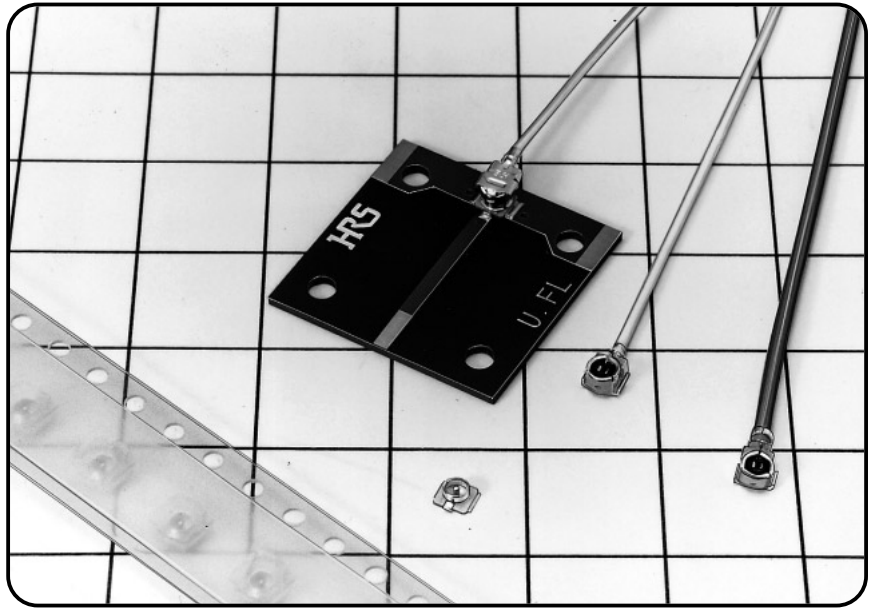
#### Applications

PPC, communications equipment, Automatic vending machines, Measurement equipment, Industrial equipment, Distribution boards

#### Specifications

Item	Requirements
No. of Positions	8-12-20
Current rating (A)	2-3
Contact Plating	Gold
Operating Temperature Range (°C)	-10 to 60
Insulator	Polycarbonate (UL94V-0, Color: Black)
Applicable Cable (mm)	Conductor: AWG#20 to 24, AWG#24 to 28
Industry Standard	UL, CSA, TUV
Remarks	Automatic crimp machine, crimp tool, applicator, extraction tool

# Coaxial Connectors



## Miniature Stamping Coaxial Connectors

Mounting surface	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
1.4mm mated height, ultra small SMT connectors	50	DC to 3GHz	W.FL	53
1.9mm or 2.4mm mated height, ultra small SMT connectors		DC to 6GHz	U.FL	53
3.2mm mated height, ultra small SMT connectors		DC to 2GHz	E.FL	54
3.0mm mated height, ultra small SMT connectors		DC to 3GHz	H.FL	54
6.0mm mated height, SMT connectors		DC to 2.5GHz	S.FL	55
10.5mm mated height, SMT connectors		DC to 1.5GHz	FL	55

## Standard Coaxial Connectors

Type	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
N	50	DC to 10GHz	N	56
M	-	DC to 200MHz	M	56
BNC	50	DC to 4GHz	BNC	57
TNC		DC to 3GHz	TNC	57
SMA		DC to 12.4GHz( to 18GHz)	HRM	58
Low-cost SMA		DC to 12.4GHz( to 18GHz)	HRM-VA	58
SSMA		DC to 12.4GHz	HRMM	59
C05		DC to 1GHz	UM	59

## Subminiature Push-on type Coaxial Connectors

Type	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
Miniature push-on lock connectors (DC to 2GHz)	50	DC to 2GHz	MSS	60
Miniature push-on lock connectors (DC to 2GHz)		DC to 2GHz	PO6	60
Miniature push-on lock connectors (DC to 3GHz)		DC to 3GHz	POD1	61
Miniature push-on lock connectors (DC to 8GHz)		DC to 8GHz	POD	61
Miniature push-on lock connectors (DC to 12.4GHz)		DC to 12.4GHz	POB	62
MIL standard SMP compatible push-on lock connectors (DC to 18GHz)		DC to 18GHz	PO40G	62
Miniature push-on lock connectors (DC to 0.14GHz)	75	DC to 140MHz	MP	63
MIL standard SMP compatible push-on lock connectors (DC to 2GHz)		DC to 2GHz	PL71	63

## Coaxial Connectors for Transmission equipments, communications equipments and satellite broadcasting equipments

Type	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
C15 type connectors for satellite TV reception system	75	DC to 1.5GHz	NF	64
Push-on connectors compliant to NTT specifications 4172 version 1		DC to 200MHz	3CV	64
Connectors compliant to IEC 169-13 1.6/5.6		DC to 500MHz	MRF1.6/5.6	65

## Duplex Coaxial Connectors

Type	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
Connectors for computers and terminals	95	DC to 200MHz	TWT2	65

## Conversion Connectors

Type	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
Conversion adapters	-	-	BWA	66

## Backplane Coaxial Connectors

Type	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
2mm hard metric coaxial connectors 50 ohms type	50	DC to 3GHz	PO51M	66
2mm hard metric coaxial connectors 75 ohms type	75	DC to 2GHz	PO82M	67
2mm hard metric coaxial connectors (Housing case)	50,75	DC to 3GHz:50 DC to GHz:75	PO21M	67
Connectors for microwave digital system communications networks	75	DC to 1.5GHz	PO73	68
50 ohms, 75 ohms connectors compliant to DIN47297 standards	50,75	DC to 1GHz	PO51	68

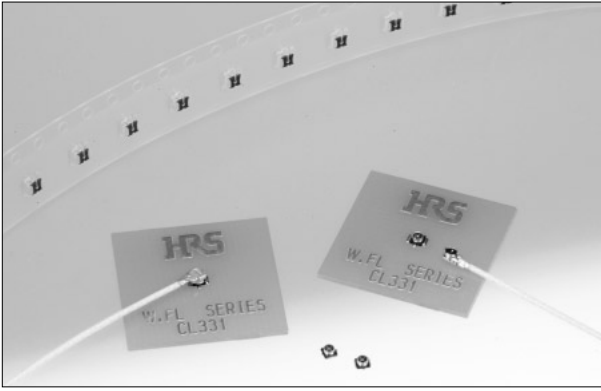
## Automotive Coaxial Connectors

Type	Characteristic Impedance (Ohms)	Frequency range	Series Name	Page
Automotive connectors compliant to USCAR standard	50,75	DC to 2GHz	GT5	69
Automotive connectors supporting 5.8GHz	50	DC to 6GHz	PO5G	69
Small automotive connectors	50	DC to 1GHz	GT13	70
Small automotive connectors supporting 6GHz	50	DC to 6GHz	GT16	70



## 1.4mm mated height, ultra small SMT connectors

### W.FL Series



#### Features

- Mated height: 1.4mm (1.55mm max).
- PCB occupied area: 3.4 sq.mm.
- World's lightest weight: Receptacle: 5.6mg, Right angle plug: 18.6mg.
- High frequency performance up to 6GHz. V.S.W.R.: 1.3 max, from DC to 3GHz.
- Easy plug extraction by extraction tool.

#### Applications

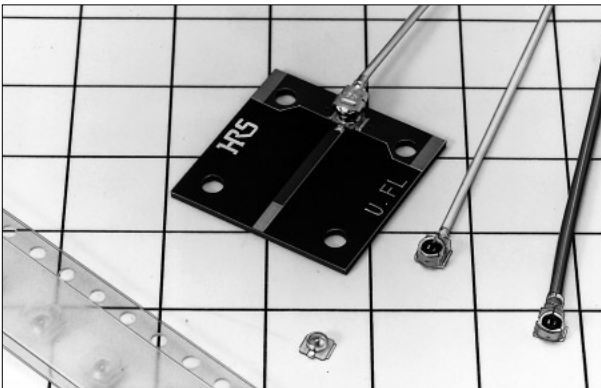
Mobile phone, Radio communication equipment, Measurement equipment, PDA, GPS, Wireless LAN, Bluetooth

#### Specifications

Item	Requirements
PCB Mount Type	SMT
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 3(GHZ)
Operating Temperature Range (°C)	-40 to 90
Insulator	PBT (UL94V-0, Color: Black), LCP (UL94V-0, Color: Black)
Center Conductor Plating	Gold
Outer Conductor Plating	Silver
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Accessories	Receptacle for check
Remarks	Extraction tool, conversion adaptor

## 1.9mm or 2.4mm mated height, ultra small SMT connectors

### U.FL Series



#### Features

- Mating height of 2.4 mm (2.5 mm max) or below.
- PCB occupation area of 7.7 sq.mm.
- Coaxial connector in the world's lightest class. Receptacle: 15.7mg. Right angle plug: 59.1mg.
- High frequency performance up to 6 GHz. V.S.W.R. is 1.3 or less from DC up to 3GHz.
- Tactile lock feeling ensures engagement even with this small size.

#### Applications

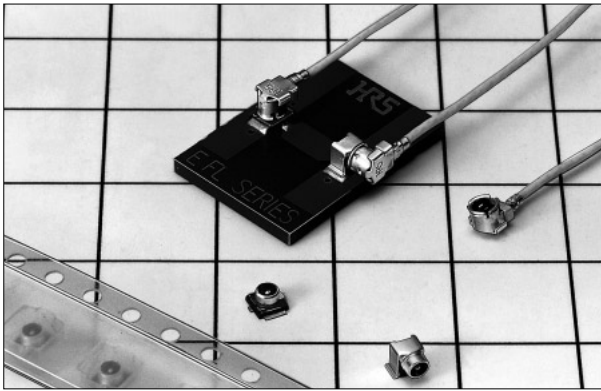
Mobile Phones, Radio communications equipment, Measurement instruments, GPS, Wireless LAN, Bluetooth

#### Specifications

Item	Requirements
PCB Mount Type	SMT
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 6(GHZ)
Operating Temperature Range (°C)	-40 to 90
Insulator	PBT (UL94V-0, Color: Black), LCP (UL94V-0, Color: Beige)
Center Conductor Plating	Gold
Outer Conductor Plating	Silver
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Accessories	Receptacle for check
Remarks	Extraction tool, conversion adaptor

## 3.2mm mated height, ultra small SMT connectors

### E.FL Series



#### Features

- Mating height: straight receptacle is 3.2 mm or below, and right angle receptacle is 3.6 mm or below.
- Providing a locking feeling at the time of mating.
- The footprint is 9.4sq.mm on the receptacle side.
- V.S.W.R. is 1.3 or less from DC up to 2GHz.

#### Applications

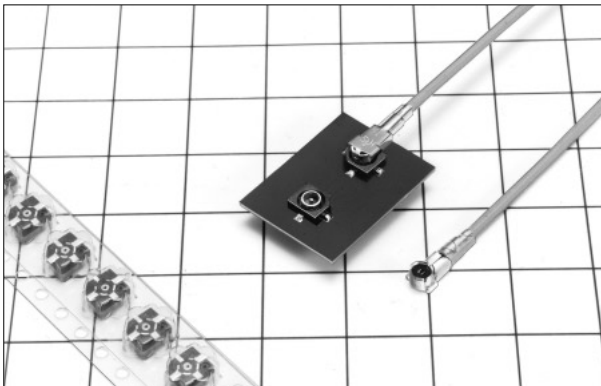
Mobile Phones, Radio communications equipment, Measurement equipment, GPS

#### Specifications

Item	Requirements
PCB Mount Type	SMT
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 2(GHZ)
Operating Temperature Range (°C)	-40 to 90
Insulator	PBT (UL94V-0, Color: Black), LCP (UL94V-0, Color: Black)
Applicable Cable (mm)	RF-MF5010(Nissei Electric Co., Ltd.),CO-6F-SB-CX50(Hitachi Cable, Ltd.),F12B0074-B(Junkosha Co., Ltd.),0.4DS-PBA(Sumitomo Electric Industries, Ltd.)
Center Conductor Plating	Gold
Outer Conductor Plating	Silver
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Accessories	Receptacle for check
Remarks	Extraction tool, conversion adaptor

## 3.0mm mated height, ultra small SMT connectors

### H.FL Series



#### Features

- Mating height of 3 mm or below.
- Uses solderless crimping for both center conductors and outer conductors.
- Connection can be easily verified by locking feeling. Scoop-proof mechanism protects against mis-insertion.
- Models for 75 ohm cable is available.
- V.S.W.R. is 1.3 or less from DC up to 3GHz.

#### Applications

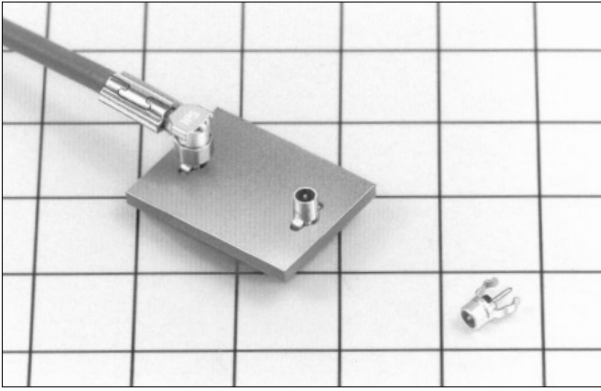
Mobile Phones, Radio communications equipment, Measurement equipment, GPS

#### Specifications

Item	Requirements
PCB Mount Type	SMT
Contact Plating	Gold
Characteristic Impedance (ohms)	50,75
Frequency Range	0 to 3(GHz):50ohms
Insulator	PBT (Color: Black), LCP (Color: Black)
Applicable Cable (mm)	CO-6F-H-SB(Hitachi Cable, Ltd.),DFS111-UL1979(Junkosha Co., Ltd.),0.8DS-PBE(Sumitomo Electric Industries, Ltd.),A12B0733(Junkosha Co., Ltd.),1.25C-6FFH(Hitachi Cable, Ltd.)
Center Conductor Plating	Gold
Outer Conductor Plating	Silver
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp
Accessories	Receptacle for check
Remarks	Extraction tool, conversion adaptor

## 6.0mm mated height, SMT connectors

### S.FL Series



#### Features

- Mating height of 6 mm or below.
- Suitable to 0.8D-QEW/CW cable.
- V.S.W.R. is 1.25 or less from DC up to 2.5GHz.

#### Applications

Radio communications equipment, Measurement equipment

#### Specifications

Item	Requirements
PCB Mount Type	Through hole
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 2.5(GHZ)
Insulator	Polyphenylene oxide, polyethylene terephthalate
Applicable Cable (mm)	0.8D-QEW·CW
Center Conductor Plating	Gold
Outer Conductor Plating	Silver
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp
Remarks	Extraction tool, conversion adaptor (BWA series)

## 10.5mm mated height, SMT connectors

### FL Series



#### Features

- Mating height: 10.5mm or below. Maximum outside diameter: 5mm.
- Uses solderless crimping for both center conductors and outer conductors.
- Matching 1.5D-QEW and 1.5C-QEW/CW cables.
- V.S.W.R. is 1.2 or less from DC up to 1GHz.
- Combined axial forces and simple lock provide high reliability.

#### Applications

Radio communications equipment, Measurement equipment, Control equipment

#### Specifications

Item	Requirements
PCB Mount Type	Through hole
Contact Plating	Gold
Characteristic Impedance (ohms)	50,75
Frequency Range	0 to 1(GHZ):50ohms
Insulator	PBT (Color: Black)
Applicable Cable (mm)	1.5D-QEW,1.5C-QEW·CW
Center Conductor Plating	Gold
Outer Conductor Plating	Silver
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp
Accessories	Receptacle for check
Remarks	Connection tool, extraction tool, conversion adaptor (BWA series)

## N Series



### Features

- Medium-sized, weather-resistant, constant-impedance standard coaxial connectors of screw-coupling type, suited for medium-sized coaxial cables.
- Suited primarily for coaxial cables RG-5/U, RG-6/U, RG-8/U, and RG-9/U.
- Conforms to MIL-C-39012, Defense Agency DSP C 6201, and JIS standards.

### Applications

Communications equipment, Measurement equipment

### Specifications

Item	Requirements
Generic Name	N
Contact Plating	Gold, silver
Characteristic Impedance (ohms)	50
Frequency Range	0 to 10(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	RG-5,6,8,9,14,21,58/U,3D-2V,3D-XW Irrax cable,5D-2V,8D-2V,5D-2W,5D-FB,10D-FB
Center Conductor Plating	Gold,Silver
Outer Conductor Plating	Silver, nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Clamp, solder
Industry Standard	DSP,JIS,MIL
Accessories	Cap
Remarks	Conversion adaptor (BWA series)

## M Series



### Features

- Popular and low-cost coaxial connectors that have been used much longer than other coaxial connectors in Japan.
- Medium size, screw lock type items for thin and medium-size electrical cable are the most popular connectors having no-rated impedance.
- Having no weather-resistance capability, these connectors cannot be used in humid environment without suitable protection against moisture.
- Maximum rated voltage is 500V (crest value) with no impedance matching. Therefore, up to 200MHz will be a reasonable service range.
- Recommended coaxial cables are 3C-2V, 5C-2V, and 7C-2V.

### Applications

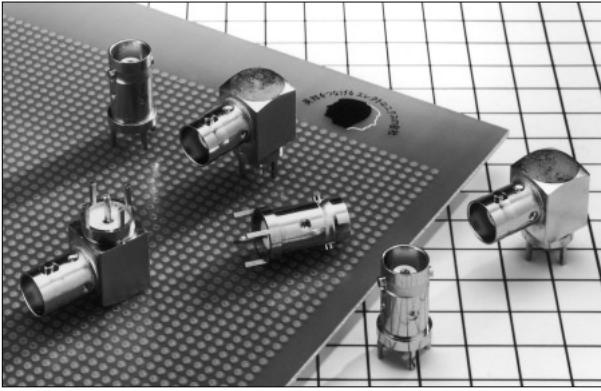
Automobile communications equipment, Ham radio equipment

### Specifications

Item	Requirements
Generic Name	M
Contact Plating	Silver
Frequency Range	0 to 0.2(GHZ)
Insulator	Tetrafluoride, phenol
Applicable Cable (mm)	RG-5,6,8,11,14,15,55,58/U,3C-2V,3D-2V,5C-2V,5D-2V,7C-2V,10C-2V,10D-2V
Center Conductor Plating	Silver
Outer Conductor Plating	Silver
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Solder
Industry Standard	JIS,NTT
Accessories	Cap, hood
Remarks	Conversion adaptor (BWA series)

## BNC

### BNC Series



#### Features

- Used as 50 ohm coaxial connectors for a wide range of applications.
- Compact size, lightweight, and quick insertion and extraction (bayonet lock coupling).
- Suitable for cables (RG-55/U and RG-58/U etc), with a finished outside diameter of 3 to 8mm.
- Conforms to Defense Agency NDS XC 6103, DSP C 6202, JIS C 5412, NTT, and MIL standards.

#### Applications

Communications equipment, Broadcast equipment, Measurement equipment

#### Specifications

Item	Requirements
Generic Name	BNC
Contact Plating	Gold, silver
Characteristic Impedance (ohms)	50
Frequency Range	0 to 4(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	RG-55,58,59,62/U, RG-188A,196A/U,1.5D-2W,1.5C-2W,1.5D-2V,1.5C-2V,2.5D-2W,3D-XW,3D-2V,3C-2V,3C-2W,3C-2T,3C-2Z,5D-2V,5C-2V,5D-2W
Center Conductor Plating	Gold,Silver
Outer Conductor Plating	Silver, nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Clamp, crimp
Industry Standard	DSP,JIS,NTT,MIL
Accessories	Cap, short plug
Remarks	Conversion adaptor (BWA series)

## TNC

### TNC Series



#### Features

- Mechanically rigid fixed center contact.
- Mainly applicable to 1.5D-2V and 1.5D-2W coaxial cables.
- Cable connection method uses soldering for center conductor and crimping for external conductor.

#### Applications

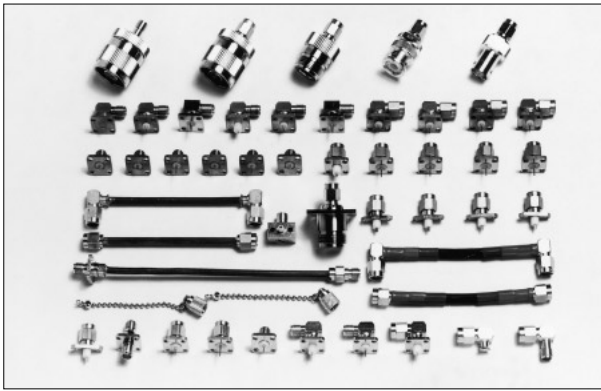
Automobile telephones, Mobile radio equipment

#### Specifications

Item	Requirements
Generic Name	TNC
Contact Plating	Gold, silver
Characteristic Impedance (ohms)	50
Frequency Range	0 to 3(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	1.5D-2V,1.5D-2W
Center Conductor Plating	Gold,Silver
Outer Conductor Plating	Nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Industry Standard	MIL
Remarks	Connection tool, conversion adaptor (BWA series)

## SMA

### HRM Series



#### Features

- SMA (Sub-miniature type A) connector prescribed in MIL-C-39012.
- Compact and lightweight with a stainless steel shell ensuring surprisingly high durability.
- High quality and high reliability as no faulty unit at the end-user stage.
- A variety of products. S type to enhance corrosion resistance, airtight type, and for 0.085 semi rigid cable etc.

#### Applications

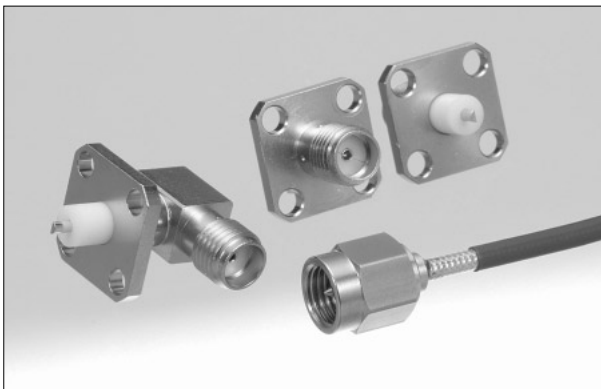
Transmission and switching equipment, Measurement equipment, Communications devices, Control equipment

#### Specifications

Item	Requirements
Generic Name	SMA
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 18(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	0.141 inch semirigid, 0.085 inch semirigid, SC-160 semirigid, RG-142B/U, 3D-XW(Irrax cable), 1.5D-2V, 1.5D-2W
Center Conductor Plating	Gold
Outer Conductor Plating	Gold, nickel, passivation
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp, solder
Industry Standard	MIL, RKS
Accessories	Cap, short connector, termination
Remarks	Connection tool, conversion adaptor (BWA series)

## Low-cost SMA

### HRM-VA Series



#### Features

- Cost-effective type of Hirose HRM series connector.
- Perfect compatible with SMA standard connectors.
- Plugs for semi-rigid and equivalent cable are available.

#### Applications

Switch and transmission equipment, Measurement equipment, Communications equipment, Control equipment

#### Specifications

Item	Requirements
Generic Name	SMA
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 18(GHZ)
Applicable Cable (mm)	0.141 inch semirigid, 0.085 inch semirigid
Center Conductor Plating	Gold
Outer Conductor Plating	Gold, nickel, passivation
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp, solder
Industry Standard	MIL, RKS
Remarks	Connection tool, conversion adaptor (BWA series)

## SSMA HRMM Series



### Features

- SSMA connectors meeting MIL and IEC standards.
- The stainless steel shell ensuring surprisingly high durability.
- Reduced in size to about 80% of HRM (SMA type) connectors.
- V.S.W.R. is 1.2 or less from DC up to 12.4GHz. Models for flexible cable, however, 1.2 or less from DC up to 1GHz.

### Applications

Communications equipment, Transmission equipment, Measurement equipment

### Specifications

Item	Requirements
Generic Name	SSMA
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 12.4(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	0.085 inch semirigid, 1.5D-2V, RG-196A/U
Center Conductor Plating	Gold
Outer Conductor Plating	Gold
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp/Solder
Industry Standard	IEC
Remarks	Connection tool, conversion adaptor (BWA series)

## C05 UM Series



### Features

- Small-size coaxial connectors that are suitable for thin coaxial cables with high reliability.
- Two types of lock are available: Screw-lock (S type) and quick-lock (Q type).
- Two cable connecting methods are available: crimping connecting system to work simply and accurately, and the screw-clamp system to work accurately.
- Q type is Japan Industrial Standard (JIS)-specified C05-type connector and conforms to SMB type coaxial connector.
- S type conforms to SMC type coaxial connector.

### Applications

Microwave equipment, Mobile radio equipment, Broadcast equipment

### Specifications

Item	Requirements
Generic Name	C05 (Q type)
Contact Plating	Gold, silver
Characteristic Impedance (ohms)	50
Frequency Range	0 to 1(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	RG-196A/U, 1.5D-2V, 1.5D-2W, 2.5D-2V, 2.5D-2W
Center Conductor Plating	Gold, Silver
Outer Conductor Plating	Gold, nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Clamp, solder
Industry Standard	DSP, JIS
Remarks	Connection tool, conversion adaptor (BWA series)

## Miniature push-on lock connectors (DC to 2GHz)

### MSS Series



#### Features

- Slide-snap lock system achieves more or less perfect surface contacts in both the inner and outer conductors, and superior vibration-resistance properties.
- Two cable connecting methods are available: crimping connecting system and screw-clamp system.
- Conforms to Defense Agency NDS XC 6120, DSP C 6206 standard.
- MSS1 type for RG-55/U cable is not interchangeable with MSS type.
- The types for PCB can be mounted by soldering directly onto the PCB.

#### Applications

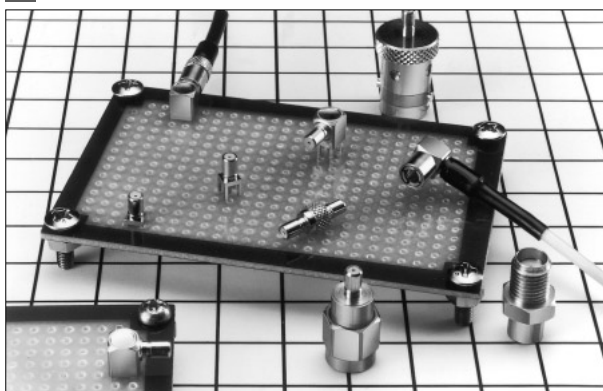
Communications equipment, Broadcast equipment, Measurement equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 2(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	RG-55/U, RG-196A/U, 1.5D-2V, 2.5D-2V
Center Conductor Plating	Gold
Outer Conductor Plating	Gold, nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Clamp, solder
Industry Standard	DSP
Remarks	Connection tool, conversion adaptor (BWA series)

## Miniature push-on lock connectors (DC to 2GHz)

### PO6 Series



#### Features

- Mating height of 10.5 or 6 mm.
- Approximately 80% of HIROSE's UM Series in size.
- Unique lock mechanism of coupling part has an excellent reliability such as vibration and shock resistance.
- V.S.W.R. is 1.2 or less from DC up to 2GHz.

#### Applications

Microwave communications equipment, Communications equipment, Broadcast equipment

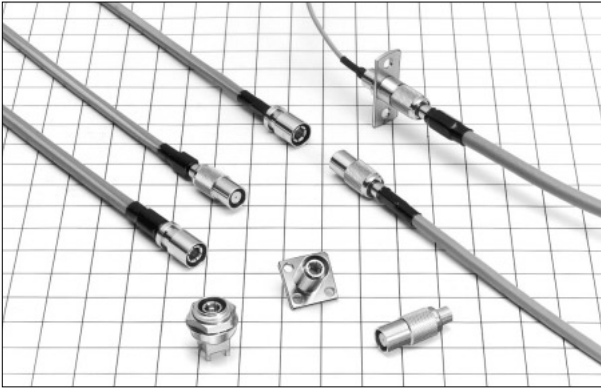
#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 2(GHZ)
Applicable Cable (mm)	RG-196A/U
Center Conductor Plating	Gold
Outer Conductor Plating	Gold, nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Remarks	Connection tool, conversion adaptor (BWA series)



## Miniature push-on lock connectors (DC to 3GHz)

### POD1 Series



#### Features

- Highly operable connectors incorporating a push-on complete lock mechanism.
- Perfect lock type with a diameter reduction of 50% compared with the TNC or BNC Series.
- Top-touch coupling method used for SMA type has good impedance matching and excellent noise resistance.
- V.S.W.R. is 1.3 or less from DC up to 3GHz.

#### Applications

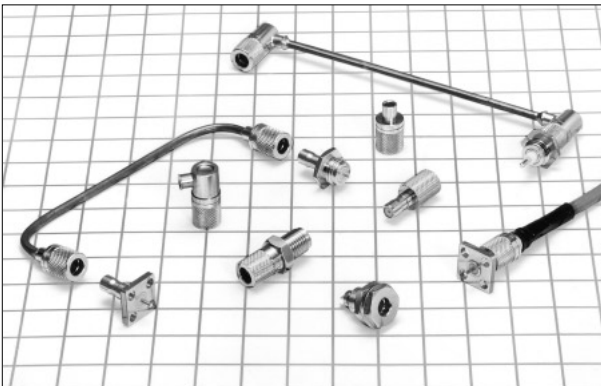
In-vehicle communications equipment in a wide variety, GPS, Measurement equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 3(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	1.5D-2V,1.5D-2W,2.5D-2V,CO-6F.FH-SB(Hitachi Cable, Ltd.),DFS111-UL1979(Junkosha Co., Ltd.)
Center Conductor Plating	Gold
Outer Conductor Plating	Nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Accessories	Termination
Remarks	Connection tool, conversion adaptor

## Miniature push-on lock connectors (DC to 8GHz)

### POD Series



#### Features

- Push-on locking system to mate and remove quickly, easily and securely.
- The diameter size is reduced by 70% in comparison with HRM (SMA type) series.
- The coupling parts have spring mechanism parts to withstand twisting and scooping for high stability and reliability.
- Mating and removing with the fingers without using special tools.

#### Applications

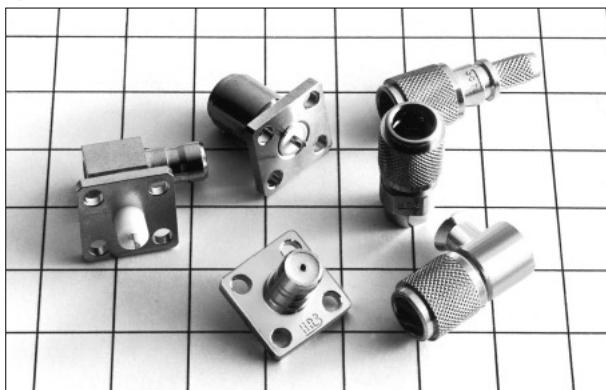
Measurement equipment, Communications equipment, Control equipment, Broadcast equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 8(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	1.5D-2V,1.5D-2W,2.5D-2V,0.085 inch semirigid
Center Conductor Plating	Gold
Outer Conductor Plating	Nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp, solder
Accessories	Termination
Remarks	Connection tool, conversion adaptor (BWA series)

## Miniature push-on lock connectors (DC to 12.4GHz)

### POB Series



#### Features

- Compatible with HRM (SMA type) series in the mounting method and dimension, size, weight, electrical length, cable connecting method and tools.
- Push-on lock system enables to mate and remove easily and quickly.
- Mating and removing without spanners or torque wrenches and high mounting density.
- The structure and dimensions of the transmission path and the center contact and the dielectric materials are unified with HRM (SMA type).
- Coupling part has a structure with an innovative spring function unit and an outer cylinder to protect it to ensure high stability and reliability.

#### Applications

Communications equipment, Broadcast equipment, Measurement equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 12.4(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	3D-XW(Irrax),RG-142B/U,RG-55,58/U,0.141 inch semirigid,0.085 inch semirigid
Center Conductor Plating	Gold
Outer Conductor Plating	Gold, nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp,Solder
Accessories	Termination
Remarks	Connection tool, conversion adaptor (BWA series)

## MIL standard SMP compatible push-on lock connectors

### PO40G Series



#### Features

- Supports 18GHz for higher transmission speed large capacity communication system.
- Push-on locking mechanism assures high mated retention force.
- Compatible with MIL standard SMP.

#### Applications

Optical communication equipment, Measurement equipment, Electronic communication equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 18(GHZ)
Insulator	PTFE
Applicable Cable (mm)	0.047 inch semirigid,0.085 inch semirigid
Center Conductor Plating	Gold
Outer Conductor Plating	Gold, passivation
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp,Solder
Remarks	Connection tool, conversion adaptor (BWA series)

## Miniature push-on lock connectors (DC to 0.14GHz)

### MP Series



#### Features

- Compatible with HRM (SMA type) series in the mounting method and dimension, size, weight, electrical length, cable connecting method and tools.
- Push-on lock system enables to mate and remove easily and quickly.
- Mating and removing without spanners or torque wrenches and high mounting density.
- The structure and dimensions of the transmission path and the center contact and the dielectric materials are unified with HRM (SMA type).
- Coupling part has a structure with an innovative spring function unit and an outer cylinder to protect it to ensure high stability and reliability.

#### Applications

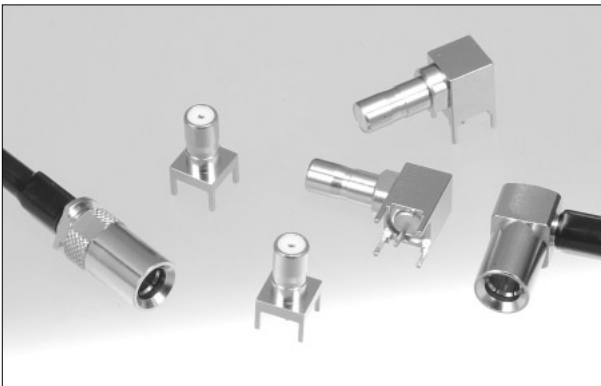
Communications equipment, Broadcast equipment, Measurement equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	75
Frequency Range	0 to 0.14(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	2.5C-XW(Irrax cable),2.5C-2W
Center Conductor Plating	Gold
Outer Conductor Plating	Nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Accessories	Termination
Remarks	Connection tool

## Miniature push-on lock connectors (DC to 2GHz)

### PL71 Series



#### Features

- Ultra small.
- Top-touch lock ensures high stability and reliability.

#### Applications

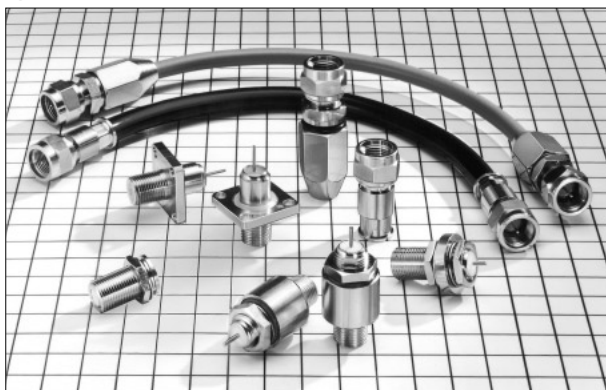
Wire and wireless communication equipment, Measurement equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	75
Frequency Range	0 to 2(GHZ)
Insulator	PTFE
Applicable Cable (mm)	1.5C-QEW, 1.5C-QEW. CW
Center Conductor Plating	Gold
Outer Conductor Plating	Nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp

## C15 type connectors for satellite TV reception system

### NF Series



#### Features

- Conforms to the specifications of Technical Standards RCZ-6015 of the Electronic Industries Association of Japan.
- V.S.W.R. is 1.2 or less from DC up to 1.5 GHz.
- Plugs are all provided with pin contacts and no need to work the tip of the center conductor of the cable to a conical shape.
- In both plugs and receptacles, the center contact are completely stationary and adequate measures have been taken to deal with cable shrinkage caused by temperature variations.

#### Applications

Satellite TV reception system, Satellite CATV reception system

#### Specifications

Item	Requirements
Contact Plating	Gold, silver
Characteristic Impedance (ohms)	75
Frequency Range	0 to 1.5(GHZ)
Applicable Cable (mm)	JIS C 3502 (TVEFCX), JCS No.381 (5C-FB)
Center Conductor Plating	Gold, silver
Outer Conductor Plating	Nickel
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	P: Crimp, WP: Clamp
Industry Standard	RCZ
Accessories	Accessories
Remarks	Water proof type available, connection tool

## Push-on connectors compliant to NTT specifications 4172 version 1

### 3CV Series



#### Features

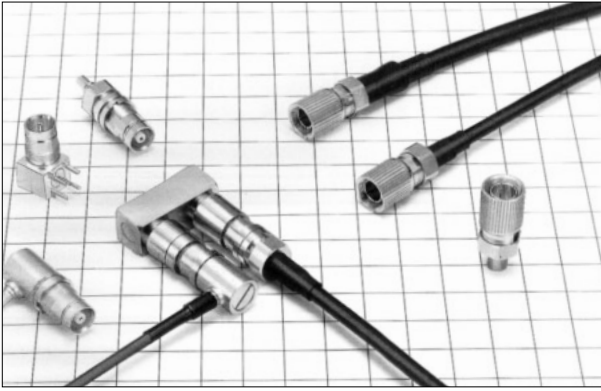
- Coaxial cable connectors for a variety of measurement purposes meet NTT specifications 4172 version 1.
- Ideally connecting to a variety of connectors mounted to carrier equipment.
- Compact yet excellent mechanical and electrical performance ensured.
- 1,000 insertion and extraction times guaranteed.

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	75
Frequency Range	0 to 0.2(GHZ)
Applicable Cable (mm)	3C-2V
Center Conductor Plating	Gold
Outer Conductor Plating	Silver
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Clamp
Industry Standard	NTT

## Connectors compliant to IEC 169-13 1.6/5.6

### MRF1.6/5.6 Series



#### Features

- Conforms to IEC169-13 1.6/5.6 requirements.
- Compatible with three types of mating systems (screw coupling, push-on, and plug-in).
- Jack can be used for three types of mating system, screw coupling, push-on and plug-in.
- Reduced in diameter to 70% of the BNC series.

#### Applications

Transmission and switching equipment, Measurement equipment, Communications equipment, Control equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	75
Frequency Range	0 to 0.5(GHZ)
Insulator	Tetrafluoride
Applicable Cable (mm)	RG-59,179/U,2.5C-2V,3C-2V,3C-2WS
Center Conductor Plating	Gold
Outer Conductor Plating	Gold
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Industry Standard	IEC
Remarks	Connection tool

## Connectors for computers and terminals

### TWT2 Series



#### Features

- Medium-sized, weather-resistant coaxial two-core connectors of screw coupling type, suitable for use with medium-sized coaxial two-core cables.
- Interchangeable with products conforming to MIL standards (plug: UG-421B/U and receptacle: UG-422/U)
- Suitable for noise-proof transmission.

#### Applications

Connecting computers and terminals

#### Specifications

Item	Requirements
No. of Positions	2
Contact Plating	Silver
Characteristic Impedance (ohms)	95
Frequency Range	0 to 0.2(GHZ)
Insulator	Synthetic resin
Applicable Cable (mm)	Special two-core coaxial cable(Sumitomo Electric Industries, Ltd.),RG-22B/U,Two-core coaxial cable (dia.6 to 9)
Center Conductor Plating	Silver
Outer Conductor Plating	Nickel
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Clamp
Industry Standard	MIL
Accessories	Cap
Remarks	Mate with MIL plug: UG-421B/U, MIL receptacle: UG-422/U.

## Conversion adapters

### BWA Series

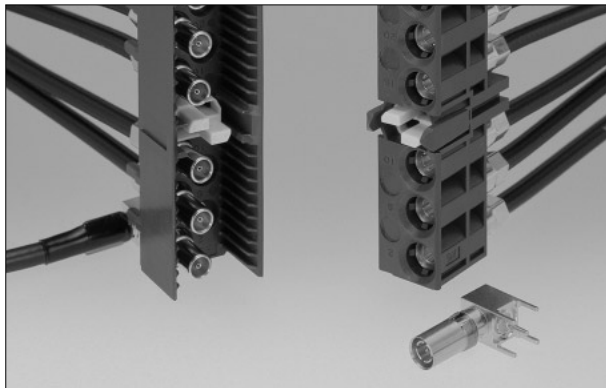


#### Features

- Converter adapters used for connecting connectors of different series.
- Mating portions compatible in materials and finish with the respective series.
- Conforms in performance to the lower series of the two coaxial connectors to be connected.

## 2mm hard metric coaxial connectors 50 ohms type

### PO51M Series



#### Features

- Plug-in type conforming to 2mm hard metric standard (IEC 61076-4-1-101).
- 50 ohm coaxial connector conforming to DIN47297.
- The high frequency characteristics are consistent between the fully mated position and a position with a 1mm gap.

#### Applications

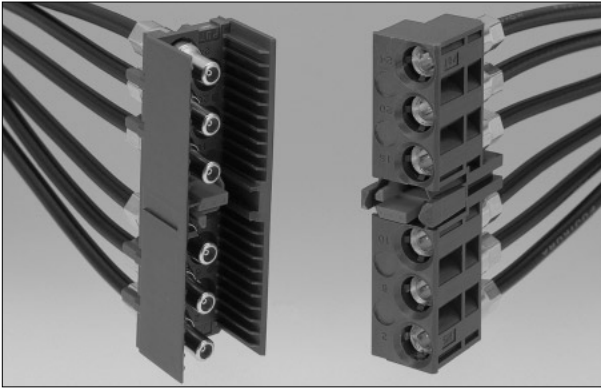
Conversion equipment, Transmission equipment, Base stations, Measurement equipment, Control equipment, Digital broadcast equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 3(GHZ)
Applicable Cable (mm)	1.5D-HQEW, 1.5D-2W or equivalent, .15D-HQEV, 1.5D-2V or equivalent
Center Conductor Plating	Gold
Outer Conductor Plating	Gold
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Industry Standard	IEC

## 2mm hard metric coaxial connectors 75 ohms type

### PO82M Series



#### Features

- Plug-in type conforming to 2mm hard metric standard (IEC 61076-4-1-101).
- 75 ohm coaxial connector achieving excellent matching with HIROSE's unique opening section.
- The high frequency characteristics are consistent between the fully mated position and a position with a 1mm gap.

#### Applications

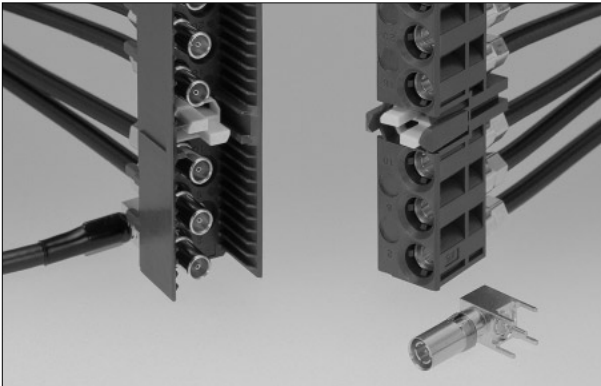
Conversion equipment, Transmission equipment, Base stations, Measurement equipment, Control equipment, Digital broadcast equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	75
Frequency Range	0 to 2(GHZ)
Insulator	PTFE
Applicable Cable (mm)	1.5C-QEV, 1.5C-2V or equivalent
Center Conductor Plating	Gold
Outer Conductor Plating	Gold
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp

## 2mm hard metric coaxial connectors (Housing case)

### PO21M Series



#### Features

- 2mm hard metric standard (IEC 61076-4-1-101).
- 50mm housing case conforming to the hard metric standard.
- Mounted on the same board as the hard metric connector.
- Models including mold peg pin PCB fixing type conforming to the standard and HIROSE's unique screw fixing type.
- Supporting a variety of mounting forms.

