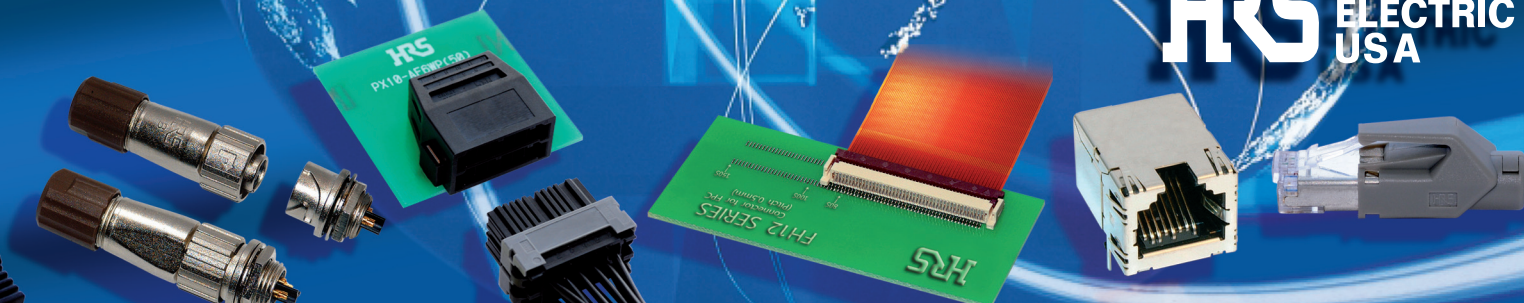


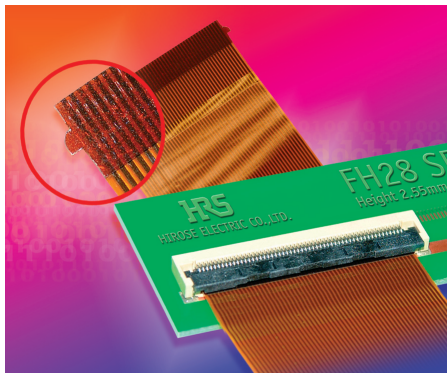
CONNECTING THE FUTURE

■ THE CONNECTOR SELECTOR

HRS HIROSE
ELECTRIC
USA



About HIROSE:



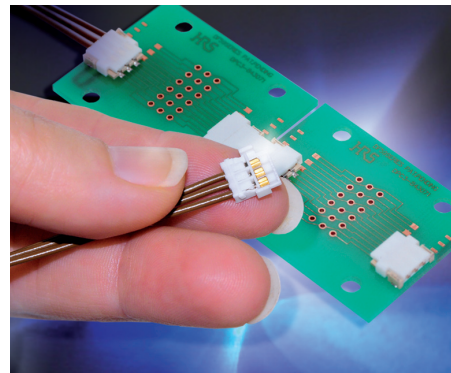
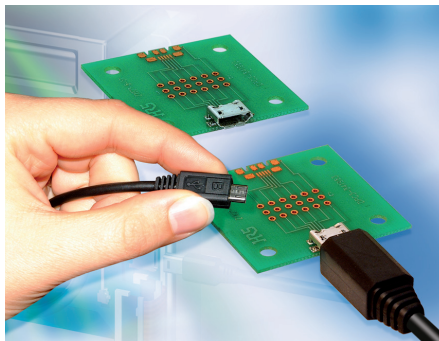
Hirose Electric is a globally recognized manufacturer of technically advanced connectors that are sold worldwide to the electronics industry.

Hirose Electric was founded and established in Japan in 1937 and has since built an excellent reputation for producing high quality connectors with innovative features such as:

- Ultra-fine pitch
- High density
- High-speed transmission
- User friendly assembly
- High reliability

With a large and diverse product portfolio that contains over 60,000 products; Hirose manufactures coaxial, wire-to-board, board-to-board, circular, memory, interface and flat flex connectors that are suitable for a wide range of fields. These include areas such as LED lighting, broadcasting, measuring & control, industrial, automotive, telecom/datacom, server & computing, instrumentation, consumer electronics and much more.

Hirose Electric USA has four main offices in the United States. The US Headquarters is located in Simi Valley, CA, with a High Speed



Technology Center located in California's Silicon Valley, an Automotive Technology Center in Livonia, MI and the Hirose Engineering Center in Chicago. With strategically-placed Sales Representatives and Distributors in the Americas., Hirose Electric USA serves customers throughout North and South America.

For more info please contact our local sales representative or visit us at: www.Hirose.com

*Left: FH28 Series, 0.5mm pitch FFC-FPC connector
Center: ZX360 Series, Micro-USB3.0 connector complying requirements of USB 3.0 Standard
Right: DF59, 2.0mm pitch wire-to-board connector.*

HIROSE Connector Selector Contents

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FFC/FPC

Series	FH29B	FH43B	FH53	FH54
Product image				
Contact pitch (mm)	0.2	0.2	0.2	0.2
Height (mm)	1.2	0.9	0.65	0.9
Cable type	FPC	FPC	FPC	FPC
Technology	ZIF	ZIF	ZIF	ZIF
Solder technology	SMT	SMT	SMT	SMT
Number of contacts	22, 24, 34, 40, 44, 50, 60, 70, 80, 90, 100, 110, 120	21, 25, 29, 31, 35, 41, 45, 51, 61, 71	41	41
Rated voltage	AC/DC40V	AC/DC30V	AC/DC30V	AC/DC30V
Current rating (Amps)	0.25A	0.2	0.2	0.2
Notes	Fine pitch, low profile, side catcher	Fine pitch, high density, bottom contact side catcher	Back flip, low height 0.65mm, narrow depth 3.2mm, top contact	Back flip, low height 0.9mm, narrow depth 3.2mm, top contact
Further information	Web / datasheet	Web / datasheet	Please contact HRS	Please contact HRS

FFC/FPC

Series	FH26	FH30	FH35C	FH36
Product image				
Contact pitch (mm)	0.3	0.3, 0.4	0.3	0.3
Height (mm)	1	3	0.9	1
Cable type	FPC	FPC/FFC	FFC	FPC
Technology	ZIF	ZIF	ZIF	ZIF
Solder technology	SMT	SMT	SMT	SMT
Number of contacts	13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 45, 51, 55, 57, 61, 71	Pitch 0.3mm - 60, 80, 90 Pitch 0.4mm - 80, 96	9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 31, 33, 35, 37, 39, 41, 45, 49, 51, 61	11, 15, 17, 19, 23, 25, 27, 29, 31, 33, 35, 39, 45, 51, 61
Rated voltage	AC30V	AC/DC30V	AC/DC30V	AC/DC30V
Current rating (Amps)	0.2	0.15	0.2	0.2
Notes	Flip Lock actuator, bottom contact, easy FPC insertion and click sensation	FPC side catcher design, bottom contact, click sensation confirms FPC is locked	Top & bottom contact, shares same land pattern as FH26	FPC side catcher design, bottom contact, short mounting depth of 2.7mm
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

FFC/FPC



Series	FH39	FH42	FH33	FH55/M
Product image				
Contact pitch (mm)	0.3	0.3	0.4, 0.5, 1.0	0.4, 0.5
Height (mm)	1.1	0.65	1.2	1.5
Cable type	FPC	FPC	FPC/FFC	FPC
Technology	LIF	ZIF	ZIF	ZIF
Solder technology	SMT	SMT	SMT	SMT
Number of contacts	23, 25, 27, 29, 33, 39, 45, 51, 61, 67	11, 19, 23, 31	4, 6, 9, 10, 12, 14, 16, 19, 20, 26, 28, 30, 32, 36, 40, 45, 65	Pitch 0.4mm - 40 Pitch 0.5mm - 22, 31, 40
Rated voltage	AC/DC30V	AC/DC30V	AC50V	AC/DC50V
Current rating (Amps)	0.2	0.2	0.5	0.5
Notes	Back flip, top & bottom contact	Top contact, backflip	Short mounting depth of only 2.5mm, bottom contact, high FPC retention force	High speed transmission, supports USB 3.0, serial ATA Gen.3, HDMI 1.4a, display port 1.3
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

FFC/FPC



Series	FH12	FH50	FH52	FH19C/SC
Product image				
Contact pitch (mm)	0.5, 1.0	0.5	0.5	0.5
Height (mm)	2mm horizontal version 5.5mm vertical version	3.7	2	0.9
Cable type	FPC/FFC	FPC	FPC/FFC	FPC/FFC
Technology	ZIF	ZIF	ZIF	ZIF
Solder technology	SMT	SMT	SMT	SMT
Number of contacts	5 - 60	28, 40	6, 8, 10, 11, 12, 15, 18, 20, 24, 25, 28, 30, 32, 40, 42, 45, 50, 60, 64, 68	4 - 50
Rated voltage	AC50V	AC/DC50V	AC/DC50V	AC50V
Current rating (Amps)	0.5 for 1mm pitch 0.4 for 0.5mm pitch	0.5	0.5	0.5
Notes	New tabbed FPC and robust structure versions, top or bottom contact	Double beam contacts, robust type, bottom contact	Robust design, halogen-free, PCB patterning space underneath, bottom contact	Flip lock actuator, bottom contact, PCB patterning space under connector
Further information	Web / datasheet	Please contact HRS	Web / datasheet	Web / datasheet

FFC/FPC

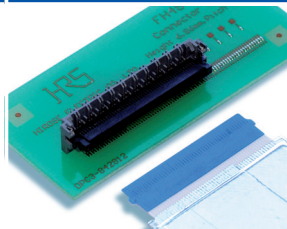
Series	FH28	FH34S	FH40	FH41
Product image				
Contact pitch (mm)	0.5	0.5	0.5	0.5
Height (mm)	2.55	1	5.8	2.5
Cable type	FPC/FFC	FPC/FFC	FPC/FFC	Shielded FFC
Technology	ZIF	ZIF	LIF	ZIF
Solder technology	SMT	SMT	SMT	SMT
Number of contacts	10, 15, 20, 28, 30, 40, 45, 50, 55, 60, 64, 68, 74, 80	4, 6, 7, 8, 10, 11, 12, 14, 16, 18, 20, 22, 23, 24, 26, 30, 34, 40	10, 20, 24, 30, 40, 45, 50, 60, 64, 80	15, 28, 30, 31, 40, 50, 68
Rated voltage	AC50V	AC50V	AC50V	AC150V
Current rating (Amps)	0.5	0.5	0.5	0.5
Notes	Side catcher design, bottom contact, robust actuator structure	Back flip actuator, top or bottom contact can use same FPC as FH19SC series	Robust structure, vertical version combineable with FH28	High speed 3.75 Gbps max, bottom contact, horizontal version combinable with FH48
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

FFC/FPC

Series

FH48

Product image



Contact pitch (mm)	0.5			
Height (mm)	6.18			
Cable type	Shielded FFC			
Technology	ZIF			
Solder technology	SMT			
Number of contacts	31, 40 ,50, 68			
Rated voltage	AC150V			
Current rating (Amps)	0.5			
Notes	High Speed 3.75 Gbps max, bottom contact, vertical version combinable with FH41			

Further information

[Web / datasheet](#)

PCB to PCB

Series	DF59S / SN	BM22	BM15	BM10
Product image				
Contact pitch (mm)	-	-	0.35	0.4
Stacking height (mm)	-	0.9	0.8	0.6, 0.8
Application	Coplanar PCB	Micro hybrid PCB to FPC	FPC to PCB	Parallel
PCB mounting	SMT	SMT	SMT	SMT
Variation	1	2 (2x signal / 2x power) 6 (4x signal / 2x power)	60 (40, 50, 70, 80 on request)	10, 14, 16, 20, 24, 30, 34, 40, 44, 50, 60
Rated voltage	AC350V	AC50V	AC30V	AC30V
Current rating (Amps)	3	0.3 (signal) 4 max (power)	0.3	0.3
Notes	Mono-pole connector, misalignment absorption, DF59S = 2.7mm depth DF59SN = 1.7mm depth	Hybrid connector (power/signal)		FPC to board option
Further information	Web / datasheet	Web / datasheet	Please contact HRS	Web / datasheet

PCB to PCB



Series	BM14/14E	BM20	DF30	DF37
Product image				
Contact pitch (mm)	0.4	0.4	0.4	0.4
Stacking height (mm)	0.8, 1.3	0.6, 0.8	0.9	0.98
Application	Parallel	FPC to PCB	Parallel	Parallel
PCB mounting	SMT	SMT	SMT	SMT
Variation	10, 14, 16, 20, 22, 24, 30, 34, 40, 44, 50, 54, 60, 64	10, 20, 24, 30, 34, 40	10, 14, 20, 22, 24, 30, 34, 40, 44, 50, 60, 70, 80	10, 16, 20, 24, 30, 34, 40, 44, 50, 60, 70, 74
Rated voltage	AC30V	AC30V	AC30V	AC30V
Current rating (Amps)	0.3	0.3	0.3	0.3
Notes	FPC to board option		Good contact wipe and electrical reliability. Mating assured with tactile click.	Robust shock-absorbing configuration.
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

PCB to PCB

Series	DF40	DF12	DF17	DF23
Product image				
Contact pitch (mm)	0.4	0.5	0.5	0.5
Stacking height (mm)	1.5 - 4	3, 3.5, 4, 5	4 - 8	1.5
Application	Parallel	Parallel	Parallel	Parallel
PCB mounting	SMT	SMT	SMT	SMT
Variation	10, 12, 20, 24, 30, 34, 40, 44, 48, 50, 60, 70, 80, 90, 100	10, 14, 20, 30, 32, 36, 40, 50, 60, 80	20, 26, 30, 40, 50, 60, 70, 80	10, 12, 14, 16, 18, 20, 22, 30, 40, 50, 60
Rated voltage	AC30V	AC50V	AC50V	AC50V
Current rating (Amps)	0.3	0.3	0.3	0.3
Notes	Can mount on to FPC. High contact reliability. Positive click when mated.	Optional guideposts & reinforcements hardware	Designed to withstand shock and resist breakage due to drop impact	Reliable spring force assures secure electrical contact. Mating assured with tactile click.
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

PCB to PCB



Series	FX20	FX8/FX8C	FX6	FX18
Product image				
Contact pitch (mm)	0.5	0.6	0.8	0.8
Stacking height (mm)	15, 20, 25, 30	3 - 16	5 - 9	15, 20, 25, 30
Application	Parallel	Parallel	Parallel	Right angle, in Line, vertical
PCB mounting	SMT	SMT	SMT	SMT
Variation	20, 40, 60, 80, 100, 120, 140	40, 60, 80, 90, 100, 120, 140	12, 20, 40, 50, 60, 80, 100	40, 60, 80, 100, 120, 140
Rated voltage	AC50V	AC100V	AC100V	AC100V
Current rating (Amps)	0.5	0.4	0.5	Signal 0.5 Power 3
Notes	Double beam contacts, floating stacking connectors	3.125 Gbps High Speed double ganged versions available	Optional guide posts	High Speed up to 10+ Gbps, supports PCI-Express ver. 2.0
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

PCB to PCB

Series	DF9	FX5	FX2	HIF6A
Product image				
Contact pitch (mm)	1	1	1.27	1.27
Stacking height (mm)	4.3	N/A	12 - 16, (*12.1 -14.2)	14.8, 18.8
Application	Parallel	Right angle	Parallel, right angle, horizontal	Right angle, vertical
PCB mounting	SMT	SMT	THT/SMT	THT
Variation	9, 11, 13, 15, 17, 19, 21, 23, 25, 31, 41, 51	20, 40, 52, 56, 60, 68, 80, 100, 120	20, 32, 40, 44, 52, 60, 64, 68, 80, 100, 120	20, 26, 32, 34, 40, 50, 52, 60, 68, 80, 100
Rated voltage	AC150V	AC100V	AC125V	AC125V
Current rating (Amps)	0.5	0.5	0.5	0.5
Notes	Wire to PCB version available in 31 & 41 positions. VESA (FPD-1) standard	Two stage sequential structure	(*SMT version) wire to board options	
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

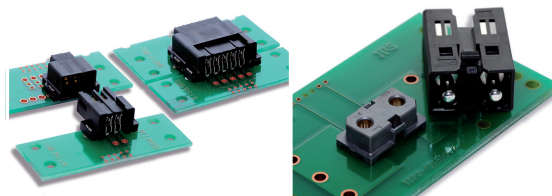
PCB to PCB

Series	DF11	DF3	MDF7	MDF14A
Product image				
Contact pitch (mm)	2	2	2.54	2.5
Stacking height (mm)	7.55 - 8.45	6.6, 7.5	2.54 - 15	N/A
Application	Parallel, right angle	Parallel, right angle	Parallel, right angle	Right angle
PCB mounting	THT/SMT	THT/SMT	THT	THT
Variation	2, 4, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 40, 44, 48, 50	2-15	2, 3, 4, 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, 48	4, 5, 6, 7, 8, 9, 10
Rated voltage	AC250V	AC250V	AC250V	AC250V
Current rating (Amps)	2	1 - 3	3	5
Notes	Wire to PCB options	Wire to PCB options		
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