#### Applications

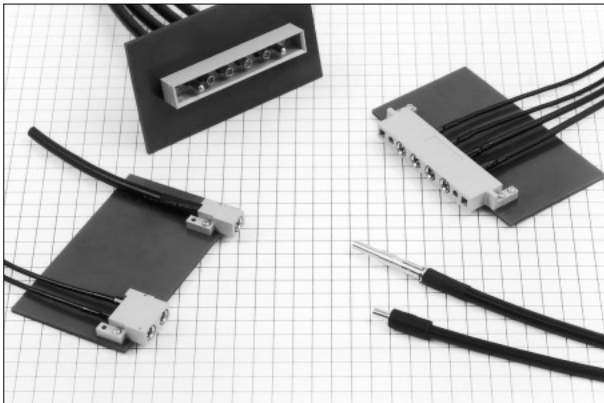
Conversion equipment, Transmission equipment, Base stations, Measurement equipment, Control equipment, Digital broadcast equipment

#### Specifications

Item	Requirements
No. of Positions	6
Industry Standard	IEC
Insulator	PBT

## Connectors for microwave digital system communications networks

### PO73 Series



#### Features

- Coaxial connectors with a nominal impedance of 75 ohm that are ideally mounted to terminal units of microwave digital system communications networks, such as public telecommunication networks.
- Used as composite connectors in combination with the HRPI Series and PCN11MF Series, and suitable for high density packaging.
- Excellent connecting characteristics and mechanical durability are realized by applying the floating function to coaxial and optical connectors and connector housing.
- Coaxial connector (plug) incorporated in the connector housing can be detached in one-core units where the connector housing is coupled.
- The plug can be connected or disconnected without tools by sliding the snap-out ring attached to the coaxial connectors.

#### Applications

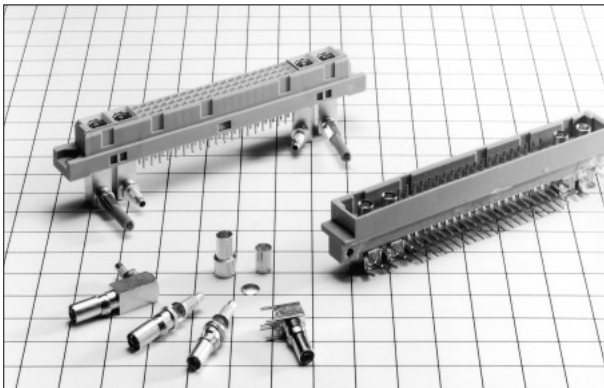
Communications equipment, Transmission and switching equipment in a wide variety

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50-75
Frequency Range	0 to 1.5(GHz):50ohms,0 to 1(GHz):75ohms
Insulator	PTFE
Applicable Cable (mm)	0.8D-2W,1.5C-2V,1.5D-2W,2.5C-2V,2.5D-2W,3C-2T,3C-2W,3C-2V
Center Conductor Plating	Gold
Outer Conductor Plating	Gold
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Industry Standard	NTT
Accessories	Termination,1core,2core housing
Remarks	50 ohms type: PO73D

## 50 ohms, 75 ohms connectors compliant to DIN47297 standards

### PO51 Series



#### Features

- Plug-in type used in combination with DIN41612 M-style connectors.
- Conforming to DIN47297 standards.
- In combination with a signal contact, high density mounting is possible.
- Plug-in type assuring easy and quick connection and disconnection.

#### Applications

Communications equipment, Transmission equipment, Measurement equipment

#### Specifications

Item	Requirements
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	0 to 1(GHZ)
Applicable Cable (mm)	1.5D-2V,1.5C-2V
Center Conductor Plating	Gold
Outer Conductor Plating	Gold
Center Conductor Termination Method	Solder
Outer Conductor Termination Method	Crimp
Industry Standard	DIN
Remarks	Connection tool, extraction tool



## Automotive connectors compliant to USCAR standard

### GT5 Series



#### Features

- Twin-Crimp termination of the whole signal lines and shield lines.
- The PCB type and panel relay type are available.
- A dedicated retainer prevents the omission of pin insertion.
- Composite type (single shield x 2 + single power supply terminal) available.
- Waterproof type available.

#### Applications

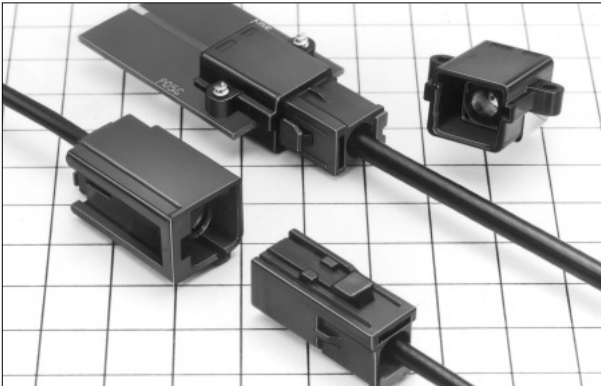
In-car communications, Automotive sensors, Car audio speaker systems, GPS antenna systems

#### Specifications

Item	Requirements
No. of Positions	2-3-4
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Characteristic Impedance (ohms)	50
Frequency Range	0 to 2(GHZ)
Operating Temperature Range (°C)	-30 to 105
Applicable Cable (mm)	1.5D-2V,1.5C-2V
Center Conductor Plating	Tin
Outer Conductor Plating	Tin
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp

## Automotive connectors supporting 5.8GHz

### PO5G Series



#### Features

- Push-on perfect lock type.
- Supports 5.8 GHz. DC to 3 GHz with a VSWR of 1.3 or below. 3 to 6 GHz with a VSWR of 1.5 or below.
- Supporting 50 ohm polyethylene foam insulation coaxial cable.
- PCB notch type.

#### Applications

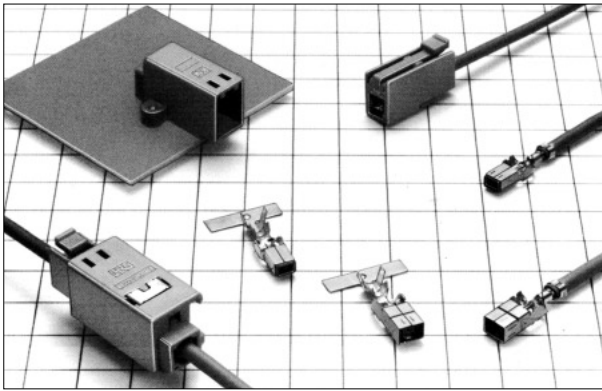
ETC, GPS, VICS

#### Specifications

Item	Requirements
No. of Positions	1
PCB Mount Type	SMT
Contact Plating	Gold
Characteristic Impedance (ohms)	50
Frequency Range	DC to 6GHz
Operating Temperature Range (°C)	-40 to 105
Applicable Cable (mm)	1.5DS-GXC-SP,2.5DS-GXC(3.8)
Center Conductor Plating	Gold
Outer Conductor Plating	Tin
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp

## Small automotive connectors

### GT13 Series



#### Features

- Permits crimping of center conductor and shield in one operation.
- Wide variety of connector type available and cable size and type acceptable.
- Compact and light weight comparing with HRS GT5 series.

#### Applications

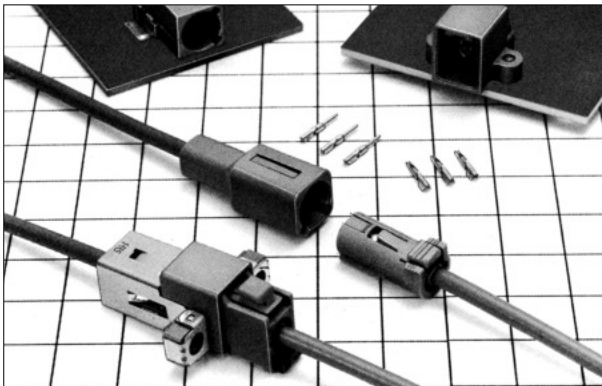
Radio, TVÅATPMS(Tire Pressure Monitoring System), etc

#### Specifications

Item	Requirements
No. of Positions	1-2-3-4
PCB Mount Type	Through hole
Contact Plating	Tin
Characteristic Impedance (ohms)	50
Frequency Range	DC to 1(GHZ)
Operating Temperature Range (°C)	-30 to 105
Center Conductor Plating	Tin
Outer Conductor Plating	Tin
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp

## Small automotive connectors supporting 6GHz

### GT16 Series



#### Features

- Wide variety of connector type available.
- High performance of high frequency range.
- Compact and light weight comparing with HRS GT5 series.

#### Applications

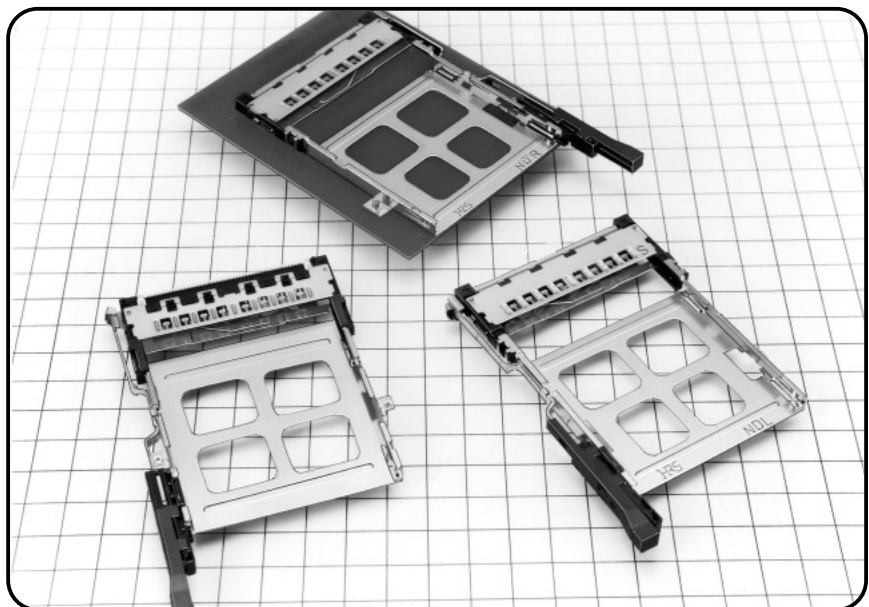
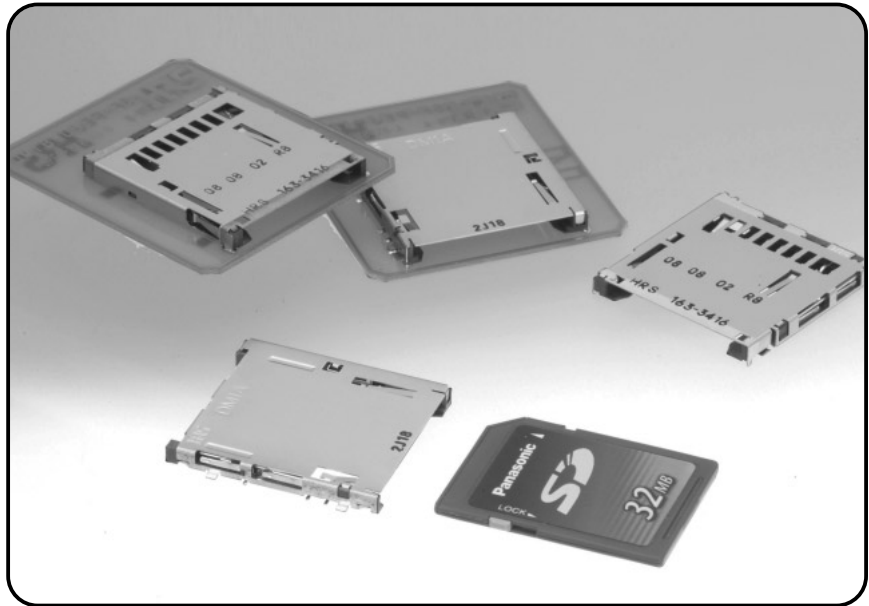
GPS, Satellite radio, Bluetooth, DSRC, etc

#### Specifications

Item	Requirements
No. of Positions	1
PCB Mount Type	SMT,Through hole
Contact Plating	Tin
Characteristic Impedance (ohms)	50
Frequency Range	DC to 6GHz
Operating Temperature Range (°C)	-30 to 105(GT16C),-40 to 85(GT16)
Center Conductor Plating	Tin
Outer Conductor Plating	Tin
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp

Circular Connectors  
Rectangular Connectors  
Coaxial Connectors  
Memory Card  
Modular Connectors  
Card Edge Connectors  
Board-to-Board Connectors  
Board-to-Wire Connectors  
FPC/FFC Connectors  
Optical Connectors and Devices  
Microwave Components

# Memory Card



## Card Bus Connectors

Type	Series Name	Page
Single slot SMT connectors for the AV market (that support 5V card)	IC15	73
Single slot SMT connectors for Card Bus based PC cards	IC14	73
Single slot SMT connectors for PC Card bus	IC11S	74
Single slot FPC connection connectors for PC Card bus	IC13	74
Card bus socket connectors	IC9	75

## Connectors for General Use

Type	Series Name	Page
Single slot through hole type connectors for PC card standard	IC7	75
PC card socket connectors for PC card standard	IC1	76

## Products for PC Cards

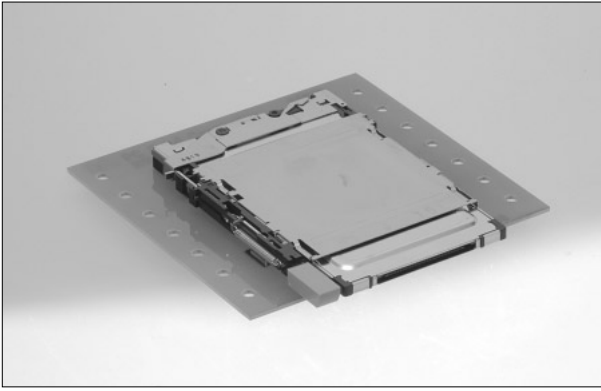
Type	Series Name	Page
Simple assembly type PC card frame kits	NX1	76
PC card frame kits	NX	77
Push-on connectors (PC card type 2 mountable)	MMCX	77
Push-on connectors (PC card type 2 mountable)	MRF01	78
Push-pull complete lock connectors (PC card type 2 mountable)	POD3	78

## Various Card Connectors

Type	Series Name	Page
SD memory card connectors	DM1	79
Memory stick connectors	CB1	79
CF card connectors	MI20,MI21	80
SIM card socket	ID1	80
Smart card socket	ID2	81

## Single slot SMT connectors for the AV market (that support 5V card)

### IC15 Series



#### Features

- Smooth card ejection.
- 3-step ejection mechanism. (Ejection button will not pop out without PC card, for button damage prevention.)
- 2 soldering bosses and 2 positioning bosses to increase retention force twice existing IC11S series.

#### Applications

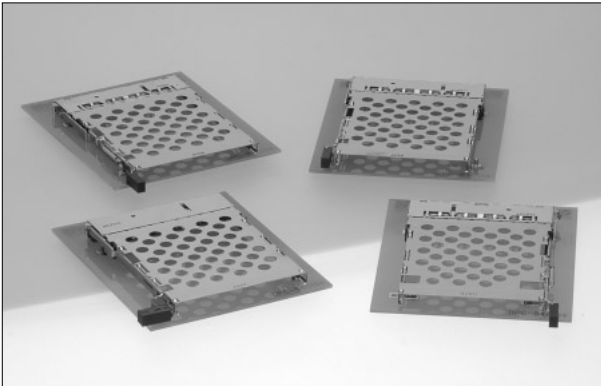
DVD recorder, LCD TV, PDP, Digital AV equipment

#### Specifications

Item	Requirements
No. of Positions	68
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	PC card standard
Terminal Pitch (mm)	0.635
Contact Pitch (mm)	1.27
Contact Layout	Single row
Operating Temperature Range (°C)	-55 to 85
Insulator	RBT (UL94V-0, Color: Black)
Industry Standard	PC Card Standard

## Single slot SMT connectors for Card bus based PC cards

### IC14 Series



#### Features

- Space-saving design to maximize PCB patterning area.
- 4 metal fittings and 2 bosses against stress in mating direction of PC card.
- New type of ejection button will not pop out without PC card, for button damage prevention. (3-Step Ejection Mechanism)
- Smooth card ejection.

#### Applications

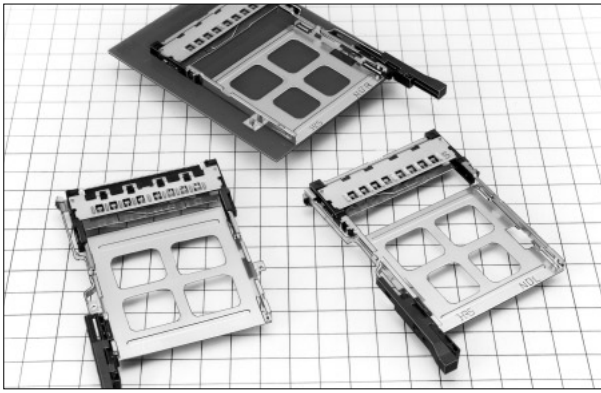
Notebook PC, Digital AV equipment

#### Specifications

Item	Requirements
No. of Positions	68
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	PC card bus standard
Terminal Pitch (mm)	0.635
Contact Pitch (mm)	1.27
Contact Layout	Single row
Operating Temperature Range (°C)	-55 to 85
Insulator	RBT (UL94V-0, Color: Black)
Industry Standard	PC Card Standard
Remarks	Reverse type available, rigid eject button, folding eject button, pop-up eject button, with ground clipping

## Single slot SMT connectors for PC Card bus

### IC11S Series



#### Features

- Single slot SMT connectors for PC CardBus conforming to PC Card Standards.
- The smaller dimensions (width and depth) reduce the occupied area on PCBs.
- The connector height is minimized to 5.6mm, making thinner product designing possible.
- The dual-end, 2-point push ejection mechanism provides smooth card ejection.
- A variety of model types, such as a reverse type, three eject types, and standoff type.

#### Applications

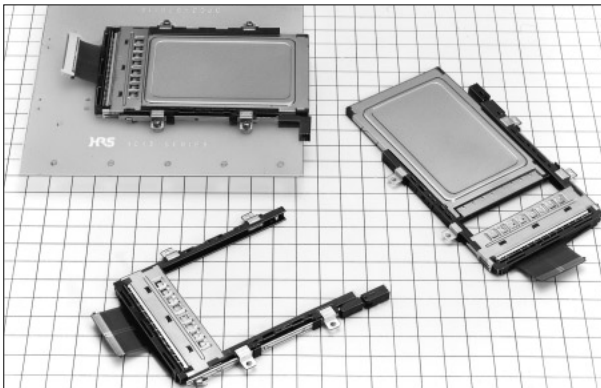
Notebook PCs, PDAs

#### Specifications

Item	Requirements
No. of Positions	68
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	Card bus connector
Terminal Pitch (mm)	0.635
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PPS (UL94V-0, Color: Black)
Industry Standard	PC Card Standard
Remarks	Reverse type available, rigid eject button, folding eject button, pup-up eject button, with ground clipping, PC card type III card mountable (Standard type), stand off type available

## Single slot FPC connection connectors for PC Card bus

### IC13 Series



#### Features

- FPC connection connectors for PC CardBus conforming to PC Card Standards.
- Connections are made to the main board via the FPC, which permits the PC card slot to be attached directly to the equipment case.
- Configured with 10 CardBus grounds for use with FPC patterns and FPC connectors, which achieves high ground performance.
- The dual-end, 2-point push ejection mechanism that pushes the edge surface of the PC card horizontally.
- Long card ejection makes card removal easy.

#### Applications

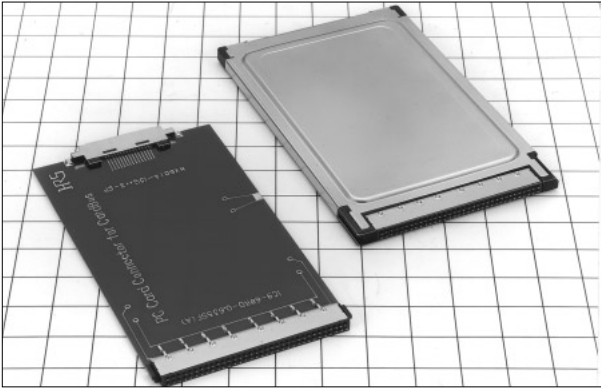
Notebook PCs, PDAs

#### Specifications

Item	Requirements
No. of Positions	68
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	Card bus connector
Terminal Pitch (mm)	0.6
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	PC Card Standard
Remarks	Folding eject button, with ground clipping

## Card bus socket connectors

### IC9 Series



#### Features

- Conforming to PC Card Standards.
- Provided with a ground plate that allows high speed processing of a variety of card signals.
- Designed to mount the card connector and ground plate separately to allow solder repairs.
- 0.3 and 0.9mm lead eccentricity types are available.

#### Applications

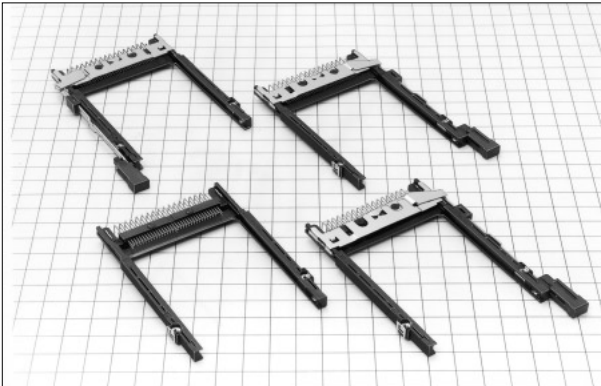
Notebook PCs, PDAs

#### Specifications

Item	Requirements
No. of Positions	68
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	Card bus connector
Terminal Pitch (mm)	0.635
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PA (UL94V-0, Color: Black)
Remarks	Card bus type, single side board mounting type

## Single slot through hole type connectors for PC card standard

### IC7 Series



#### Features

- Compliant with PC Card Standards. Preventing wrong insertion into the corresponding connector. Sequential contact engagement prevents possible damage to sensitive board circuits.
- Compact and thin profile with a depth of 85mm, width of 65mm, and thickness of 5.4mm.
- The dual-end, 2-point push ejection mechanism provides smooth card ejection.
- Two types of eject buttons (on the left-hand side or right-hand side) are available.
- A standard type for PCB surface mounting and a reverse type for reverse mounting are available.

#### Applications

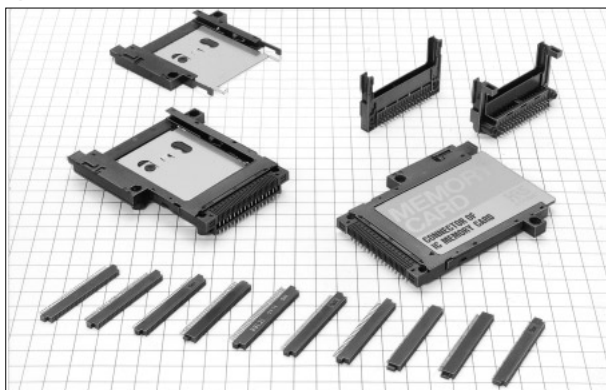
Notebook PCs, PDAs

#### Specifications

Item	Requirements
No. of Positions	68
Current rating (A)	0.5
PCB Mount Type	Through hole
Generic Name	PC card connector
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black), PA (UL94V-0, Color: Black)
Remarks	Reverse type available, rigid eject button, with ground clipping, PC card type III card mountable (Standard type)

## PC card socket connectors for PC card standard

### IC1 Series



#### Features

- Compliant with PC Card Standards. Preventing wrong insertion into the corresponding connector. Sequential contact engagement prevents possible damage to sensitive board circuits.
- IC1G and IC1GA types: The eject mechanism preventing the card from popping out.
- A model is available with a standoff function allowing the mounting of parts on the bottom of the connector.
- The IC1 series pin connector in the catalog supports Type I and Type II Cards.
- Model types in a wide variety different in lead eccentricity are available for the positional change of the PCB according to the height of the parts in the PC Card.

#### Applications

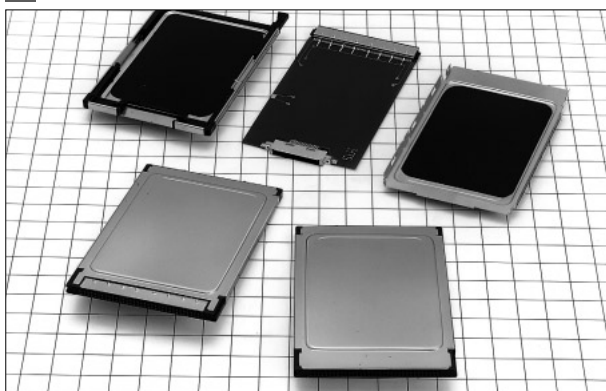
Notebook PCs, PDAs

#### Specifications

Item	Requirements
No. of Positions	40-68
Current rating (A)	0.5
PCB Mount Type	Through hole, SMT
Generic Name	PC card connector
Contact Plating	Gold
Terminal Pitch (mm)	0.635-1.27-2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55--30 to 70-85
Insulator	PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Black)

## Simple assembly type PC card frame kits

### NX1 Series



#### Features

- I/O Card interface supporting Type I and Type II conforming to PC Card Standard 95.
- Full metal shielding. Shield connects first, ahead of contacts.
- Thermoplastic molded cover assures insulation of the connections and shields from ESD.
- The innerlock mechanism for secured locking.
- Terminals on both sides of the receptacle are of sequential construction.

#### Applications

I/O Cards, Portable personal computers, Electronic organizers, External connections of a variety of small-sized personal digital assistant (PDA)

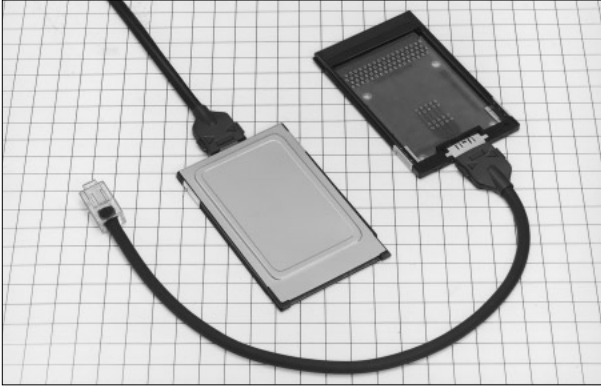
#### Specifications

Item	Requirements
No. of Positions	15-25-32
PCB Mount Type	SMT
Generic Name	PC card connector
Contact Pitch (mm)	0.8
Contact Layout	Single row
Operating Temperature Range (°C)	-30 to 70
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	PC Card Standard



## PC card frame kits

### NX Series



#### Features

- I/O Card interface supporting Type I and Type II conforming to PC Card Standard 95.
- Full metal shielding. Shield connects first, ahead of contacts.
- Thermoplastic molded cover assures insulation of the connections and shields from ESD.
- The innerlock mechanism for secured locking.
- Terminals on both sides of the receptacle are of sequential construction.

#### Applications

I/O Cards, Portable personal computers, Electronic organizers, External connections of a variety of small-sized personal digital assistant (PDA)

#### Specifications

Item	Requirements
No. of Positions	9-15-25-32-68
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	PC card connector
Contact Plating	Gold
Terminal Pitch (mm)	0.8
Contact Pitch (mm)	0.8
Contact Layout	Single row
Operating Temperature Range (°C)	-30 to 70
Insulator	Synthetic resin (UL94V-0, Color: Black)
Industry Standard	PC Card Standard

## Push-on connectors (PC card type II mountable)

### MMCX Series



#### Features

- The push-on type (without lock) ensures easy connection and disconnection.
- Mountable to PCMCIA Type II Card.
- Mating with RG-178B/U (dia. 1.8mm), RG-316/U (dia. 2.56mm max.), DFS111-UL1979 (dia. 1.48mm), CO-6F/FH-SB (dia. 1.48mm), and RF-MF507 (dia. 1.48mm).
- Mating with other manufacturers' MMCX connectors as well as HIROSE's.

#### Applications

Wireless LAN Cards, GPS, POS, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	1
PCB Mount Type	Through hole, SMT
Generic Name	PC card connector
Contact Plating	Gold
Operating Temperature Range (°C)	-55 to 85
Insulator	PTFE
Industry Standard	CECC

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

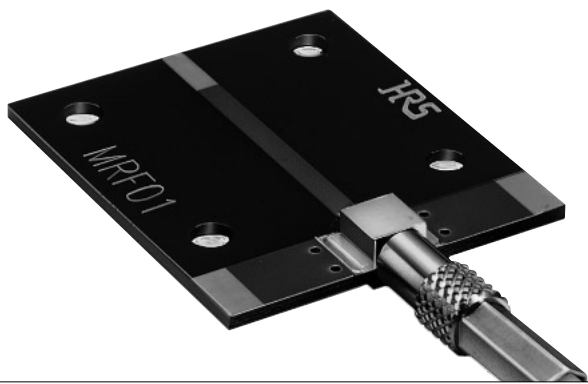
FP/CF/FC Connectors

Optical Connectors and Devices

Microwave Components

## Push-on connectors (PC card type II mountable)

### MRF01 Series



#### Features

- The push-on type (without lock) ensures easy connection and disconnection.
  - Mountable to PCMCIA Type II Card.
  - Offering radio frequency performance from 0 to 3 GHz with a VSWR. of 1.3 or less.
  - Accommodates ultra-fine cable.
- Suitable cable: RG-178B/U (dia. 1.8mm), RG-196A/U (dia. 2mm)

#### Applications

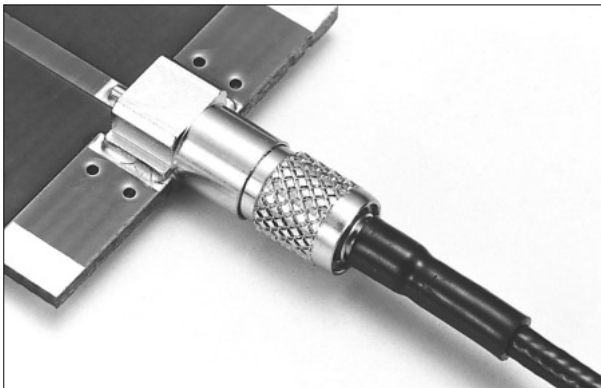
Wireless LAN Cards, GPS Cards, Compact radio communications equipment

#### Specifications

Item	Requirements
No. of Positions	1
PCB Mount Type	SMT
Generic Name	PC card connector
Contact Plating	Gold
Operating Temperature Range (°C)	-20 to 60

## Push-pull complete lock connectors (PC card type II mountable)

### POD3 Series



#### Features

- Excellent push-pull complete locking method for ease of operation.
- Mountable to PCMCIA Type II Card.
- Mating with the fine coaxial teflon cables of CO-6F/FHSB and DFS111-UL1979.

#### Applications

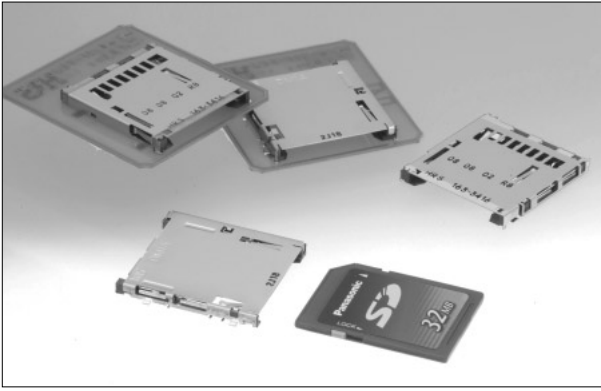
Wireless LAN Cards, GPS, POS, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	1
PCB Mount Type	SMT
Generic Name	PC card connector
Contact Plating	Gold
Operating Temperature Range (°C)	-30 to 85

## SD memory card connectors

### DM1 Series



#### Features

- Absorbing excessive stress in the direction of card insertion.
- No damage to the card when accidentally pulled-out.
- Accidental card fall-out prevention.
- Built-in Push-in/Push-out ejection mechanism assures simple and reliable card insertion and extraction.
- Designed to accept Secure Digital (SD) I/O Card (Built-in ground contact).

#### Applications

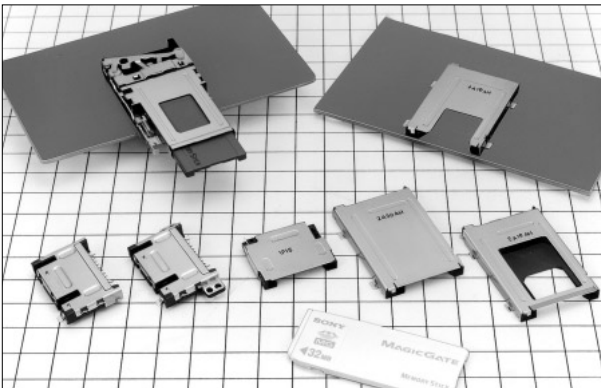
Notebook PCs, Digital still cameras, Compact data terminals, AV equipment

#### Specifications

Item	Requirements
No. of Positions	9
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	SD card connector
Terminal Pitch (mm)	2.5
Contact Pitch (mm)	2.5
Contact Layout	Single row
Operating Temperature Range (°C)	-20 to 85

## Memory stick connectors

### CB1 Series



#### Features

- The connector preventing reserved card insertion.
- Misinsertion of the card will not damage the contacts.

#### Applications

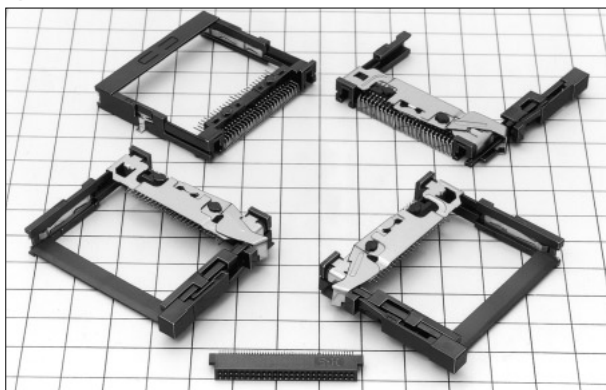
PCs, Data terminals, Digital still cameras, Digital camcorders, Audio equipment

#### Specifications

Item	Requirements
No. of Positions	10
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	Memory stick connector
Terminal Pitch (mm)	1.5
Contact Pitch (mm)	1.5
Contact Layout	Single row
Operating Temperature Range (°C)	-20 to 85
Insulator	Heat resistant glass reinforced thermoplastic compound (UL94V-0, Color: Black)
Industry Standard	Memory stick
Remarks	With eject mechanism (left button eject, right button eject), without eject mechanism (with flange, without flange)

## CF card connectors

### MI20, MI21 Series



#### Features

- Compact Flash Card Connectors conforming to Compact Flash Association (CFA) standards.
- Headers suitable to Type I, and Type I/II Cards.
- Smaller dimensions (width and depth) reduce the occupied area on PCBs.
- The dual-end, 2-point push ejection mechanism provides smooth and reliable CF Card ejection by pressing two points on both sides.
- Built-in nuts type is also available for reinforcement by tightening the screws (M2 x 0.4).

#### Applications

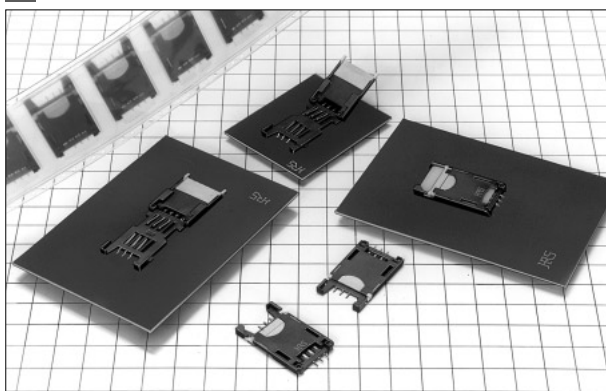
Personal Digital Assistant (PDA) unit, Digital still camera

#### Specifications

Item	Requirements
No. of Positions	50
Current rating (A)	0.5
PCB Mount Type	SMT
Generic Name	Compact flash connector
Contact Plating	Gold
Terminal Pitch (mm)	0.635
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PPS (UL94V-0, Color: Black)
Industry Standard	CFA Rev.1.3
Remarks	Reverse type available, rigid eject button(left button eject, right button eject), stand off type available

## SIM card socket

### ID1 Series



#### Features

- Suited for Plug-in SIM Cards meeting GSM Standards (11.11).
- Compact and thin profile with a height of 2.54mm, length of 30.6mm, and width of 17.4mm.
- Supporting automatic mounting.
- The board-positioning boss prevents misinsertion to the PCB.
- The unique slide lock structure securely holds the SIM Card.

#### Applications

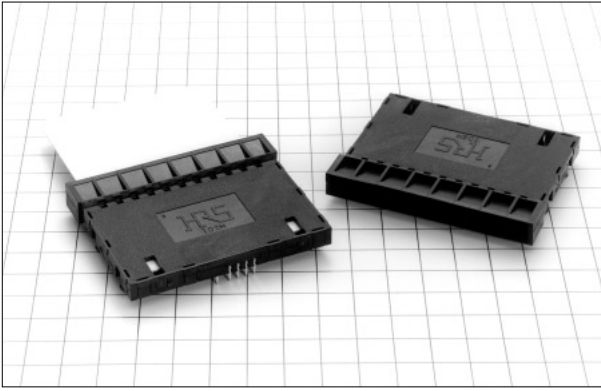
Mobile phone and portable equipment using Plug-in SIM Cards meeting GSM standards (11.11)

#### Specifications

Item	Requirements
No. of Positions	6
Current rating (A)	1
PCB Mount Type	SMT
Generic Name	SIM card connector
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-30 to 80
Insulator	Synthetic resin (UL94V-0, Color: Black)
Industry Standard	GSM

# Smart card socket

## ID2 Series



### Features

- Suited to Smart Cards conforming to ISO-7816.
- Smart Card socket developed for the digital satellite broadcast receiver (IRD).
- Provided with a card detection switch.
- A 2-point contact structure using two springs improves contact reliability.
- Guaranteed insertion and extraction of 10,000 times.

### Applications

Integrated Receiver Decoder (IRD) used for digital satellite broadcast reception, Equipment making use of Smart Card

### Specifications

Item	Requirements
No. of Positions	8
Current rating (A)	1
PCB Mount Type	Through hole
Generic Name	Smart card connector
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 80
Applicable PCB Thickness (mm)	1.6
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	ISO

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

FPC/FFC Connectors

Optical Connectors and Devices

Microwave Components

Circular  
Connectors

Rectangular  
Connectors

Coaxial  
Connectors

**Memory Card**

Modular  
Connectors

Card Edge  
Connectors

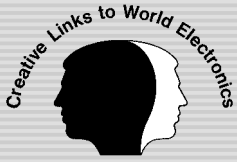
Board-to-Board  
Connectors

Board-to-Wire  
Connectors

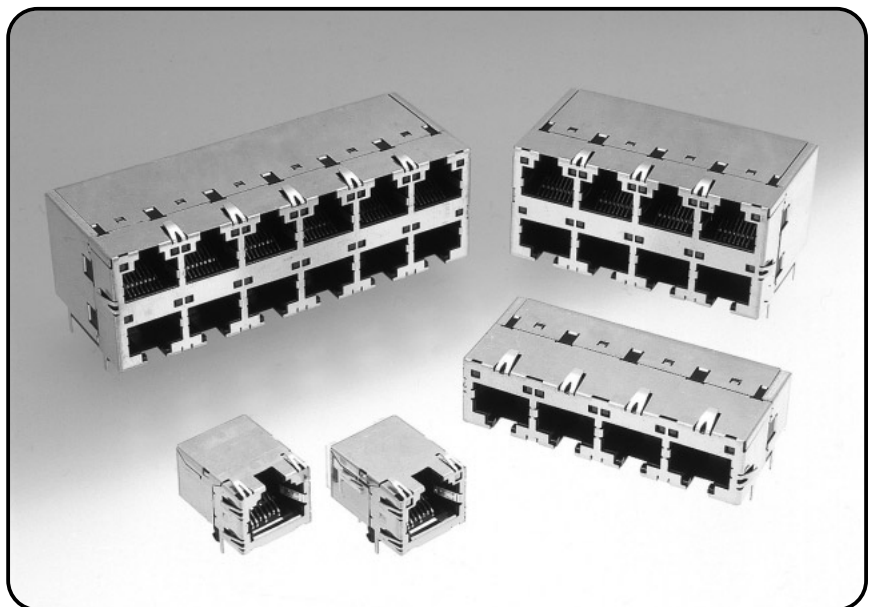
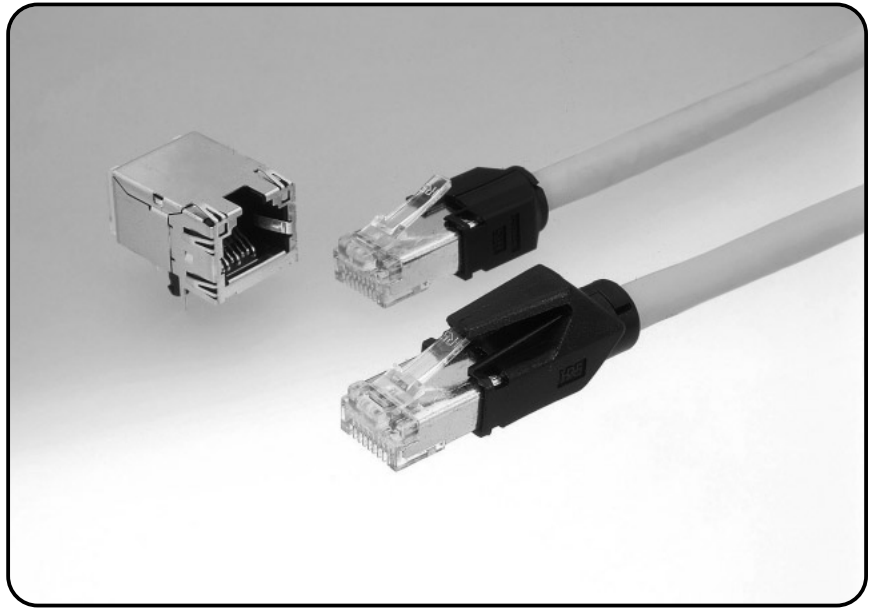
FPC/FFC  
Connectors

Optical Connectors  
and Devices

Microwave  
Components



# Modular Connectors



## Modular Plug/Jack Connectors Compliant to Category 6 standard

Connector type	Size	Series Name	Page
CAT6 Data system connector	8,8×2,8×6,8×24,8×48	TM23	85

## Modular Jack Connectors with Pulse Transformers

Connector type	Size	Series Name	Page
Modular Jack connectors with Pulse Transformers	8	TM11RD-5TANA	85

## Modular Plug/Jack Connectors Compliant to Enhanced Category 5 standards

Connector type	Size	Series Name	Page
Modular plug connectors compliant to enhanced category 5 standards	8	TM21P	86
Modular jack connectors for high-speed LAN transmission	8,8×4,8×8,8×12	TM21R	86

## Modular Jack Connectors Compliant to Enhanced Category 5 standards

Connector type	Size	Series Name	Page
Subminiature, LAN modular jack connectors	8	TM11R-5M2	87

## Modular Plug/Jack Connectors for EMI protection

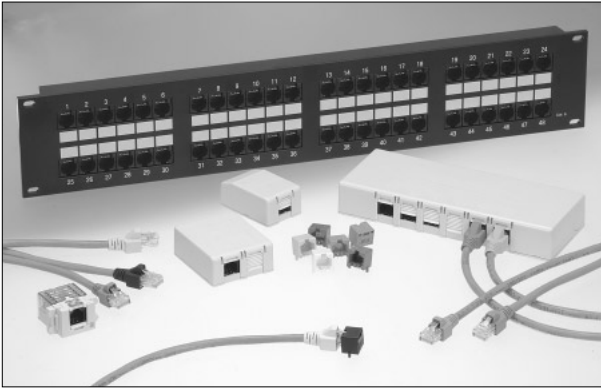
Connector type	Size	Series Name	Page
EMI-protected modular plugs	6,8	TM11P	87
EMI-protected jacks	8,8×4	TM11R	88

## Modular Plug/Jack Connectors Conform to ISO 8877/RJ-45/RJ-11

Connector type	Size	Series Name	Page
Plugs	4,6,8	TM-P	88
Right angle through hole type	4,6,8, 6+8,6+6+8,6×2,6×3,6×4,8×2,8×3,8×4	TM-DS	89
Straight through hole type	4,6,8,4+6	TM-DSA	89
Wire lead jack type	4,6,8	TM-W	90
Bottom entry type	4,6,4+6	TM13	90
Dust covers for modular connectors	4,6,8	TM-DC	91
D-sub modular conversion connectors	6	TM12	91



## CAT6 Data system connector TM23 Series



### Features

- Conforms to requirements of TIA/EIA-568B.2-1 data wiring standards.
- A Product Lineup with a Focus on System Construction
- Supporting of a wide Variety of Manufacturers' CAT 6 Cable

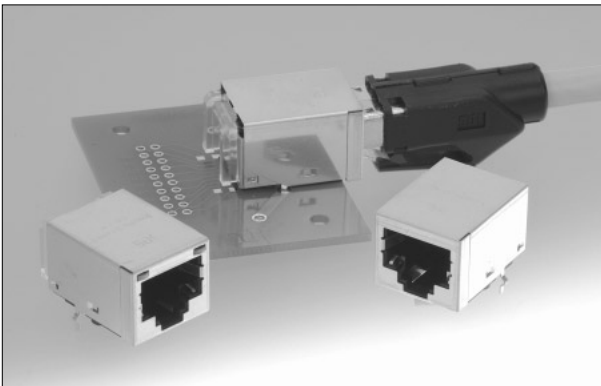
### Applications

LAN equipment, OA equipment, Measurement equipment

### Specifications

Item	Requirements
No. of Positions	8-16-48-192-384
Current rating (A)	1
Generic Name	Category 6 connector
Opening Size	8, 8 * 2 ports, 8 * 6 ports, 8 * 24 ports, 8 * 48 ports
Operating Temperature Range (°C)	-25, 0 to 60, 80
Insulator	Polycarbonate (UL94V-0, Color: Clear)
Applicable Cable (mm)	Cat. 6 cable (Stranded copper conductor: AWG#24, solid copper conductor: dia. 0.5mm)
Industry Standard	RJ-45,ISO8877,TIA/EIA-568-B,2-1CAT6

## Modular Jack C - with Pulse Transformers TM11RD-5TANA Series



### Features

- Voltage proof of 1.5KV isolated transformer and common mode choke coil are installed, which satisfies 100 Base-TX and 10Base-T requirements.
- Keying prevents 6-pos. modular plug to be inserted.
- Built-in optical pipe type enables to reduce PCB mounting space because indicators are unnecessary on panel.
- Metal shield covers the connector for EMI protection.
- Compliant to FCC (Federal Communications Commission) standard (FCC Title47, Parts68, Subpart F).