PCB to PCB

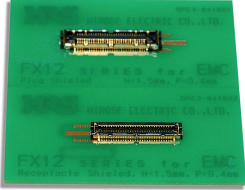
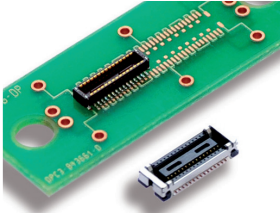
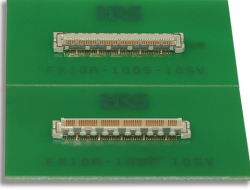
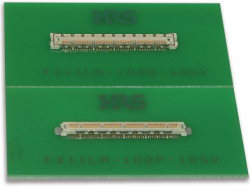
Series	FX30B	IT-PM/PD-2S-D/R		
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Product image



Contact pitch (mm)	3.81	12		
Stacking height (mm)	Various	17.5 - 44		
Application	Parallel Right angle Co-planar	Parallel		
PCB mounting	THT	THT		
Variation	2 ,3 ,4 ,5	2		
Rated voltage	AC250V	AC300V		
Current rating (Amps)	10	50 (EIA-364-70A)		
Notes	Offset absorbing	High current type		
Further information	Web / datasheet	Web / datasheet		

PCB to PCB

Series	EMC Protected FX12/FX12M	EMC Protected DF40G	EMC Protected FX10	EMC Protected FX11L
Product image				
Contact pitch (mm)	0.4	0.4	0.5 Signal, 0.75 Ground	0.5 Signal, 0.75 Ground
Stacking height (mm)	1.5, 3.5	1.5, 3.0	4.0 - 8.0	2.0, 2.5, 3.0
Variation	Parallel	FPC to PCB	Parallel	Parallel
PCB mounting	SMT	SMT	SMT	SMT
Number of contacts	24, 40, 60, 80	30, 48, 70	96, 120, 144, 168 80/8, 100/10, 120/12, 140/14	68, 92, 116, 140 60/6, 80/8/, 100/10, 120/12
Rated voltage	AC50V	AC30V	AC50V	AC50V
Current rating (Amps)	0.3	0.3	0.3	0.3
Notes	Dual shields prevent EMC. Self alignment feature and consistent mated retention force.	Shielded Support USB 3.0	10 Gbps+ high speed, shielded matched impedance	10 Gbps+ high speed, shielded matched impedance
Further information	Web / datasheet	Please contact HRS	Web / datasheet	Web / datasheet

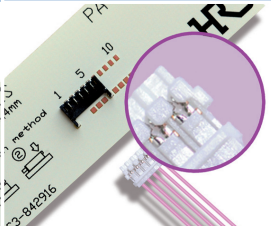
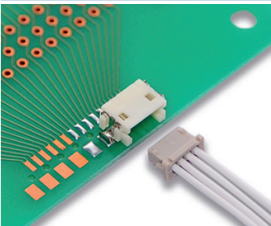
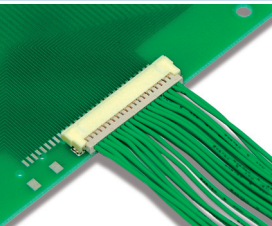
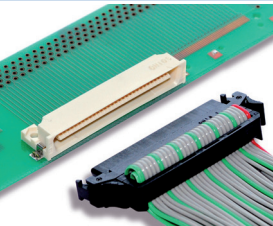
Wire to PCB

Discrete Wire



Series	FX15	DF19	DF20	DF50A/DF50
Product image				
Contact pitch (mm)	Plug 1.0 staggered Receptacle 0.5	1.0	1.0	1.0
Termination AWG	28-30 / 30-32	28-30 / 30-32 / 36	28-30 / 30-32	28-30
Contact style	Crimp	Crimp, (also FPC, Coax)	Crimp	Crimp
PCB mounting style	SMT	SMT	SMT	SMT
Number of rows	Double row mating side, single row termination	Single row	Double row	Single row (DF50A) Double row (DF50)
Number of contacts	21, 31, 41, 51	8, 14, 20, 30	10, 20, 30, 40, 50	2 - 16 (single row) 20 - 50 (double row)
Rated voltage	AC 100 V	AC 100V	AC 100V	AC 100V
Current rating (Amps)	0.5	0.3 - 1	0.7 - 1	1
Notes	Supports LVDS signal. Microcoax version also available	Variations: Top-board, Offset and reverse. As FPC and Microcoax version available		Positive locking mechanism
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Wire to PCB

Series	DF57H	DF13	DF14	FX2B
Product image				
Contact pitch (mm)	1.2	1.25	1.25	1.27
Termination AWG	26-28 / 28-30 / 32-34	26-30	26-32	28
Contact style	Crimp	Crimp	Crimp	IDC / Ribbon cable
PCB mounting style	SMT	THT / SMT	SMT	THT
Number of rows	-	Single row Double row	Single row	-
Number of contacts	2 - 6	2 - 18 (single row) 20 - 40 (double row)	2 - 10, 15, 20, 25, 30	20, 32, 40, 52, 60, 68, 80, 100
Rated voltage	AC 50V	AC 150V	AC 150V	AC 125 V
Current rating (Amps)	Up to 2.5	1	1	0.5
Notes	Swing lock low profile			Locking options
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet


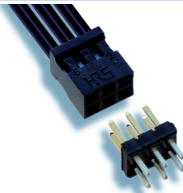
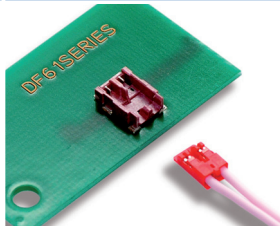
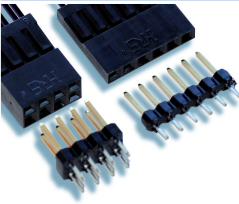
Wire to PCB

Discrete Wire



Series	DF65	DF11	DF3	DF4
Product image				
Contact pitch (mm)	1.7	2	2	2
Termination AWG	24-28	22-30	22-28	24-28
Contact style	Crimp	IDC / Crimp	IDC / Crimp	Crimp
PCB mounting style	SMT	THT / SMT	THT / SMT	THT
Number of rows	Single row	Double row	Single row	Single row Double row
Number of contacts	3 - 6, 10	4 - 40	2 - 15	2 - 15 (single row) 4 - 32 (double row)
Rated voltage	AC/DC 50V	Crimp AC250 IDC AC100	AC 250V	Crimp AC 250 V IDC AC 100 V
Current rating (Amps)	4 (outer lines) 1 (other lines)	0.5 - 2	1 - 3	1 - 3
Notes	Slim connector with 1.8 mm mated height for power supply	UL/CSA approved, in-line version available	Other versions: In-line WtW In-line panel lock Board-to-Board	Direct mount connector
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Wire to PCB

Series	DF59	A3B/A3C, A4B	DF61	A1/A2
Product image				
Contact pitch (mm)	2.0 (4.0 w/o central contact)	2	2.2	2.54
Termination AWG	22	26-36	22-26, 26-28	22-26, 26-30
Contact style	Crimp	Crimp	Crimp	Crimp
PCB mounting style	SMT	THT / SMT	SMT	THT
Number of rows	-	Single row (A4B) Double row (A3B/A3C)	-	Single row (A1) Double row (A2)
Number of contacts	2, 3, 4	2 - 20 (single row) 4 - 50 (double row)	2	6 - 64 (single row) 1 - 20 (double row)
Rated voltage	AC/DC 230V (AC/DC 350V w/o center pin)	AC 200V	AC/DC 350V	AC 200V
Current rating (Amps)	3	1	5	3
Notes	Swing lock Other versions: Board to Board Shortening plug	Board to board variations available	Swing lock, withstand voltage 1700V finger protection. Plug available in red, yellow, white	Compatible with HIF3B cable side and HIF3H receptacle side
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