### Applications

LAN equipment, Office equipment, Measurement equipment, HUB, Router, Computer, ISDN terminal

### Specifications

Item	Requirements
No. of Positions	8
Current rating (A)	0.5
Generic Name	RJ-45
Opening Size	8
Operating Temperature Range (°C)	-25 to 80
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	RJ-45,ISO8877,TIA/EIA

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

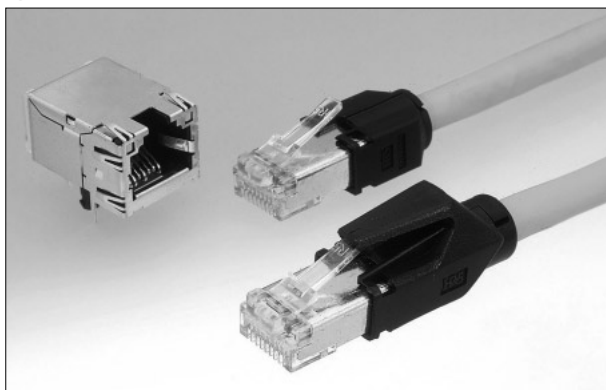
FPC/FCC Connectors

Optical Connectors and Devices

Microwave Components

## Modular plug connectors compliant to enhanced category 5 standards

### TM21P Series



#### Features

- Conforms to requirements of TIA/EIA-568-B data wiring standards.
- Satisfies the transmission performance of Enhanced Category 5.
- Supporting high-speed LAN transmissions such as Gigabit Ethernet (100BASE-T) and Fast Ethernet (100BASE-TX).
- The metal shield assures protection against EMI.
- Conforming to the ISO 8877 standards (ISDN interface connectors).

#### Applications

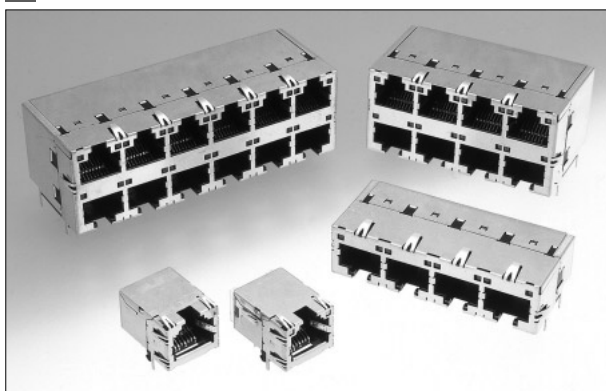
LAN equipment, Office equipment, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	8
Current rating (A)	0.5
Generic Name	Enhanced category 5 connector
Opening Size	8
Operating Temperature Range (°C)	-25 to 60-80
Insulator	Polycarbonate (UL94V-0, Color: Clear)
Applicable Cable (mm)	Enhanced Cat. 5 cable (Stranded copper conductor: AWG#24, solid copper conductor: dia. 0.5mm)
Industry Standard	RJ-45, ISO8877, TIA/EIA-568-B CAT5e

## Modular jack connectors for high-speed LAN transmission

### TM21R Series



#### Features

- Conforms to requirements of TIA/EIA-568-B data wiring standards.
- Single port configuration meeting CAT5e and multiple port configuration meeting CAT5 transmission performance.
- Optical indicators are integral part of the connectors saving space on customer's board.
- Built-in multiple shield and ground contacts covering the entire outer surface of the connector assure complete protection against EMI.
- Conforming to FCC (Federal Communications Commission) Title47, Parts68, Subpart F standards.

#### Applications

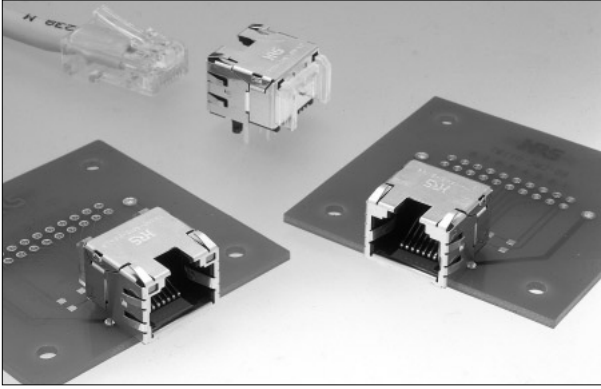
LAN equipment, Office equipment, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	8-32-48
Current rating (A)	0.5-1
Generic Name	Enhanced category 5 connector
Opening Size	8, 8 * 4 ports, 8 * 6 ports
Operating Temperature Range (°C)	-25 to 80
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	FCC Title47, Part68, Subpart-RJ-45, ISO8877, TIA/EIA CAT5

## Subminiature, LAN modular jack connectors

### TM11R-5M2 Series



#### Features

- Conforms to TIA/EIA-568-A information technology generic cabling standard and FCC Title47, Parts68, Subpart F standards.
- Meets the requirement of CAT5 transmission performance, and supports fast Ethernet (100BASE-TX) transmission.
- A connector having built-in optical indicator as compact as a height of only 11.5mm, a width of 15mm, and a depth of 17.5mm.
- Built-in multiple shield and ground contacts covering the entire outer surface of the connector assure complete protection against EMI.
- Lead-free in consideration of environmental issues.

#### Applications

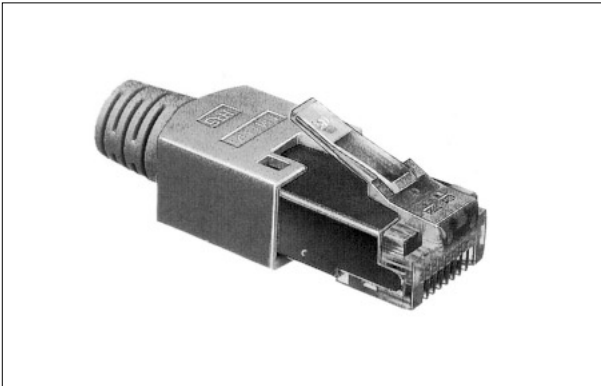
LAN equipment, Office equipment, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	8
Current rating (A)	1
Generic Name	RJ-45,ISO8877
Opening Size	8
Operating Temperature Range (°C)	-25 to 80
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	RJ-45,ISO8877,TIA/EIA CAT3

## EMI-protected modular plugs

### TM11P Series



#### Features

- A plug connector of EMI protection, single-body construction incorporating a shell and cable clamp.
- Conforming to FCC standards. The 6-conductor model conforming to RJ-11 standards, the 8-conductor model conforming to RJ-45 and ISO8877 standards.
- Designed for electrostatic prevention with the metal shell covered with a plastic hood.
- The harness of the plug connector is wired securely with ease by using a special tool.

#### Applications

LAN equipment, Office equipment, Measurement equipment, Hubs, Routers, Computers, Office equipment, ISDN terminals

#### Specifications

Item	Requirements
No. of Positions	6-8
Current rating (A)	0.5
Generic Name	ISO8877,RJ-45
Opening Size	6-8
Operating Temperature Range (°C)	-25 to 60
Insulator	Polycarbonate (UL94V-0, Color: Clear)
Applicable Cable (mm)	Copper foil or AWG#26 (Dia. 0.9mm to 1.0mm)
Industry Standard	RJ-11-RJ-45,ISO8877,TIA/EIA CAT3

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

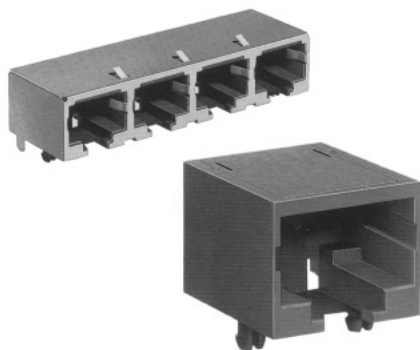
FP/CF/FC Connectors

Optical Connectors and Devices

Microwave Components

## EMI-protected jacks

### TM11R Series



#### Features

- The conventional TM series jack with EMI protection provided with a shield and ferrite core.
- Conforming to FCC standards. The 6-conductor model conforming to RJ-11 standards, the 8-conductor model conforming to RJ-45 and ISO8877 standards.
- A space-saving 8-conductor, 4-port type is available.
- A space-saving model with a height of 11.9mm from the PCB surface, a width of 14.6mm, and a depth of 17.6mm is available.
- A jack with the shield connecting first, ahead of contacts at the time of mating is available for the protection of the inner circuits of the equipment.

#### Applications

LAN equipment, Office equipment, Measurement equipment, Hubs, Routers, Computers, Office equipment, ISDN terminals

#### Specifications

Item	Requirements
No. of Positions	6-8-32
Current rating (A)	0.5
Generic Name	RJ-11,RJ-45
Contact Plating	Gold
Opening Size	6, 8, 8 * 4 ports
Operating Temperature Range (°C)	-25 to 60
Insulator	PBT (UL94V-0)
Industry Standard	RJ-11·RJ-45,ISO8877,TIA/EIA CAT3

## Plugs

### TM-P Series



#### Features

- Conforming to FCC standards. The 6-conductor model conforming to RJ-11 standards, the 8-conductor model conforming to RJ-45 and ISO8877 standards.
- Cables in a wide variety are available, including flat and round copper foil stranded wires, non-shielded solid wires, and thin stranded wires.
- Cable termination to pre-inserted contacts using a special manual tool.
- The gold-plated terminals are environment resistive with a fire retardant insulator (UL94V-0) used.
- The one touch lock offers excellent operability.

#### Applications

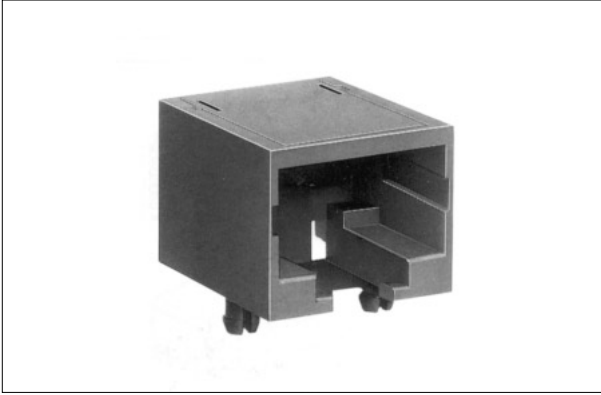
Telephones, Fax machines, Radio equipment, Modems, Intercoms, Computers, Communications equipment, Measurement equipment, Office equipment, Control equipment, LAN equipment, Transmission equipment, Medical equipment

#### Specifications

Item	Requirements
No. of Positions	2-4-6-8
Current rating (A)	0.5
Generic Name	ISO8877,RJ-11,RJ-45
Contact Plating	Gold
Opening Size	4, 6, 8
Operating Temperature Range (°C)	-25 to 60
Insulator	Polycarbonate (UL94V-0, Color: Clear)
Applicable Cable (mm)	Solid wire (Dia. 0.4mm, 0.5mm, 0.65mm)Thin wire (AWG#28)
Industry Standard	RJ-11·RJ-45,ISO8877,TIA/EIA CAT3

## Right angle through hole type

### TM-DS Series



#### Features

- Conforming to FCC standards. The 6-conductor opening model conforming to RJ-11 standards, the 8-conductor model conforming to RJ-45 and ISO8877 standards.
- Dip soldering horizontally to the PCB.
- The gold-plated terminals are environment resistive with a fire retardant insulator (UL94V-0) used.
- Multiple port types have a 6-conductor, or 8-conductor opening in a wide variety including space saving types.
- A space-saving model with a height of 11.7mm from the PCB surface, a width of 14mm, and a depth of 17mm is available.

#### Applications

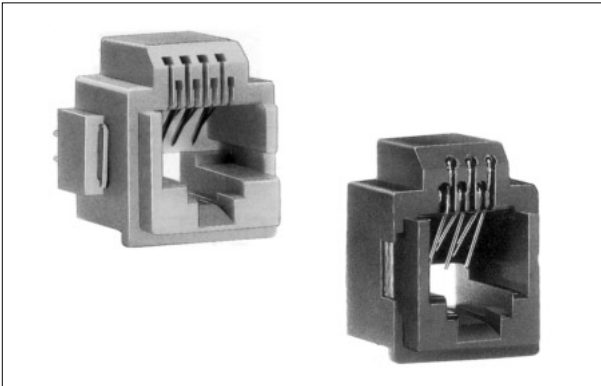
Telephones, Fax machines, Radio equipment, Modems, Intercom, Computers, Communications equipment, Measurement equipment, Office equipment, Control equipment, LAN equipment, Transmission equipment, Medical equipment, Hubs, ISDN terminals

#### Specifications

Item	Requirements
No. of Positions	2·4·6·8·12·14·16·18·20·24·32
Current rating (A)	0.5
Generic Name	ISO8877,RJ-11,RJ-45
Opening Size	4, 6, 6 * 2 ports, 6 * 3 ports, 6 * 4 ports, 6 + 6 + 8, 6 + 8, 8, 8 * 2 ports, 8 * 3 ports, 8 * 4 ports
Operating Temperature Range (°C)	-25 to 60
Insulator	PBT (UL94V-0)
Industry Standard	RJ-11,RJ-45,ISO8877,TIA/EIA CAT3

## Straight through hole type

### TM-DSA Series



#### Features

- Conforming to FCC standards. The 6-conductor opening model conforming to RJ-11 standards, the 8-conductor model conforming to RJ-45 and ISO8877 standards.
- Dip soldering vertically to the PCB.
- The gold-plated terminals are environment resistive with a fire retardant insulator (UL94V-0) used.
- Multiple port types have a 6-conductor opening in a wide variety with one to four ports.
- Lightweight, compact design with PCB mounting space reduced.

#### Applications

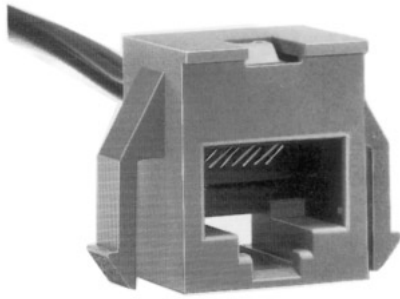
Telephones, Fax machines, Radio equipment, Modems, Intercom, Computers, Communications equipment, Measurement equipment, Office equipment, Control equipment, LAN equipment, Transmission equipment, Medical equipment, Hubs, ISDN terminals

#### Specifications

Item	Requirements
No. of Positions	2·4·6·8·10
Current rating (A)	0.5
Generic Name	ISO8877,RJ-11,RJ-45
Opening Size	4, 4 + 6, 6, 8
Operating Temperature Range (°C)	-25 to 60
Insulator	PBT (UL94V-0)
Industry Standard	RJ-11·RJ-45,ISO8877

## Wire lead jack type

### TM-W Series



#### Features

- Conforming to FCC standards. The 6-conductor opening model conforming to RJ-11 standards, the 8-conductor model conforming to RJ-45 and ISO8877 standards.
- Jack with tin-coated lead wire connected.
- The gold-plated terminals are environment resistive with a fire retardant insulator (UL94V-0) used.
- A variety of connectors can be connected to the opposite side of the lead wires.
- Products are shipped with the lead wires connected.

#### Applications

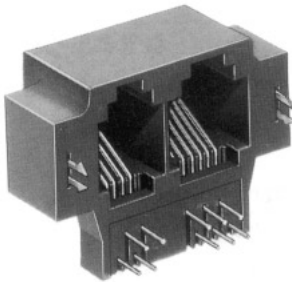
Telephones, Fax machines, Radio equipment, Modems, Intercoms, Computers, Communications equipment, Measurement equipment, Office equipment, Control equipment, LAN equipment, Transmission equipment, Medical equipment

#### Specifications

Item	Requirements
No. of Positions	2-4-6-8
Current rating (A)	0.5
Generic Name	ISO8877,RJ-11,RJ-45
Opening Size	4, 6, 8
Operating Temperature Range (°C)	-25 to 60
Insulator	ABS (UL94V-0)
Industry Standard	RJ-11-RJ-45,ISO8877

## Bottom entry type

### TM13 Series



#### Features

- A jack of bottom entry type connecting the plug from the reverse side of the PCB.
- Conforming to FCC standards. The 6-conductor opening model conforming to RJ-11 standards.
- The gold-plated terminals are environment resistive with a fire retardant insulator (UL94V-0) used.
- Straight connector.

#### Applications

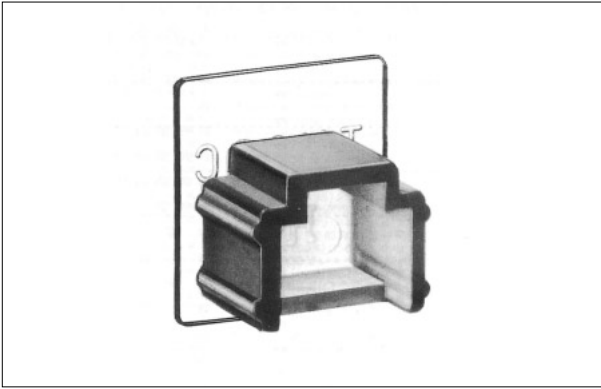
Telephones, fax machines, radio equipment, modems, intercoms, computers, communications equipment, measurement equipment, office equipment, and control equipment

#### Specifications

Item	Requirements
No. of Positions	2-4-6-10
Current rating (A)	0.5
Generic Name	RJ-11
Contact Plating	Gold
Opening Size	4, 4 + 6, 8
Operating Temperature Range (°C)	-25 to 60
Insulator	PBT (UL94V-0)
Industry Standard	RJ-11-RJ-11,RJ-45,ISO8877

## Dust covers for modular connectors

### TM-DC Series



#### Features

- Protects the opening section of modular jacks when the plug is not mated with it.
- Opening with 4, 6, and 8 contacts.
- Polyethylene made.
- Dark gray and natural color.

#### Applications

Telephones, Radio equipment, Modems, Intercoms, Computers, Communications equipment, Measurement equipment, Office equipment, Control equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8
Generic Name	ISO8877,RJ-11,RJ-45
Operating Temperature Range (°C)	-25 to 60

## D-sub modular conversion connectors

### TM12 Series



#### Features

- Conversion connector for the PC communications RS-232C interface (D-sub 25 contacts) and modular.
- Compact design with a screw lock on the D-sub mating side.
- The D-sub and modular connectors used have time-proven reliability in the market.
- The modular connector has a 6-conductor opening with four contacts and a 6-conductor opening with 6 contacts.
- 25-conductor male type with D-sub connector.

#### Applications

Computers, Communication equipment

#### Specifications

Item	Requirements
No. of Positions	4-6
Current rating (A)	0.5
Generic Name	D-sub, RJ-11
Contact Plating	Gold
Opening Size	6
Operating Temperature Range (°C)	-25 to 60
Insulator	ABS (UL94V-0), PBT (UL94V-0)
Industry Standard	RJ-11,MIL

Circular  
Connectors

Rectangular  
Connectors

Coaxial  
Connectors

Memory Card

**Modular  
Connectors**

Card Edge  
Connectors

Board-to-Board  
Connectors

Board-to-Wire  
Connectors

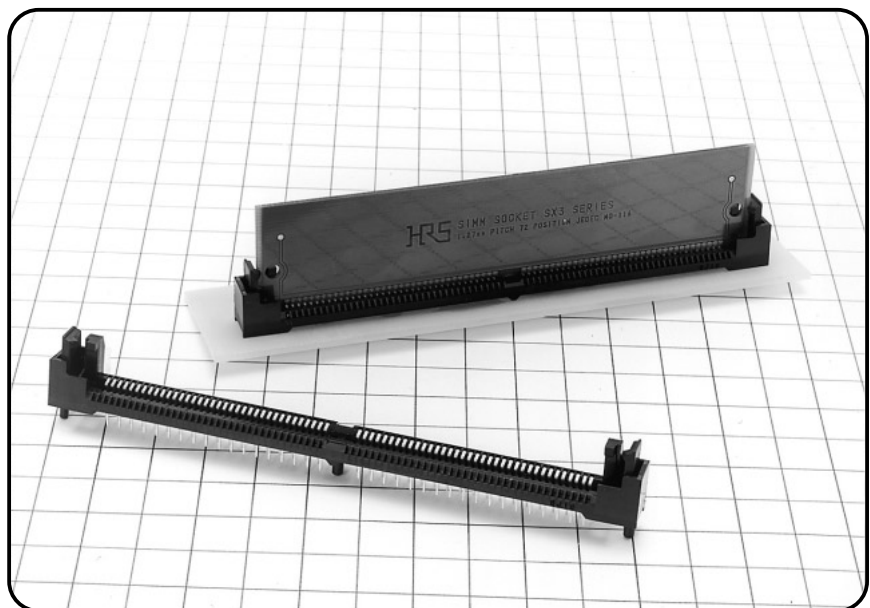
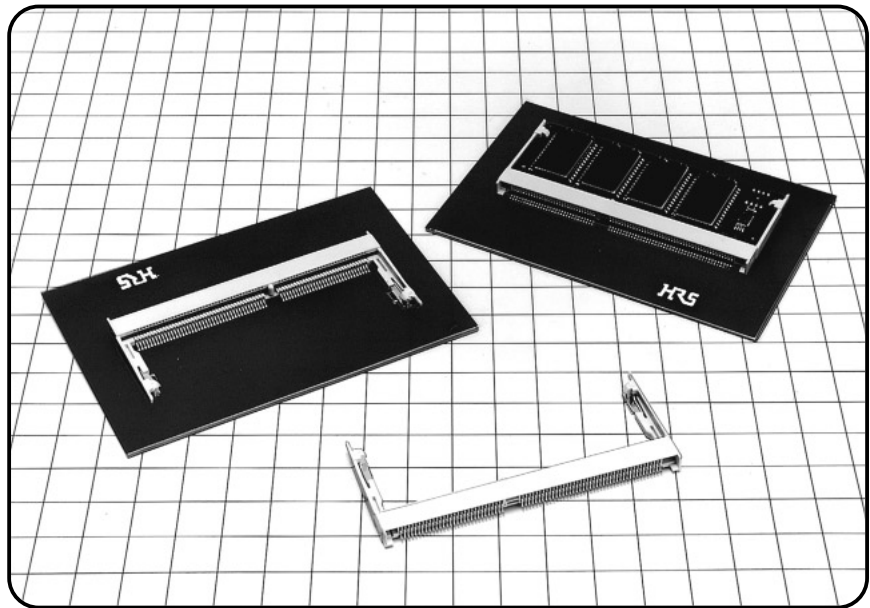
FPC/FFC  
Connectors

Optical Connectors  
and Devices

Microwave  
Components



# Card Edge Connectors



# Card Edge Connectors



## Memory Module Socket

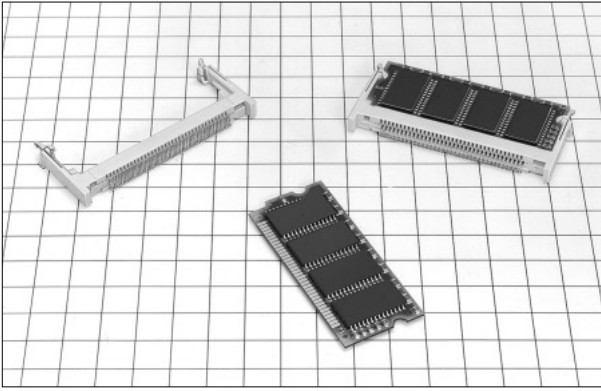
Type	Contact pitch (mm)	Series Name	Page
0.635mm pitch S.O. DIMM socket	0.635	SX1	95
1.27mm pitch 8 byte DIMM socket		SX4	95
1.27mm pitch 72 pos. SIMM socket	1.27	SX3	96
1.27mm pitch socket for memory module board		MCR89	96

## Card Edge Connectors

Type	Contact pitch (mm)	Series Name	Page
2.54mm pitch card edge socket	2.54	CR22	97
2.54mm pitch card edge socket		MCR60	97
3.96mm pitch card edge socket	3.96	CR6	98
3.96mm, 4mm pitch card edge socket	3.96,4	CR7	98
4mm pitch card edge socket	4	CR23	99

## 0.635mm pitch S.O. DIMM socket

### SX1 Series



#### Features

- Compliant with JEDEC standard “small Outline DIMM”.
- The size is about half as large as the conventional 72 contacts DRAM SIMM socket.
- Corresponding to double density (both surfaces), this socket realizes high functionality and density of the module board.
- Three stack height variations: 4.0, 5.5, and 8.0mm.
- The unique mold twin-latch allows excellent insertion and extraction operation with a sensible click.

#### Applications

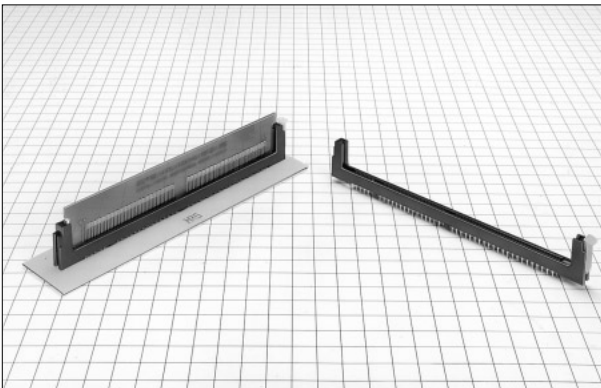
PCs, Office equipment, Measurement equipment, Communications equipment, FA machines, Game machines

#### Specifications

Item	Requirements
No. of Positions	72
Current rating (A)	0.5
PCB Mount Type	SMT
Terminal Pitch (mm)	0.635
Contact Pitch (mm)	1.27
Contact Layout	Single row
Operating Temperature Range (°C)	-55 to 85
Applicable PCB Thickness (mm)	1.0
Insulator	PPS (UL94V-0)
Industry Standard	JEDEC

## 1.27mm pitch 8 byte DIMM socket

### SX4 Series



#### Features

- Compliant with “8Byte DIMM” standardized at JEDEC.
- The applicable module board is a 1.27mm pitch 168 pins type for double-sided connection.
- Compatible with 5V and 3.3V operating voltage module boards.
- The key mechanism prevents mis-insertion in the module board.
- The structure to sustain the module board on both sides prevents displacement of the module board.

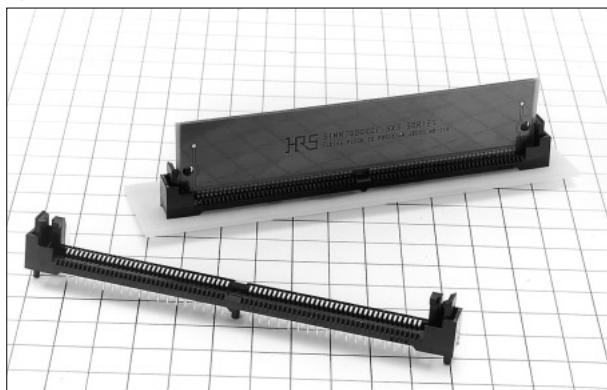
#### Applications

Workstations, Computers, Hard disks, PCs, PPC equipment, Office equipment, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	168
Current rating (A)	0.5
PCB Mount Type	Through hole
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	4 row
Operating Temperature Range (°C)	-55 to 85
Applicable PCB Thickness (mm)	1.27
Insulator	PPS (UL94V-0)
Industry Standard	JEDEC

## 1.27mm pitch 72 pos. SIMM socket SX3 Series



### Features

- Compliant with JEDEC standard 1.27mm pitch 72-pin memory module PC board.
- The new concept mold latch system achieves high reliability for safe handling.
- The mold latch system has greatly improved the operation durability using the FEM analysis.
- Contacts achieves high reliability in contact with smooth rolling areas.
- The contact floating mechanism and structure to reduce the board warpage secures stable contact areas.

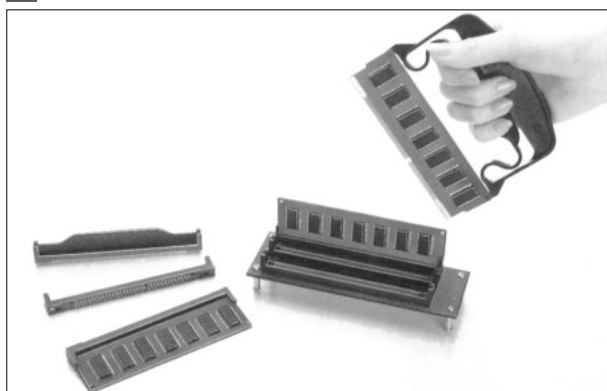
### Applications

PCs, Workstations, Hard disks, Office equipment, Measurement devices

### Specifications

Item	Requirements
No. of Positions	72
Current rating (A)	1
PCB Mount Type	Through hole
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Applicable PCB Thickness (mm)	1.27
Insulator	PBT (UL94V-1)
Industry Standard	JEDEC

## 1.27mm pitch socket for memory module board MCR89 Series



### Features

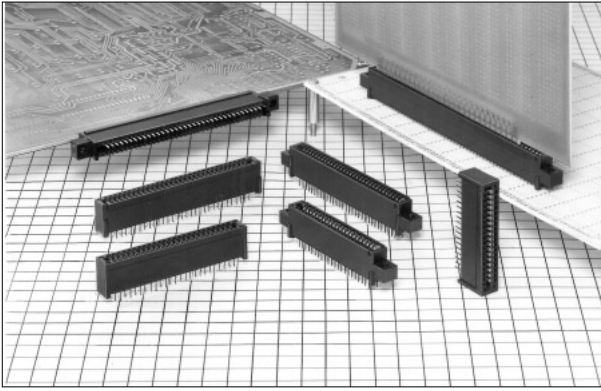
- This socket achieves high reliability in the horizontal contact spring system.
- This socket allows low insertion force in the preload structure.
- The dip contact through-hole diameter is only 0.5mm, and simplifies the pattern design.
- The low profile with 6.2mm height from the board is suitable for miniaturization of equipment.
- This socket is capable of widening the effective mounting area on the module PCB.

### Specifications

Item	Requirements
No. of Positions	130
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-30 to 85
Applicable PCB Thickness (mm)	1.6-2.6
Insulator	PPS (UL94V-1, Color: Brown)

## 2.54mm pitch card edge socket

### CR22 Series



#### Features

- Low-cost and high-performance card edge connectors developed for the OA market.
- High cost performance connectors manufactured in response to market needs, such as precious metal saving achieved by partial gold plating on the contacts, thoroughgoing analysis of material saving, and improvement and the streamlining of the method of production.
- 2.54mm pitch contact.
- Straight dip and right angle dip types are available.
- Using the polarizing key prevents mis-insertion in the PCB.

#### Applications

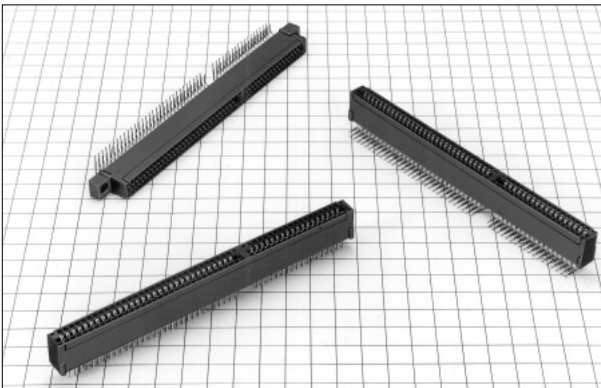
Measurement devices, Communications equipment, Control equipment, Exchangers, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	20-30-34-36-44-50-60-62-68-72-80-100-120
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-30 to 85
Applicable PCB Thickness (mm)	1.6
Insulator	Polycarbonate (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Polarizing key(CR13-GPIN(A))

## 2.54mm pitch card edge socket

### MCR60 Series



#### Features

- Developed for ISA bus (AT bus) standard.
- The contact spacing is 2.54mm, and the connector has 98 contacts.
- Straight dip, right angle dip types are available for PCB mounting.
- Using the polarizing key prevents mis-insertion in the PCB.

#### Applications

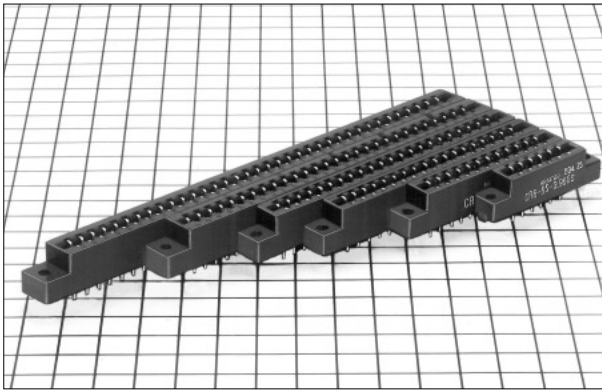
Measurement devices, Communications equipment, Control equipment, Exchangers, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	98
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-30 to 85
Applicable PCB Thickness (mm)	1.6
Insulator	PBT (UL94V-0, Color: Black)

## 3.96mm pitch card edge socket

### CR6 Series



#### Features

- Using the tuning fork contact, where the contact spacing is 3.96mm, for PCBs.
- Connection type: Eyelet, open end, and dip types are available.
- Using the polarizing key prevents mis-insertion in the PCB.

#### Applications

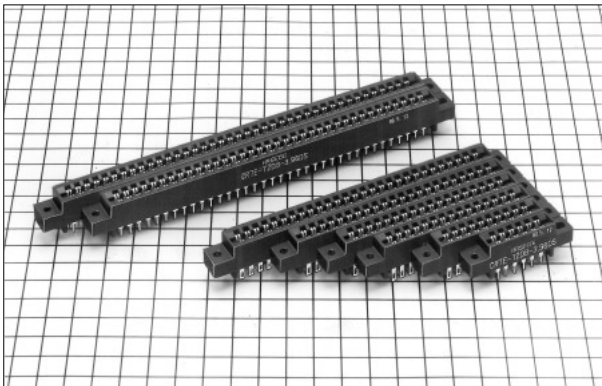
Measurement devices, Communications equipment, Control equipment, Exchangers, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	6-10-12-15-18-22-28-36
Current rating (A)	5
PCB Mount Type	Eyelet, open end, through hole
Contact Plating	Gold
Terminal Pitch (mm)	3.96
Contact Pitch (mm)	3.96
Contact Layout	Single row
Operating Temperature Range (°C)	-30 to 85
Applicable PCB Thickness (mm)	1.6
Insulator	Diallyl phthalate (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Polarizing key(CR6-GPIN(A))

## 3.96mm, 4mm pitch card edge socket

### CR7 Series



#### Features

- Using HIROSE's unique 2 step of bellows contact, where the contact spacing is 3.96 or 4mm for double-sided PCBs.
- Eyelet and dip types connection are available.
- Using the polarizing key prevents mis-insertion in the PCB.

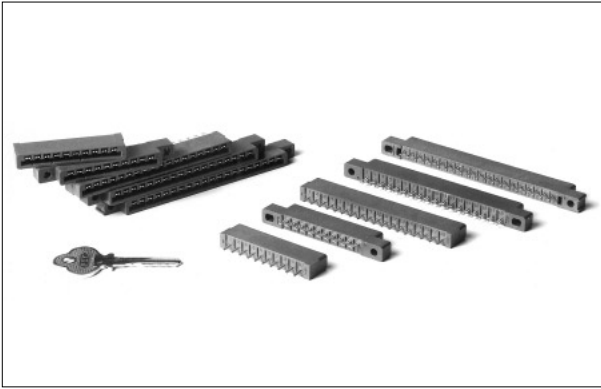
#### Applications

Measurement devices, Communications equipment, Control equipment, Exchangers, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	12-20-28-30-36-44-56-72-80
Current rating (A)	3
PCB Mount Type	Eyelet, through hole
Terminal Pitch (mm)	3.96-4
Contact Pitch (mm)	3.96,4
Contact Layout	Double row
Operating Temperature Range (°C)	-30 to 85
Applicable PCB Thickness (mm)	1.6
Insulator	Polycarbonate (UL94V-0, Color: Blue)
Industry Standard	MIL
Accessories	Polarizing key(CR7C-GPIN)(CR1-GPIN)(HIF5B-GPIN)

## 4mm pitch card edge socket CR23 Series



### Features

- High performance, single side card edge connectors for PCBs.
- The contact spacing is 4mm.
- Available to a wide range of industrial and home applications, such as VTR, fax machines, audio equipment, ECR, and PPC.
- Products with a sharp cost reduction enabled by thoroughgoing value analysis and a mass production system.
- Using the polarizing key prevents mis-insertion in the PCB.