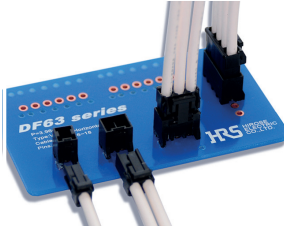
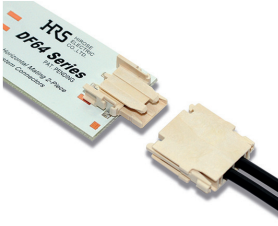
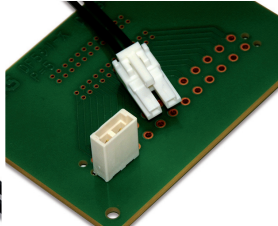
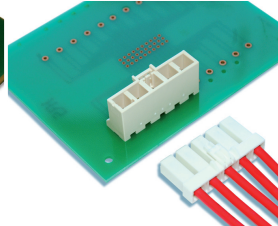
Wire to PCB

Discrete Wire



Series	DF1B	DF1E	DF33	DF6
Product image				
Contact pitch (mm)	2.5	2.5	3.3	3.96
Termination AWG	20-30	20-30	20-22	18-22
Contact style	Crimp	Crimp	Crimp	Crimp
PCB mounting style	THT	THT	THT	THT
Number of rows	Single row Double row	Single row	Single row Double row	Single row
Number of contacts	2 - 20, 22-24, 26, 28, 30, 32, 34, 36, 40	2 - 15	2 - 6 (single row) 4-12 (double row)	1 - 8, 10
Rated voltage	AC 250V	AC 250V	AC/DC 500 V	AC 300 V
Current rating (Amps)	0.5 - 3	0.5 - 3	4 - 5	3 - 5
Notes	Potting socket available Other versions: In-line WtW In-line panel lock	Positive locking Potting socket available Other versions: In-line WtW In-line panel lock	Positive locking Guide key versions against incorrect mating available	Direct mount connector
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Wire to PCB

Series	DF63	DF64	DF5	DF22
Product image				
Contact pitch (mm)	3.96	4.5	5	7.92
Termination AWG	16-18	18-22	18-22	10-12 / 14-16
Contact style	Crimp	Crimp	Crimp	Crimp
PCB mounting style	THT	SMT	THT	THT
Number of rows	Single row	Single row	Single row Double row	Single row Double row
Number of contacts	1 - 6	2, 3	2 - 10 (single row) 4, 6, 8, 10, 12, 14, 16 (double row)	1 - 3, 5 (single row) 4 (double row)
Rated voltage	AC/DC 630V	AC/DC 350V	AC 500 V	AC/DC 1000V
Current rating (Amps)	Up to 15A depend by pin count and wire gauge	3 - 5	4 - 8	13 - 30
Notes	Positive locking Guide key protected Potting = < 5mm height above surface	Horizontal mating 2-Piece System Common receptacle for Board and Wire connection	Potting socket connector	Positive locking Guide key protected Other versions: In-line WTW In-line panel lock
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Wire to PCB

Series	DF60	PX		
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Product image



Contact pitch (mm)	10.16	3.4 x 3.8 (5.09)		
Termination AWG	8-12	16-18		
Contact style	Crimp	Crimp		
PCB mounting style	THT	THT		
Number of rows	Single row	Double row		
Number of contacts	1 - 6	2 x 4 2 x 6		
Rated voltage	AC/DC 1000V	AC 600 V		
Current rating (Amps)	25-40 (2-6 contact) 30-45 (1 contact)* *depends on wire gauge	10		
Notes	Positive locking 5-point contact Other versions: Straight, right angle, In-line with flange	Withstand voltage 2.2kV AC Temp.range: -55°C~+105°C max 1000 mating cycles		
Further information	Web / datasheet	Web / datasheet		

Wire to Wire

In-Line Connection



Series	DF62	DF62P	DF62W	DF3
Product image				
Contact pitch (mm)	2.2x2	2.2x2	2.2x2	2
Termination AWG	22-30	22-30	22-26	22 - 28
Contact style	Crimp	Crimp	Crimp	IDC / Crimp
In-line mating style	Wire-to-Wire	Panel mount lock	Wire-to-Wire	Wire-to-Wire Panel mount lock
Number of rows	-	-	-	Single row
Number of contacts	2 - 7, 13, 24	2 - 7, 13, 24	2 - 4, 6, 9	2 - 15
Rated voltage	AC/DC 250 V	AC/DC 250 V	AC/DC 250 V	AC 250V
Current rating (Amps)	1 - 3	1 - 3	1 - 3	1 - 3
Notes	Positive lock For hole diameter 8-17mm Combinable with DF62P	Positive lock Socket is same as from the DF62-series	Positive lock Waterproof IP67 For hole diameter 9-12mm	Other versions: Wire-to-Board Board-to-Board
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

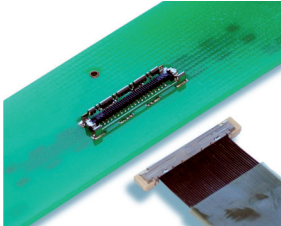
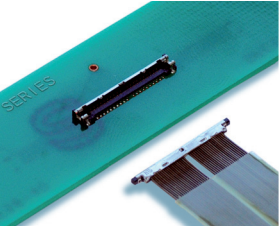
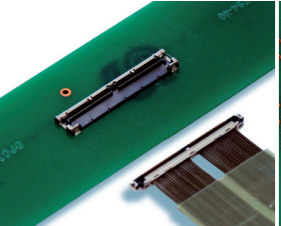
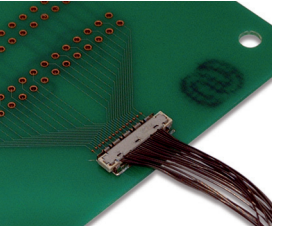
Wire to Wire

In-Line Connection



Series	DF11	DF1B/DF1E	DF22	
Product image				
Contact pitch (mm)	2	2.5	7.92	
Termination AWG	22-30	20-30	10-12 / 14-16	
Contact style	IDC / Crimp	Crimp	Crimp	
In-line mating style	Panel mount lock	Wire-to-Wire Panel mount lock	Wire-to-Wire Panel mount lock	
Number of rows	Double row	Single row Double row	Single row Double row	
Number of contacts	4 - 40	2 - 40	1, 2, 3	
Rated voltage	Crimp AC250 IDC AC100	AC 250V	AC/DC 1000V	
Current rating (Amps)	0.5 - 2	0.5 - 3	13 - 30	
Notes	UL/CSA approved Other versions: Wire-to-Board	Other versions: Wire-to-Board	Positive locking Guide key protected Other versions: Wire-to-Board	
Further information	Web / datasheet	Web / datasheet	Web / datasheet	

Wire to PCB

Series	DF38	DF56	DF54	DF36
Product image				
Contact pitch (mm)	0.3	0.3	0.35	0.4
Termination AWG	42-44	42-46	42-46	42
PCB mounting style	SMT	SMT	SMT	SMT
Mated height (mm)	1.5	1.25	0.94	1.5
Number of contacts	30, 32, 40	26, 30, 40, 50 (others planned)	40 (others planned)	15, 20, 25, 30, 40, 45, 50
Rated voltage	AC 30V	AC 30V	AC 30V	AC 30 V
Current rating (Amps)	AWG 42: 0.15 AWG 44 0.10	AWG 42: 0.2 AWG 44: 0.15 AWG 46: 0.1	AWG 42: 0.2 AWG 44: 0.15 AWG 46: 0.1	0.25
Notes	Enhanced shielding Side entry mating	Space saving Top side mating	Low profile	Enhanced shielding and ground connections Top mount mating
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Wire to PCB

Micro Coax



Series	DF49	DF81	DF80	FX15
Product image				
Contact pitch (mm)	0.4	0.4	0.5	0.5 receptacle 1.0 Plug (staggered)
Termination AWG	42-46	34-46	40 - 46 (micro coax) 32, 36 (discrete wire)	36 - 40 (micro coax) 30 - 32 (discrete wire)
PCB mounting style	SMT	SMT	SMT	SMT
Mated height (mm)	0.7	0.9	1.8 (max)	-
Number of contacts	20, 40	30, 40, 50	30, 40, 50	41, 51
Rated voltage	AC 30V	AC 100V	AC 50 V	AC 100 V
Current rating (Amps)	0.15-0.25	Up to 0.3 (max)	0.5 (max) (dependent on wire gauge)	0.5 (max) (dependent on wire gauge)
Notes	Enhanced shielding Side entry mating	eDP Embedded display port ver 1.3. 5.4Gbps	Supports embedded display port Ver. 1.2 (5.4 Gbps)	Supports LVDS signal
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Backplane Connectors



Series	QR/P4	QR/P6	QR/P8	QR/P18
Product image				
Type	Small rectangular multi-contact solderless connector for racks and panels	Rectangular miniature multi-contact connector for racks and panels	Ultra-small rectangular multi-contact solderless connector for racks and panels	Rectangular, multiple-position IDC connector for rack/panel
Number of contacts	8, 12, 16, 24, 32, 40	6, 12, 16, 24	8, 12, 20	(Hybrid) Signal 12 or 18 or 24 Power 4
Current rating (Amps)	Signal 1A / AC250V Power 3A / AC300V	Signal 1A / AC120V Power 10A / AC120V	Signal 1A / AC30V Power 3A / AC300V	1A / AC125V 12A / AC300V
Notes	UL, CSA, TÜV qualified	UL, CSA, TÜV qualified	UL, CSA, TÜV qualified	Extended operation temperature -40°C to 105°C
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Backplane Connectors



Series	PCN10	PCN10F / PCN11F	PO51 / PO72	
Product image				
Type	Compliant to IEC603-2/DIN41612	Compliant to DIN41612 M-style	Coax contact 50 Ω / 75 Ω	
Number of contacts	2-row: 16, 20, 24, 32, 44, 50, 64, 90, 100 3-row: 48, 96, 144 4-row: 128	Signal (Coax) 30, 24 (8) 42 (6) 60 (4) 78 (2)	-	
Current rating (Amps)	2A / AC300V	2A / AC300V	10MHz-1GHz	
Notes	Double sided 2-point contact system	PCN10F - Soldering type PCN11F - Press-fit connection Coax PO51-series Double sided 2-point contact system	Coax contact for PCN10F/PCN11F	
Further information	Web / datasheet	Web / datasheet	Web / datasheet	

Mezzanine Connectors

High Speed



Series	IT1	IT2	IT3	IT5
Product image				
Contact pitch (mm)	0.5	1.0 x 1.0 (staggered)	0.75 x 0.875 (staggered)	0.75 x 0.875 (staggered)
Number of contacts	Receptacle 168, 252 PCB module 168/28, 168/48, 252/22 252/44	380 (10x38)	100, 200, 300	100, 200, 300
Rated voltage	AC50V	AC50V	AC50V	AC50V
Current rating (Amps)	0.4	0.5	1	1
Stacking height (mm)	19, 23, 30	15 - 35	14 - 40	15 - 40
Mating style	Parallel	Parallel	Parallel	Parallel
Assembly style	SMT	BGA (Ball Grid Array)	BGA (Ball Grid Array)	BGA (Ball Grid Array)
Notes	Impedance 50Ω High speed transmission (3 Gbps) Self-alignment (x/y-axis +/- 0.2mm) due to 3-piece design 2-point contact Signal/ground ratio 10:2	Diff impedance 100Ω +/-10% High speed transmission (10+ Gbps) Self-alignment (large x/y axis tolerance) due to 3-piece design 2-point contact	High speed transmission (10+ Gbps) Self-alignment (large x/y axis tolerance) due to 3-piece design	High speed transmission (25+ Gbps) acc. IEEE802.3ap Additional GND pins (X/Y row)
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Please contact HRS

Mezzanine Connectors

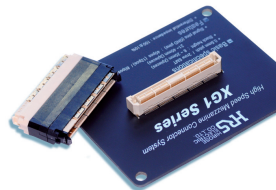
High Speed



Series

XG1

Product image



Contact pitch (mm)	0.5			
Number of contacts	52-260			
Rated voltage	AC50V			
Current rating (Amps)	0.3			
Stacking height (mm)	15 - 23 (2-piece-version) 25 - 44 (3-piece-version)			
Mating style	Parallel			
Assembly style	SMT			
Notes	High speed transmission (10+ Gbps) Self-alignment (large x/y axis tolerance) due to 3-piece design Multiple blade combinations possible Mating length 1.2mm			
Further information	Web / datasheet			

RF/Coax



Series	H.FL	U.FL	U.FL Board-to-Board	N.FL
Product image				
Type	Coax connector	Coax connector	Coax connector	Coax connector
Plug (P) / Receptacle (R)	P/ Right angled R/ SMT	P/ Right angled R/ SMT	P/ SMT R/ SMT	P/ Right angled R/ SMT
Nominal characteristic impedance	50Ω, 75Ω	50Ω	50Ω	50Ω
VSWR (max) (Voltage Standing Wave Ratio)	1.3 (DC~3 GHz)	1.3 (DC~3 GHz)	1.3 (DC~3 GHz)	1.3 (DC~6 GHz)
Frequency range		1.5 (3~6 GHz)	1.5 (3~6 GHz)	
Mated height (mm)	3	2.0 (2.5)	2.5	1.4
Center contact	Au plated	Au plated	Au plated	Au plated
Shell	Ag plated	Ag plated	Ag plated	Ag plated
Accessories	Conversion adapters	Conversion adapters	-	Conversion adapters
Note	Only available as assembly	Only available as assembly		Only available as assembly Low-Profile "U.FL"
Further information	Web / datasheet	Web / datasheet	Please contact HRS	Web / datasheet

RF/Coax



Series	W.FL	W.FL2	X.FL	X.FL Board-to-Board
Product image				
Type	Coax connector	Coax connector	Coax connector	Coax connector
Plug (P) / Receptacle (R)	P/ Right angled R/ SMT	P/ Right angled R/ SMT	P/ Right angled R/ SMT	P/ SMT R/ SMT
Nominal characteristic impedance	50Ω	50Ω	50Ω	50Ω
VSWR (max) (Voltage Standing Wave Ratio) Frequency range	1.3 (DC~3 GHz)	1.3 (DC~3 GHz) 1.4 (3~6 GHz)	1.3 (DC~3 GHz) 1.4 (3~6 GHz) 1.7 (6-12GHz)* * with 1.13mm OD cable	1.3 (DC~3 GHz) 1.5 (3~6 GHz)
Mated height (mm)	1.55	1.3	1	0.95
Center contact	Au plated	Au plated	Au plated	Au plated
Shell	Ag plated	Ag plated	Ag plated	Ag plated
Accessories	Conversion adapters	Conversion adapters		
Note	Only available as assembly	Only available as assembly	X.FL receptacle is mountable on the same PCB layout of W.FL and W.FL2	X.FL receptacle is mountable on the same PCB layout of W.FL and W.FL2
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

RF/Coax



Series	PO40G	N	PL75	PL76
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Type	Coax connector / MIL standard SMP compatible push-on lock	RF Coaxial connector	Coaxial connector	Space saving coaxial connector
Plug (P) / Receptacle (R)	P / Right angled & straight & in-line adapter	P/ Right angled & straight R/ PCB + Adapters	P/ Right angled & straight R/ THT	P/ straight R/ THT
Nominal characteristic impedance	50Ω	50Ω	75Ω	75Ω
VSWR (max) (Voltage Standing Wave Ratio) Frequency range	DC ~ 18 GHz	DC ~ 10 GHz	1.3 (DC~1.5 GHz)	1.3 (DC~3.2 GHz)
Mated height (mm)	-	-	-	-
Center contact	Au plated	-	Au plated	Au plated
Shell	Au plated	-	-	-
Accessories	-	-	-	-
Note		Medium sized Weather-resistance Constant-impedance	Push-on lock	Push-pull lock Supports CoaxPress
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Please contact HRS

RF/Coax

Series	POD1	POD(F)	CP	
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Product image



Type	Microminiature coax connector	B-t-B floating coaxial connector	Surge protector	
Plug (P) / Receptacle (R)		P + R straight		
Nominal characteristic impedance	50Ω	50Ω		
VSWR (max) (Voltage Standing Wave Ratio) Frequency range	1.3 (DC~3 GHz)	1.3 (DC~12 GHz)	CP-HRMJU.FLJC-1A 1.2 (up to 10 GHz)	
Mated height (mm)	-	20 (spacer distance)		
Center contact	Au plated	Au plated		
Shell	-	-		
Accessories	-	-		
Note	Push-on lock	Cable-less B-t-B connection, floating structure allows multiple mated connectors	Power 2W Gast tube / surge protection type	
Further information	Web / datasheet	Web / datasheet	Please contact HRS	