### Applications

Measurement devices, Communications equipment, Control equipment, Exchangers, Measurement equipment

### Specifications

Item	Requirements
No. of Positions	6·10·14·18·22
Current rating (A)	3
PCB Mount Type	Eyelet, through hole
Contact Plating	Gold, tin
Terminal Pitch (mm)	4
Contact Pitch (mm)	4
Contact Layout	Single row
Operating Temperature Range (°C)	-30 to 85
Applicable PCB Thickness (mm)	1.6
Insulator	Polycarbonate (UL94V-0, Color: Blue)
Industry Standard	MIL
Accessories	Polarizing key(CR7C-GPIN)(HIF5B-GPIN)

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

FPC/FFC Connectors

Optical Connectors and Devices

Microwave Components

Circular  
Connectors

Rectangular  
Connectors

Coaxial  
Connectors

Memory Card

Modular  
Connectors

**Card Edge  
Connectors**

Board-to-Board  
Connectors

Board-to-Wire  
Connectors

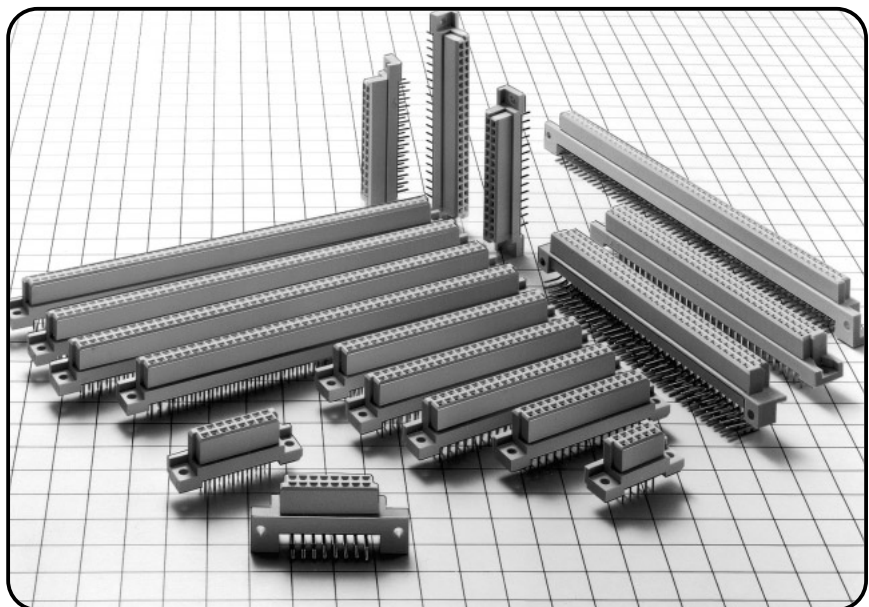
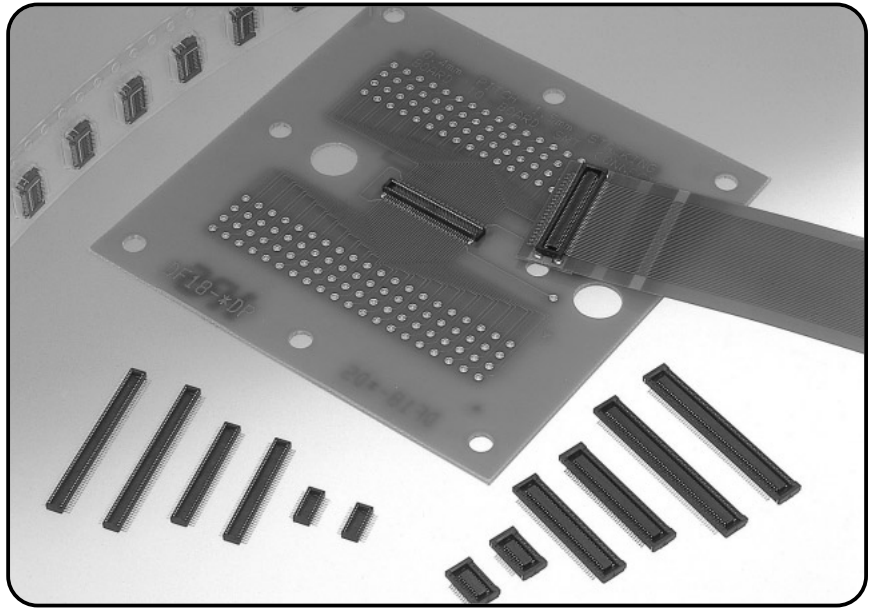
FPC/FFC  
Connectors

Optical Connectors  
and Devices

Microwave  
Components



# Board-to-Board Connectors



# Board-to-Board Connectors



## Board to Board Connectors (SMT, Through hole, Wrapping)

Board Mounting Type	Contact Pitch (mm)	Stack Height	Remarks	Series Name	Page
SMT	0.4	0.9mm	Board to Board/Board to FPC Connectors	DF30	103
		1.5mm	Board to Board/Board to FPC Connectors	DF18	103
		-	Vertical connection	DF28	104
	0.5	1.5mm	Low profile type	DF23	104
		2 to 2.5mm		DF16	105
		3 to 5mm	-	DF12	105
		5 to 8mm	Shockproof type	DF17	106
		2 to 3mm	With Ground plates	FX11	106
		4 to 5mm		FX10	107
		19, 23, 30mm	High speed, matched-impedance	IT1	107
	0.6	3 to 4mm		FX8	108
		5 to 16mm	-	FX8C	108
	0.65	4 to 8mm		DF15	109
	0.8	5 to 9mm		FX6	109
	1	4.5mm	Standard interface for VESA FPDI-1	DF9	110
		-	Vertical connection type	FX5	110
1.1	1.2, 1.7mm	Compression type	DF26	111	
SMT-Through hole	1.27	5 to 11mm(SMT6 to 11mm)		FX4	111
		12 to 16mm	Board to wire type available	FX2	112
Through hole	2	-	Disk Unit Connection	FX2M3	112
		28.2 to 66mm	Mate with FX2 series	FX2M6	113
			Vertical connection type, Board to wire type available	HIF6A	113
			Vertical connection type available	FX1	114
SMT-Through hole	2		Discrete wire Connection available	DF3	114
Through hole	2.5	-	For 2.5 inch HDD	MA18	115
			Vertical Post Header	MDF14A	116
			Bottom Entry type	MDF7	116
Through hole-Wrapping	2.54		Vertical connection type available	HIF3H	117

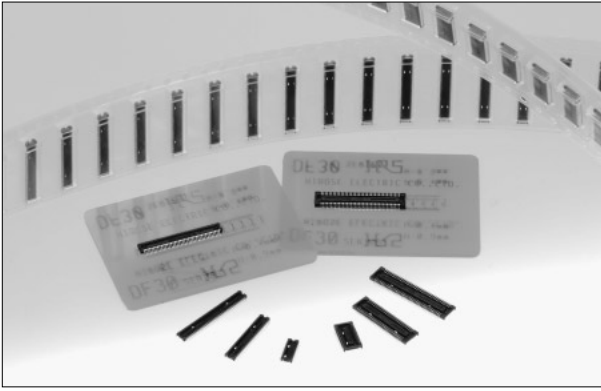
## Press-fit Connection Connectors

Board Mounting Type	Contact Pitch (mm)	Remarks	Series Name	Page
Press-fit	2	2mm Hard Metric Connectors	PCN21	117
	5	High Current, High Density, Power Connectors	MCN51	118

## Compliant to IEC604-2/DIN41612

Board Mounting Type	Contact Pitch (mm)	Stack Height	Remarks	Series Name	Page
Through hole	2.54	-	Standard type	PCN10	118
			Contact construction: Double-sided two-point contact type	PCN12	119
Contact construction: Single-sided two-point contact type			PCN13	119	
Coaxial and High Current Contact Composite type			PCN10F	120	
Press-fit			Press fit type	PCN11	120

## 0.4mm pitch, 0.9mm height, board to board / board to FPC connectors DF30 Series



### Features

- Space saving design with miniaturized PCB mounting area to the maximum contributes to high-density packaging of application.
- Dimples on header contact enhances wiping operation, which improves contact reliability.
- Wide self alignment range on the receptacle surface to ensure high mating reliability in a limited space.
- Varieties of No. of positions, especially small number for LCD and camera module connections for mobile phones.
- Wide vacuum pick up area for automatic mounting in spite of ultra small.

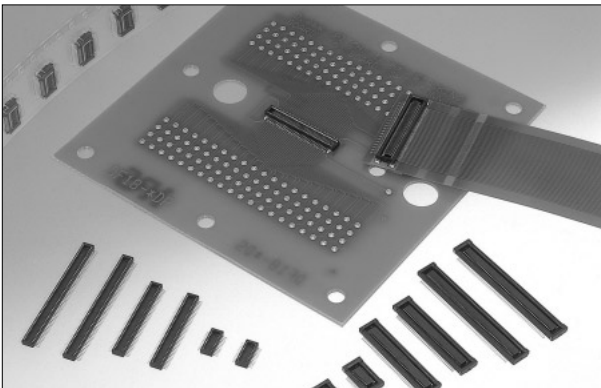
### Applications

Compact electronic equipment like mobile phone, PDA, Mobile PC, Digital video camera (DVC), Digital camera (DSC)

### Specifications

Item	Requirements
No. of Positions	20-22-24-30-34-40-50-60-70-80
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.4
Contact Pitch (mm)	0.4
Contact Layout	Double row
Stack Height (mm)	0.9
Operating Temperature Range (°C)	-35 to 85
Insulator	LCP (UL94V-0, Color: Black)

## 0.4mm pitch, 1.5mm above the board, board to board / board to FPC connectors DF18 Series



### Features

- Space-saving design with the connector occupying area reduced to the limits.
- The female contact has a long enough spring length, thus ensuring high reliability.
- Low stack, yet providing fine mating.
- Four reinforced fittings provide greater adhesion to the board, protecting against solder peeling and providing a stronger ground.
- A miniature design, yet the connector has the vacuum area, which enables the automatic mounting by the embossed tape packaging.

### Applications

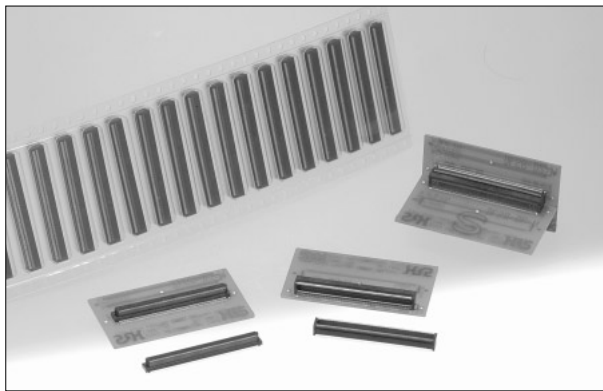
DVC, DSC, Mobile Phones, LCDs

### Specifications

Item	Requirements
No. of Positions	20-30-40-50-60-70-80,100
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.4
Contact Pitch (mm)	0.4
Contact Layout	Double row
Stack Height (mm)	1.5
Operating Temperature Range (°C)	-35 to 85
Insulator	LCP (UL94V-0, Color: Black)

## 0.4mm pitch connectors

### DF28 Series



#### Features

- Width:4.05mm, length:32.4mm and space on PCB:0.875 sq.mm/pin of both receptacle and header.
- All bottom surface of the connector with no pattern-prohibited area.
- Spring length is enough to ensure high contact reliability. Effective mating length is 0.9mm.
- Solder penetration prevention with nickel barriered receptacle and single-piece header.
- 0.45mm self alignment secures good insertion workability

#### Applications

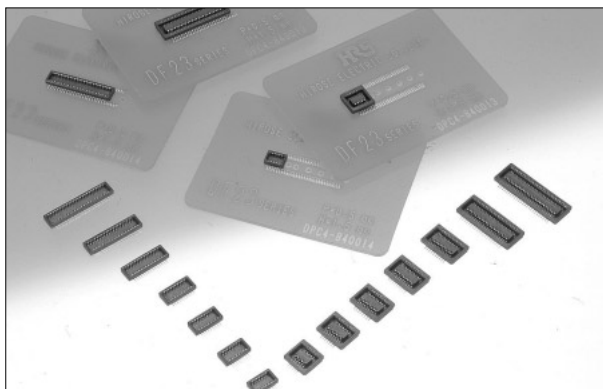
Digital still camera(DSC) and Digital video camera(DVC) etc. required downsizing49)

#### Specifications

Item	Requirements
No. of Positions	150
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.4
Contact Pitch (mm)	0.4
Contact Layout	Double row
Stack Height (mm)	-
Operating Temperature Range (°C)	-35 to 85
Insulator	LCP (UL94V-0, Color: Black)

## 0.5mm pitch low profile board to board / board to FPC connectors

### DF23 Series



#### Features

- The stacking height of 1.5mm ideal for low-profile mounting.
- Contacts in a wide variety. Connectors with 10 to 20 contacts in 2-contact increments are ideal for use in small LCD connections in cellular phones.
- Positive click sensation when completely mated confirms correct insertion and connection of all contacts.
- The large range of alignment of 0.3mm allows for smooth insertion.
- A miniature design, yet the connector has the vacuum area, which enables the automatic mounting by the embossed tape packaging.

#### Applications

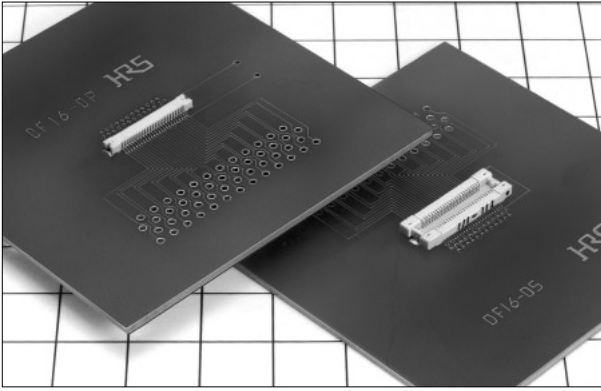
Mobile Phones, Information terminal equipment, Notebook PCs, Digital cameras

#### Specifications

Item	Requirements
No. of Positions	10-14-16-18-20-30-40-50
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Double row
Stack Height (mm)	1.5
Operating Temperature Range (°C)	-35 to 85
Insulator	LCP (UL94V-0, Color: Black)

## 0.5mm pitch low profile connectors

### DF16 Series



#### Features

- In addition to 0.5mm pitch miniaturization, the stacking height of 2mm and 2.5mm are provided.
- The bellows female contact has sufficient spring characteristic despite the low profile, and achieves high contact reliability.
- The click feeling is considered to facilitate insertion check when the connector is mated.
- The connector has the vacuum area, which enables the automatic mounting by the embossed tape packaging.
- The product including the metal fitting to prevent solder peeling is prepared, considering the mounting on FPC.

#### Applications

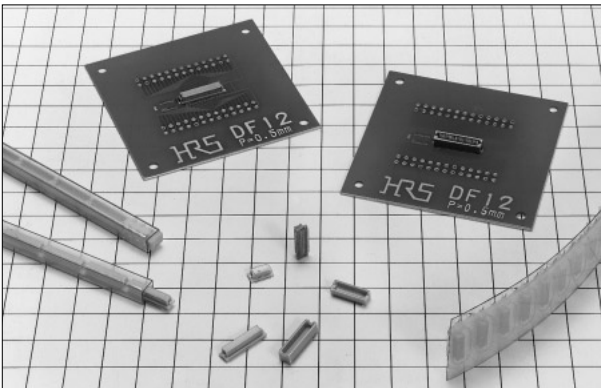
Mobile Phones, PC cards, Liquid Crystal Displays (LCDs)

#### Specifications

Item	Requirements
No. of Positions	14-16-20-30-34-40-50-60-80
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Double row
Stack Height (mm)	2-2.5
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94V-0, Color: White beige (natural))

## 0.5mm pitch connectors

### DF12 Series



#### Features

- 0.5mm pitch models with the stacking height of 3mm, 3.5mm, 4mm, and 5mm are provided.
- For the protection of the solder joints from peeling off due to mechanical stress, products with reinforced brackets provided are available. These products ensure ease of FPC mounting as well.
- Specifications with a guide post for manual work and those with no guide post for automatic mounting are available.

#### Applications

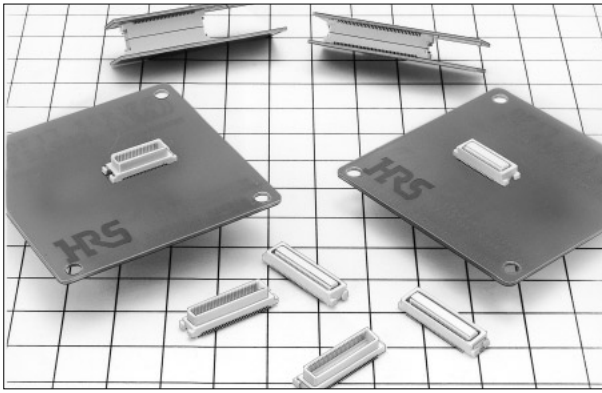
Portable terminals, LCDs (Liquid Crystal Displays), MO (Magneto-Optic) discs, PCs

#### Specifications

Item	Requirements
No. of Positions	20-30-32-36-40-50-60
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Double row
Stack Height (mm)	3-3.5-4-5
Operating Temperature Range (°C)	-45 to 125
Insulator	Polyamide (UL94V-0, Color: White beige (natural))

## 0.5mm pitch connectors

### DF17 Series



#### Features

- The receptacle is designed in a box structure and has also enhanced shock-proof, pinch-proof, and scoop-proof performance.
- In addition, the receptacle contact has employed the high scoop-proof bellows type.
- In order to grade up the strength against the mechanical stress, the metal fitting specification is also available.
- The stacking height can be selected (per millimeter) between 4mm and 8mm in combination of the receptacle with the header.
- Models with or without positioning guide posts are selectable.

#### Applications

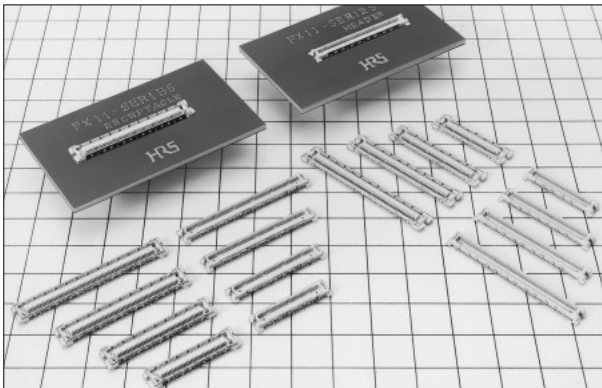
Mobile Phones, LCDs, Compact information equipment

#### Specifications

Item	Requirements
No. of Positions	20-26-30-40-50-60-70-80-100
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Double row
Stack Height (mm)	4-5-5.5-6-6.5-7-8
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94V-0, Color: White)

## 0.5mm pitch, connectors with ground plate, stack height: 2mm to 3mm

### FX11 Series



#### Features

- The transmission characteristics have been improved through a design that fixes ground plates to both sides of the header and receptacle.
- Signal and ground are arranged in a ratio of 10:1 to stabilize the ground.
- Reinforced fittings provide greater adhesion to the ground, protecting against solder peeling.
- Low-profile connectors, yet a solder gap has been designed into the contact SMT portion to prevent solder from swelling.
- The secured mating length of the contact block is 0.55mm for the 2mm type, and 1mm for the 2.5mm or 3mm type to ensure high contact reliability.

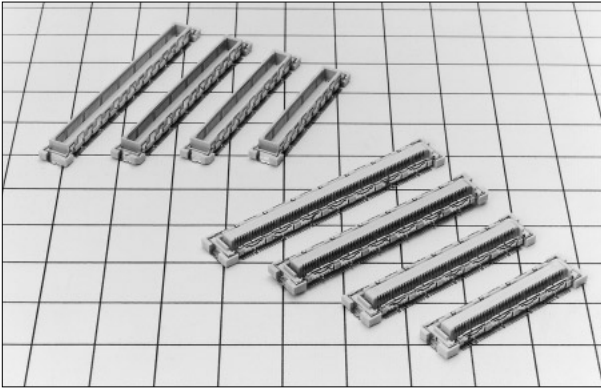
#### Applications

Notebook PCs, PDA, Compact electronic equipment

#### Specifications

Item	Requirements
No. of Positions	60-68-80-92-100-116-120-140
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Double row
Stack Height (mm)	2-2.5-3
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Beige)

## 0.5mm pitch, connectors with ground plate, stack height: 4mm to 5mm FX10 Series



### Features

- Connectors incorporating a ground plate for board-to-board connections.
- The signal and ground are arranged in a ratio of 10 to 1 with the ground plate SMT directly connected to the board.
- The reinforced fittings provide greater adhesion to the board, protecting against solder peeling and ensuring a stronger ground.
- The signal contact spacing of 0.5mm produces a smaller connector supporting high-density PCB mounting.
- The mating length of the contact part (signal contacts) is 1.1mm.

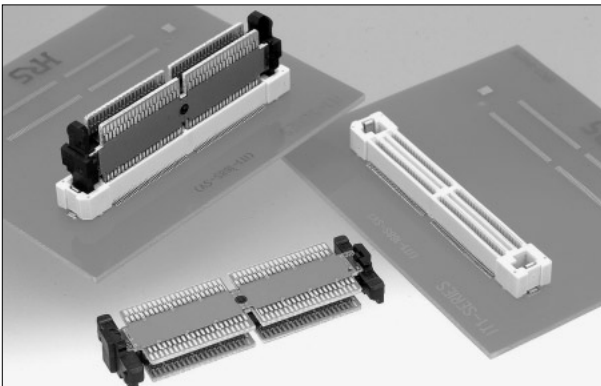
### Applications

Notebook PCs, PDA, Compact electronic equipment

### Specifications

Item	Requirements
No. of Positions	80-96-100-120-140-144-168
Current rating (A)	0.3
PCB Mount Type	SMT
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Double row
Stack Height (mm)	4-5
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Beige)

## High speed, matched-impedance, connector system IT1 Series



### Features

- The multi-layer PCB with strip line design of transmission lines provides matched impedance of 50 ohm.
- Use of double contact points on each of the contacts assures highly reliable performance.
- The standard signal-to-ground ratio is 10:2, which makes reliable matching of the characteristic impedance of each transmission line.
- Designed with a tolerance of +/-0.2mm of the relative position of the mating connector in both the X- and Y-axis direction for multi-connector mounting.
- Ground lines can be added to support high level, high speed transmission or additional power supply line can be added to use as composite connector for power/signal application.

### Applications

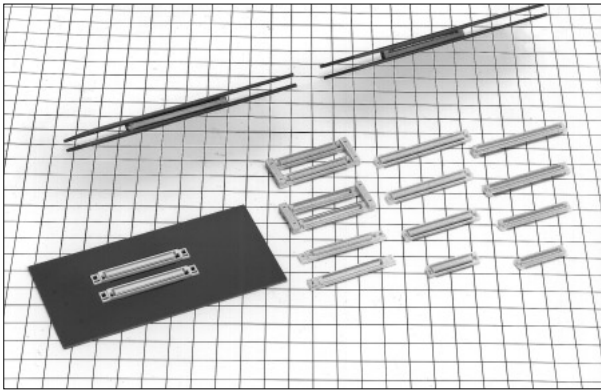
Router, Server, Communications equipment

### Specifications

Item	Requirements
No. of Positions	168-252
Current rating (A)	0.4
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Double row×2
Stack Height (mm)	19-23-30
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Beige), PBT (UL94V-0, Color: Black)

## 0.6mm pitch connectors, stack height: 3mm to 4mm

### FX8 Series



#### Features

- The board to board stacking height corresponds to 3 and 4mm.
- The coplanarity of the SMT solder area lead is maintained at the high accuracy of less than 0.1mm.
- The very small guide rib is provided, and secures  $\pm 0.6$ mm self-alignment, considering the mating operability into accounts.
- The boss prevents mis-insertion in the board to cause due to the boss position and boss diameter.
- Models with two pieces of connectors combined secure the mount position accuracy.

#### Applications

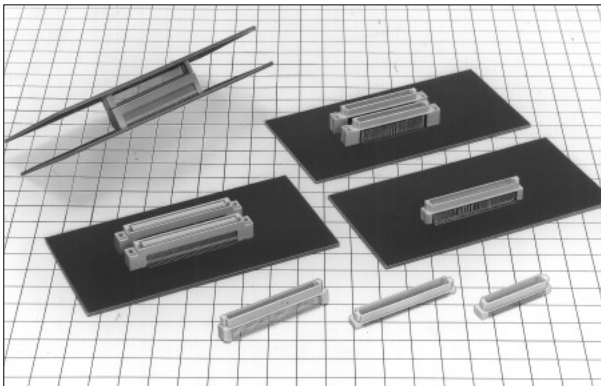
Notebook PCs, Office equipment, Built-in applications

#### Specifications

Item	Requirements
No. of Positions	60-80-90-100-120-140-160-180-200-240-280
Current rating (A)	0.4
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.6
Contact Pitch (mm)	0.6
Stack Height (mm)	3-4
Operating Temperature Range (°C)	-55 to 85
Insulator	PPS (UL94V-0, Color: Light brown)
Remarks	FX8 series connectors and FX8C series connectors are note mate with each other.

## 0.6mm pitch connectors, stack height: 5mm to 16mm

### FX8C Series



#### Features

- The board to board stacking height corresponds to 5 and 16mm.
- The coplanarity of the SMT solder area lead is maintained at the high accuracy of less than 0.1mm.
- The very small guide rib is provided, and secures  $\pm 0.6$ mm self-alignment, considering the mating operability into accounts.
- The boss prevents mis-insertion in the board to cause due to the boss position and boss diameter.
- Models with two pieces of connectors combined secure the mount position accuracy.

#### Applications

Notebook PCs, Office equipment, Built-in applications

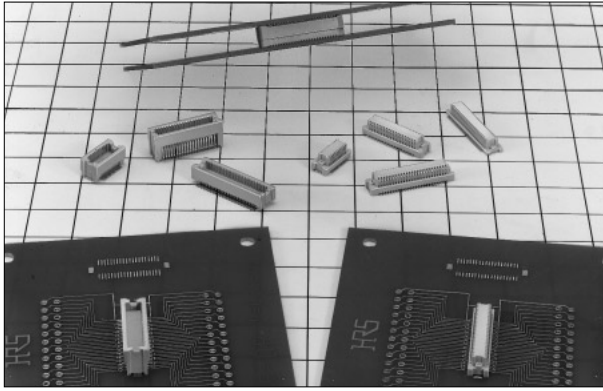
#### Specifications

Item	Requirements
No. of Positions	60-80-100-120-140-160-200-240-280
Current rating (A)	0.4
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.6
Contact Pitch (mm)	0.6
Contact Layout	Double row
Stack Height (mm)	5-6-7-9-10-11-12-14-16
Operating Temperature Range (°C)	-55 to 85
Insulator	PPS (UL94V-0, Color: Light brown)
Remarks	FX8 series connectors and FX8C series connectors are note mate with each other.



## 0.65mm pitch connectors

### DF15 Series



#### Features

- This series considers the service efficiency to set the pitch to 0.65mm, corresponding to the 0.5mm-pitch DF12 series.
- This connector widely covers the definition of the mounting space or the board-to-board size together with the DF12 series.
- The board to board size is specified at 1mm steps between 4 and 8mm.
- The connector has the vacuum area, which enables the automatic mounting by the embossed tape packaging.
- The product including the metal fitting to prevent solder peeling is prepared, considering the mounting on FPC.

#### Applications

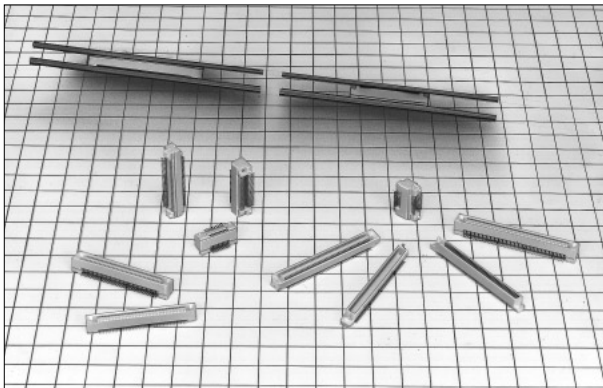
Mobile Phones, Liquid Crystal Displays (LCD), Magneto-Optical (MO) discs, PCs

#### Specifications

Item	Requirements
No. of Positions	20-30-40-50
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.65
Contact Pitch (mm)	0.65
Contact Layout	Double row
Stack Height (mm)	4.5-6-7-8
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94V-0, Color: Beige (natural))

## 0.8mm pitch connectors, stack height: 5mm to 9mm

### FX6 Series



#### Features

- The board-to-board stacking height can be set between 5 and 9mm at 1mm steps.
- Despite the low-profile type connector, the connector has the 1.7mm long effective contact length and provides a sufficient margin.
- The self-alignment for mating action exhibits a high guide level at  $\pm 1$ mm, and makes the mating process easier.
- The standard specifications are designed for stick packaging in consideration of automatic mounting, and emboss packaging is supported as well.
- The lead coplanarity on the SMT soldered area is maintained with the high accuracy of less than 0.1mm.

#### Applications

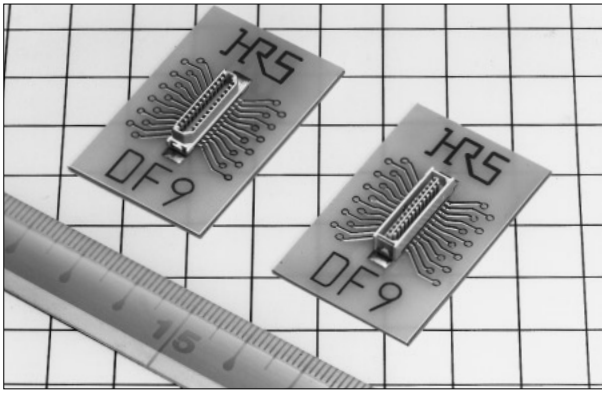
Notebook PCs, Handheld terminals, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20-40-50-60-80-100
Current rating (A)	0.5
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	0.8
Contact Pitch (mm)	0.8
Contact Layout	Double row
Stack Height (mm)	5-6-7-8-9
Operating Temperature Range (°C)	-55 to 85
Insulator	PPS (UL94V-0, Color: Light brown)

## 1mm pitch connectors, standard interface for VESA FPDI-1

### DF9 Series



#### Features

- The 31 and 41 contact connectors comply with the standard connector specification for the flat panel display interface, which US VESA has selected as FPDI-1.
- The mating area is designed in a trapezoidal structure, and perfectly prevents mis-insertion despite the miniature size.
- The easy lock mechanism assures the firm insertion and extraction properties as well as insertion/extraction feeling touch.
- The contact is constructed without the material fragile surface in the contact portion, and provides smooth insertion and extraction.
- Two types of plating, tin plating and gold plating, are prepared.

#### Applications

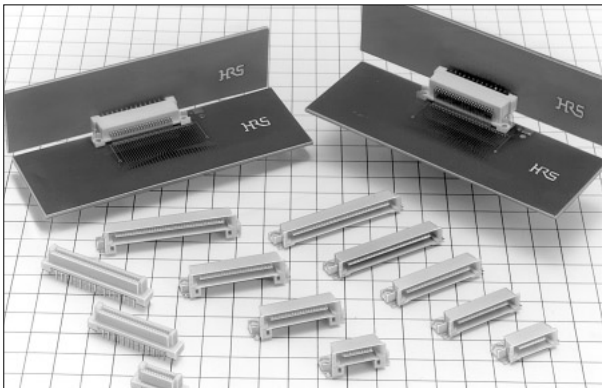
LCDs (Liquid Crystal Displays), Mobile Phones, PCs

#### Specifications

Item	Requirements
No. of Positions	9-11-13-15-17-19-21-23-25-31-41-51
Current rating (A)	0.5
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	1
Contact Pitch (mm)	1
Contact Layout	Double row
Stack Height (mm)	2.9-4.3
Operating Temperature Range (°C)	-45 to 125
Insulator	Polyamide (UL94V-0, Color: Beige, natural)
Industry Standard	VESA

## 1mm pitch connectors for vertical connection

### FX5 Series



#### Features

- Two header types, low profile and high profile, are prepared according to the connecting height variation.
- The connecting sequence is designed with 2 stages, which provides the end user with ease of maintenance.
- The self-alignment is highly sufficient to the guide level, and the guide rib is provided to achieve easy mating.
- The coplanarity of SMT soldered area secures the high accuracy of 0.1mm.
- The connector is miniaturized about 30% in the mounting area, compared with conventional half pitch connectors.

#### Applications

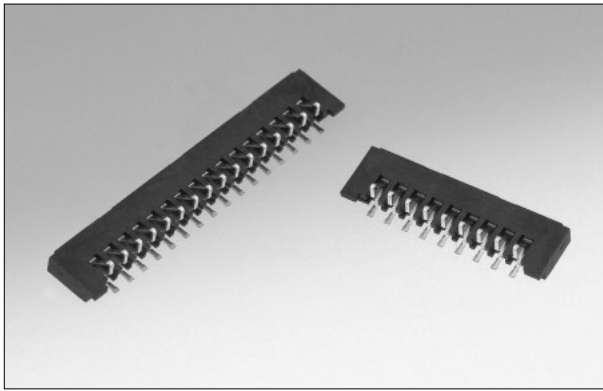
Notebook PCs, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20-40-52-56-68-80
Current rating (A)	0.5
PCB Mount Type	SMT, through hole
Contact Plating	Gold
Terminal Pitch (mm)	0.5-2
Contact Pitch (mm)	1
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide (UL94V-0, Color: Beige)

## 1.1mm pitch compression connectors

### DF26 Series



#### Features

- Board-to-board stacking height of 1.2mm and 1.7mm are provided.
- The contacts having 0.7mm range of movement enable stable connection.
- The space-saving design of these connectors permits an increase in the mounting density as compared to equivalent products.
- One piece board to board for mounting and piece part cost reduction.

#### Applications

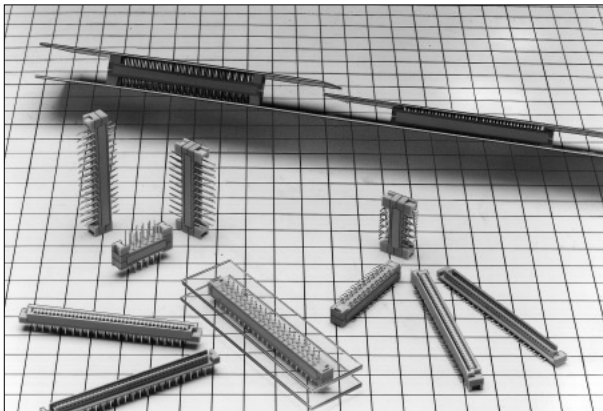
LCD, Mobile phone, notebook PC, Compact Office equipment, Miniature consumer appliance

#### Specifications

Item	Requirements
No. of Positions	9-16
Current rating (A)	0.5
PCB Mount Type	SMT
Contact Plating	Gold
Terminal Pitch (mm)	1.1
Contact Pitch (mm)	1.1
Contact Layout	Single row
Stack Height (mm)	1.2-1.7
Operating Temperature Range (°C)	-35 to 85
Insulator	LCP (UL94V-0, Color: Black)

## 1.27mm pitch connectors, stack height: 5mm to 11mm

### FX4 Series



#### Features

- Miniature board-to-board connectors making it possible to set the stacking height at 1mm intervals.
- The board-to-board stacking height of dip connectors can be set from 5mm up to 11mm.
- The dip type prevents the flux from swelling, and the mating part is designed to prevent mis-insertion. Moreover, the low insertion/extraction mechanism is adopted.
- The SMT type is compact and lightweight, and the stacking height is 6 to 11mm.
- The SMT type is designed to prevent mis-insertion. Moreover, the low insertion/extraction mechanism is adopted, and the selection of positioning bosses is possible.

#### Applications

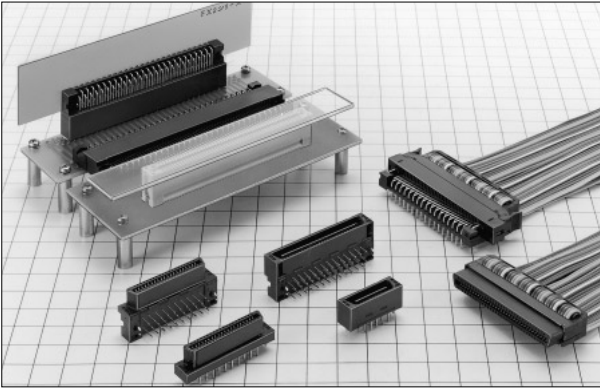
Computers, Peripheral equipment, Terminal equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20-32-40-52-60-68-80
Current rating (A)	0.5
PCB Mount Type	SMT, through hole
Contact Plating	Gold
Terminal Pitch (mm)	1.27-2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Stack Height (mm)	5-6-7-8-9-10-11
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide (UL94V-0, Color: Beige)

## 1.27mm pitch connectors

### FX2 Series



#### Features

- Models in a wide variety allow various connections.
- The ribbon cable connection type allows easy one-touch operation with either single hand.
- The board stack height of board-to-board type can be set from 12 up to 16mm with flux swell prevention.
- Employing the inner lock system, complete lock and eject actions can be performed with easy operation.
- The SMT right angle type is equipped with a metal tab to secure soldering strength. The straight type can choose the use of the metal tab.

#### Applications

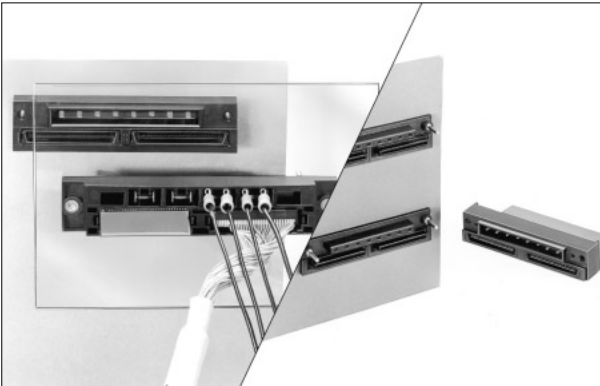
Computers, Peripheral equipment, Terminal equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20-32-40-52-60-68-80-100-120
Current rating (A)	0.5
PCB Mount Type	SMT, through hole
Contact Plating	Gold
Terminal Pitch (mm)	0.635-1.27-2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Stack Height (mm)	12-12.1-12.2-12.3-13-13.2-14-14.1-14.2-15-16
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide, PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Light brown)

## Plug-in connectors for disk unit

### FX2M3 Series



#### Features

- The total number of contacts contains 128 contacts, out of which 120 are half pitch signal contacts, and the remaining 8 are used for the ground.
- Considering the plug and play, 3 stages sequential structure is employed.
- The signal contact area of the straight dip type has completely prevented flux swell due to solder dipping.
- The socket side connector allow to connect the bus line.
- The socket type employs the floating mechanism for the panel installation.

#### Applications

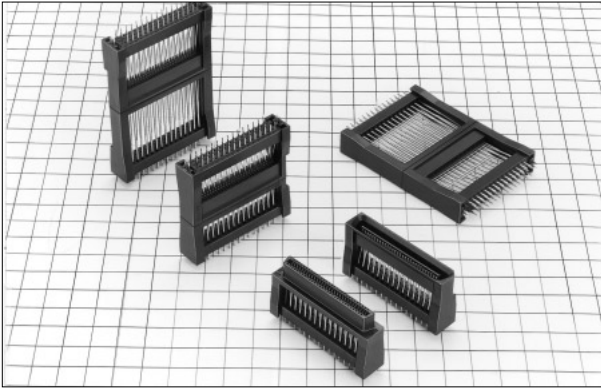
Office computers, Data processing equipment

#### Specifications

Item	Requirements
No. of Positions	60-128
Current rating (A)	0.5
PCB Mount Type	SMT, through hole
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	1.27-2.54
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide, PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Light brown).

## 1.27mm pitch connectors, stack height: 28.2mm to 66mm

### FX2M6 Series



#### Features

- Half-pitch, high stacking height connectors.
- Contributing to a cost reduction by eliminating cable or PCB expansion.

#### Applications

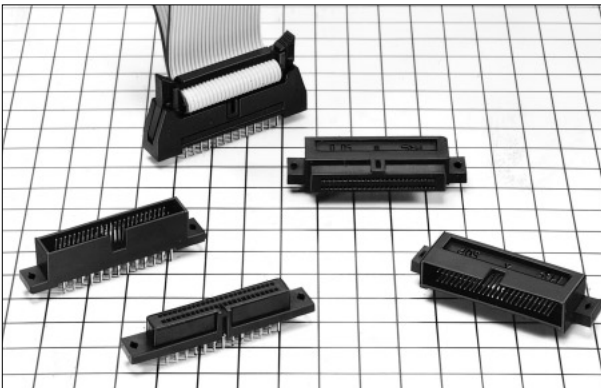
Computers, Peripheral equipment, Terminal equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	60
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Stack Height (mm)	28.2·28.4·29.2·30.2·30.4·34.4·36.4·44.2·45.2·46.2·50·60·66
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide, PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Light brown)
Remarks	Stack height: 28.2mm to 66mm

## 1.27mm pitch, pin contact type connectors

### HIF6A Series



#### Features

- 1.27mm pitch, two-piece and board-to-board connectors.
- Parallel and vertical board-to-board connections are available.
- The guide prevents mis-insertion.
- Possible to choose from with or without board mounting holes.

#### Applications

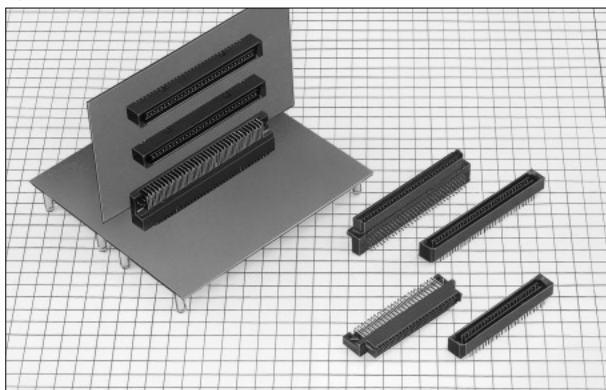
Computers, Peripheral equipment, Terminal equipment, PCCs, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20·26·32·34·40·50·52·60·68·80·100
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## 1.27mm pitch connectors

### FX1 Series



#### Features

- The alignment of the mating area in 4-row allows to double the number of contacts in a mounting area equivalent to that of conventional DIN connectors.
- Two-thirds of total contact numbers are used for half pitch signaling contact, while the other one-third thereof is used for the power ground contact.
- The FX1 series is designed in a mechanism that can afford the time different contact at two steps, and the FX1V series is designed in a mechanism that can afford the time different contact at three steps.
- The insertion guide is provided to both ends of connector, and the inductive area is widened in order to prevent mis-insertion.

#### Applications

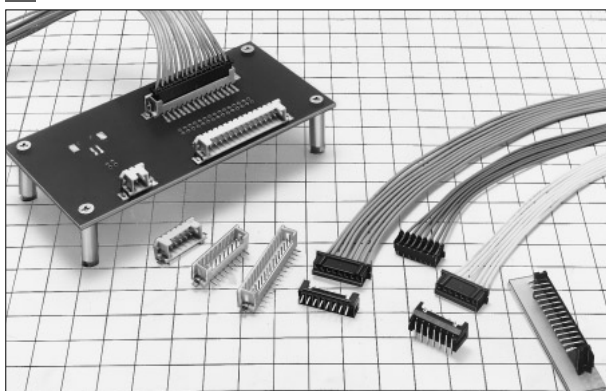
Medium-size and compact computers, EWS units, Exchanger, Measurement equipment, Industrial equipment

#### Specifications

Item	Requirements
No. of Positions	144-192-216-288
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PPS (UL94V-0, Color: Black), PBT (UL94V-0, Color: Black), LCP (UL94V-0, Color: Black)

## 2mm pitch board to board / board to wire connectors

### DF3 Series



#### Features

- The board to board pin headers come with kinked contacts to temporary help keeping the connector in the position.
- Wide variation including ID socket, crimp socket, In-line plug, pin header and receptacle, etc.
- Applicable wires: Crimping: AWG#26, AWG#28 (UL1061), IDC: AWG#22 to AWG#28
- SMT headers are available.

#### Applications

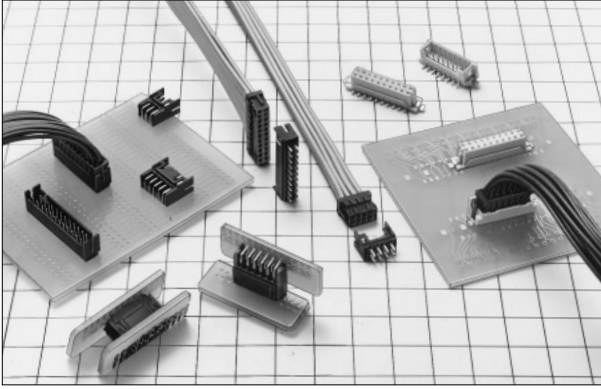
Copy machines, Printers, Office equipment

#### Specifications

Item	Requirements
No. of Positions	2-3-4-5-6-7-8-9-10-11-12-13-14-15
Current rating (A)	1-3
PCB Mount Type	SMT, through hole
Contact Plating	Gold, tin, tin-lead
Terminal Pitch (mm)	2
Contact Pitch (mm)	2
Contact Layout	Single row, double row
Stack Height (mm)	6.6-7.5
Operating Temperature Range (°C)	-45--30 to 65-85-125
Applicable PCB Thickness (mm)	1.6
Insulator	Polyamide (UL94V-0, Color: Black)

## 2mm pitch board to board / board to wire connectors

### DF11 Series



#### Features

- Double rows of 2mm pitch contact condensed within the 5mm width.
- Crimping or ID wiring is available with PCB to cable, cable to cable, and PCB to PCB connectors.
- Gold or Tin can be selected for the plating according to application, while an SMT product lineup.
- Applicable wires: AWG#22 to AWG#30
- Using the full automatic IDC machine, complicated multi-harness wiring can be easily connected, reducing the man-hour and eliminating the manual work process.

#### Applications

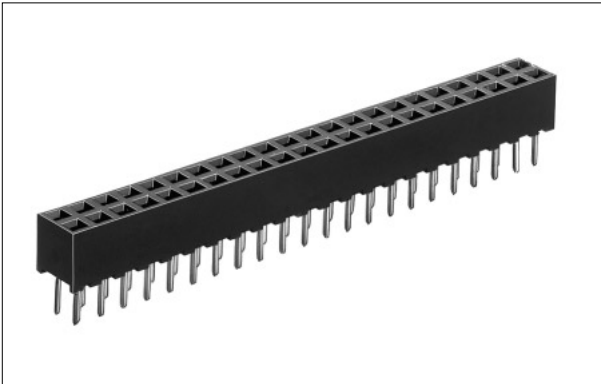
Copy machines, Printers, Office equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8-10-12-14-16-18-20-22-24-26-28-30-32-40
Current rating (A)	0.5-1-2
PCB Mount Type	SMT, through hole
Contact Plating	Gold, tin, tin-lead
Terminal Pitch (mm)	2
Contact Pitch (mm)	2
Contact Layout	Double row
Stack Height (mm)	7.55-7.8-8.2-8.45
Operating Temperature Range (°C)	-30 to 85
Insulator	Polyamide (UL94V-0, Color: Black)

## 2mm pitch for miniature HDD and main port connection

### MA18 Series



#### Features

- Products incorporating a pullout knob are available for improvement in operability.
- Four types of terminal lengths are available.