RF Coaxial Switch



Series	MS-147	MS-151NB	MS-162A	MS-180
Product image				
Type	Low profile coaxial switch	Low profile coaxial switch	Low profile coaxial switch	Low profile coaxial switch
Plug (P) / Receptacle (R)	R / Right angled R / SMT	R / Straight & Right angled R / SMT right angled	P / Straight R / SMT	P / Straight & Right angle R / SMT
VSWR (max) (Voltage Standing Wave Ratio) Frequency range	1.2 (DC ~ 3 GHz) 1.5 (3 - 6 GHz)	1.2 (DC~2 GHz) 1.3 (2 - 5 GHz) 1.7 (5 - 6 GHz)	1.2 (DC~3 GHz) 1.3 (3 - 6 GHz) 1.7 (6 - 10 GHz)	1.2 (DC~3 GHz) 1.3 (3 - 6 GHz) 1.7 (6 - 11 GHz)
Power rating	4W	4W	4W	2W
Receptacle height (mm)	3.9	5	2.48	0.85
Durability (Mating / Unmating)	12000	5000	12000	Up to 100k cycles (plug) 100 cycles (receptacle)
Accessories	Test plug SMA conversion adapter	Test plug SMA conversion adapter	Test plug SMA conversion adapter	Test plug SMA conversion adapter
Note	-	Only available as assembly	-	-
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

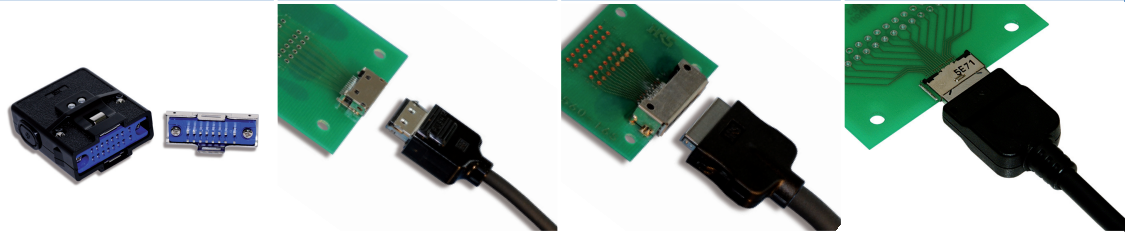
Interface Connectors

Data Interface



Series	1600	3200	3500	LX
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Product image



Type	Sumicon, multi-contact interface connector	Compact interface connector	Long life interface connector	Ultra low-profile interface connector
Current rating (Amps)	3	0.5	1	0.5 (1.0)
Pitch (mm)	1.75	0.8	0.8	0.5
Plug assembly type	Crimp	Solder wiring	Pressure welding wiring / solder wiring	Solder wiring
Receptacle PCB type	In-Line / THT	SMT	SMT	SMT
Number of contacts	8, 12, 16, 20, 24, 28, 34, 45, 60	8, 10	10, 16	12, 16, 20
Termination AWG	26-30	28 or less	28	30-32
Mating mechanism	Side/top lock	-	Snap-lock	Snap-lock
Shielded (EMI prevention)	-	YES	YES	YES
Durability (Mating / Unmating cycle)	-	-	20000	5000
Notes	-	-	-	Low profile 2.0mm
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Interface Connectors

Data Interface



Series	GX	MQ172	DH	DXM
Product image				
Type	Space-saving interface connector	Micro-miniature interface connectors	Small interface connector for high speed transmission up to 2.5Gbps	High density interface connector
Current rating (Amps)	0.5 (1.0)	0.5-3	0.5	0.5
Pitch (mm)	0.4	0.8	1 (0.5)	1.27
Plug assembly type	Solder wiring	Solder wiring	IDC	IDC / soldering
Receptacle PCB type	SMT	SMT	SMT	THT / SMT / IDC
Number of contacts	18	3, 4	17, 27, 37, 51	14, 20, 26, 36, 50, 68, 80, 100, 110
Termination AWG	28-30	24-32	28 (Twinax or Twisted pair cable)	28
Mating mechanism	Snap-lock	Snap-lock	Knurled head screw Screw lock One-touch lock	Knurled head screw One-touch lock
Shielded (EMI prevention)	YES	-	YES	YES
Durability (Mating / Unmating cycle)	10000	5000	500	-
Notes	USB 2.0 signal is applicable	For power supply and signals	Impedance controlled	Many variations available
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

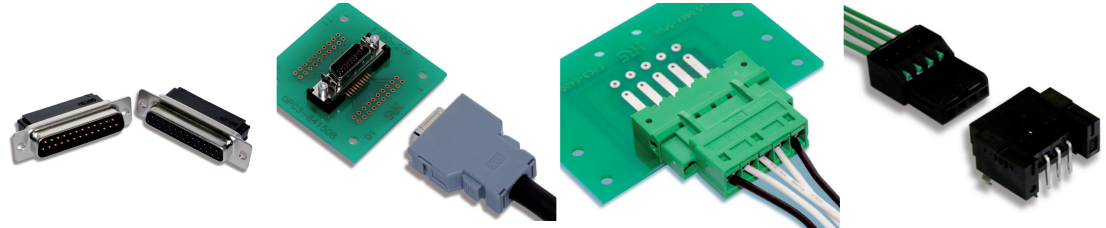
Interface Connectors

Data Interface



Series	FD	FI	HR31	MQ115
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Product image



Type	D-sub connectors, IDC type for ribbon cable	Half pitch interface connectors	Interface connectors for FA network	IDC connectors for low power
Current rating (Amps)	1	1	10 (12)	2
Pitch (mm)	1.27	1.27	5.08	2.54
Plug assembly type	IDC / ribbon cable	IDC / soldering	Crimp	IDC field assembly
Receptacle PCB type	In-Line / Panel	SMD	THT	THT
Number of contacts	9, 15, 25, 37	IDC : 20 Solder: 15, 20	5	(4 pin/port) 1, 2, 3, 4, 6, 8 ports
Termination AWG	-	-	13-17 15-24	22-26
Mating mechanism	-	Screw lock One-touch lock	Screw lock	-
Shielded (EMI prevention)	-	-	-	-
Durability (Mating / Unmating cycle)	-	-	1000	30
Notes	-	Cover variations: Straight (plastic & die-casting) right angled (plastic) low profile (plastic)	Extended operation temp. - 40°C to +100°C	Straight & vertical receptacle available
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Interface Connectors

Data Interface



Series	RP34L	UX Mini USB	ZX Micro USB 2.0	ZX360 Micro USB 3.0
Product image				
Type	Low profile connectors for AC power supply	USB 2.0 standard Mini-USB connector	USB 2.0 standard Micro-USB connector	USB 3.0 standard Micro-USB connector High speed transmission
Current rating (Amps)	5	1	1 (1.8)	1 (1.8/0.5)
Pitch (mm)	-	-	-	-
Plug assembly type	Crimp	Solder wiring	Solder wiring	Solder wiring
Receptacle PCB type	THT	SMT	SMT	SMT
Number of contacts	3, 4	5	5	5 (USB2.0) + 5 (USB3.0)
Termination AWG	18-22	USB 2.0 cable	USB 2.0 cable	USB 2.0/3.0 cable
Mating mechanism	Snap-lock	-	Snap-lock	Snap-lock
Shielded (EMI prevention)	-	YES	Yes	Yes
Durability (Mating / Unmating cycle)	5000	5000	10000	10000
Notes	-	Only B-Type available	Many variations available	-
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Interface Connectors

Data Interface



Series	ST	PQ		
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Product image



Type	Miniature interface connector for portable terminal equipment	High power supply connector for FA		
Current rating (Amps)	0.5 (1)	7		
Pitch (mm)	0.5	-		
Plug assembly type	Solder wiring	Crimp		
Receptacle PCB type	SMT	-		
Number of contacts	4, 10, 18, 22, 24, 36	20		
Termination AWG	-	16-18		
Mating mechanism	Lock version (clip)	Side lock		
Shielded (EMI prevention)	with / without shielding	Yes		
Durability (Mating / Unmating cycle)	10000	500		
Notes	Plug for cradle + cable	PQ-W waterproof & PQ50-S Plastic versions		
Further information	Web / datasheet	Web / datasheet		

Circular Connectors



Series	HR10	HR10A/G	HR25A	HR11
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Product image



Shell size (mm)	7, 10	7, 10, 13	7, 9	9
Plug	Solder	Solder/crimp	Solder/PCB/crimp	Solder
Receptacle	Solder/PCB	Solder/PCB/crimp	Solder/PCB/crimp	Solder
Jack	Solder	Solder/crimp	Solder/PCB/crimp	Solder
Contact plating	Gold	Gold/silver	Gold	Silver
Locking style	Push-pull	Push-pull	Push-pull	Bayonet
Accessory	Cap	Cap	-	-
Number of contacts	4, 6, 12	4, 5, 6, 10, 12, 20	4, 6, 8, 12, 16, 20	4, 6
Shell construction	Metal	Metal	Metal	Metal
Current rating (Amps)	2	2	1	2
Applicable standard	-	-	-	-
Notes	Terminating jig available	HR10G is a grounded receptacle or jack for shielded applications	Supports next generation high speed application using 100 Base TX	
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Circular Connectors



Series	HR30	HR30PB	LF	HR24
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Product image



Shell size (mm)	6, 7, 8	6, 7, 8	7, 10, 13	8, 9
Plug	Solder/crimp	Solder/crimp	Solder	Solder
Receptacle	Solder/crimp/dip	Solder/crimp/dip	Solder	Solder/dip
Jack	Solder/crimp	Solder/crimp	Solder	Solder
Contact plating	Gold	Gold	Gold	Gold/silver
Locking style	Push-pull	Push-pull	Bayonet	Screw
Accessory	-	-	-	-
Number of contacts	3, 6, 10, 12	3, 6, 10, 12	3, 4, 6, 11, 12, 20	4, 5
Shell construction	Plastic	Plastic	Metal	Metal/plastic
Current rating (Amps)	5A for 3 pos / 2A for others	5A for 3 pos / 2A for others	2, 5, 10	3, 4
Applicable standard	-	-	-	-
Notes	IP68 waterproof	IP68 waterproof	IP68 waterproof shielding	IP67 waterproof
Further information	Web / datasheet	Please contact HRS	Web / datasheet	Web / datasheet

Circular Connectors



Series	HR34B	JR	JR-W	H/MS
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Product image



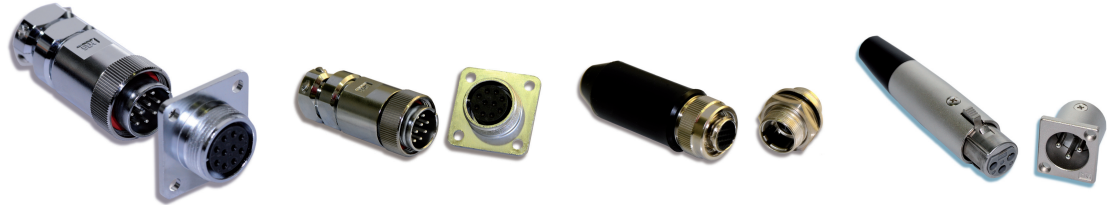
Shell size (mm)	12	13, 16, 21, 25	13, 16, 21, 25	10, 18, 20, 22, 24
Plug	Solder/crimp	Solder/crimp	Solder/crimp	Solder
Receptacle	Solder/PCB	Solder/crimp	Solder/crimp	Solder
Jack	None	Solder	None	None
Contact plating	Gold	Gold/silver	Silver	Silver
Locking style	Bayonet	Bayonet/screw	Screw	Screw
Accessory	-	-	-	-
Number of contacts	4, 10	3, 4, 5, 7, 8, 10, 14, 16, 24, 26	3, 4, 5, 7, 8, 10, 16, 24	2, 3, 4, 6, 7, 8, 17, 19
Shell construction	Metal	Metal	Metal	Metal
Current rating (Amps)	3, 5	3, 5, 10, 30	3, 5, 10, 15, 30	13, 23, 46
Applicable standard	-	-	-	-
Notes	IP68 waterproof, oilproof		IP67 waterproof	Waterproof
Further information	Web / datasheet		Web / datasheet	Web / datasheet

Circular Connectors



Series	RM	RM-W	HR22	HA
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Product image



Shell size (mm)	12, 15, 21, 24, 31	15, 21, 24, 31	12	16
Plug	Solder/crimp	Solder	Solder/crimp	Solder
Receptacle	Solder/crimp/dip	Solder	Solder/crimp	Solder/dip
Jack	Solder	None	Solder/crimp	Solder
Contact plating	Silver	Gold/silver	Silver	Gold/silver
Locking style	Bayonet/screw/quick detachable	Screw	Screw	Latch-lock
Accessory	-	-	-	-
Number of contacts	2, 3, 4, 5, 6, 7, 8, 10, 12, 15, 20, 31, 40, 55	2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 31, 40, 55	20	3, 4, 5, 7
Shell construction	Metal	Metal	Metal	Metal
Current rating (Amps)	5 + 10	5 + 10	2	3-15
Applicable standard	-	-	-	-
Notes	Waterproof options	IP67 waterproof	Waterproof version available	High quality sound
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Circular Connectors



Series	EM35-W	HR41	HR41A	HR08D
Product image				
Shell size (mm)	35	25	17	12
Plug	Crimp	Crimp	Crimp	Solder/crimp
Receptacle	Crimp	Crimp	Crimp	Solder
Jack	Crimp	Crimp	Crimp	N/A
Contact plating	Tin	Gold	Gold	Gold
Locking style	Bayonet	Bayonet	Bayonet	Bayonet
Accessory	-	-	-	-
Number of contacts	4 (3 phase + 1 GND)	3, 5	5	2, 10
Shell construction	Metal	Plastic	Plastic	Metal
Current rating (Amps)	50	20	10	3
Applicable standard	-	-	-	-
Notes	IP68 / IPX9K Combinable with EM35-M	IP68 waterproof Lightning surge protection	IP68 waterproof Lightning surge protection	IP68 waterproof
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Circular Connectors

Series

HR43





Product image



Shell size (mm)	21			
Plug	Crimp			
Receptacle	-			
Jack	Crimp			
Contact plating	Gold			
Locking style	Bayonet			
Accessory	-			
Number of contacts	3			
Shell construction	Alloy metal shell			
Current rating (Amps)	20			
Applicable standard	-			
Notes	IP67 waterproof Vibration test compliant (JIS E 4031 Cat. 2)			
Further information	Web / datasheet			

Modular Connectors



Series	TM31P	TM21DP	TM11AP	HT601
Product image				
Type	CAT6a shielded plug	CAT6 shielded plug	CAT5 shielded plug	Hand crimp tool for TM11, TM21 and TM31
Number of contacts	8	8	8	-
Variation	-	-	-	-
Notes	Certified according ANSI/TIA/EIA-568-B.2-10 Connecting hardware Cat6a (500MHz)	Covers available in various colors and shapes Extended operation temperature -55°C to +85°C	Compliant to PoE 802.3af Covers available in various colors and shapes Extended operation temperature -55°C to +85°C	Spare parts also available
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Please contact HRS

Modular Connectors



Series	TM21 Cover	TM11 Cover	TM11APA/TM11PA	TM21R / TM22R
Product image				
Type	Cover for TM11, TM21 and TM31 plug Fold up cover with latch protector	Cover for TM11 and TM21 plug	Angled cover for TM11 and TM21 plug	CAT6 shielded / unshielded jack
Number of contacts	-	-	-	8
Variation	Available colors: beige, grey, light grey, white, yellow, orange, red, magenta, purple, green, blue, black (others by request)	Available colors: beige, grey, light grey, white, yellow, orange, red, magenta, purple, green, blue, black (others by request)	left / right angled (black) up / down angled (black)	With / without lightpipe horizontal / vertical version
Notes	Extended operation temperature -55°C to +85°C	Extended operation temperature -55°C to +85°C		Certified according TIA/EIA-568-B.2 De-Embedded method Cat6 (250MHz) Extended operation temp. -55°C to +85°C
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Modular Connectors



Series	TM24R	TM11R	TM25R	
Product image				
Type	Conforms to FCC standards	CAT5 shielded jack Low profile	Foldable Open-Close RJ45 jack	
Number of contacts	8	8	8	
Variation		With / without lightpipe horizontal / vertical version	Right angled jack	
Notes	Full EMI shielding, sequential mating, separate ground springs	-	Secure grounding structure, RJ-11 plug mis-insertion prevention For flat products	
Further information	Web / datasheet	Web / datasheet	Web / datasheet	