#### Applications

2.5 inch HDD

#### Specifications

Item	Requirements
No. of Positions	44
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

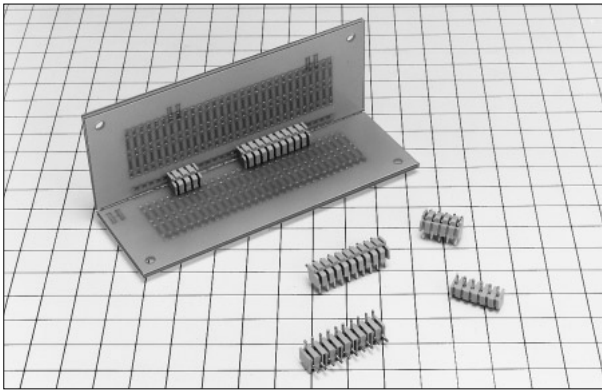
FP/CF/FC Connectors

Optical Connectors and Devices

Microwave Components

## 2.5mm pitch vertical post headers

### MDF14A Series



#### Features

- The post header is developed in the special design capable of vertically connecting boards that do not require insertion or extraction.
- By adopting the 0.8mm round pin as the post pin, the pin strength can be enhanced.
- Kink-processed products are provided to fix the board temporarily.
- The post header corresponds to individual pin extraction specifications.

#### Applications

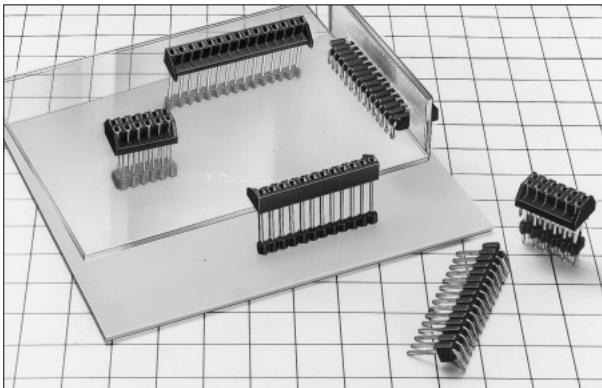
A variety of power supply equipment, Secondary power supply for a variety of equipment

#### Specifications

Item	Requirements
No. of Positions	4-5-6-7-8-9-10
Current rating (A)	5
PCB Mount Type	Through hole
Contact Plating	Tin-lead
Contact Pitch (mm)	2.5
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94V-0, Color: Beige)
Applicable PCB Thickness (mm)	1.6

## 2.54mm pitch bottom entry type connectors

### MDF7 Series



#### Features

- 2.54mm pitch bottom entry type connector.
- The header variations and the construction of header pin through type make it possible to set the board-to-board size at infinite stages.
- The parts mounted surface on two PCBs do not face each other, and can be oriented in the same direction.
- Single-row product, double-row product, tin-plating, and gold-plating products are lined up.

#### Applications

Internal connections of telephones, Office machines and FA machines, PCB connections with IPM and IGBT

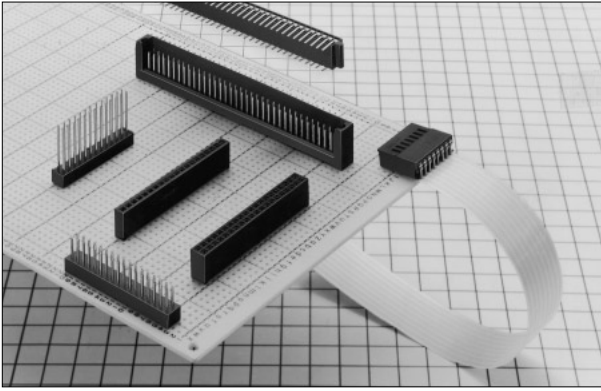
#### Specifications

Item	Requirements
No. of Positions	3-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-30-34-40-46
Current rating (A)	1-3
PCB Mount Type	Through hole
Contact Plating	Gold, tin, tin-lead
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Single row, double row
Operating Temperature Range (°C)	-55--35 to 85-125
Insulator	Polyamide (UL94V-0, Color: Black), PBT (UL94V-0, Color: Black, gray)
Applicable PCB Thickness (mm)	1.6



## 2.54mm pitch connectors

### HIF3H Series



#### Features

- Board to board, 2-piece type connector that can be combined with the HIF3 Series.
- Afford to connect the board to board horizontally or vertically.

#### Applications

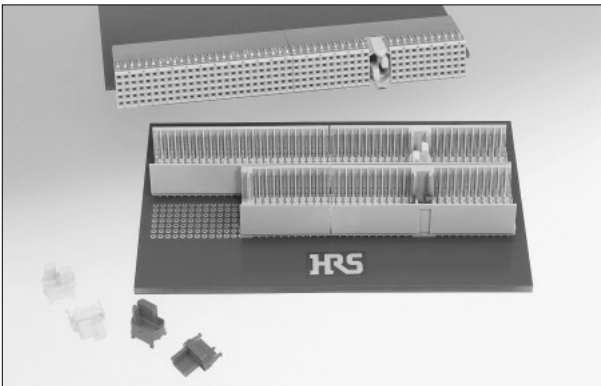
Computers, Terminal equipment, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8-10-12-14-16-18-20-24-25-26-30-34-40-50-60-64-70-130
Current rating (A)	3
PCB Mount Type	Through hole, wrapping
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Single row, double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	Polarizing key (HIF3B-GK)

## 2mm hard metric connectors

### PCN21 Series



#### Features

- The 2mm Hard Metric (HM) Connector complies with IEC 61076-4-101. As specified by IEC Standards, 3 types are available: Style A (110 contacts), Style B (125 contacts), Style C (55 contacts) and Style M (combined type).
- Products equivalent to Compact PCI standard P2/J2 (110 contacts), P3/J3 (95 contacts) and AB Type (125 contacts) are available.
- Connectors of this series, headers and receptacles, are designed for press fit connection.
- The receptacles feature two-point contact design for high reliability.
- Gold plating and tin plating are available on PCB leads.

#### Applications

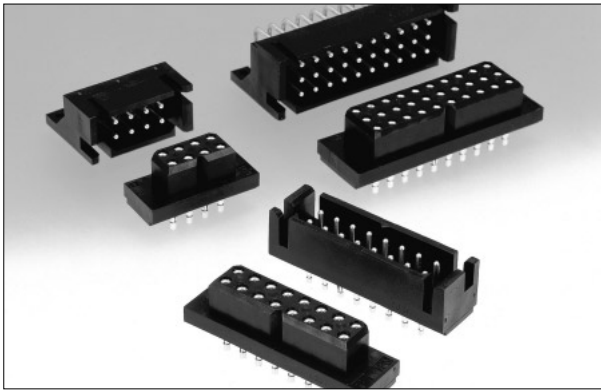
Switchboards, Transmission systems, Cellular base stations, Industrial computer boards, Measurement instruments, Control equipment

#### Specifications

Item	Requirements
No. of Positions	55-95-110-125-176-200
Current rating (A)	1.5
PCB Mount Type	Press fit
Contact Plating	Gold
Contact Pitch (mm)	2
Contact Layout	5 row, 8 row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## High current, high density, power connectors

### MCN51 Series



#### Features

- Each pin handles a maximum of 25A.
- HIROSE's unique press-fit connection reduces damage to the PCB when mounting.
- Suitable to power supply connectors for back brain systems.
- UL recognized, CSA certified UL File No. E52653, CSA File No. LR95109
- Standard models with 8, 16 and 30 contacts are available. Custom made models different in the number of contacts are available by order.

#### Applications

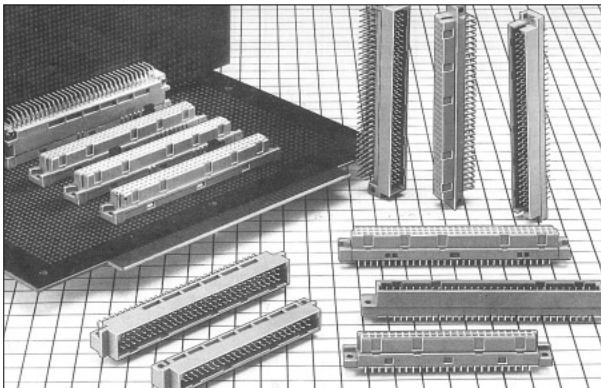
LAN equipment, Exchangers, Transmission equipment, Servers, All power supply equipment

#### Specifications

Item	Requirements
No. of Positions	8-16-30
Current rating (A)	25
PCB Mount Type	Press fit, through hole
Contact Plating	Gold
Terminal Pitch (mm)	5
Contact Pitch (mm)	5
Contact Layout	Double row, 3 row
Operating Temperature Range (°C)	-55 to 125
Insulator	PBT (UL94V-0, Color: Black)

## Connectors compliant to IEC603-2/DIN41612 standards (Standard type)

### PCN10 Series



#### Features

- Compliant with IEC603-2/DIN41612 standards.
- Double sided two-point contact system ensures high contact reliability.
- The PCN10H series contains 25, 30, 35, 40 and 45mm stacking height.
- The PCN10MC series utilizes a sequence structure for circuit protection function.

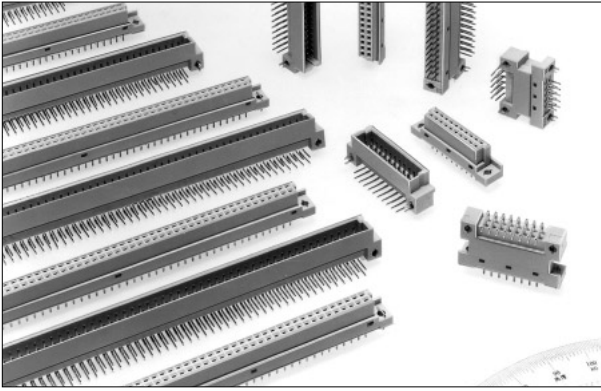
#### Applications

Control equipment, Exchanger, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	16-20-24-32-44-48-50-60-64-90-96-100-128-144
Current rating (A)	1-2-3
PCB Mount Type	Through hole, wrapping
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row, 3 row, 4 row
Stack Height (mm)	16.8-17.9-25-30-35-40-45
Operating Temperature Range (°C)	-30 to 85
Insulator	PBT (UL94V-0, Color: Gray)
Industry Standard	IEC,DIN
Accessories	Polarizing key (PCN10-GK(A))

## Connectors compliant to IEC603-2/DIN41612 standards (Double sided, two-point contact type) PCN12 Series



### Features

- Conforming to IEC603-2/DIN41612 standards.
- Double sided, two-point contact system ensures high contact reliability.
- Products with flux swell prevention are available.
- The easy lock pin type to fix the board temporarily is available.
- IDC connector for ribbon cable is available.

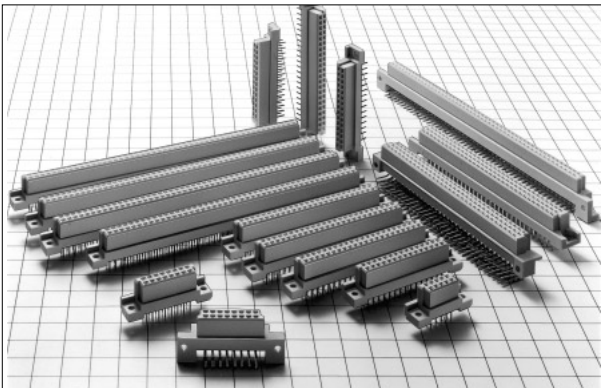
### Applications

Control equipment, Exchanger, Measurement equipment

### Specifications

Item	Requirements
No. of Positions	10-16-20-24-28-32-44-50-64-90-96-100
Current rating (A)	2
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row, 3 row
Operating Temperature Range (°C)	-30 to 85
Insulator	PBT (UL94V-0, Color: Gray)
Industry Standard	IEC,DIN

## Connectors compliant to IEC603-2/DIN41612 standards (Single sided, two-point contact type) PCN13 Series



### Features

- Conforming to IEC603-2/DIN41612 standards.
- Single sided, two-point contact system in pursuit of cost performance.
- Products with flux swell prevention are available.
- The easy lock pin type to fix the board temporarily is available.
- IDC connector for ribbon cable is available.

### Applications

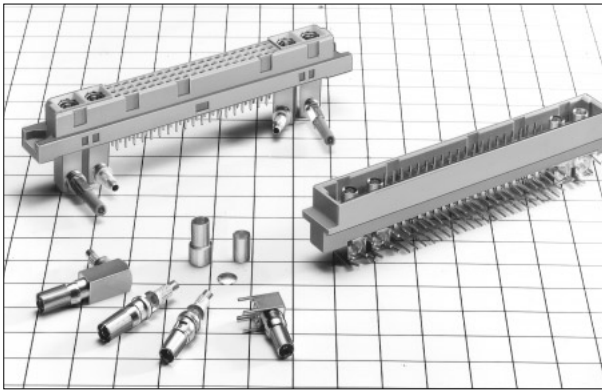
Control equipment, Exchanger, Measurement equipment

### Specifications

Item	Requirements
No. of Positions	10-16-20-30-32-44-48-50-64-90-96-100
Current rating (A)	2
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row, 3 row
Stack Height (mm)	16.8-17.9
Operating Temperature Range (°C)	-30 to 85
Insulator	PBT (UL94V-0, Color: Gray)
Industry Standard	IEC,DIN

## Connectors compliant to IEC603-2/DIN41612 standards (Coaxial and high current contact type)

### PCN10F Series



#### Features

- Compliant with DIN41612 M type and the coaxial connector complies with DIN47297.
- The 2, 4, 6, and 8 coaxial and high current contact insertion holes are available.
- Double sided, two-point contact system ensures high contact reliability.
- The receptacle is provided with solder type and solderless connection type.
- The contact type is also provided with straight, right angle dip and wrapping types.

#### Applications

Measurement equipment, Control equipment, Exchanger

#### Specifications

Item	Requirements
No. of Positions	24-42-60-78
Current rating (A)	2
PCB Mount Type	Through hole, wrapping
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	3 row
Operating Temperature Range (°C)	-30 to 85
Insulator	PBT (UL94V-0, Color: Gray)
Industry Standard	IEC,DIN

## Connectors compliant to IEC603-2/DIN41612 standards (Press fit type)

### PCN11 Series



#### Features

- Conforming to IEC603-2/DIN41612 standards.
- Double-sided, two-point contact system ensures high contact performance.
- The applicable PCB thickness is 2.4mm min.
- Dia. 0.8, 0.9 and 1.0mm through holes are available.
- Compatibility with PCN10, PCN12, and PCN13 series makes it possible to utilize various application patterns.

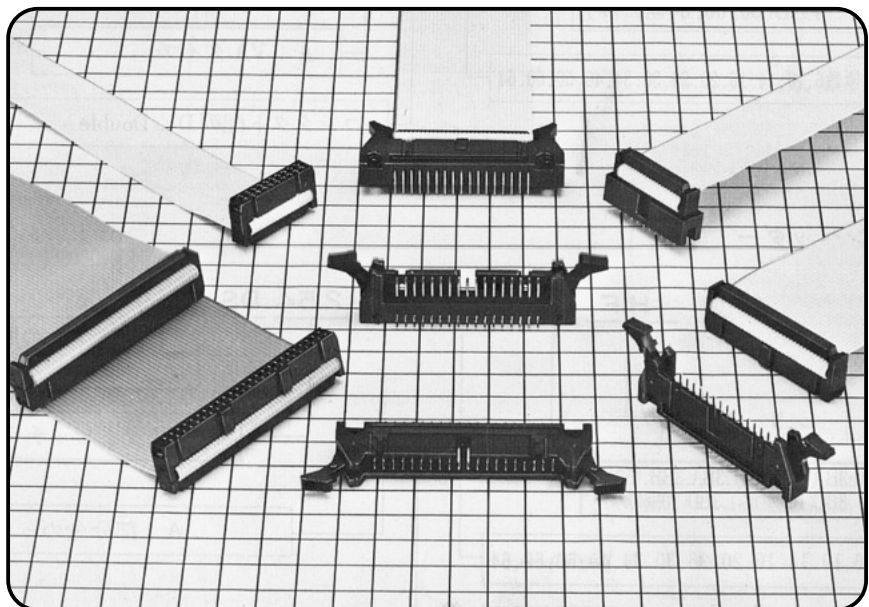
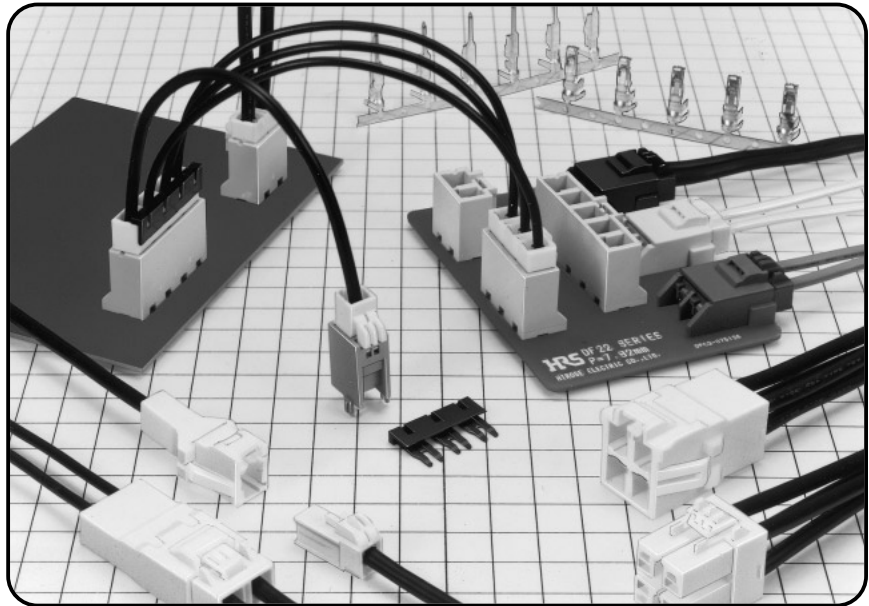
#### Applications

PBX, Control equipment

#### Specifications

Item	Requirements
No. of Positions	10-14-16-20-26-30-32-34-36-40-42-44-50-52-60-64-90-96-100-128
Current rating (A)	1-2
PCB Mount Type	Press fit
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row, 3 row, 4 row
Operating Temperature Range (°C)	-55--30 to 85
Applicable PCB Thickness (mm)	2.4
Insulator	PBT (UL94V-0, Color: Gray)
Industry Standard	IEC,DIN

# Board-to-Wire Connectors



# Board-to-Wire Connectors



## Discrete Wire Connectors

Contact Pitch	Cable Connection type	Type	Series Name	Page
0.6mm	Soldering	Board to Fine Coaxial Ribbon Cable	DF21	123
1mm	Crimp	Board to Cable, Board to FPC, Board to Fine Coaxial Ribbon Cable	DF19	123
		Double Row Low Profile Board to Cable	DF20	124
1.25mm	Crimp/IDC	Single Row, Double Row	DF13	124
		Single Row Low Profile	DF14	125
2mm	Crimp/IDC	In-line, Board to Board type available	DF11	125
			DF3	126
	Crimp	Board In	DF4	126
		Double Row	A3	127
2.5mm	Crimp	Single Row	A4	127
		Inner Lock	DF1E	128
	Crimp/IDC	Outer Lock	DF1B	128
		Simplified Lock	DF1	129
2.54mm	Crimp	Side Lock	HNC	129
		Board In	DF2	130
		Double Row	A1	130
3.5mm	Crimp	Single Row	A2	131
		Inner Lock	MDF6	131
3.96mm		Board In	DF6	132
5mm		Single Row, Double Row	DF5	133
7.92mm		High Current, In-line type available	DF22	133
-		Board In Crimp Terminal, Vertical type	MDF12	134
-		Board In Crimp Terminal, Horizontal type	MDF27	134

## Ribbon Cable Connectors

Contact Pitch	Cable Connection type	Type	Series Name	Page
1.27mm	IDC	Board to Board type available	FX2B	135
		With Power Contacts	FX2M3	135
		Board to Board type available	HIF6	136
		Direct board mounting type	HIF12	136
		For 0.635mm pitch cable	HIF6H	137
		Direct Mount type	HIF2C	137
2mm		For 2.5 inch HDD	A3E	138
2.54mm	IDC/Crimp	MIL standard	HIF3B	138
		MIL standard, In-line type	HIF3BA- <sup>*</sup> PD	139
-		EMI protection cover	HIF3-CVFA	139
2.54mm	IDC	-	HIF3A	140
		Direct board mounting type	HIF2E	140
		Pin header	HIF3E	141
		Misinsertion preventive type pin header	HIF3F	141
		Low profile	HIF3FC	142
		Card edge type	HIF5	142
		3.18mm		3 ampere type

## Coaxial Ribbon Cable Connectors

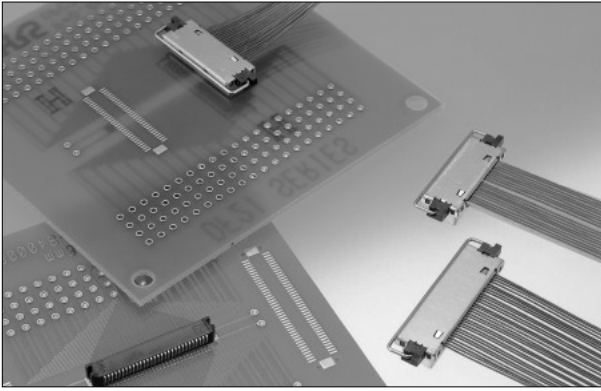
Type	Applicable Impedance	Series Name	Page
1.27mm pitch coaxial ribbon cable	50 ohms, 75 ohms	FM1	143
	50 ohms	HIF6R	144
2.54mm pitch coaxial ribbon cable		FM7	144
	50 ohms, 75 ohms, 92 ohms	FM2	145

## Automotive Connectors

Type	Series Name	Page
Automotive LAN	GT17	145
HID head lamp valve socket	GT15	146
ECU interface	GT7	146
	GT3	147
Twinax shielded cable	GT11	147
	GT14	148

## 0.6mm pitch board to fine coaxial cable connectors

### DF21 Series



#### Features

- Effective contact mating length of 1.55mm and built-in interlocking feature of mated connectors assures high electrical and mechanical reliability, providing needed rigidity to resist excessive twisting.
- Superior reliability of the termination of the fine coaxial cable is accomplished with batch soldering.
- Metal shell encloses the connector to enhance the shield performance.
- Metal shell encloses the connector and makes contact with all external conductors of the fine coaxial cable permitting reliable ground connection to the board side of mated assemblies.
- The optional pull-out tab permits connection and disconnection in narrow spaces.

#### Applications

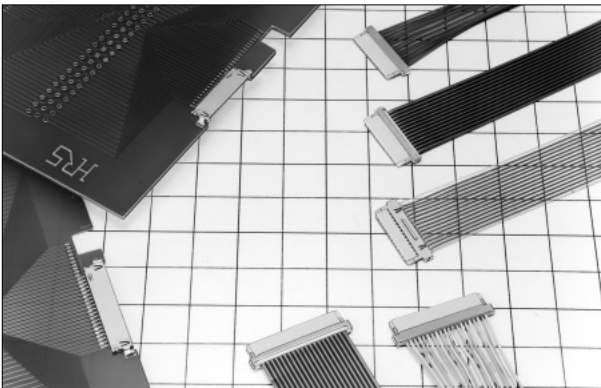
Notebook PCs, LCD connecting parts, A variety of medical equipment

#### Specifications

Item	Requirements
No. of Positions	20-30
Current rating (A)	0.5
PCB Mount Type	SMT
Contact Pitch (mm)	0.6
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Insulator	LCP (UL94V-0, Color: Black)

## 1mm pitch board to wire / board to FPC / board to fine coaxial cable connectors

### DF19 Series



#### Features

- Each header can connect to three different sockets (cable, FPC, and fine coaxial cable type).
- Ultra Low Profile, Thin coaxial type: 1.5mm thick (Max.1.6mm thick), FPC type: Max. 1.7mm thick
- The three sockets have the same outside dimensions to allow complete design flexibility.
- Headers of on-board, offset, and reverse offset types to accommodate all designs.
- Ground lines can be connected to the metal shell for shielding.

#### Applications

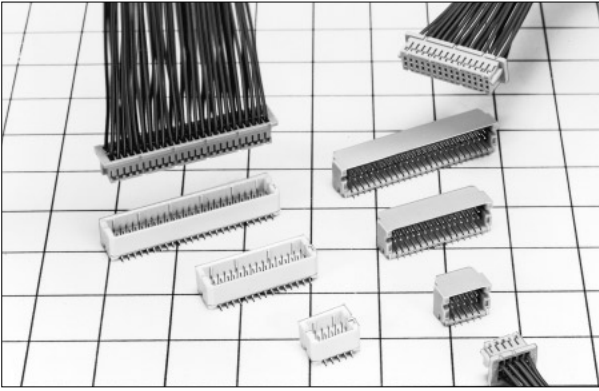
LCDs, Notebook PCs, Compact office equipment, Compact consumer appliances

#### Specifications

Item	Requirements
No. of Positions	8-14-20-30
Current rating (A)	0.3-0.5-1
PCB Mount Type	SMT
Contact Plating	Gold
Contact Pitch (mm)	1
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94V-0, Color: Gray), LCP (UL94V-0, Color: Gray)

## 1mm pitch double row connectors

### DF20 Series



#### Features

- 1mm contact spacing and low profile design with a mating height above the PCB of 5.8mm.
- Redesigned thin metal fittings decreased the overall length of the connector.
- The header is provided with an absorption cap, which allows standard nozzle absorption.
- The pin header with or without PCB positioning guide posts is selectable.
- Mechanism to prevent mis-insertion.

#### Applications

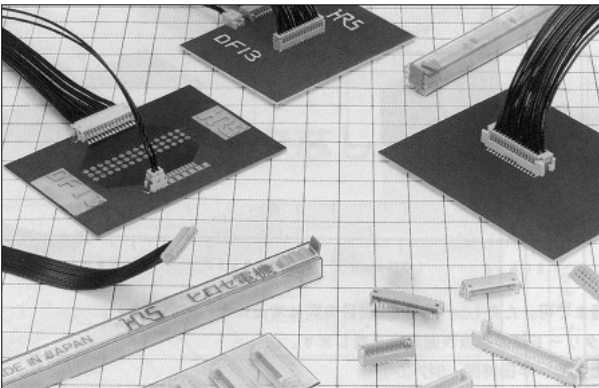
Notebook PCs, Compact office equipment, Compact consumer appliances

#### Specifications

Item	Requirements
No. of Positions	10-20-30-40-50
Current rating (A)	0.9-1
PCB Mount Type	SMT
Contact Pitch (mm)	1
Contact Layout	Double row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94V-0, Color: Beige)

## 1.25mm pitch small crimp connectors

### DF13 Series



#### Features

- 1.25mm pitch miniature crimping connectors working as interfaces between PCB and wires and supporting high-density mounting.
- A variety of pin headers of DIP type or SMT type.
- Designed with a low profile at a mounting height of 5.3mm (DIP straight type), 5.8mm (SMT straight type), 3.6mm (DIP or SMT right angle type).
- The SMT type pin header can be automatically mounted with vacuum absorption. Embossed tape packaging and magazine packaging are available.
- Wires AWG#26 to AWG#32 are available.

#### Applications

Notebook PCs, Persona digital assistant (PDA), Compact office equipment, Camcorders

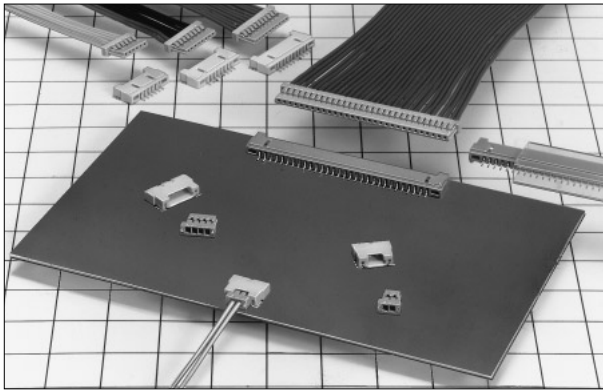
#### Specifications

Item	Requirements
No. of Positions	2-3-4-5-6-7-8-9-10-11-12-13-14-15-20-30-40
Current rating (A)	1
PCB Mount Type	SMT, through hole
Contact Plating	Gold, tin, tin-lead
Contact Pitch (mm)	1.25
Contact Layout	Single row, double row
Operating Temperature Range (°C)	-35 to 85
Applicable PCB Thickness (mm)	3.4-3.6-4.8
Insulator	Polyamide (UL94V-0, Color: Beige)



## 1.25mm pitch low profile crimp connectors

### DF14 Series



#### Features

- Board mounting height: 2.5mm
- The header has a vacuum mount face that enables vacuum absorption and automatic mounting by embossed tape packaging.
- The header has a box structure to prevent from being twisted with perfect prevention from mis-insertion. Furthermore, the header has a wall on the PCB side and does not have any trouble resulting from the friction of the socket with the PCB.
- A metal fitting is attached to prevent the solder peel.
- High heat resistant nylon insulation material is used and allows VPS, IR, or hot air reflow soldering.

#### Applications

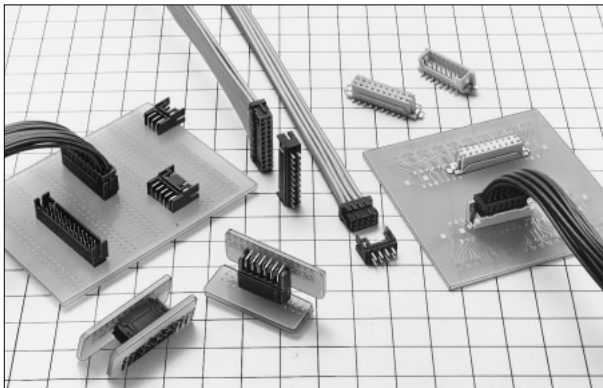
Liquid crystal display (LCD) panels, Notebook PCs, Persona digital assistant (PDA), Compact office equipment, Camcorders

#### Specifications

Item	Requirements
No. of Positions	2-3-4-5-6-7-8-9-10-15-20-25-30
Current rating (A)	1
PCB Mount Type	SMT
Contact Plating	Gold, tin, tin-lead
Contact Pitch (mm)	1.25
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Applicable PCB Thickness (mm)	2.5
Insulator	Polyamide (UL94V-0, Color: Beige)

## 2mm pitch board to board / board to wire connectors (UL, CSA listed)

### DF11 Series



#### Features

- Double rows of 2mm pitch contact condensed within the 5mm width.
- Crimping or IDC wiring is available with PCB to cable, cable to cable, and PCB to PCB connectors.
- Gold or Tin can be selected for the plating according to application, while an SMT product lineup.
- Applicable wires: AWG#22 to AWG#30
- Using the full automatic IDC machine, complicated multi-harness wiring can be easily connected, reducing the man-hour and eliminating the manual work process.

#### Applications

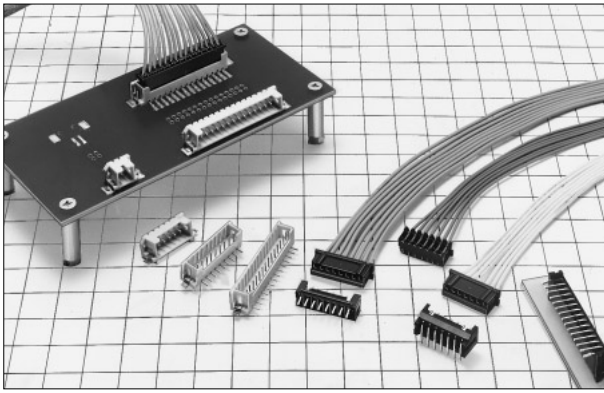
Copy machines, Printers, Office equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8-10-12-14-16-18-20-22-24-26-28-30-32-40
Current rating (A)	0.5-1-2
PCB Mount Type	SMT, through hole
Contact Plating	Gold, tin, tin-lead
Terminal Pitch (mm)	2
Contact Pitch (mm)	2
Contact Layout	Double row
Stack Height (mm)	7.55-7.8-8.2-8.45
Operating Temperature Range (°C)	-30 to 85
Insulator	Polyamide (UL94V-0, Color: Black)

## 2mm pitch board to board / board to wire connectors (UL, CSA listed)

### DF3 Series



#### Features

- The board to board pin headers come with kinked contacts to temporary help keeping the connector in the position.
- Wide variation including ID socket, crimp socket, In-line plug, pin header and receptacle, etc.
- Applicable wires: Crimping: AWG#26, AWG#28 (UL1061), IDC: AWG#22 to AWG#28
- SMT headers are available.

#### Applications

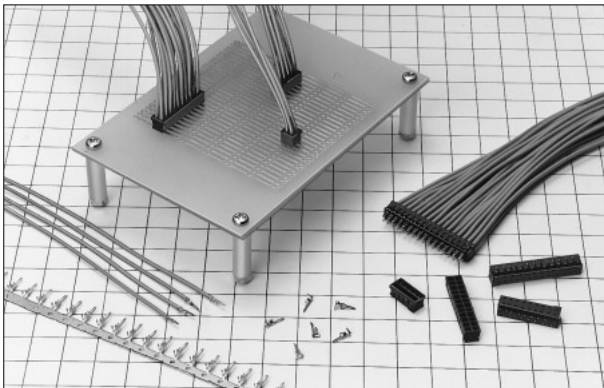
Copy machines, Printers, Office equipment

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·9·10·11·12·13·14·15
Current rating (A)	1·3
PCB Mount Type	SMT, through hole
Contact Plating	Gold, tin, tin-lead
Terminal Pitch (mm)	2
Contact Pitch (mm)	2
Contact Layout	Single row, double row
Stack Height (mm)	6.6-7.5
Operating Temperature Range (°C)	-45-30 to 65-85-125
Insulator	Polyamide (UL94V-0, Color: Black)
Applicable PCB Thickness (mm)	1.6

## 2mm board-in connectors

### DF4 Series



#### Features

- A harness each on both ends of the direct mounting connector and insertion/extraction socket saves either one of the two necessary headers.
- Board mounting height: 4mm (an example of crimping plug )
- Plugs come with kinked contacts to temporary help keeping the connector in the position.

#### Applications

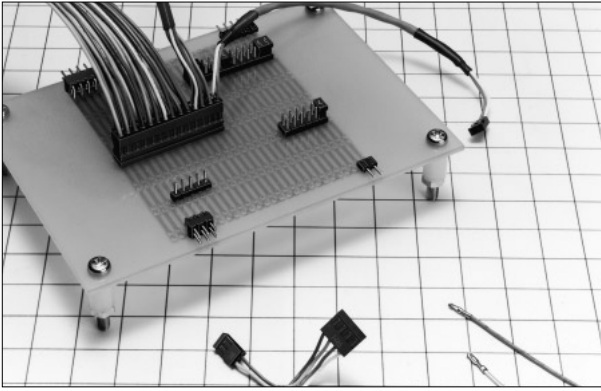
Notebook PCs, Compact office equipment

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·9·10·11·12·13·14·15·16·18·20·22·24·26·28·30·32
Current rating (A)	1·3
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	2
Contact Layout	Single row, double row
Operating Temperature Range (°C)	-30 to 85
Insulator	Polyamide (UL94V-0, Color: Black)

## 2mm pitch double row connectors

### A3 Series



#### Features

- These miniature 2mm pitch connectors are designed in a miniature and light weight product, and allows high density mounting.
- The crimping sockets are structured in the 2mm pitch grid so that can be connected with pin headers side by side.
- Reflecting VA concept (partially gold plated contact), a sharp cost reduction in a mass production system.
- When the connector is used for PCB to PCB, possible to set the stacking height 6mm in conjunction with the pin header A3B.
- When the connector is used for PCB to PCB, possible to set the stacking height 5.1mm in conjunction with the pin header A3C.

#### Applications

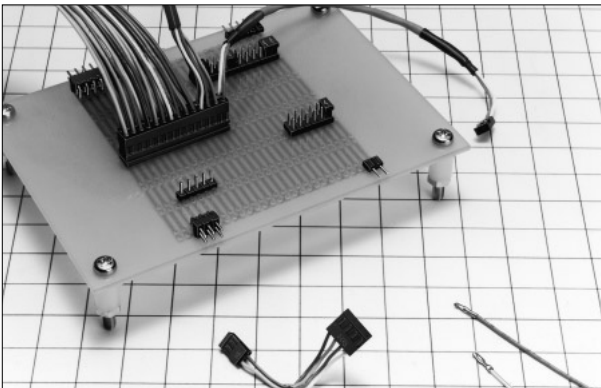
VTRs, FDDs, Vehicle telephones, Electronic equipment

#### Specifications

Item	Requirements
No. of Positions	2·4·6·8·10·12·14·16·18·20·22·24·26·28·30·32·44·48·50
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2
Contact Layout	Double row
Stack Height (mm)	5.1-6
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide, PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Light brown)
Accessories	Polarizing key
Remarks	44 pos. & 50 pos. receptacles available

## 2mm pitch double row connectors

### A4 Series



#### Features

- These miniature 2mm pitch connectors are designed in a miniature and light weight product, and allows high density mounting.
- The crimping sockets are structured in the 2mm pitch grid so that can be connected with pin headers side by side.
- Reflecting VA concept (partially gold plated contact), a sharp cost reduction in a mass production system.
- When the connector is used for PCB to PCB, possible to set the stacking height 6mm in conjunction with the pin header A4B.

#### Applications

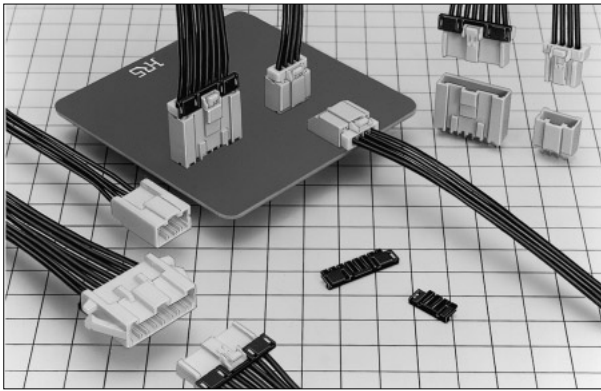
VTRs, FDDs, Vehicle telephones, Electronic equipment

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·9·10·11·12·13·14·15·16·18
Current rating (A)	2
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2
Contact Layout	Single row
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide, PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Light brown)
Accessories	Polarizing key

## 2.5mm pitch connectors, full lock type

### DF1E Series



#### Features

- The inner perfect locking mechanism prevents the connector from disconnection caused by unexpected external impact.
- For the protection of the cable from stress, an increase in the securing force of crimp contacts, and the prevention of the crimp contacts from half insertion, a double-stop mechanism can be mounted.
- A molded lance is adopted in place of a contact lance in order to prevent from deformation involving in the contact after the crimping process.
- Glass-reinforced resin is applied to the pin header for the prevention of cracks due to heat shrinkage.
- Pin headers supporting potting processing are available as a product variation.

#### Applications

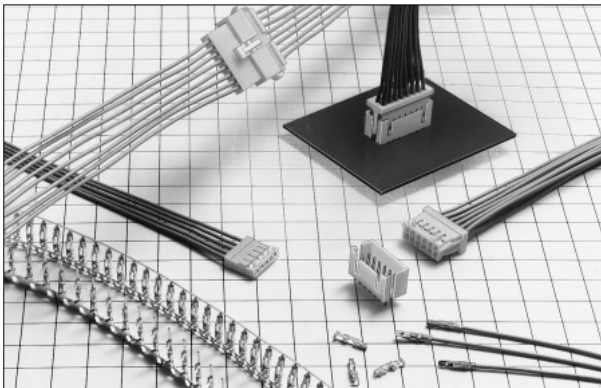
A variety of electronic equipment, Office equipment, Industrial equipment, Household electric appliance

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·9·10·11·12·13·14·15
Current rating (A)	0.5·3
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	2.5
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Applicable PCB Thickness (mm)	1.6
Insulator	Polyamide (UL94-0, Color: White (natural)), Polyamide (Glass reinforced, UL94-0, Color: Beige (natural)), Polyamide (UL94-0, Color: Black)
Remarks	In-line type available, pin header for potting available

## 2.5mm pitch connectors (UL, CSA listed)

### DF1B Series



#### Features

- Inserted the ID contacts into the shell.
- A tall header supporting the potting processing of the PCB (with resin filled) for waterproof measures is available.
- A single or double row contact arrangement is available to both PCB to cable and adapter series with tin or gold plating.

#### Applications

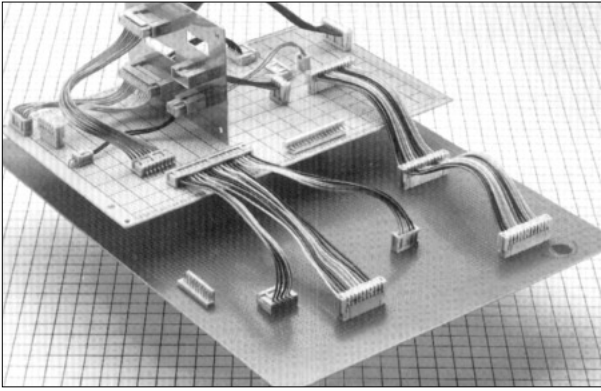
Copy machines, Printers, Office equipment

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·9·10·11·12·13·14·15·16·18·20·22·24·26·28·30·32·34·36·40
Current rating (A)	0.5·1·2·3
PCB Mount Type	Through hole
Contact Plating	Gold, tin, tin-lead
Contact Pitch (mm)	2.5
Contact Layout	Single row, double row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94-0, Color: White (natural))

## 2.5mm pitch connectors

### DF1 Series



#### Features

- Board mounting height: 10mm
- The connector is structured to protect IDC area by the protector. Therefore, the connector has strong tensile strength against the cable, and prevents dust.
- Connections can be established only by mating the cable into the protector and fastening it with an ID tool.
- Intermediate connections are possible, and the connector allows signal extraction from the cable midway.

#### Applications

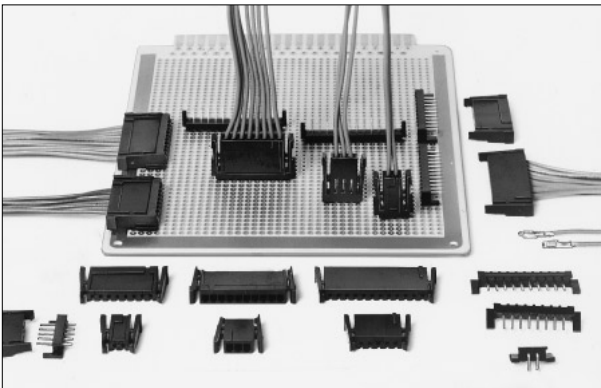
FA equipment, Measurement equipment

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·9·10·11·12·13·14·15·16·18·20
Current rating (A)	1·2·3
PCB Mount Type	Through hole
Contact Plating	Gold, tin, tin-lead
Contact Pitch (mm)	2.5
Contact Layout	Single row
Operating Temperature Range (°C)	-35-30 to 85
Insulator	Polyamide (UL94-0, Color: Brown)

## 2.5mm pitch connectors

### HNC Series



#### Features

- 2.5mm pitch connectors for discrete wire connections.
- Equipped with a full lock mechanism so as not be removed, unless the locks are reset on both sides.
- Mounting height when the right angle pin header is used: 4.8mm
- Mechanism to prevent mis-insertion.
- Tin plating and gold plating types are available. The tin plating is set to a light operating touch as well.

#### Applications

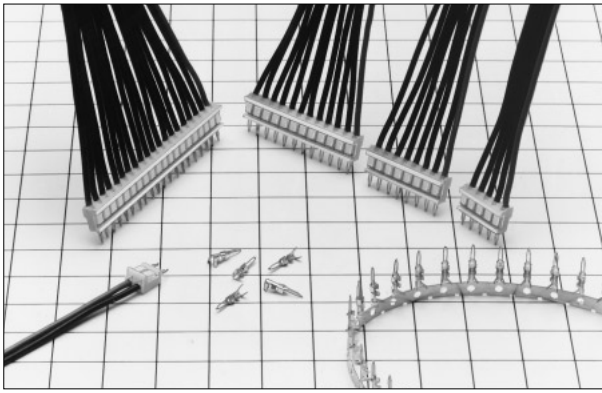
Office equipment, Bank terminals

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·10·12·15
Current rating (A)	2·3
PCB Mount Type	Through hole
Contact Plating	Gold, tin, tin-lead
Contact Pitch (mm)	2.5
Contact Layout	Single row
Operating Temperature Range (°C)	-25 to 85
Insulator	Polyamide (UL94-2, Color: Black)

## 2.5mm pitch board-in connectors (UL, CSA listed)

### DF2 Series



#### Features

- A harness each on both ends of the direct mounting connector and insertion/extraction socket saves either one of the two necessary headers.
- Board mounting height: 5.5mm.
- Width: 4.0mm.
- The spring contacts allow a light press-fit to the PCB serving as a temporary hold-down.

#### Applications

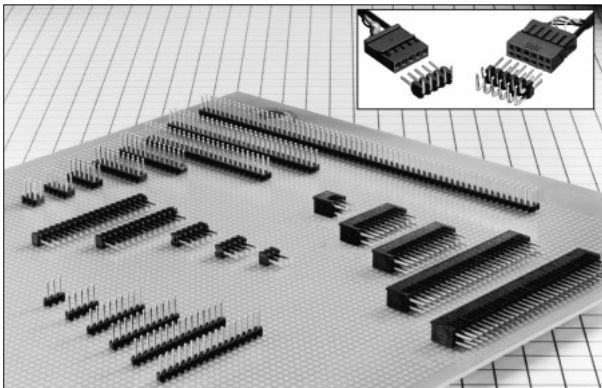
PCs, Fax machines, Printers, Office equipment

#### Specifications

Item	Requirements
No. of Positions	2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-18-20
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	2.5
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94-0, Color: White (natural))

## 2.54mm pitch double row connectors

### A1 Series



#### Features

- Connectors are aligned in the longitudinal direction on the 2.54mm mesh board, so that no idle space can occur.
- The A1 series is compatible with HIF3B cable connector.
- The A1 series is compatible with HIF3H receptacle.
- The crimp sockets can be connected with pin headers of 2.54 x 2.54 grids side by side.

#### Applications

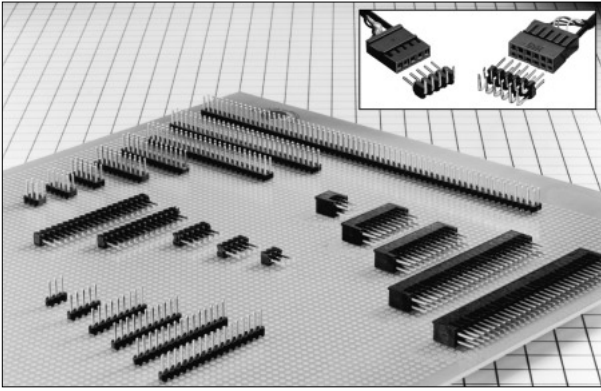
Computers, FDDs, VTRs, Electronic equipment

#### Specifications

Item	Requirements
No. of Positions	6-8-10-12-14-16-18-20-24-26-30-34-40-50-60-64
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Accessories	Polarizing key

## 2.54mm pitch single row connectors

### A2 Series



#### Features

- Connectors are aligned in the longitudinal direction on the 2.54mm mesh board, so that no idle space can occur.
- The crimp sockets can be connected with pin headers of 2.54 x 2.54 grids side by side.

#### Applications

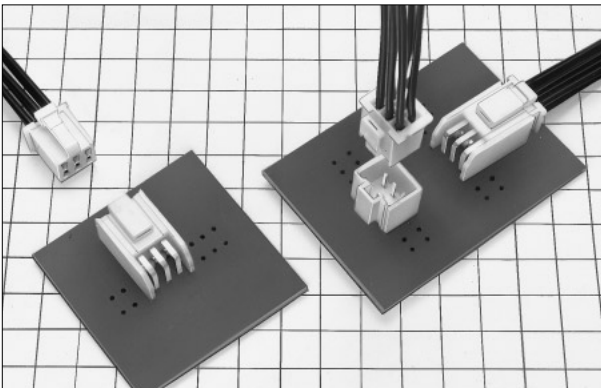
Computers, FDDs, VTRs, Electronic equipment

#### Specifications

Item	Requirements
No. of Positions	1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Single row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Accessories	Polarizing key

## 3.5mm pitch double row connectors (UL, CSA listed)

### MDF6 Series



#### Features

- This is a space saving miniature power supply connector where the adjacent contact spacing is set to 3.5mm and the opposite length is set to 5mm double row alignment.
- Despite miniature power connector, the current capacity 7A (6A for UL/CSA-approved models) is secured using the AWG #16 cable.
- The box type header secures scoop-proof insertion, and perfectly prevents mis-insertion.
- Adopting the inner type full lock which the locking area is not exposed to the outside, the connector can be engaged under the highly reliable and stable conditions.

#### Applications

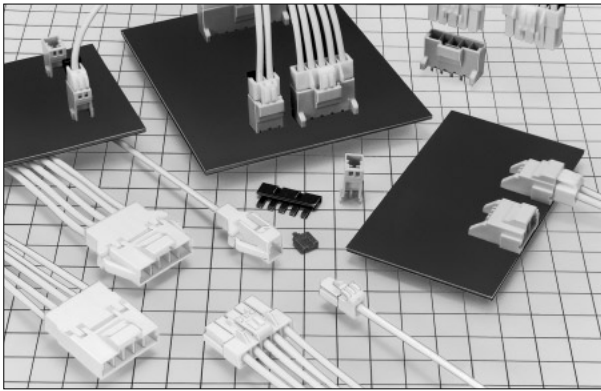
Secondary power supply units for various equipment

#### Specifications

Item	Requirements
No. of Positions	4-6-8-10-12-14-16-18-20
Current rating (A)	5-7
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	3.5
Contact Layout	Double row
Operating Temperature Range (°C)	-30 to 85
Insulator	Polyamide (UL94-0, Color: White (natural))
Applicable PCB Thickness (mm)	1.6

## 3.96mm pitch connectors for internal power supply (UL, C-UL, TÜV listed)

### DF7 Series



#### Features

- The inner-type perfect locking mechanism prevents the connector from disconnection caused by unexpected external impact.
- For the protection of the cable from stress, an increase in the securing force of crimp contacts, and the prevention of the crimp contacts from half insertion, a double-stop mechanism can be mounted.
- A molded lance is adopted in place of a contact lance in order to prevent from deformation involving in the contact after the crimping process.
- Both the socket and pin header are equipped with mechanisms to prevent reverse insertion or unequal number of contacts insertion.
- The pin header employs glass enforced resin, and takes countermeasures to prevent solder cracks due to heat shrinkage.

#### Applications

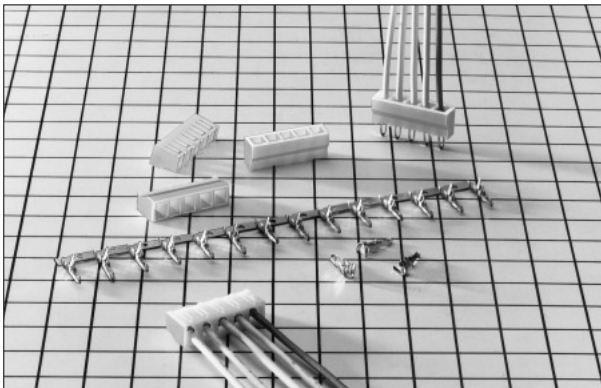
Secondary power supply circuits of electronic equipment, Office equipment, Industrial equipment, Consumer appliances

#### Specifications

Item	Requirements
No. of Positions	1-2-3-4-5-6-7-8-9-10
Current rating (A)	5-10
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	3.96
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Applicable PCB Thickness (mm)	1.6
Insulator	Polyamide (UL94-0, Color: White (natural), black, beige (natural))
Remarks	In-line type available, pin header for potting available

## 3.96mm pitch board-in connectors

### DF6 Series



#### Features

- Conventional thick cables are directly mounted on the board piece by piece, but connectors has achieved soldering services in a batch.
- Board mounting height: 7.5mm
- Width: 5.0mm
- Kinked contacts temporary help keeping the connector in the position.

#### Applications

Secondary power supply units for various equipment

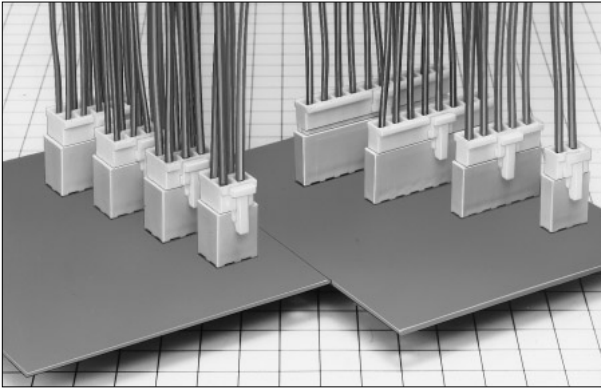
#### Specifications

Item	Requirements
No. of Positions	1-2-3-4-5-6-7-8-10
Current rating (A)	5
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	3.96
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94-0, Color: White (natural))



## 5mm pitch connectors applicable for potting

### DF5 Series



#### Features

- Capable of potting 9mm maximum, and a mounting height of 22.5mm.
- Both the socket and pin header are equipped with mechanisms to prevent reverse insertion or unequal number of contacts insertion.
- The pin header employs glass enforced resin, and takes countermeasures to prevent solder cracks due to heat shrinkage.
- Guide post is added to the pin header to prevent reverse insertion in the PCB.
- The outer lock system employs full lock mechanism.

#### Applications

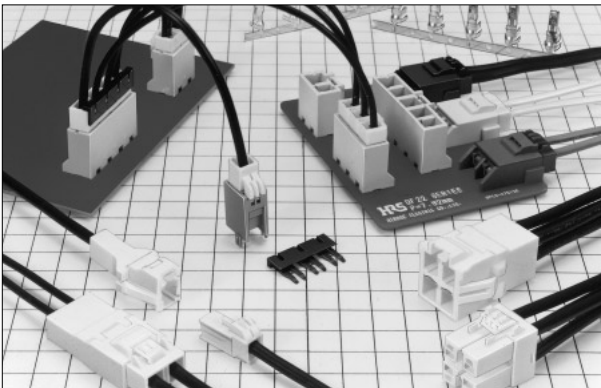
Power supply circuits of electronic equipment, Office equipment, Industrial equipment, Consumer appliances (Personal Hygiene System, Hot-water supplies, Washing machines, Refrigerators, Rice cookers)

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5·6·7·8·9·10·12·14·16
Current rating (A)	7·8
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	5
Contact Layout	Single row, double row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94-0, Color: White (natural)), Polyamide (Glass reinforced, UL94-0, Color: Beige (natural))

## 7.92mm pitch, high current connectors for internal power supplies (UL, C-UL, TÜV listed)

### DF22 Series



#### Features

- Single position connector can carry current of 20A max with AWG#12 conductor.
- The inner-type perfect locking mechanism prevents the connector from disconnection caused by unexpected external impact.
- To prevent incorrect connection when using multiple connectors having the same number of contacts, 3 product types having different mating configurations are available.
- A molded lance is adopted in place of a contact lance in order to prevent from deformation involving in the contact after the crimping process.
- Guide post is added to the pin header to prevent reverse insertion in the PCB.

#### Applications

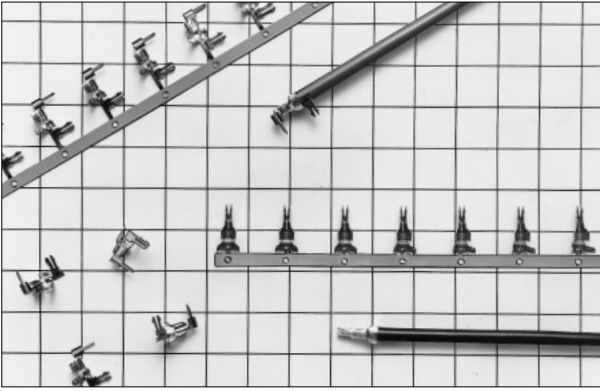
Power supply circuits of electronic equipment, Office equipment, Industrial equipment, Consumer appliances

#### Specifications

Item	Requirements
No. of Positions	2·3·4·5
Current rating (A)	18·20
PCB Mount Type	Through hole
Contact Plating	Tin, tin-lead
Contact Pitch (mm)	7.92
Contact Layout	Single row
Operating Temperature Range (°C)	-35 to 85
Insulator	Polyamide (UL94-0, Color: White (natural)), Polyamide (Glass reinforced, UL94-0, Color: Beige (natural))

## Crimp terminals for board-in (Vertical type)

### MDF12 Series



#### Features

- The existing cable core soldered directly on the board is remade into the crimping contact, which enhances the service efficiency and the reliability.
- Crimping contacts with temporary holddown configuration will facilitate soldering the cable directly to the board.
- Accepting loads to the cable at the contact, and preventing contact wire cutting.
- The cable can be extracted lateral to the board by using the angle type MDF27.
- The cable size corresponds to AWG#22 to AWG#14 (AWG#14 secures 15A current capacity).

#### Applications

Internal power supply to a variety of electronic equipment

#### Specifications

Item	Requirements
Current rating (A)	9-15
Contact Plating	Tin
Operating Temperature Range (°C)	-35 to 85

## Crimp terminals for board-in (Horizontal type)

### MDF27 Series



#### Features

- The existing cable core soldered directly on the board is remade into the crimping contact, which enhances the service efficiency and the reliability.
- Crimping contacts with temporary holddown configuration will facilitate soldering the cable directly to the board.
- Accepting loads to the cable at the contact, and preventing contact wire cutting.
- The cable can be extracted lateral to the board by using the angle type MDF27.
- The cable size corresponds to AWG#22 to AWG#14 (AWG#14 secures 15A current capacity).

#### Applications

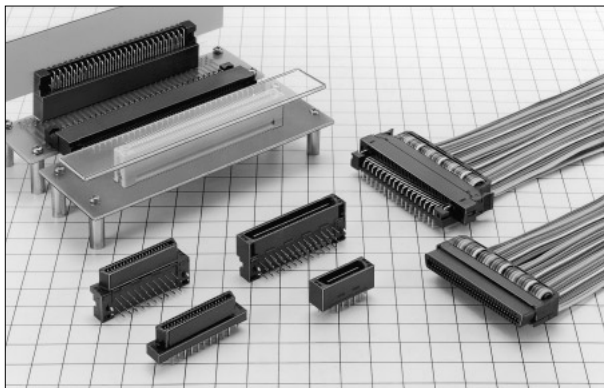
Internal power supply to a variety of electronic equipment

#### Specifications

Item	Requirements
Current rating (A)	9-15
Contact Plating	Tin
Operating Temperature Range (°C)	-35 to 85

## 1.27mm pitch connectors

### FX2B Series



#### Features

- Various connection with various product line.
- The ribbon cable connection type allows easy one touch operation with either single hand.
- The PCB to PCB type preventing flux swell with a stack height of 12mm to 16mm.
- The PCB to cable type adopts an inner lock type, thus allowing perfect locking and extraction.
- The SMT right angle type is equipped with a metal tab to secure soldering strength. The straight type can choose to use or not to use the metal tab.

#### Applications

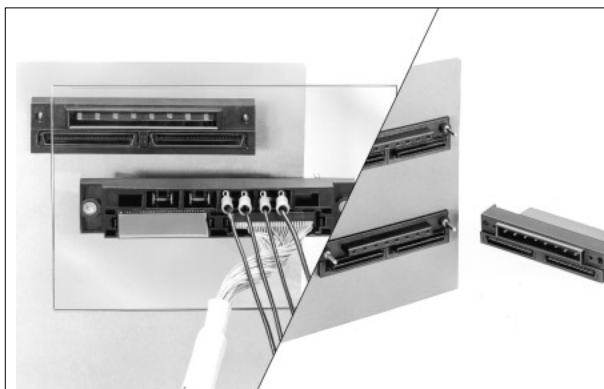
Computers, Peripheral equipment, Terminal equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20-32-40-52-60-68-80-100
Current rating (A)	0.5
PCB Mount Type	SMT, through hole
Contact Plating	Gold
Terminal Pitch (mm)	1.27-2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 80-85
Insulator	Polyamide, PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Light brown)

## Plug-in connectors for disk unit

### FM2M3 Series



#### Features

- The total number of contacts contains 128 contacts, out of which 120 are half pitch signal contacts, and the remaining 8 are used for the ground.
- Considering the plug and play, 3 stages sequential structure is employed.
- The signal contact area of the straight dip type has completely prevented flux swell due to solder dipping.
- The socket side connector allow to connect the bus line.
- The socket type employs the floating mechanism for the panel installation.

#### Applications

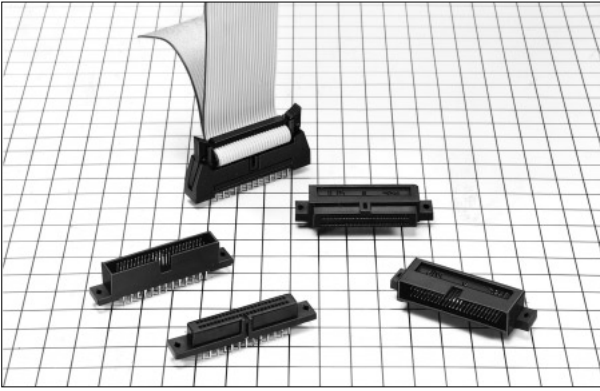
Office computers, Data processing equipment

#### Specifications

Item	Requirements
No. of Positions	60-128
Current rating (A)	0.5
PCB Mount Type	SMT, through hole
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	1.27-2.54
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide, PBT (UL94V-0, Color: Black), PPS (UL94V-0, Color: Light brown)

## 1.27mm pitch connectors

### HIF6 Series



#### Features

- 1.27mm pitch two-piece connector of board-to-wire IDC termination.
- Using the 1.27mm pitch flat cable, this connector can be combined with HIF2E, HIF3B, and HIF5, etc.
- The applicable cable is a UL2651 AWG#28 flat cable.
- The guide prevents mis-insertion.
- The locking mechanism ensure connection.

#### Applications

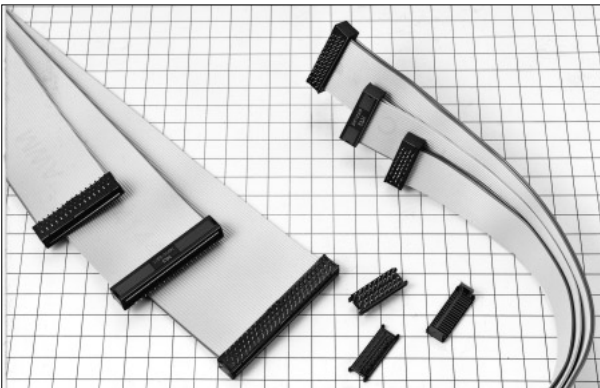
Computers, Peripheral equipment, Terminal equipment, PPCs, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20-26-32-34-40-50-52-60-68-80-100
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## 1.27mm pitch direct board mounting type connectors

### HIF12 Series



#### Features

- This connector, which is directly mounted on the board, can insulate and displace the 1.27mm pitch flat cable.
- Using the 1.27mm pitch flat cable, this connector can be combined with HIF2E, HIF3B, HIF5, and HIF6, etc.
- The applicable cable is UL2651 AWG#28 flat cable.

#### Applications

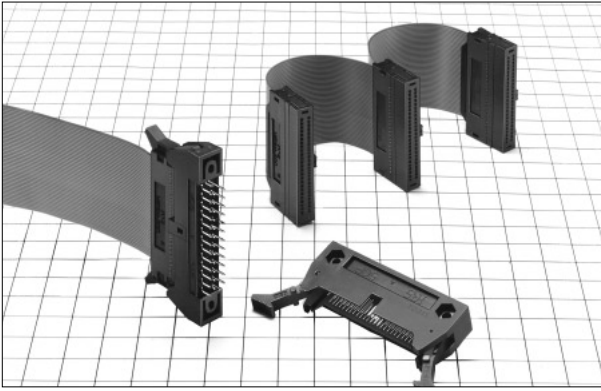
Computers, Terminal equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	34-40-50-52-60-68-80-100
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Tin
Contact Pitch (mm)	1.27
Contact Layout	4 row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## 1.27mm pitch pin contact type connectors (0.635mm pitch cable)

### HIF6H Series



#### Features

- Half pitch connector that can insulate and displace the 0.635mm pitch flat cable.
- The applicable cable is AWG#30 (solid wire)
- This connector allows connection to No.1 pin. By changing the cover, bus-line connections will be possible.
- This connector allows engagement with the HIF6A(B) series header.
- HIF6H series should be ordered together with the cable.

#### Applications

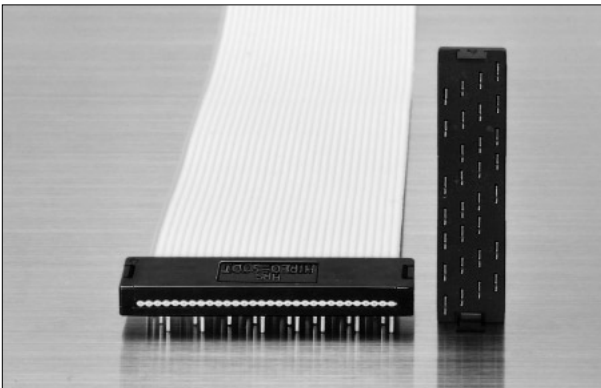
Peripheral equipment, Terminal equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	34-40-50-60-80-100
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	1.27
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## 1.27mm pitch direct board mounting type connectors

### HIF2C Series



#### Features

- Directly mounted on the PCB using 1.27mm pitch flat cable.
- Four rows of DIP contacts allowing ease of PCB pattern designing.
- The connector height is lower than that of the HIF2E series.

#### Applications

Computers, Terminal equipment, PPCs, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	10-16-20-26-30-34-40-50-60
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold, tin
Contact Pitch (mm)	1.27
Contact Layout	4 row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

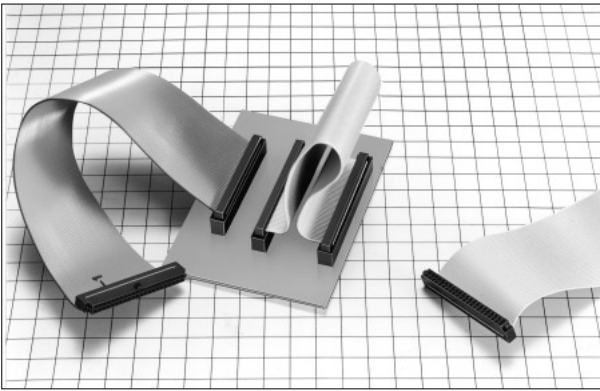
FPC/FFC Connectors

Optical Connectors and Devices

Microwave Components

## 2mm pitch for 2.5 inch HDD and main port connection

### A3E Series



#### Features

- Cable crimping, ID wiring, and FPC connection type are selectable in combination with other series.
- 44 contacts are available for AT bus connection, and 50 contacts for SCSI connection.
- 1mm pitch ribbon cable can be insulated and displaced.
- The socket connector contains a mechanism to prevent mis-insertion with the header connector.

#### Applications

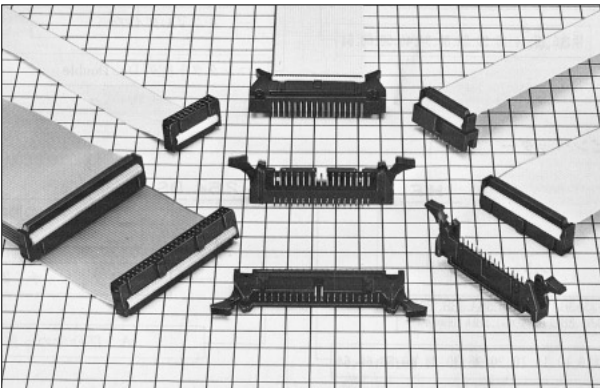
2.5 inch hard disk drive (HDD)

#### Specifications

Item	Requirements
No. of Positions	44-50
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	Polyamide (UL94-0, Color: Black), PBT (UL94V-0, Color: Black)
Remarks	With polarizing guide type available

## 2.54mm pitch compliant to MIL standards

### HIF3B Series



#### Features

- Conforming to MIL standards and compatible with conventional HIF3 series models.
- HIF3B series connectors are UL approved.
- Reflecting VA concept (partially gold plated contact), a sharp cost reduction in a mass-production system.
- Three types of mechanisms to prevent mis-insertion.
- The applicable cable is UL2651 AWG#28 flat cable.

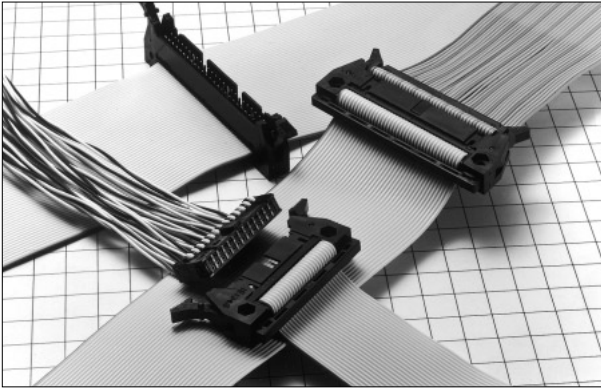
#### Applications

Computers, Terminal equipment, PPCs, Electronic equipment

#### Specifications

Item	Requirements
No. of Positions	6-10-14-16-20-26-30-34-40-50-60-64
Current rating (A)	1-3
PCB Mount Type	Through hole, wrapping
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	MIL
Accessories	With polarizing guide type available. Polarizing key, pull tab, multi-clamp

## 2.54mm pitch (In-line type) HIF3BA-\*PD Series



### Features

- Possible for cable to cable (relay type) connections in equipment.
- This connector is compatible with the HIF3A series as well as the HIF3B series socket.
- The applicable cable is UL2651 AWG#28 flat cable.

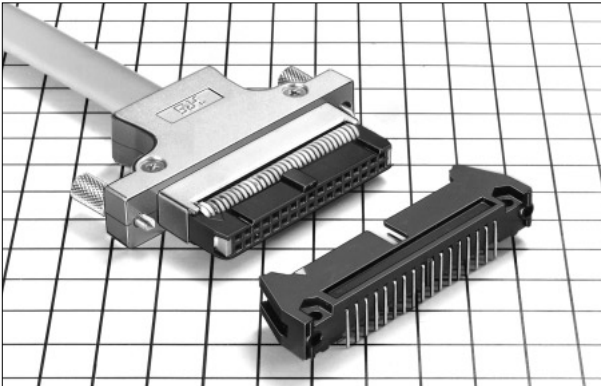
### Applications

Computers, Terminal equipment, PPCs, Electronic equipment

### Specifications

Item	Requirements
No. of Positions	10-16-20-26-30-34-40-50-60-64
Current rating (A)	1
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## EMI protection cover HIF3-CVFA Series



### Features

- Enhancing shielding effects with a metallic cover over the ribbon cable connector (HIF3B series).
- Metal cover with the screw locking mechanism is designed in a stubborn and steady structure.
- The ribbon cable connector (HIF3B series) can be easily assembled.

### Applications

Peripheral equipment, Terminal equipment, Control equipment, Measurement equipment

### Specifications

Item	Requirements
No. of Positions	10-16-20-26-30-34-40-50-64
Operating Temperature Range (°C)	-55 to 85

Circular  
Connectors

Rectangular  
Connectors

Coaxial  
Connectors

Memory Card  
Connectors

Modular  
Connectors

Card Edge  
Connectors

Board-to-Board  
Connectors

Board-to-Wire  
Connectors

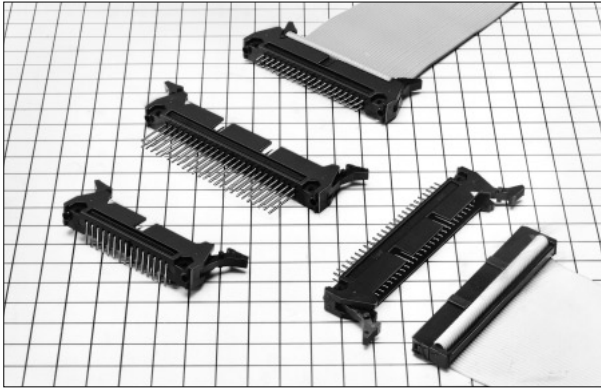
FPC/FFC  
Connectors

Optical Connectors  
and Devices

Microwave  
Components

## 2.54mm pitch connectors

### HIF3A Series



#### Features

- Two-point contact structure with high reliability.
- Compatible with HIF3B series products compliant with MIL standard and other HIF series headers.
- The applicable cable is UL2651 AWG#28 flat cable.

#### Applications

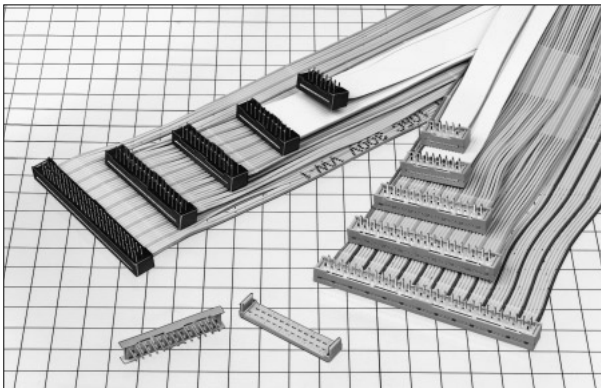
Computers, Terminal equipment, PPCs, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	10-16-20-26-30-34-40-50-60
Current rating (A)	1
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Industry Standard	
Accessories	Polarizing key, pull tab, multi-clamp

## 2.54mm pitch direct board mounting connectors

### HIF2E Series



#### Features

- Connectors with ribbon cable connected and directly mounted to PCBs.
- Direct mounting on the PCB helps contributing to a height reduction and cost reduction of equipment.
- The applicable cable is UL2651 AWG#28 flat cable.

#### Applications

Computers, Terminal equipment, PPCs, Electronic equipment, Office equipment

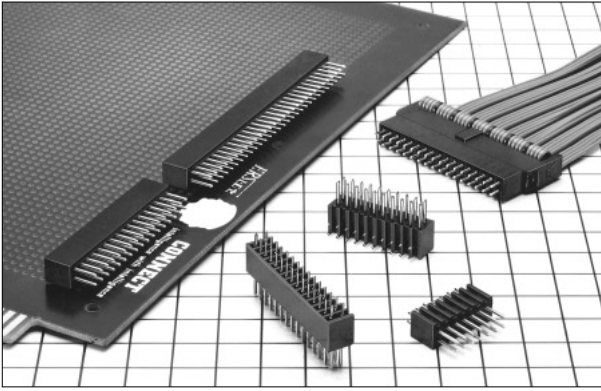
#### Specifications

Item	Requirements
No. of Positions	10-14-16-20-26-30-34-40-50-60
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold, tin
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black, gray)



## 2.54mm pitch connectors (Pin header)

### HIF3E Series



#### Features

- This pin header is compatible with HIF3B series.
- The straight type connector is connected vertical to the printed board, and the right angle type connector is connected horizontal to the printed board.

#### Applications

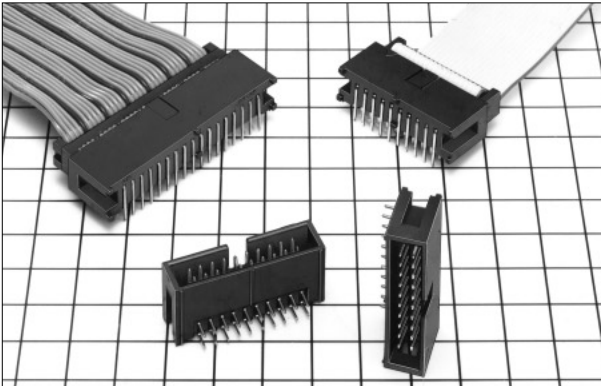
Computers, Terminal equipment, PPCs, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	8-10-12-16-18-20-26-30-34-40-50-60
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black, gray)

## 2.54mm pitch (Mis-insertion preventive type pin header)

### HIF3F Series



#### Features

- The pin header to prevent reverse insertion is equipped with contact protective walls based on the HIF3E series.
- Used as compact models if the HIF3B Series' lock eject mechanism is not required.
- The pin header compatible with the HIF3B Series'.

#### Applications

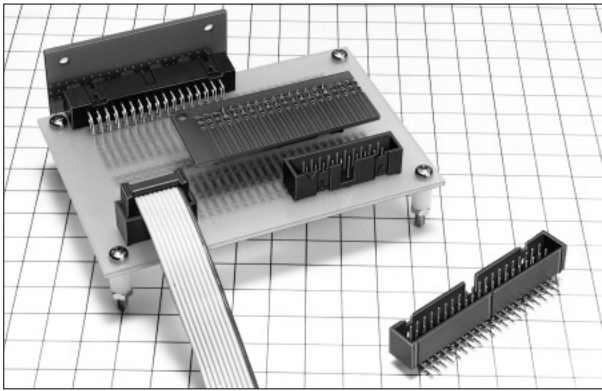
Computers, Terminal equipment, PPCs, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	10-16-20-26-30-34-40-50-60
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## 2.54mm pitch (Low profile box type pin header)

### HIF3FC Series



#### Features

- Products with flux swell prevention.
- The board to board clearance is 12.2mm for stacking connection.
- The pin header is a low profile of height 9.2mm.
- Mounting in the length direction is possible with no excessive space required.

#### Applications

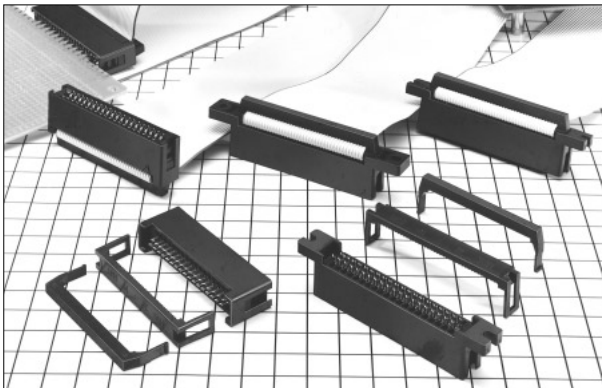
Computers, terminal equipment, Electronic equipment, Office equipment

#### Specifications

Item	Requirements
No. of Positions	10-14-16-20-26-30-34-40-50-60-64
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Gold
Terminal Pitch (mm)	2.54
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## 2.54mm pitch card edge type connectors

### HIF5 Series



#### Features

- Ribbon cable connectors of card receptacle type directly inserted into PCBs.
- Connected directly to the signal circuit on the PCB or mounted according to the circuit design.
- The area to install the connector body is classified into three types according to full hole mounting area, semi-hole mounting area and non-mounting area.
- Designed so that the ribbon cable can turn back within the connector molding width.
- The applicable cable is UL2651 AWG#28 flat cable.

#### Applications

Computers, FDDs, Office equipment

#### Specifications

Item	Requirements
No. of Positions	20-26-34-40-50-60
Current rating (A)	1
Contact Plating	Gold
Contact Pitch (mm)	2.54
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)
Accessories	Polarizing key

## 3-Ampere type HIF4 Series



### Features

- The HIF4 series connector is capable of 3A current capacity used for wider applications, while the HIF3 series uses 1A capacity.
- Equipped with HIROSE's unique locking mechanism, and guarantees excellent reliability for vibration and shock.
- Equipped with levers for automatic insertion and extraction, as soon as lock is reset. Insertion and extraction tools are not required.
- The applicable cable is UL2651 AWG#24 flat cable.

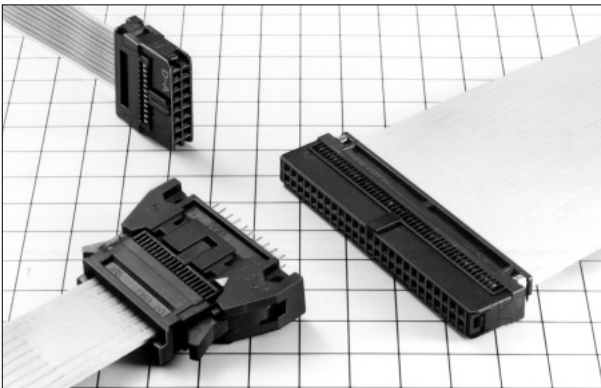
### Applications

Computers, Terminal equipment, Electronic equipment, Office equipment

### Specifications

Item	Requirements
No. of Positions	16-20-26-34-40
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Gold
Contact Pitch (mm)	3.18
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	PBT (UL94V-0, Color: Black)

## 1.27mm pitch coaxial ribbon cable connectors FM1 Series



### Features

- 1.27mm pitch coaxial ribbon cable connectors.
- Cables of aluminum foil shield, wrapped round shield or braided shield with characteristic impedance of 50 ohms and 75 ohms are provided.
- The pin header side is interfaced with HIF3 series.
- The mechanism to prevent exposure of the signal conductor in the unique body prevents short accidents between signal and external circuit.

### Applications

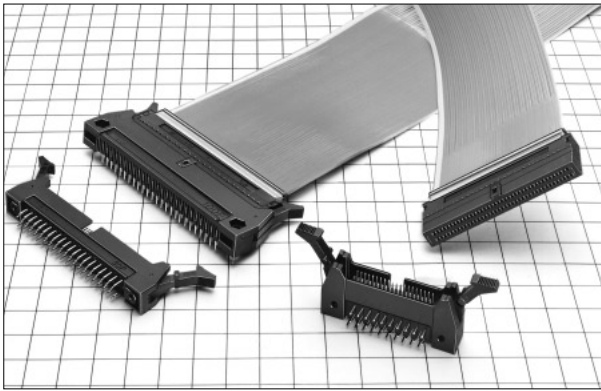
Computers, Peripheral and terminal equipment, Medical electronic apparatuses, Measuring instruments, Control equipment

### Specifications

Item	Requirements
No. of Positions	14-20-26-34-40-50
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Coaxial ribbon cable
Center Conductor Plating	Silver, tin
Center Conductor Termination Method	IDC
Outer Conductor Termination Method	IDC
Remarks	Pin header: HIF3B series, HIF3F series

## 1.27mm pitch coaxial ribbon cable connectors

### HIF6R Series



#### Features

- 1.27mm pitch coaxial ribbon cable connectors.
- The applicable cable is AWG#30 solid wire.
- The characteristic impedance of the cable is 50 ohms.
- The pin header side is interfaced with HIF6H series.
- The socket side is equipped with a convex portion in order to prevent mis-insertion.

#### Applications

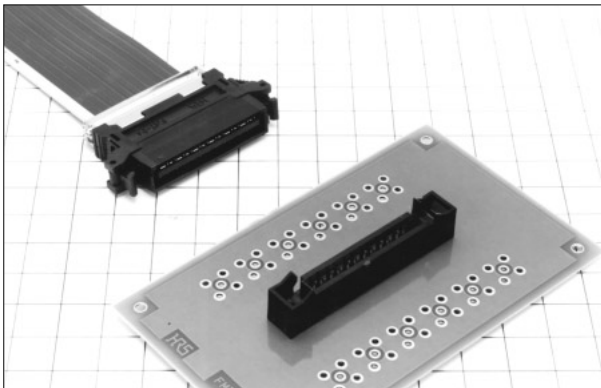
Computers, Peripheral and terminal equipment, Communication equipment, Medical electronic apparatuses, Measuring instruments

#### Specifications

Item	Requirements
No. of Positions	40-80-100
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Coaxial ribbon cable
Center Conductor Plating	Silver, tin
Center Conductor Termination Method	IDC
Outer Conductor Termination Method	IDC
Remarks	Pin header: HIF6H

## 2.54mm pitch coaxial ribbon cable connectors

### FM7 Series



#### Features

- 2.54mm pitch AWG#30 coaxial ribbon cable can be insulated and displaced. The characteristic impedance is 50 ohms.
- Good impedance matching and low cross talk and low noise for shielding between signal and signal.
- Since the signal and ground is shielded in staggered arrangement on the 1:1 basis, this connector is suitable for 150MHz or higher speed transmission.
- The inner lock mechanism utilizes the effective mounting space.
- The mating area is designed in a mechanism to completely prevent mis-insertion.

#### Applications

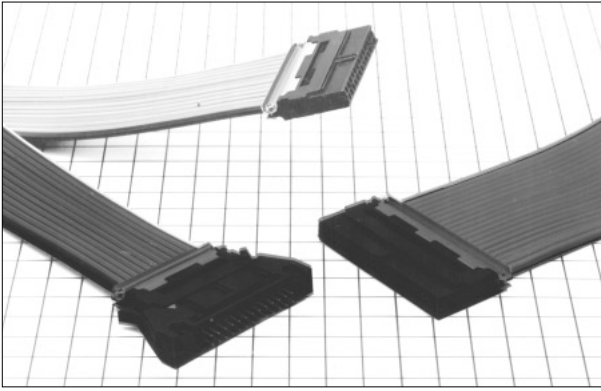
Computers, Peripheral and terminal equipment, Communication equipment, Medical electronic apparatuses, Measuring instruments

#### Specifications

Item	Requirements
No. of Positions	24
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Coaxial ribbon cable
Center Conductor Plating	Tin
Center Conductor Termination Method	IDC
Outer Conductor Termination Method	IDC

## 2.54mm pitch coaxial ribbon cable connectors

### FM2 Series



#### Features

- 2.54mm pitch coaxial ribbon cable connectors with characteristic impedance 50 ohms, 75 ohms and 92 ohms.
- The cable assembly to insulate and displace a signal and a ground together enable to save cabling work and increase reliability.
- The pin header side is interfaced with HIF3 series.
- The socket side is equipped with a convex portion in order to prevent mis-insertion.

#### Applications

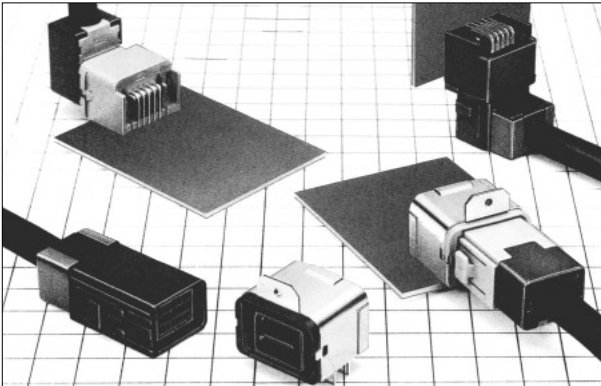
Computers, Peripheral and terminal equipment, Communication equipment, Medical electronic apparatuses, Measuring instruments

#### Specifications

Item	Requirements
No. of Positions	10-14-20-26-40
Current rating (A)	0.5
PCB Mount Type	Through hole
Contact Plating	Gold
Insulator	PBT (UL94V-0, Color: Black)
Applicable Cable (mm)	Coaxial ribbon cable
Center Conductor Plating	Tin
Center Conductor Termination Method	IDC
Outer Conductor Termination Method	IDC
Remarks	Pin header: HIF3B series, HIF3F series

## Automotive LAN connectors

### GT17 Series



#### Features

- Fully shielded construction.
- Good for Automotive USB connector.

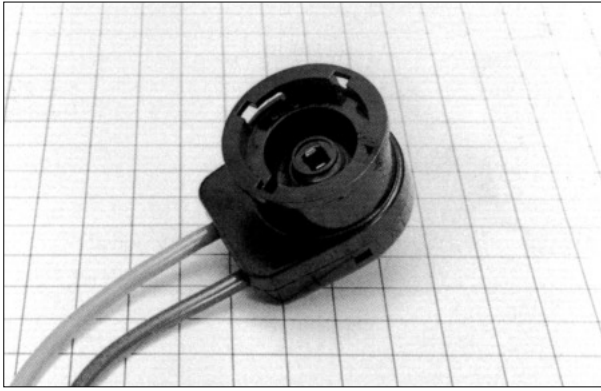
#### Applications

Automotive network systems, etc.

#### Specifications

Item	Requirements
No. of Positions	6,8
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Tin
Insulator	PBT
Center Conductor Plating	Tin
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp

## HID head lamp valve socket GT15 Series



### Features

- The cable and wiring system use the crimp method which makes assembly very simple.
- Bulb detection type available.
- Attachable the shielding.
- LC, Igniter equipped version available.

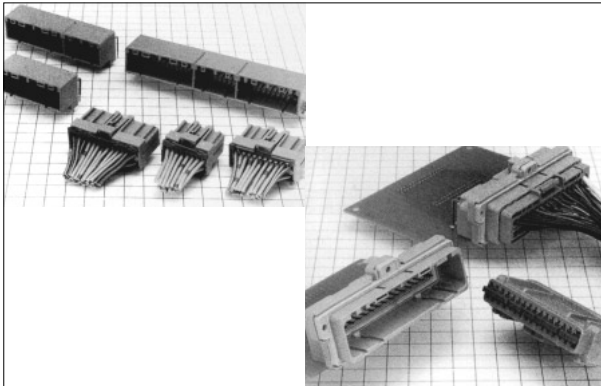
### Applications

HID lamp D2 Sockets

### Specifications

Item	Requirements
No. of Positions	1
Current rating (A)	1
Contact Plating	Tin
Insulator	PEI
Applicable Cable (mm)	AWG#20,#22,#24

## ECU interface connectors GT7 Series



### Features

- Crimp terminals equivalent to tab width 040 and 070 for automotive.
- Low insertion force and high contact pressure provided by the double contact construction of the female connector.
- To prevent deformation by external forces, female contacts have a box shape.
- Waterproof connector use a 2 stage sequence and have a low insertion force structure.

### Applications

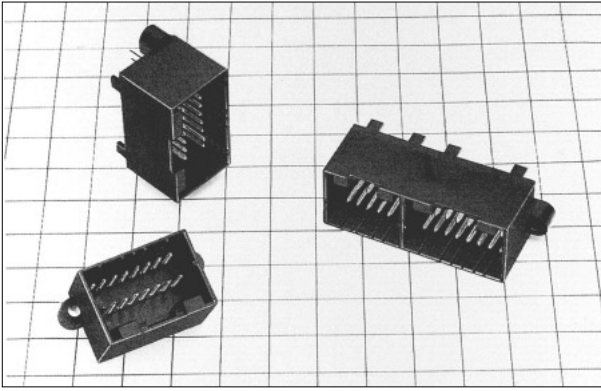
ECU

### Specifications

Item	Requirements
No. of Positions	16-26-42-64
Current rating (A)	1,3,20
PCB Mount Type	Through hole
Contact Plating	Tin
Insulator	PBT
Applicable Cable (mm)	AVS equivalent 2(AWG#14),0.5(AWG#20),0.3(AWG#22)
Center Conductor Plating	Tin
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp

## ECU interface connectors

### GT3 Series



#### Features

- Standard ECU connector in Japan.
- 040 size tab width.
- Corresponding to potting version available.

#### Applications

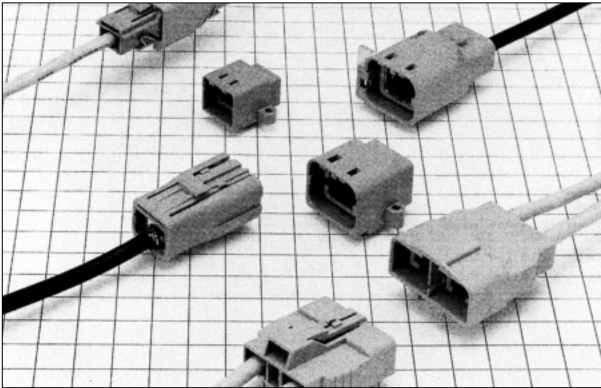
Low profile(GT3) and standard profile(GT3B) types available

#### Specifications

Item	Requirements
No. of Positions	8-12-16-20-36-48
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Tin
Insulator	PBT

## Twinax shielded cable connectors

### GT11 Series



#### Features

- Multi-conductor shielded cable connector.
- A housing lance systems has been used to prevent binding between contacts.
- Board mounting, In-line, Waterproof type available.

#### Applications

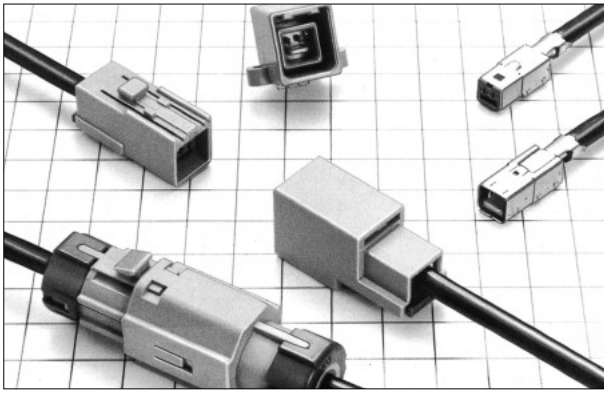
Automotive network systems, Sensor, etc.

#### Specifications

Item	Requirements
No. of Positions	1-2
Current rating (A)	1
PCB Mount Type	Through hole
Contact Plating	Tin
Insulator	PBT
Center Conductor Plating	Tin
Center Conductor Termination Method	Crimp
Outer Conductor Termination Method	Crimp

# Twinax shielded cable connectors

## GT14 Series



### Features

- IDC termination Connectors for 2 conductor shielded cable.
- Terminate the signal conductor and the shields in one operation.
- Fully shielded construction version available.
- Board mounting, In-line, Waterproof type available.

### Applications

Automotive network systems, Sensor, etc.

### Specifications

Item	Requirements
No. of Positions	1·2
Current rating (A)	3
PCB Mount Type	Through hole
Contact Plating	Tin
Insulator	PBT
Center Conductor Plating	Tin
Center Conductor Termination Method	IDC
Outer Conductor Termination Method	IDC

Circular  
Connectors

Rectangular  
Connectors

Coaxial  
Connectors

Memory Card  
Connectors

Modular  
Connectors

Card Edge  
Connectors

Board-to-Board  
Connectors

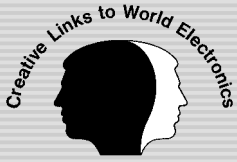
Board-to-Wire  
Connectors

FPC/FFC  
Connectors

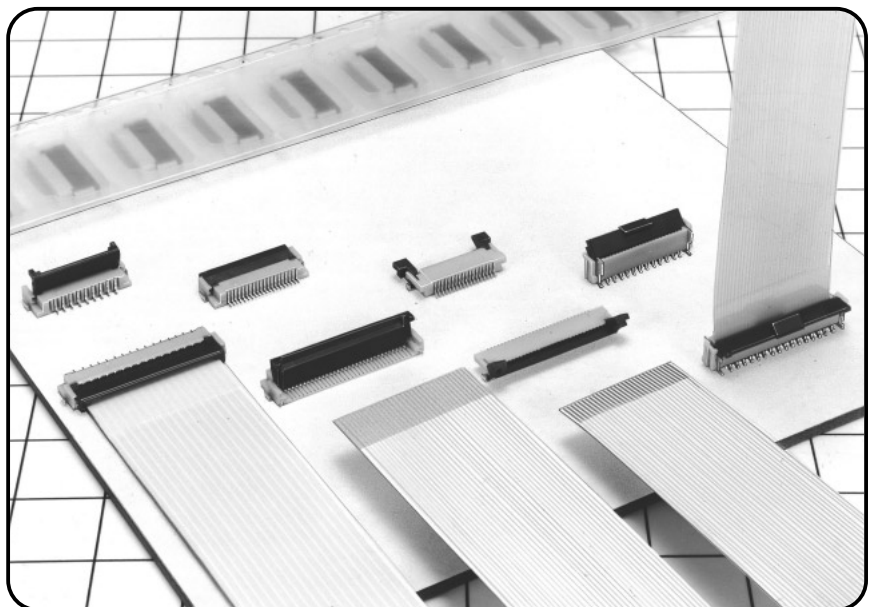
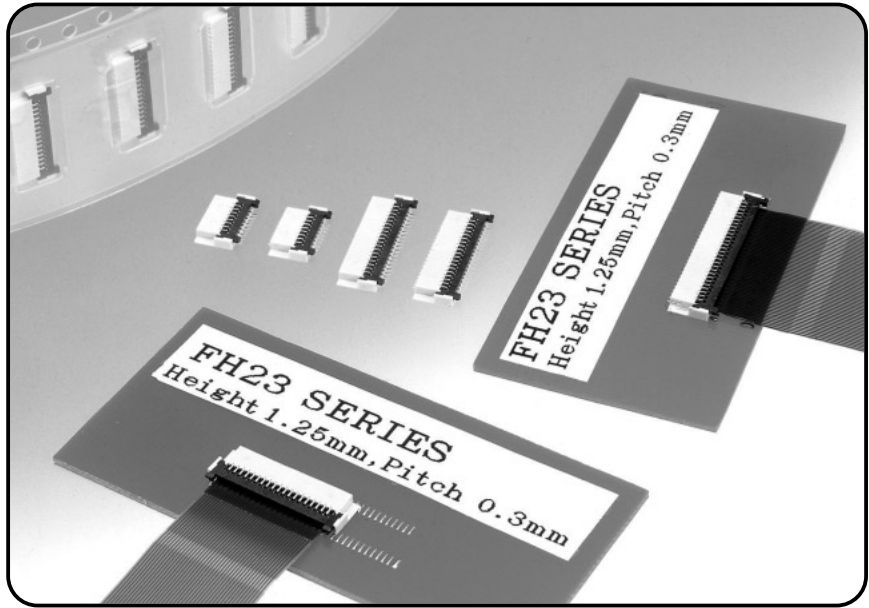
Optical Connectors  
and Devices

Microwave  
Components





# FPC/FFC Connectors



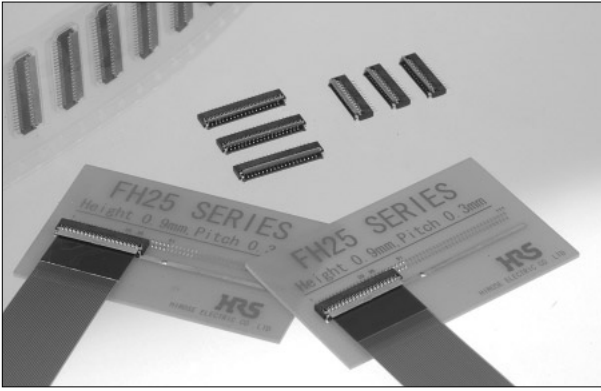
# FPC/FFC Connectors



Contact Pitch (mm)	Height from board (mm)	Applicable FPC/FFC thickness (mm)	Terminal	Series Name	Page
0.3mm	0.9	0.2	Staggered row	FH25	151
	1			FH26	151
	1.25			FH23	152
	1.8			FH18	152
0.3/0.4/0.5mm	3	0.3		FH16	153
0.4mm	1.2	0.2		FH27	153
0.5mm	0.9	0.2,0.3	Single row	FH19	154
	1.3	0.17		FH17	154
	2.55	0.3		FH28	155
0.5/1.0mm	2		FH12	155	

## 0.3mm pitch, 0.9mm above the board, FPC connectors

### FH25 Series



#### Features

- Low profile 0.3mm pitch flexible printed circuit (FPC) connectors.
- All bottom surface of the connector with no pattern-prohibited area (i.e., over-molding structure).
- The 0.3mm width staggered pin design with a mounting pitch of 0.6mm ensures mounting area reduction and easy mounting.
- Only slight force is required to lock the flip-lock (one-touch rotating system) zero insertion force (ZIF) structure.
- FPC 0.2mm thickness applicable, standard FPC thickness in the market despite its low profile.

#### Applications

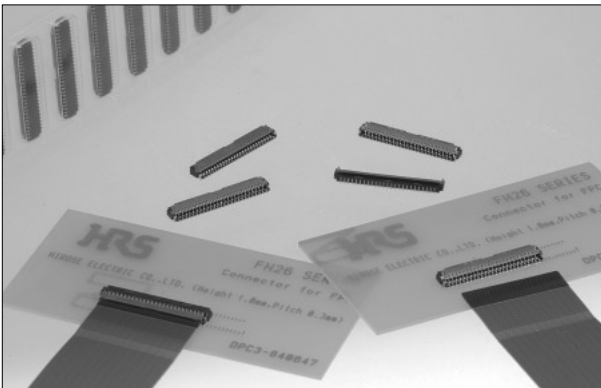
Mobile phone, LCD application, Digital video camera (DVC), Digital camera (DSC), PDA, Camera module, Compact electronic equipment

#### Specifications

Item	Requirements
No. of Positions	21-27-33-39-45-51
Current rating (A)	0.15
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.6
Contact Pitch (mm)	0.3
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Black, Dark brown)
Applicable FPC/FFC (mm)	0.2
Remarks	FPC connector

## 0.3mm pitch, 1mm above the board, FPC connectors

### FH26 Series



#### Features

- Space saving design: connector height is 1.0mm and depth of mounting area is 3.2mm.
- The soldering leads are on 0.6mm terminal spacing, existing on front and back of the connector, for easy solderability on the PCB.
- Board area under the connector is available for PCB patterning.
- Flip lock actuator allows easy insertion of FPC.
- Metal FPC insertion guide makes easy to insert FPC.

#### Applications

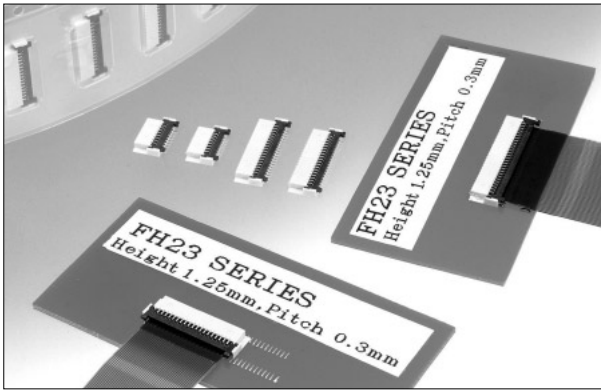
Mobile phone, LCD application, Digital video camera (DVC), Digital camera (DSC), PDA, Camera module, Compact electronic equipment

#### Specifications

Item	Requirements
No. of Positions	13-21-23-25-27-33-35-39-41-45-51-57-71
Current rating (A)	0.2
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.6
Contact Pitch (mm)	0.3
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Black, Dark brown)
Applicable FPC/FFC (mm)	0.2
Remarks	FPC connector

## 0.3mm pitch, 1.25mm above the board, FPC connectors

### FH23 Series



#### Features

- HIROSE's unique low insertion force (LIF) design improves the Flexible Printed Circuit (FPC) holding force after insertion.
- Provided with an flexible printed circuit (FPC) temporary hold mechanism, thus preventing the shift of the flexible printed circuit (FPC) and connector after flexible printed circuit (FPC) insertion.
- The staggered pin design with a mounting pitch of 0.6mm ensures ease of mounting.
- Only slight force is required to lock the flip-lock (one-touch rotating type) zero insertion force (ZIF) structure.

#### Applications

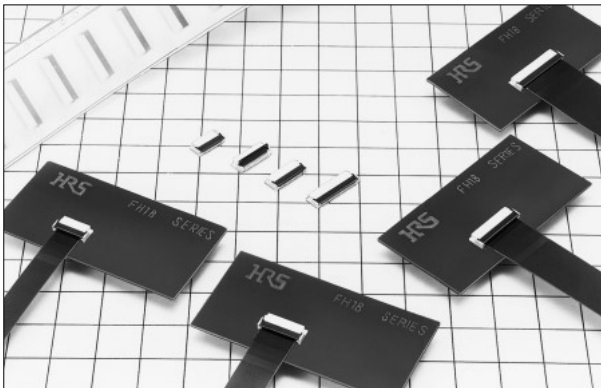
Mobile Phones, LCD units, DVC units, DSC units, PDA units, Camera modules, Compact equipment

#### Specifications

Item	Requirements
No. of Positions	15-17-21-23-25-27-31-33-39-45-51-61-71
Current rating (A)	0.3
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.6
Contact Pitch (mm)	0.3
Contact Layout	Double row
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Black, beige)
Applicable FPC/FFC (mm)	0.2
Remarks	FPC connector

## 0.3mm pitch FPC connectors

### FH18 Series



#### Features

- Low profile 0.3mm pitch flexible printed circuit (FPC) connectors.
- A combination of non-ZIF and zero insertion force (ZIF) contacts improves an increase in reliability and workability at the time of flexible printed circuit (FPC) insertion.
- Only slight force is required to lock the flip-lock (one-touch rotating type) zero insertion force (ZIF) structure.
- The staggered pin design with a mounting pitch of 0.6mm ensures ease of mounting.
- Embossed tape packaging allows automatic mounting.

#### Applications

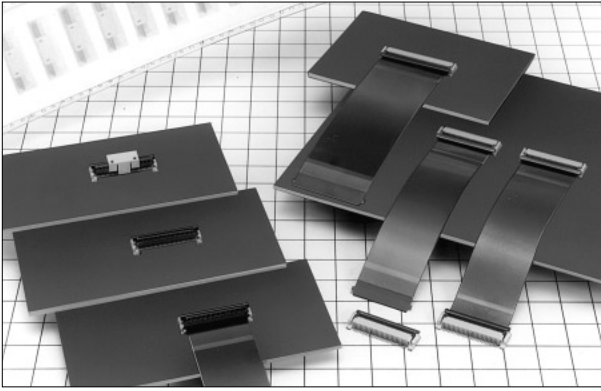
Digital camcorders, Digital still cameras, Cameras, PDA units, Mobile Phones, LCD units, CD-ROM drives, DVD-ROM drives, MD players, Compact equipment

#### Specifications

Item	Requirements
No. of Positions	17-21-25-27-39-45-51
Current rating (A)	0.15
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.6
Contact Pitch (mm)	0.3
Contact Layout	Double row
Operating Temperature Range (°C)	-40 to 85
Insulator	LCP (UL94V-0, Color: Black, beige)
Applicable FPC/FFC (mm)	0.2
Remarks	FPC connector

## High density FPC connectors (0.3mm/0.4mm/0.5mm pitch)

### FH16 Series



#### Features

- The FH16 series is a fine pitch of 0.3mm, 0.4mm, and 0.5mm ensures high density mounting of multipole connectors.
- Only slight force is required to lock the flip-lock (one-touch rotating type) zero insertion force (ZIF) structure.
- The locking mechanism clicks, thus making it possible to confirm secure flexible printed circuit (FPC) connections.
- Prevents flexible printed circuit (FPC) from falling out and oblique mating.
- The staggered pin design with a mounting pitch of 0.6mm ensures ease of mounting.

#### Applications

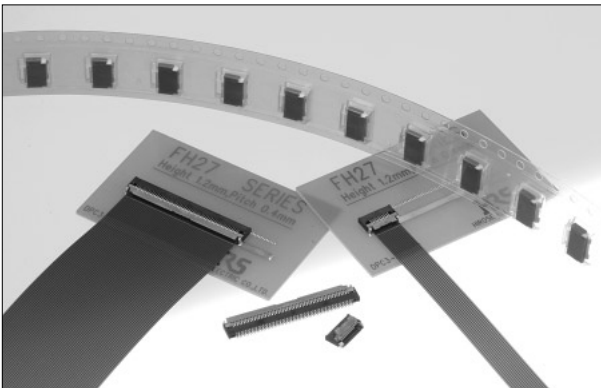
Notebook PCs, CD-ROM drives, Digital cameras, Printers, Compact equipment

#### Specifications

Item	Requirements
No. of Positions	50-60-64-80-90-96
Current rating (A)	0.15-0.3-0.4
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.6-0.8-1
Contact Pitch (mm)	0.3-0.4-0.5
Contact Layout	Double row
Operating Temperature Range (°C)	-40 to 70
Insulator	Polyamide, LCP (UL94V-0, Color: Beige), PPS (UL94V-0, Color: Dark brown)
Applicable FPC/FFC (mm)	0.3
Remarks	FPC connector

## 0.4mm pitch, 1.2mm above the board, FPC connectors

### FH27 Series



#### Features

- Low profile 0.4mm pitch flexible printed circuit (FPC) connectors.
- Higher current capacity than 0.3mm pitch FPC.
- Function to prevent flexible printed circuit (FPC) from falling out.
- FPC of 0.2mm thickness is applicable and easy to insert.
- Only slight force is required to lock the flip-lock (one-touch rotating system) zero insertion force (ZIF) structure.

#### Applications

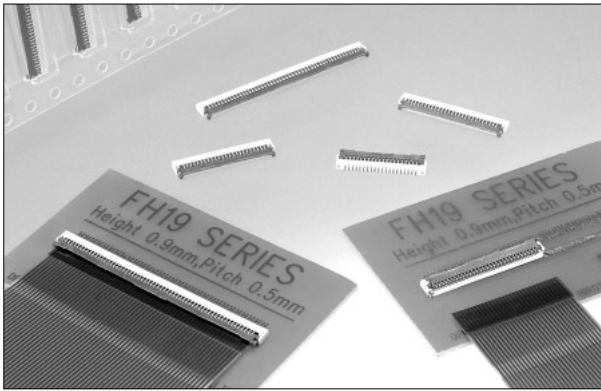
Mobile phone, LCD application, Digital video camera (DVC), Digital camera (DSC), PDA, Camera module, Compact electronic equipment

#### Specifications

Item	Requirements
No. of Positions	10-40-50-54-57-60
Current rating (A)	0.4
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.4
Contact Pitch (mm)	0.4
Contact Layout	Single row
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Black, beige)
Applicable FPC/FFC (mm)	0.2
Remarks	FPC connector

## 0.5mm pitch, 0.9mm above the board, FPC/FFC connectors

### FH19 Series



#### Features

- Low profile 0.5mm pitch flexible printed circuit (FPC) connectors.
- The embossed tape reels made of paper.
- All bottom surface of the connector with no pattern-prohibited area (i.e., over-molding structure).
- Only slight force is required to lock the flip-lock (one-touch rotating type) zero insertion force (ZIF) structure.
- Accepting 0.2mm and 0.3mm thick flexible printed circuit (FPC), flexible flat cable (FFC), thus ensuring ease of insertion.

#### Applications

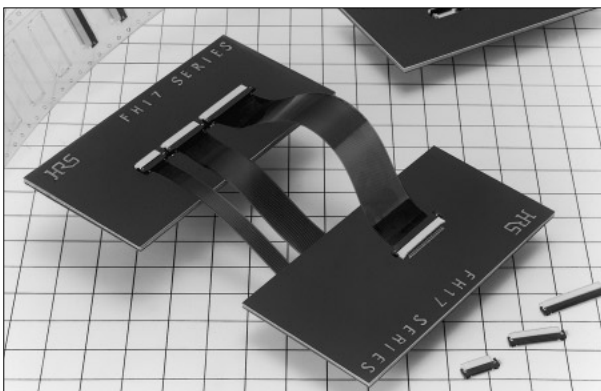
Mobile Phones, LCD units, DVC units, DSC units, PDA units, Camera modules, Compact equipment

#### Specifications

Item	Requirements
No. of Positions	4·5·6·8·9·10·12·13·14·15·16·17·18·20·21·22·24·26·27·30·32·40·45·50
Current rating (A)	0.5
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Single row
Operating Temperature Range (°C)	-55 to 85
Insulator	LCP (UL94V-0, Color: Beige), PPS (UL94V-0, Color: Black, dark brown)
Applicable FPC/FFC (mm)	0.2·0.3
Remarks	FPC/FFC connector

## 0.5mm pitch FPC connectors

### FH17 Series



#### Features

- Low profile 0.5mm pitch flexible printed circuit (FPC) connectors. An ultra miniature version of the FH12 Series.
- Only slight force is required to lock the flip-lock (one-touch rotating type) zero insertion force (ZIF) structure.
- PCB drop-in type as a variation is available.
- Conforming to the thin type flexible printed circuit (FPC) now being used for small size electronic devices such as cameras.
- Embossed tape packaging allows automatic mounting.

#### Applications

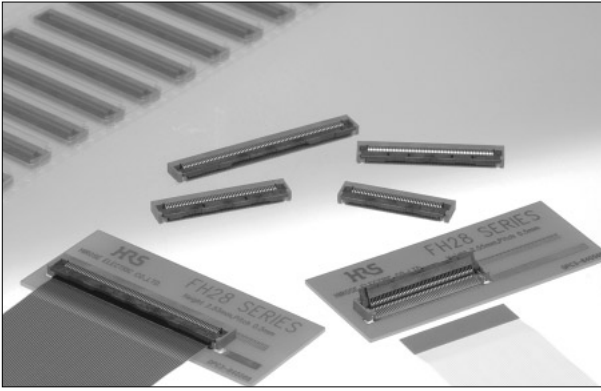
Mobile Phones, LCD-related applications, CD-ROM drives, Camera, Compact equipment

#### Specifications

Item	Requirements
No. of Positions	8·10·15·20·24·30
Current rating (A)	0.4
PCB Mount Type	SMT
Contact Plating	Tin-lead
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Single row
Operating Temperature Range (°C)	-40 to 70
Insulator	LCP (UL94V-0, Color: Black, beige), PPS (UL94V-0, Color: Black)
Applicable FPC/FFC (mm)	0.17
Remarks	FPC connector

## 0.5mm pitch, 2.55mm above the board, FPC/FFC connectors

### FH28 Series



#### Features

- Stabilized connection quality by easy FPC positioning and high FPC retention force by robust lock structure.
- Greatly enhanced FPC/FFC retention force.
- Easy-to-use 0.3 mm thick FPC/FFC.
- High FPC operational reliability, achieved by user-friendly actuator operation.

#### Applications

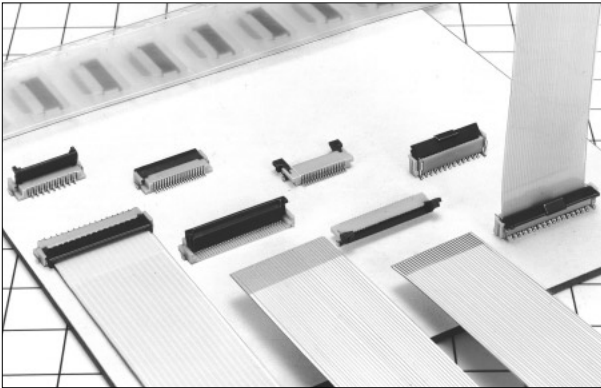
LCD, PDP, HDD, FPC multipole connection equipment

#### Specifications

Item	Requirements
No. of Positions	34-40-48-50-55-60-62-64-80
Current rating (A)	0.5
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.5
Contact Pitch (mm)	0.5
Contact Layout	Single row
Operating Temperature Range (°C)	-40 to 85
Insulator	LCP (UL94V-0, Color: Black, Gray)
Applicable FPC/FFC (mm)	0.3
Remarks	FPC/FFC connector

## 0.5mm and 1mm pitch FPC/FFC connectors

### FH12 Series



#### Features

- Only slight force is required to lock the flip-lock (one-touch rotating type) zero insertion force (ZIF) structure.
- The locking mechanism clicks, thus making it possible to confirm flexible printed circuit (FPC) and flexible flat cable (FFC) connections.
- One-touch zero insertion force (ZIF) structure reduces working space, thus making mounting possible in the center of the PCB.
- Upper, lower, and vertical contact types for flexible printed circuit (FPC) and flexible flat cable (FFC) connections are available.
- Models of 1mm pitch type as well as 0.5mm pitch type are available.

#### Applications

LCDs, Mobile Phones, CD-ROM drives, Compact equipment

#### Specifications

Item	Requirements
No. of Positions	4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-22-24-25-26-28-29-30-32-33-34-36-40-42-45-49-50-53
Current rating (A)	0.4
PCB Mount Type	SMT
Contact Plating	Gold, tin-lead
Terminal Pitch (mm)	0.5-1-2
Contact Pitch (mm)	0.5,1
Contact Layout	Single row
Operating Temperature Range (°C)	-40 to 70
Insulator	Polyamide (UL94V-0, Color: Beige), PPS (UL94V-0, Color: Dark brown)
Applicable FPC/FFC (mm)	0.18-0.3
Remarks	FPC/FFC connector

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

FPC/FFC Connectors

Optical Connectors and Devices

Microwave Components

Circular  
Connectors

Rectangular  
Connectors

Coaxial  
Connectors

Memory Card

Modular  
Connectors

Card Edge  
Connectors

Board-to-Board  
Connectors

Board-to-Wire  
Connectors

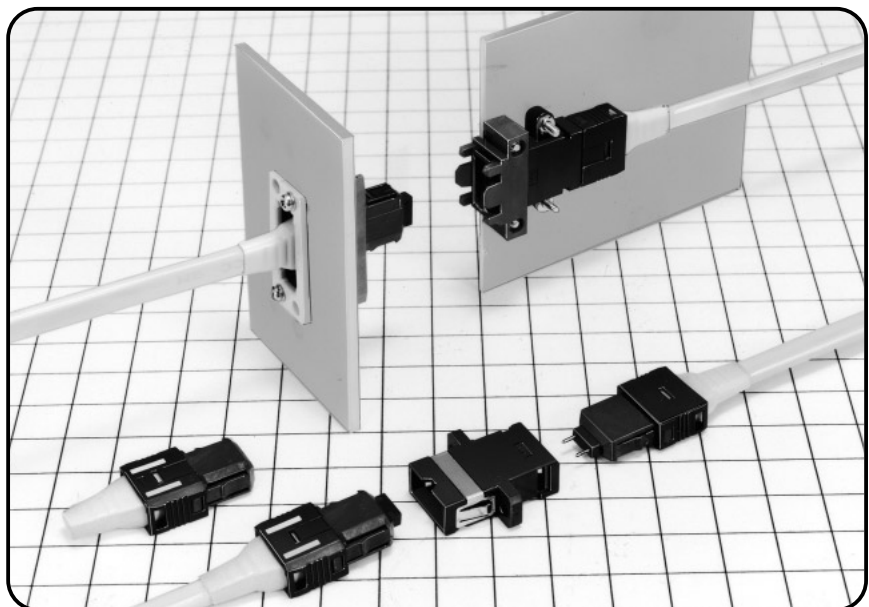
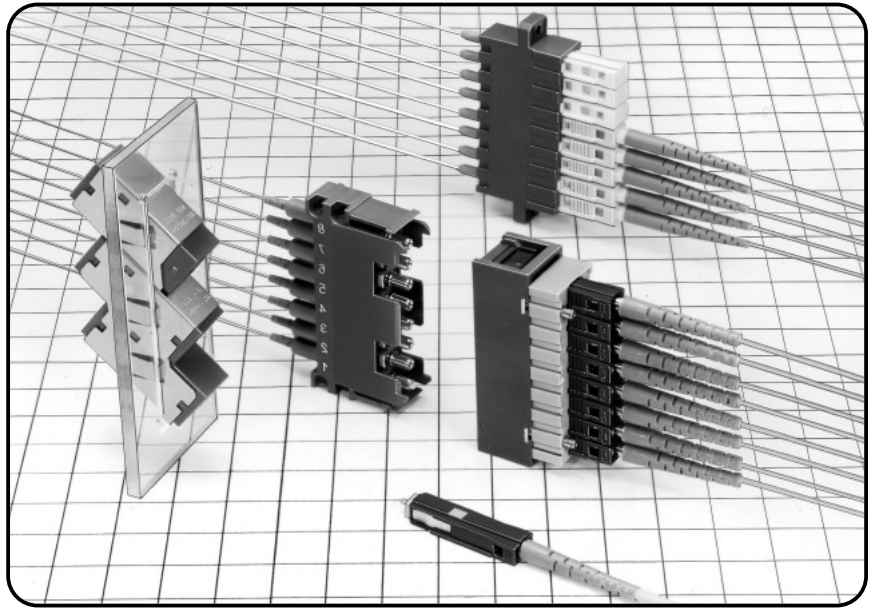
**FPC/FFC  
Connectors**

Optical Connectors  
and Devices

Microwave  
Components



# Optical Connectors and Devices



# Optical Connectors and Devices



## MU

	Series Name	Page
MU type fiber optic connectors	HMU	159
MU type optical in-line attenuators	HMU-PAT	159
MU-PJ type optical fixed attenuators	HMU-PJAT	160

## SC

	Series Name	Page
SC type fiber optic connectors	HSC	160
SC type fixed attenuators (Return loss : 60dB mini)	HSC-AT11CS	161
SC type fixed attenuators	HSC-PJAT	161

## FC

	Series Name	Page
FC type fiber optic connectors	HRFC	162
FC type fixed attenuators	HRFC-PJAT	162
FC type optical variable attenuators	HRLA	163

## Terminators

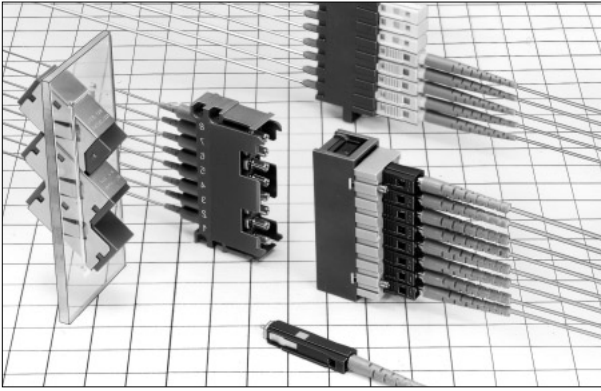
	Series Name	Page
MU, SC, FC type terminators	OPT-TM	163

## HRS Unique Connectors

	Series Name	Page
Sub miniature, waterproof duplex connector	MF10	164
Harsh environment connectors	MF	164

## MU type fiber optic connectors

### HMU Series



#### Features

- JIS, IEC standard compliant and fully intermateable with NTT's MU connector. JIS C 5983 (F14 type fiber optic connectors), IEC 61754-6.
- MU Backplane connector has a self-holding mechanism which does not transfer any force on the back panel when both side of connector assemblies are fully connected.
- Back panel side plug connectors can be removed or inserted even back panel and package are mated.
- A wide variety of adapter-type connectors.
- The simplified receptacle reduces the number of parts, thus saving cost and space with an MU simplified plug connected inside the equipment.

#### Applications

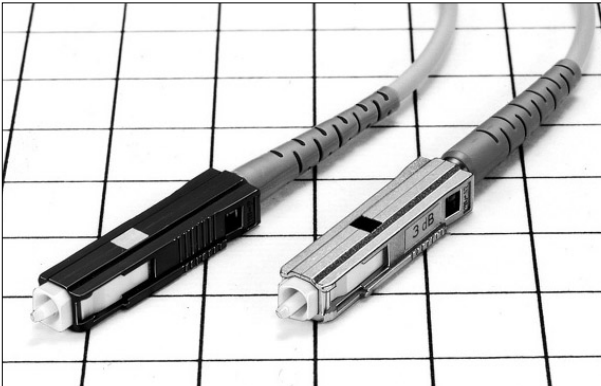
Optical terminal equipment, Optical relay racks, Measurement equipment

#### Specifications

Item	Requirements
Generic Name	MU
Operating Temperature Range (°C)	-25 to 70
Storage Temperature Range (°C)	-25 to 70
Return Loss (dB)	40dB min.
Insertion Loss (dB)	0.5dB max.(AdPC)0.3dB max.(AdPC)
Industry Standard	NTT,JIS,IEC

## MU type optical in-line attenuators

### HMU-PAT Series



#### Features

- Maximum input power is 100mW.
- Simplified, space-saving mounting is possible.
- The attenuation level is easy to change by exchanging the attenuation element with a simple push-twist locking action.
- Multiple mounting is possible. Allowing mounting to multi-contact adapters with a pitch of 4.5mm, thus making it possible to use MU connectors as well.
- Other attenuation, return loss, and optical fibers can be made available per requirements.

#### Applications

Power level adjustments of optical fiber networks

#### Specifications

Item	Requirements
Generic Name	MU
Operating Temperature Range (°C)	-25 to 70
Storage Temperature Range (°C)	-25 to 70
Return Loss (dB)	40dB min.
Attenuation	0,1,2,3,4,5,6,7,8,9,10,12.5,15,17.5,20dB
Industry Standard	NTT,JIS
Remarks	Duplex adapter (HMUA-2A-4)

## MU-PJ type optical fixed attenuators

### HMU-PJAT Series



#### Features

- Maximum input power is 200mW.
- The attenuation range is guaranteed within broad ranges (1310 ± 30 nm, and 1510 to 1620 nm).
- The attenuation deviation band is secured in broad ranges (1310 ± 30 nm, and 1510 to 1620 nm).
- A variety of attenuation available.
- Ease of attenuation arrangements after optical fiber installation.

#### Applications

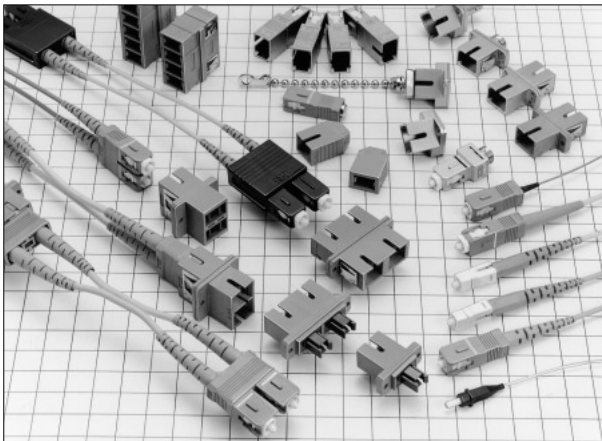
Power level adjustments of optical fiber networks as WDMs.

#### Specifications

Item	Requirements
Generic Name	MU-PJ type optical fixed attenuator
Operating Temperature Range (°C)	-20 to 70
Storage Temperature Range (°C)	-40 to 85
Return Loss (dB)	40dB min.
Attenuation	0,1,2,3,4,5,6,7,8,9,10,15,20dB
Industry Standard	NTT,JIS

## SC type fiber optic connectors

### HSC Series



#### Features

- JIS, IEC standards compliant and fully intermateable with NTT's SC products.
- JIS C 5973 (F04 type fiber optic connectors), IEC 60874-14 (single conductor), and IEC 60874-19 (duplex conductors)
- Long strain relief boot assures that there are no performance losses when a pull force is applied in a vertical bend direction.
- Duplex SC rigid types are available in following types; H type – 8.5mm spacing between the fibers, for high density applications. F type – 12.7mm spacing between the fibers, low profile, for LAN applications.
- Duplex SC adjustable type plugs conform to ANSI standards comes with floating mechanism that allows an easy receptacle mounting.
- The simplified receptacle reduces the number of parts, thus saving cost and space.

#### Applications

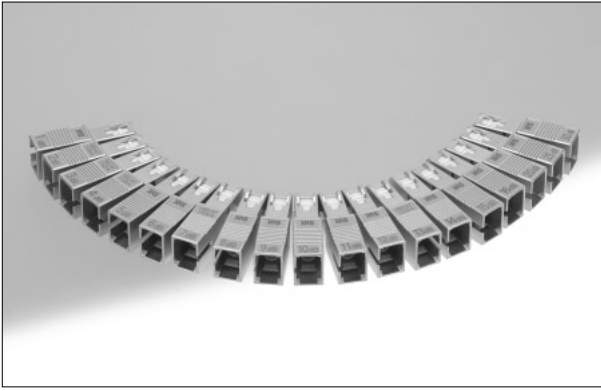
LAN, Public communications lines, CATV, Computer transmission systems, Measurement equipment

#### Specifications

Item	Requirements
Generic Name	SC
Operating Temperature Range (°C)	-25 to 70
Storage Temperature Range (°C)	-25 to 70
Return Loss (dB)	22dB min.(PC),40dB min.(AdPC),60dB min.(APC)
Insertion Loss (dB)	0.5dB max.(PC,AdPC,APC)0.3dB max.(PC)
Industry Standard	NTT,JIS,IEC,ANSI

## SC type optical fixed attenuators

### HSC-AT11CS Series



#### Features

- Low return loss , 60dB min.
- Complies with Telcordia GR-910-CORE.
- High input power (250mW max.)
- Variety of fixed attenuation levels.

#### Applications

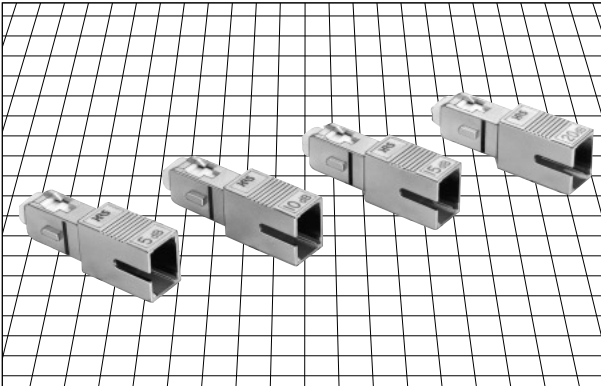
Power Level Adjustment of Optical Fiber Communications Network

#### Specifications

Item	Requirements
Generic Name	SC type optical fixed attenuator
Operating Temperature Range (°C)	-40 to 75
Storage Temperature Range (°C)	-40 to 75
Return Loss (dB)	60dB min.
Attenuation	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,20,25,30dB
Industry Standard	NTT,JIS

## SC type fixed attenuators

### HSC-PJAT Series



#### Features

- Maximum input power for SM is 250mW.
- A variety of return loss levels available.
- Ease of attenuation arrangements after optical fiber installation.

#### Applications

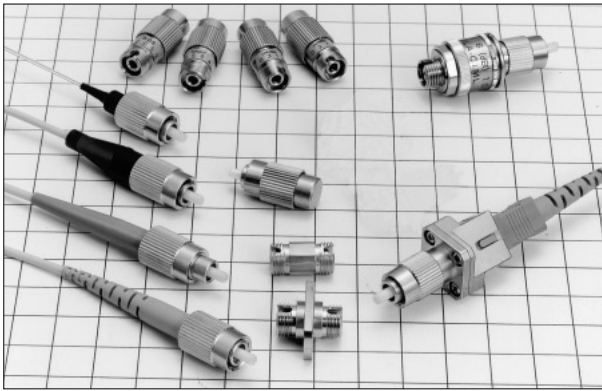
Power level adjustments of optical fiber networks

#### Specifications

Item	Requirements
Generic Name	SC type optical fixed attenuator
Operating Temperature Range (°C)	-20 to 70
Storage Temperature Range (°C)	-40 to 85
Return Loss (dB)	40dB min.
Attenuation	0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,20,25,30dB
Industry Standard	NTT,JIS

## FC type fiber optic connectors

### HRFC Series



#### Features

- JIS, IEC standards compliant and fully intermateable with NTT's FC products.
- JIS C 5970 (F01 type fiber optic connectors) and IEC 61754-13.
- A value-added model of the zinc die-cast key ring integrated with the zinc die-cast frame is available.
- PC, advanced PC (AdPC), and angled PC (APC) grinding are available.

#### Applications

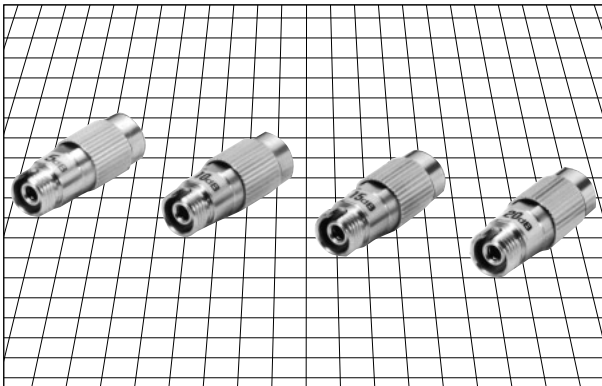
Public communications lines, LAN, CATV, Measurement equipment

#### Specifications

Item	Requirements
Generic Name	FC
Operating Temperature Range (°C)	-25 to 70
Storage Temperature Range (°C)	-25 to 70
Return Loss (dB)	22dB min.(PC),40dB min.(AdPC),60dB(APC)
Insertion Loss (dB)	0.5dB max.(PC,AdPC,APC)0.3dB max.(PC)
Industry Standard	NTT,JIS,IEC

## FC type fixed attenuators

### HRFC-PJAT Series



#### Features

- Maximum input power for SM is 250mW.
- A variety of attenuation levels available.
- Ease of attenuation arrangements after optical fiber installation.

#### Applications

Power level adjustments of optical fiber networks

#### Specifications

Item	Requirements
Generic Name	FC type optical fixed attenuator
Operating Temperature Range (°C)	-20 to 70
Storage Temperature Range (°C)	-40 to 85
Return Loss (dB)	40dB min.
Attenuation	0,1,2,3,4,5,6,7,8,9,10,15,20,25dB
Industry Standard	NTT,JIS

## FC type optical variable attenuators

### HRLA Series



#### Features

- The attenuation level selectable between 1 and 6 dB.
- The air-gap method ensures efficient attenuation.
- The plug jack type provides excellent operability.
- Supporting FC-type (JIS C5970) optical fiber connectors.
- Other attenuation ranges can be made available per requirements.

#### Applications

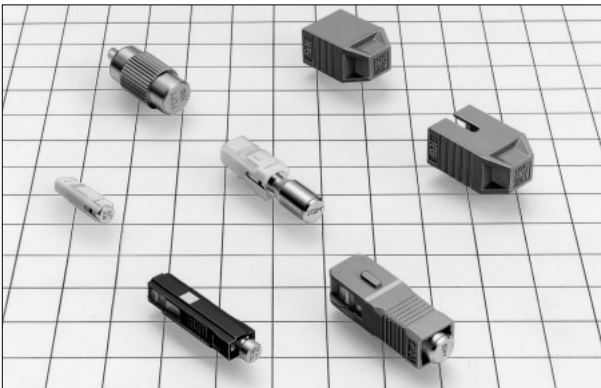
Power level adjustments of optical fiber networks

#### Specifications

Item	Requirements
Generic Name	FC type optical variable attenuator
Operating Temperature Range (°C)	0 to 30
Storage Temperature Range (°C)	-40 to 60
Return Loss (dB)	40dB min.
Attenuation	1 to 6dB
Industry Standard	JIS

## Optical terminators (MU type, SC type, FC type)

### OPT-TM Series



#### Features

- The plug type and receptacle type are available.
- A return loss of 40dB or over.
- Applicable wavelength of 1310 or 1550nm.
- Supporting FC-type (JIS C5970), SC-type (JIS C 5973), and MU-type (JIS C 5983) optical fiber connectors.
- Other attenuation, return loss, and optical fibers can be made available per requirements.

#### Applications

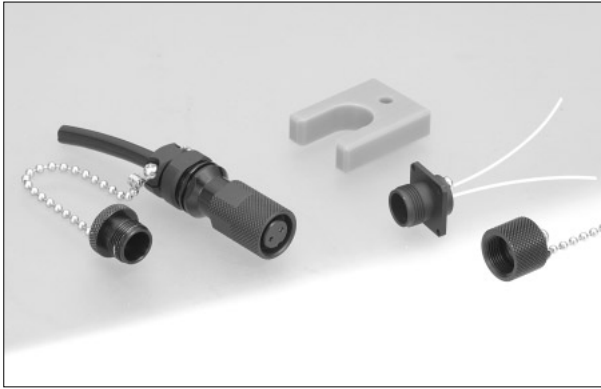
Termination of open ends in optical fiber communication networks

#### Specifications

Item	Requirements
Generic Name	FC, SC, MU type optical terminator
Operating Temperature Range (°C)	-25 to 70
Storage Temperature Range (°C)	-25 to 85
Return Loss (dB)	40dB min.
Attenuation	40dB
Industry Standard	NTT, JIS

## Sub miniature, waterproof duplex fiber optic connectors

### MF10 Series



#### Features

- Ultra small waterproof optical connector using ferrule of dia. 1.25mm (for MU connector) and reducing components by single-piece structure of outer shell and inner housing.
- Withstands harsh outside environment.
- Standard cable for plug is high-strength flexible MIL cable.
- Any worker can tighten connectors securely at the specified tightening torque.
- Portable field assembly kit for an urgent repair outside of factory is available.

#### Applications

Various outside optical transmission systems (Large monitor, commercial camera, base transmission station, rail road system)

#### Specifications

Item	Requirements
Operating Temperature Range (°C)	-40 to 85
Storage Temperature Range (°C)	-25 to 75
Insertion Loss (dB)	SM: 1.4dB max.(Ave, 0.3dB), MM: 0.7dB max.(Ave, 0.1dB)

## Harsh environment fiber optic connectors

### MF Series



#### Features

- Up to 6 optical fibers connected together. Optical/electric hybrids are possible by request.
- Five guide keys positioned at specific angles assure that the connector will mate only with the corresponding assembly.
- Plug, receptacle fully mated condition satisfy IP67 waterproof performance.
- The connector outer surface is covered with heat-baked hard coating that sufficiently withstands all tough environments outdoors.
- The connector will terminate with a majority of cables having outside diameter from 7mm to 12mm.

#### Applications

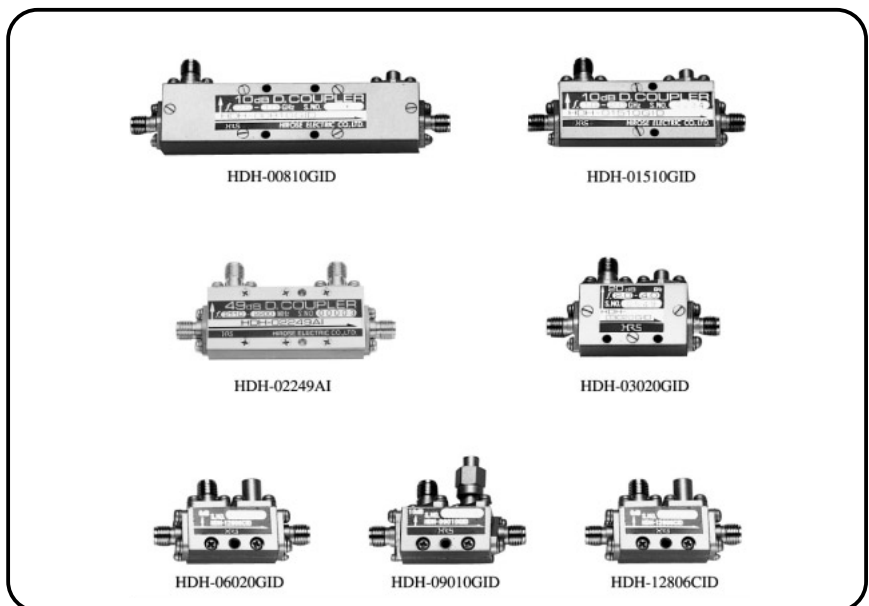
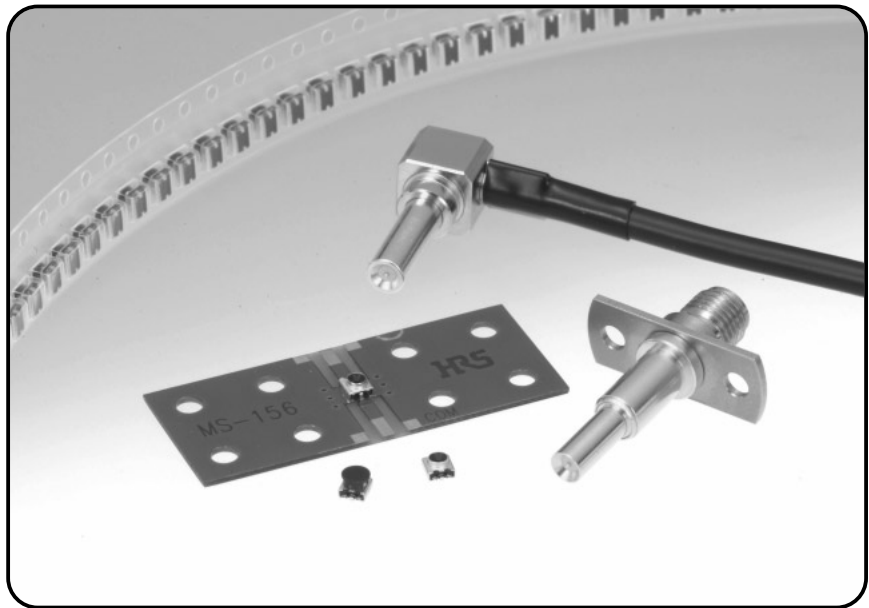
Outdoor optical transfer systems, LAN, CATV, CPU optical channels

#### Specifications

Item	Requirements
Operating Temperature Range (°C)	-40 to 75(MF22), -25 to 70(MF14,17)
Storage Temperature Range (°C)	-40 to 85(MF22), -25 to 70(MF14,17)
Insertion Loss (dB)	0.7dB max.(MF22), 1.0dB max.(MF14,17)



# Microwave Components



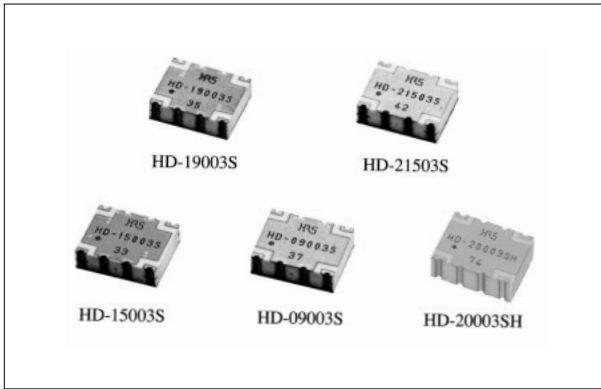
# Microwave Components



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## Subminiature ceramic couplers (SMT type)

### HD-S Series



#### Features

- Subminiature and lightweight design for Hirose Electric's expertise in miniaturization and matching technology.
- The high frequency characteristics feature low loss and a high degree of matching.
- Embossed tape packaging permits automatic mounting.

#### Applications

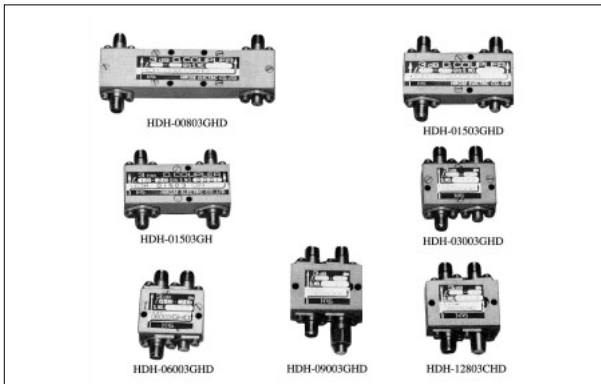
Mobile phone base stations

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0.8 to 2.3(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	SMT

## Couplers with connectors

### HDH Series



#### Features

- The high frequency characteristics feature low loss, a high degree of matching, and high isolation.
- Power uniform distribution and 90 degree phase difference type(HDH-H type).
- Corrosion-resistant aluminum case and the Hirose Electric unique pattern design using a stripline triplate method, enables the couplers to be miniature and lightweight.
- The outer shell and conductor of the SMA connector (Hirose HRM series) is stainless steel for durable coupling.
- Full variations of degrees of coupling over 6dB are available(HDH-I type).

#### Applications

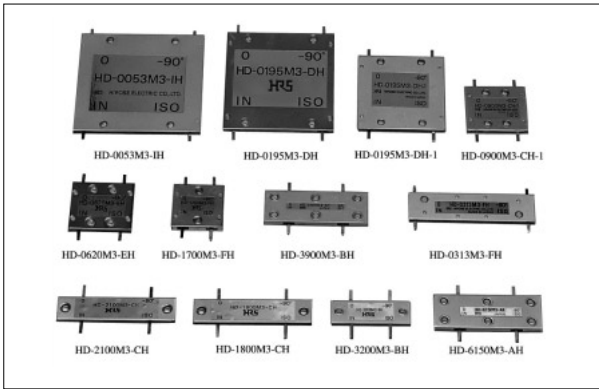
Mobile phone base stations, Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0.5 to 14.5(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector
Remarks	Coupling: 3dB(H type) Coupling: 6,10,20,30,37,49dB(I type)

## 3dB 90° card couplers

### HD-M3 Series



#### Features

- The high frequency characteristics feature low loss, and high degree of matching.
- Power uniform distribution and 90 degree phase difference type.
- Corrosion-resistant aluminum case and the Hirose Electric unique pattern design using a stripline triplate method, enables the couplers to be miniature and lightweight.
- High-power type can be used with up to 100W.
- Tabs permit direct mounting to surface circuits.

#### Applications

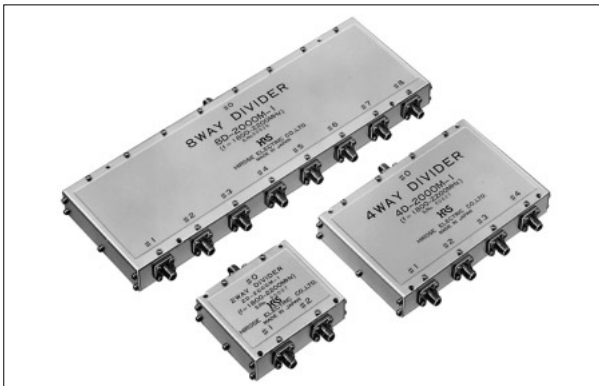
Mobile phone base stations, Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0.03 to 6.4(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Strip line
Remarks	SMT type

## 2 GHz band power dividers/combiners

### C/D Series



#### Features

- The micro strip line method, which uses the principle of the lambda/4 impedance converter, provides excellent high frequency performance.
- The low insertion loss and high isolation (20dB or more) afforded by the Wilkinson circuit structure.
- The outer shell and conductor of the SMA connector (Hirose HRM series) is stainless steel for durable coupling.

#### Applications

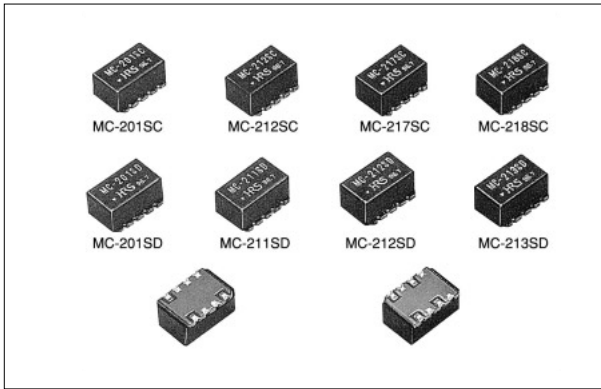
Cellular phone base stations, Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	1.7 to 2.3(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector
Remarks	2 way, 4way, 8way power divider, 3 way, 8 way power divider

## Coil components (SMD)

### MC-S Series



#### Features

- Excellent high frequency characteristics. Insertion loss: 0.6 dB (Typical), Phase balance:  $\pm 3$ deg (Typical).
- The exterior cladding of the cover made of PPS resin, the board material made of glass epoxy substrate, and the solder plated electrodes contribute to excellent mechanical strength, heat resistance, and soldering qualities.
- Embossed tape packaging permits automatic mounting.

#### Applications

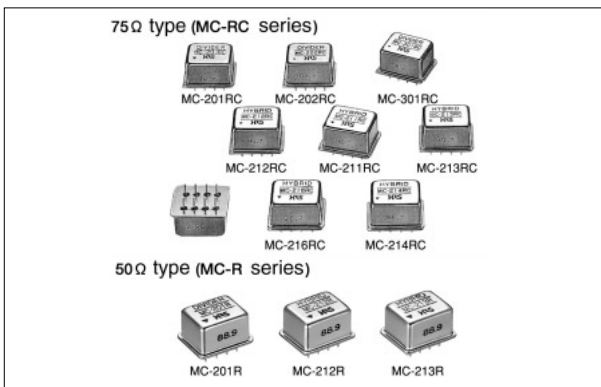
Cellular phone base stations, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50,75
Frequency Range	0.03 to 0.37(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	SMT

## Coil components (Relay headers)

### MC-R Series



#### Features

- The use of coils made with a special winding method based on a lumped-constant design provide a high degree of matching, low loss, and high isolation.
- The metal case is designed with a hermetically sealed construction which contains inert gas. This permits quality to be maintained over a long period.
- The pre-soldering leads give easy soldering operations.
- Use of the supplied Teflon sheet permits the prevention of solder flux creepage.

#### Applications

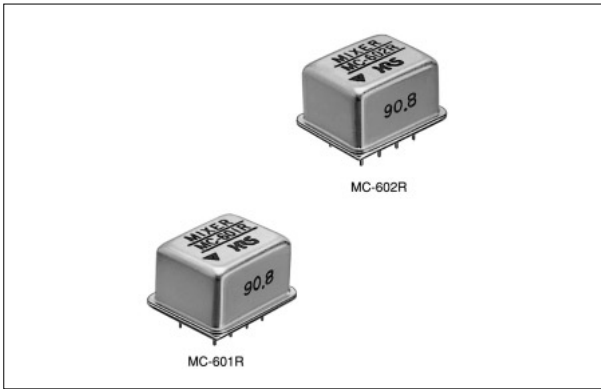
Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50,75
Frequency Range	0.03 to 0.2(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Through hole

## Double balanced mixers (Relay headers)

### MC-600R Series



#### Features

- Ultraminiature design with a 2.54mm pitch enables high-density mounting.
- Mixers operate at a LO level of +7dBm.
- Highly reliable design as the metal case is designed with a hermetically sealed construction which contains inert gas.
- The leads have received solder dip processing which makes soldering work easier.
- Use of the supplied Teflon sheet permits the prevention of solder flux creepage.

#### Applications

Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0.03 to 1.8(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Through hole

## Non-reflective terminations (SMA type)

### HRM-TM Series



#### Features

- Wideband/high impedance matching with Hirose Electric unique high frequency matching technique.
- The outer shell and conductor of the SMA connector (Hirose HRM series) is stainless steel for durable coupling.

#### Applications

Base stations

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 26.5(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector

## Non-reflective terminations (BNC type)

### BNC-TM Series



#### Features

- Wideband/high impedance matching with Hirose Electric unique high frequency matching technique.
- 75 ohm type plug and jack are available.

#### Applications

Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50,75
Frequency Range	DC to 3(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector

## Non-reflective terminations (N, TNC, POB, FL, PO6, SSMA type)

### N, TNC, POB, FL, PO6, HRMM-TM Series



#### Features

- Wideband/high impedance matching with Hirose Electric unique high frequency matching technique.
- Connector types are in addition to BNC, SMA (Hirose Electric HRM series), the world standard N, TNC, SSMA (Hirose Electric HRMM series), and our uniquely miniaturized FL series, and PO6 series.

#### Applications

Cellular phone base stations, Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0 to 18(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector

## HV connector plug terminations

### HV-TM Series



#### Features

- Low V.S.W.R.: 1.15(Typical DC to 50GHz), 1.35(Typical 50 to 65GHz)
- Overall dimensions of only 9 mm dia. x 18.3 mm. long.
- Usable over an extremely wide bandwidth of frequencies: DC to 65 GHz.
- Will mate with corresponding V Connector which is a registered trademark of Anritsu Corporation.
- Soldering compounds are lead-free.

#### Applications

Optical transmission devices, Network analyzers, BERTS (Bit Error Ratio Testing Systems), FWA (Fixed Wireless Access) and measurement applications up to 65 GHz.23)

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 65(GHz)
Operating Temperature Range (°C)	-10 to +60
Connection Type	Connector

## Non-reflective terminations (Box type)

### N, BNC-TM Series



#### Features

- Wideband/high impedance matching with Hirose Electric unique high frequency matching technique.
- The usable power has been increased to 30W through the use of a heat sink. (5W without heat sink)
- Connector types are N and BNC.

#### Applications

Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0 to 1(GHz)
Operating Temperature Range (°C)	-10 to +60
Connection Type	Connector



## Feed through non-reflective terminations

### MR Series



#### Features

- Wideband/high impedance matching with Hirose Electric unique high frequency matching technique.
- Terminator for the measurement of 50 ohm products with a synchroscope.

#### Applications

Measurement equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0 to 0.5(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector
Remarks	Connector type: BNC

## Stripline non-reflective terminations (Externally mounted)

### HRM-TM-SL Series



#### Features

- Wideband/high impedance matching with Hirose Electric unique high frequency matching technique.
- Constructed to mount externally to the housing of a microwave device.
- A type of high degree of matching (with V.S.W.R. of 1.15 max. from DC to 18GHz) and an economical type (with V.S.W.R. of 1.15 max. from DC to 8GHz, and V.S.W.R. of 1.25 or less from 8 to 12.4GHz) are available.

#### Applications

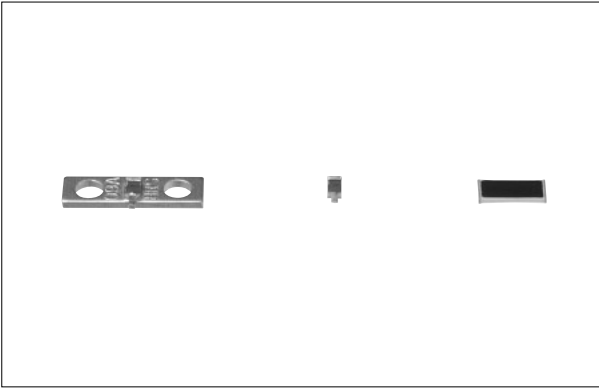
Dummy load for coaxial type circulators, directional couplers, hybrid dividers, and other devices.

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0 to 18(GHz)
Operating Temperature Range (°C)	-30 to +65
Connection Type	Strip line
Remarks	With flange type available

## Strip line mounting non-reflective terminations

### HT Series



#### Features

- Wideband/high impedance matching with Hirose Electric unique high frequency matching technique.
- Equipped with tabs to permit direct mounting to flat circuits.
- Housing functions as a radiator to permit small size and high-density mounting.

#### Applications

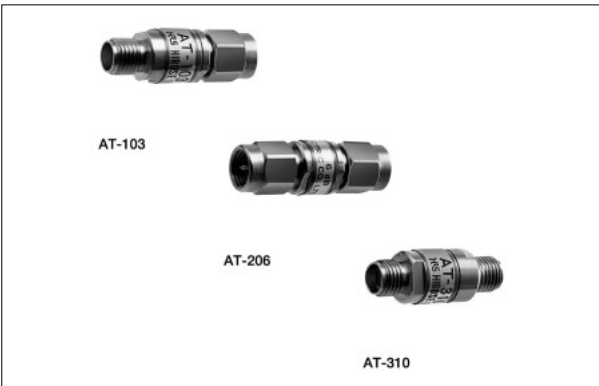
Cellular phone base stations, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 15(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Strip line
Remarks	SMT type

## Fixed attenuators (SMA type)

### AT-100, 200, 300 Series



#### Features

- Attenuation amounts are available in abundant variations from 0 to 4dB in 0.5dB steps, and in 12, 13, 15, and 20dB.
- The outer shell and conductor of the SMA connector (Hirose HRM series) is stainless steel for durable coupling.
- The coupling portions are available in SMA type (HRM series) plug-jack.
- The design of the attenuation element uses a distributed constant circuit and metal film resistor and a high degree of matching is achieved.
- Stable characteristics for environments of varying temperature, humidity, and gases.

#### Applications

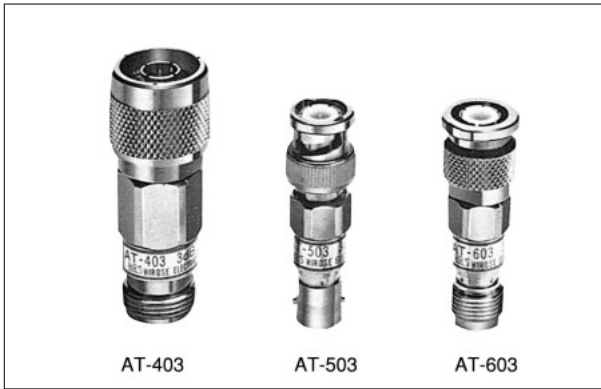
Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 18(GHz)
Operating Temperature Range (°C)	-10 to +60
Connection Type	Connector

## Fixed attenuators (N, BNC, TNC)

### AT-400, 500, 600 Series



AT-403

AT-503

AT-603

#### Features

- The coupling portions are available in N type plug-jack.
- Small size and economical.
- Stable characteristics for environments of varying temperature, humidity, and gases.

#### Applications

Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 4(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector

## Fixed attenuators-2W power (SMA type)

### AT-1900 Series



#### Features

- Use of alumina for the attenuation element assures light weight and is cost effective.
- Several configurations of SMA plug/jack couplings are available in stainless steel, assuring durability.
- Proven and stable performance characteristic under varying temperature, humidity and adverse environmental conditions.

#### Applications

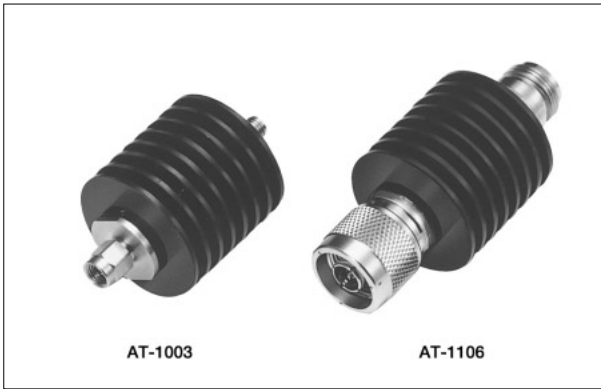
Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 8(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector

## High power fixed attenuators (Radiator built-in)

### AT-1000, 1100 Series



#### Features

- Beryllia is used for the material of the resistance element to enable the attenuator to be of small size and low cost.
- The coupling portions are available in SMA type (HRM series) plug-jack.
- Stable characteristics for environments of varying temperature, humidity, and gases.

#### Applications

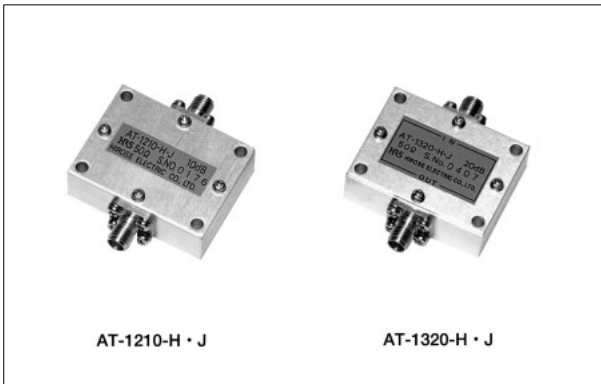
Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 8(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector

## High power fixed attenuators (Heat sink mounting type)

### AT-1200, 1300 Series



#### Features

- Beryllia is used for the material of the resistance element to enable the attenuator to be of small size and low cost.
- Mounting these attenuators to a radiator plate permits to be used at up to 30W.
- Stable characteristics for environments of varying temperature, humidity, and gases.

#### Applications

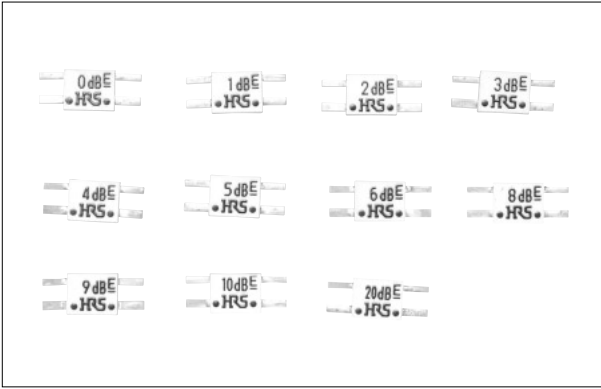
Radio base station

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 1(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector
Remarks	Connector type: SMA

## Stripline mounting fixed attenuators

### AT-2300 Series



#### Features

- Attenuation amounts are available 11 types of variation from 0 to 6dB and 8 to 10dB in 1dB steps, and in 20dB.
- PCB mounting pattern is compatible with AT-800 series.

#### Applications

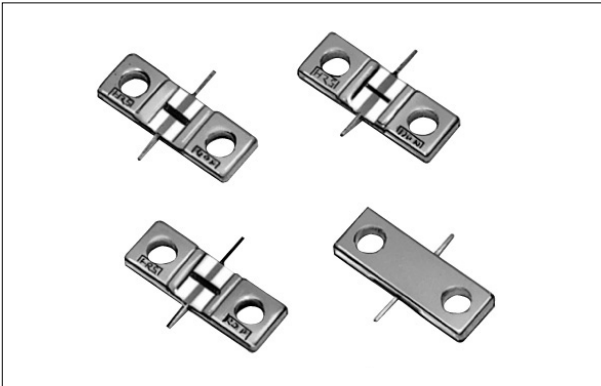
Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 2.5(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Strip line
Remarks	SMT type

## Stripline mounting fixed attenuators

### AT-900 Series



#### Features

- Although these attenuators are of the surface mount type, they offer superior high frequency characteristics from DC to 8GHz.
- Attenuation amounts are available in 11 types from 0 to 10dB in 1dB steps.
- Products are available to complement a wide variety of mounting styles including screw mount types, solder mount types, and a type of the gold plated center electrode for wire mounting.

#### Applications

Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 8(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Strip line
Remarks	SMT type

## Stripline mounting fixed attenuators (SMT type)

### AT-2200 Series



#### Features

- Small size and lightweight with dimensions of 4 x 3.6mm and weight of 0.1g.
- Attenuation amounts are available 12 types of variation from 0 to 10dB in 1 dB steps, and in 20dB.
- Embossed tape packaging permits automatic mounting.
- PCB mounting pattern is compatible with AT-1400 series.

#### Applications

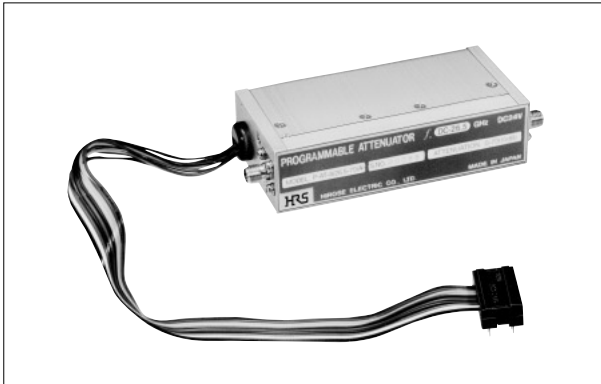
Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 2.5(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Strip line
Remarks	SMT type

## Programmable attenuators

### P-AT Series



#### Features

- Used from DC to 26.5GHz.
- The drive current will automatically switch off after setting the attenuation.
- In the event of sudden shock the attenuation will quickly return to the pre-set level.

#### Applications

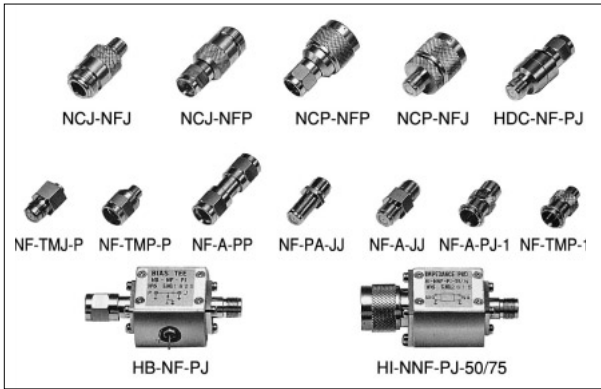
Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 0.55(GHz)
Operating Temperature Range (°C)	-10 to +50
Connection Type	Connector
Remarks	Connector type: K(Registered brand) (HE)

## C15 type accessories

### NF-A Series



#### Features

- The non-reflective terminators exhibit a high degree of matching of V.S.W.R. 1.12 or less for all products.
- The push-on plug type of connector to ensure easy connection and disconnection is available for the F type of non-reflective terminator and in-line adapter.

#### Applications

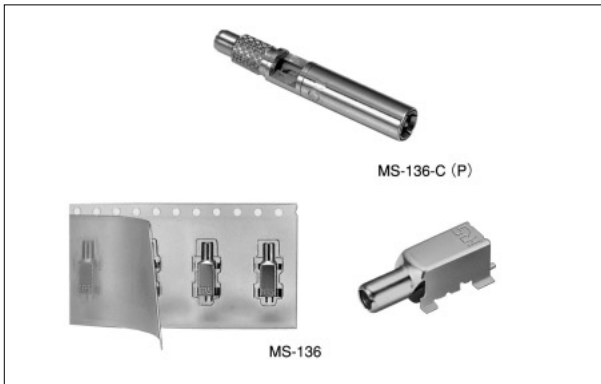
Satellite broadcast receivers, Test equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 2(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector
Remarks	Connector type: F type

## Coaxial switches

### MS-136 Series



#### Features

- The high-frequency signals can be simply switched by coupling or uncoupling.
- Small and lightweight with a height of 3.6mm, length of 11.5mm, width of 4.6mm, and weight of 0.5g.
- Embossed tape packaging permits automatic mounting.

#### Applications

Mobile Phone, Mobile wireless equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 3(GHz)
Operating Temperature Range (°C)	-30 to +85
Connection Type	Connector, SMT

## Interface coaxial switches

### MS-145 Series



#### Features

- Small and lightweight with a board mounting area of 7 x 4.6mm, height of 6mm, and weight of 0.18g.
- High durability (mating and unmating) of 10,000 cycles.
- Embossed tape packaging permits automatic mounting.
- Structure to prevent flux float-off.
- Inducement to floating is  $\pm 0.5$ mm.

#### Applications

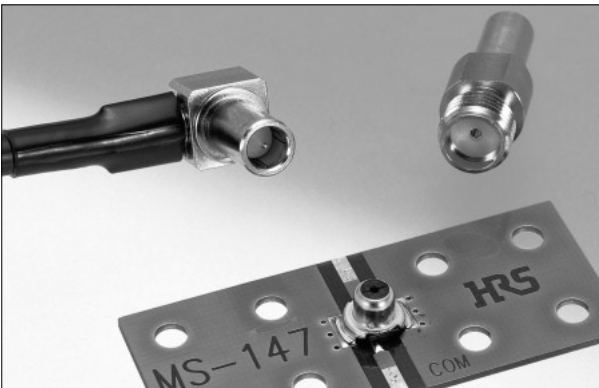
Mobile phone antenna switching, Microwave boards checking

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	0 to 2.5(GHz)
Operating Temperature Range (°C)	-30 to +65
Connection Type	Connector, SMT

## Ultra-small coaxial switches

### MS-147 Series



#### Features

- Low insertion loss: 0.15dB(or less) (Typically, 0.08dB at 1GHz) (DC – 2GHz)(Typically, 0.1dB at 2GHz).
- Small and lightweight with an outer dimension of 5.8mm x 5.4mm, height of 3.9mm, and weight of 0.11g.
- Guaranteed 12,000 insertion/removal cycles.
- Structure to prevent flux float-off.
- The eccentricity for plug mating is  $\pm 0.5$ mm.

#### Applications

Wireless LAN, Bluetooth, Mobile Phones, Notebook PCs, ETC units, POS terminals, GPS units, PDA units

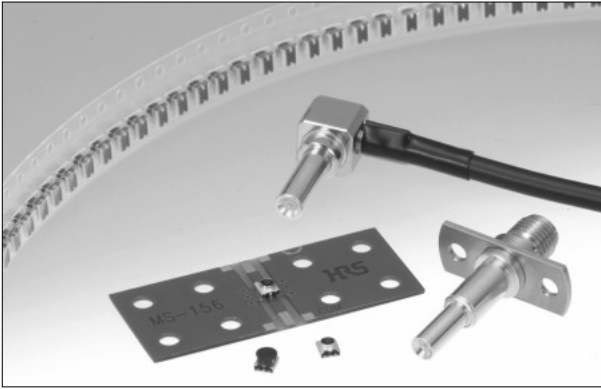
#### Specifications

Item	Requirements
Frequency Range	DC to 6(GHz)
Operating Temperature Range (°C)	-30 to +85(MS-147(06)), -10 to +65(MS-147-HRMJ-1)
Connection Type	Connector, SMT



## Subminiature coaxial switch 1.6mm high, DC TO 6 GHz

### MS-156NB Series



#### Features

- Lightweight and space-saving design with a board mounting area of 2.7mm x 2.7mm, height of 1.6mm, and weight of 0.025g.
- Insertion losses at unmated condition are 0.1dB typical at 6GHz.
- Mating/unmating cycles with corresponding plug is 100 times, enough durability for checking high frequency circuits.
- Embossed tape packaging permits automatic mounting.
- Supports lead-free environments.

#### Applications

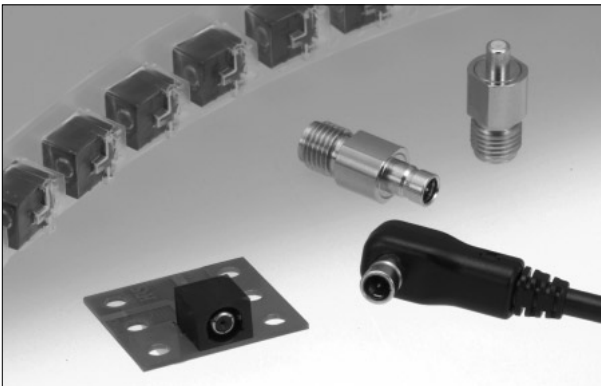
Wireless LAN, Bluetooth, Portable terminals, Notebook PCs, ETC units, POS terminals, GPS units, PDA units

#### Specifications

Item	Requirements
Contact Plating	Gold
Frequency Range	DC to 6(GHz)
Operating Temperature Range (°C)	-40 to +85
Connection Type	Connector, SMT

## Interface RF connectors with switch

### MS-151 Series



#### Features

- Built-in interlock feature confirms fully mated condition.
- The connector can be mated in any position on a 360° axis and can rotate within the same when in use.
- Guaranteed 5,000 insertion/removal cycles.
- The external dimensions of the space-saving board-mounted receptacle is 5.0 mm high, 6.5 mm wide, and 7.0 mm deep.
- Embossed tape packaging permits automatic mounting.

#### Applications

GPS terminals, Wireless LAN modules, Notebook PCs, PDA terminals, Equipment related to high frequency

#### Specifications

Item	Requirements
Contact Plating	Gold
Frequency Range	DC to 3(GHz)
Operating Temperature Range (°C)	-40 to +85
Connection Type	Connector, SMT

Circular Connectors

Rectangular Connectors

Coaxial Connectors

Memory Card

Modular Connectors

Card Edge Connectors

Board-to-Board Connectors

Board-to-Wire Connectors

FPC/FFC Connectors

Optical Connectors and Devices

Microwave Components

## RF coaxial switches

### HCS Series



#### Features

- SPDT fail-safe type and exhibit excellent power saving characteristics and vibration resistance.
- The outer shell and conductor of the SMA connector (Hirose HRM series) is stainless steel for durable coupling.
- Small and light with a height of 20.5mm, length of 43.0mm, width of 20.0mm, and weight of 37g.

#### Applications

Radio equipment

#### Specifications

Item	Requirements
Characteristic Impedance (ohms)	50
Frequency Range	DC to 15(GHz)
Operating Temperature Range (°C)	0 to +50
Connection Type	Connector
Remarks	Connector type: SMA

## Bias tee

### HB Series



#### Features

- Without affecting the high frequency characteristics, these bias tee can supply a DC bias (of 50V, 2.5A max.) to the item being measured.
- SPDT fail-safe type.
- Ensure a wide bandwidth and high performance. There is a low insertion loss of 0.3dB or less.
- The outer shell and conductor of the SMA connector (Hirose HRM series) is stainless steel for durable coupling.

#### Applications

Radio equipment

#### Specifications

Item	Requirements
Frequency Range	0.5 to 1.8(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector

## Rotary joints

### HRM-RPA Series



#### Features

- These non-contact rotary joints have a long life of 1000 hours or greater (at 500 r.p.m.).
- Extremely low loss and a high degree of matching. V.S.W.R. 1.25 or less (HRM-RPA-JJ-3 1.5-1.7GHz) HRM-RPA-JJ-3
- Rotation at low torque of 50g-cm permits high speed rotation.

#### Applications

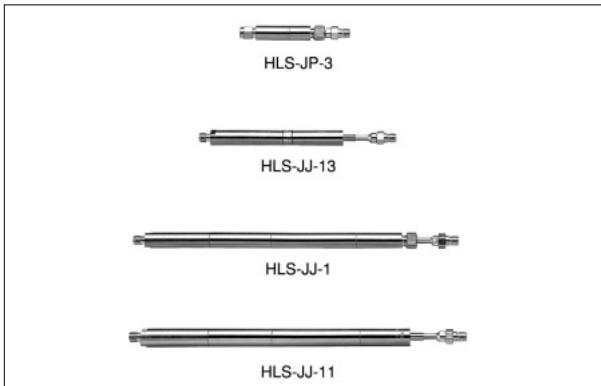
Radio equipment

#### Specifications

Item	Requirements
Frequency Range	1.5 to 12.4(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector
Remarks	Connector type: SMA

## Coaxial line stretchers

### HLS Series



#### Features

- Maintains an impedance of 50 ohm while changing the length of the coaxial tube and adjusting the phase.
- One type is locked after the adjustment and another type can be used in mechanical drive applications.
- Used for phase adjustment, impedance matching, and signal combining.
- Adjustable lengths are available in these three types: 10mm, 37.5mm, and 75mm.
- Stainless steel is used for the connector portion and the gold plating high reliability.

#### Applications

Measurement equipment, Radio equipment

#### Specifications

Item	Requirements
Frequency Range	DC to 10(GHz)
Operating Temperature Range (°C)	-10 to +65
Connection Type	Connector
Remarks	Connector type: SMA

**Microwave  
Components**

**Optical Connectors  
and Devices**

**FPC/FFC  
Connectors**

**Board-to-Wire  
Connectors**

**Board-to-Board  
Connectors**

**Card Edge  
Connectors**

**Modular  
Connectors**

**Memory Card**

**Coaxial  
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**Rectangular  
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**Circular  
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