Optical Connectors

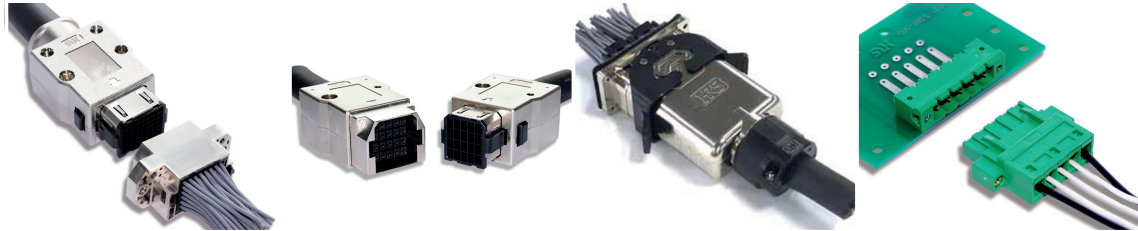
Series	MF10B	MF25	MF13S	
Product image				
Type	Ultra small optical connector with bayonet lock	Hybrid connector (optical + electrical)	Hybrid connector (optical + electrical)	
Insertion loss	SM: 1.0dB max. (typical 0.2dB) MM: 0.5dB max. (typical 0.1dB)	SM: 0.4dB max. MM: 0.3dB max.	SM: 0.4dB max.	
Durability (mating / unmating cycle)	5000	500	500	
Degree of protection (mated condition)	IP67	IP67	IP67	
Application	Harsh outdoor environment railway, military, and more	Harsh outdoor environment base station and more	Outdoor, surveillance cameras and monitors and more	
Notes	Many variations available	3x electrical contacts rated at 30A max. current 2x Fiber optic connections (SM or MM)	3x electrical contacts rated at 1.5A max. current 2x Fiber optic connections (SM or MM)	
Further information	Web / datasheet	Web / datasheet	Web / datasheet	

Industrial Power



Series	PQ	PQ-S	PQ-W	HR31
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Product image



Type	High power supply for FA	High power supply for FA	High power supply for FA	Interface connectors for FA network
Current rating (Amps)	7	12.5	12.5	10 (12)
Rated voltage	AC/DC 600	AC/DC 300	AC/DC 300	AC 250V/DC 350 V
Termination AWG Contact style	15-22 crimp	17-28 crimp	17-28 crimp	13-17 / 15-24 crimp
Variation	Panel mount In-Line	Panel mount In-Line	Panel mount In-Line	THT Horizontal/vertical
Number of contacts	20	48	50	5
Locking mechanism	Side Lock	Side Lock	Side Lock	Screw lock
Shielded (EMI prevention)	Yes	Yes	Yes	No
Temperature range	-45°C to +105°C	-45°C to +105°C	-45°C to +105°C	-40°C to +100°C
Durability (mating / unmating cycle)	500	500	500	1000
Note	Metal die cast	Plastic	Waterproof	
Further information	Web / datasheet	Web / datasheet	Please contact HRS	Web / datasheet

Industrial Power



Series	PX	EM35-M	EM35-W	EV1
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Product image



Type	Power supply connector Double row	DIN rail Power supply	Circular, waterproof Power supply	High current, waterproof Power supply
Current rating (Amps)	10	50 (max)	50	125 (180 max)
Rated voltage	AC 600 V	AC/DC 500V	AC/DC 250V	AC 460 V /DC 650 V
Termination AWG Contact style	16-18 crimp	8 crimp	8 crimp	3 crimp
Variation	THT Horizontal	DIN rail fitting	Panel mount	Panel mount
Number of contacts	2 x 4 2 x 6	4 (3 phase + 1 GND)	4 (3 phase + 1 GND)	3
Locking mechanism	Positive lock	Positive lock	Bayonet-lock	Screw lock
Shielded (EMI prevention)	No	No	No	Yes
Temperature range	-55°C to +105°C	-40°C to +125°C	-40°C to +125°C	-40°C to +150°C
Durability (mating / unmating cycle)	1000	100	500	50
Note	2-layer structure for high density mounting	Combinable with EM35-W Sequential mating	IP68 Combinable with EM35-M	IP68 / IP69K Space saving design
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Please contact HRS

Industrial Power



Series	HR41	HR41A	HR43	EF1
Product image				
Type	Circular, lightning surge protection	Circular, low profile lightning surge protection	High current, waterproof connector	In-line power connector
Current rating (Amps)	20	10	20	130
Rated voltage	AC/DC 400V	AC 250 V /DC 350 V	AC 600 V/DC 600 V	AC 600 V/DC 600 V
Termination AWG Contact style	10-12 / 14-16 crimp	16-20 crimp	Outer jacket dia. 3.5mm (max)	38mm ² (AWG1-2) crimp
Variation	Panel mount	Panel mount	Panel mount	Panel mount In-Line
Number of contacts	3, 5	5	3	1
Locking mechanism	Bayonet-lock	Bayonet-lock	Bayonet-lock	Snap-in lock
Shielded (EMI prevention)	No	No	Yes	No
Temperature range	-40°C to +85°C	-40°C to +105°C	-25°C to +85°C	-25°C to +105°C
Durability (mating / unmating cycle)	500	500	100	30
Note	IP68 Stable 3-point bayonet lock	IP68 Push-on bayonet lock	IP67 waterproof	Attachable to DIN rail
Further information	Please contact HRS	Please contact HRS	Web / datasheet	Please contact HRS

Industrial Power



Series	FX30B	IT-PM/PD-2S-D/R	DF60	DF22
Product image				
Type	PCB to PCB, High current	PCB to PCB, High current	Wire to Board power connector	High current for internal power supply
Current rating (Amps)	10	50	45 max (with AWG 8)	13 - 30
Rated voltage	AC/DC 250V	AC/DC 300	AC/DC 1000	AC/DC Up to 1000V
Termination AWG Contact style	N/A	N/A	8 - 12 crimp	10-12 / 14-16 crimp
Variation	THT Parallel Right angle Co-planar	THT Vertical	THT Horizontal/vertical	THT Panel lock (In-Line)
Number of contacts	2, 3, 4, 5	2	1 - 6	Single row 1-5 Double row 4
Locking mechanism	-	Latch lock	Positive lock	Positive lock
Shielded (EMI prevention)	No	No	No	No
Temperature range	-55°C to +105°C	-55°C to +85°C	-55°C to +105°C	-35°C to +85°C
Durability (mating / unmating cycle)	100	100	30	30
Note	Offset absorbing structure	Can be assembled alongside IT3 & IT5 series	5-point contact	Wire to board, In-line, In-line panel lock versions
Further information	Please contact HRS	Please contact HRS	Web / datasheet	Web / datasheet

Industrial Power



Series	PS2-100A	PS2-200A	PS2-300A	PS3
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Product image



Type	Plug-in connector for battery storage	Plug-in connector for battery storage	Plug-in connector for battery storage	Plug-in connector for battery storage
Current rating (Amps)	Power 100 Signal 2	Power 200 Signal 2	Power 300 Signal 5	Power 150
Rated voltage	Pwr AC1000V/Sig AC300V	Pwr AC1000V/Sig AC300V	Pwr AC1000V/Sig AC300V	AC/DC 500V
Termination AWG Contact style	Power screw attachment Signal AWG 24-28	Power screw attachment Signal AWG 18-22	Power screw attachment Signal AWG 16-18	Power screw attachment 14 to 50 sq (WL1, WL2)
Variation	Panel mount	Panel mount	Panel mount	Panel mount
Number of contacts	2 x Power 9 + 9 signals	2 x Power 18 + 18 signals	2x Power 6 + 6 signals	2x Power
Locking mechanism	Sequential mating structure	Sequential mating structure	Sequential mating structure	-
Shielded (EMI prevention)	No	No	No	No
Temperature range	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C
Durability (mating / unmating cycle)	50	50	50	100
Note	Sequential signal contacts Finger protection	Sequential signal contacts Finger protection	Sequential signal contacts Finger protection	Finger protection
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Please contact HRS

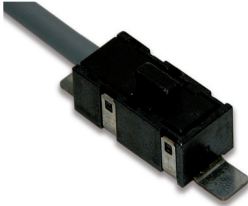
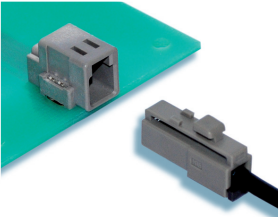
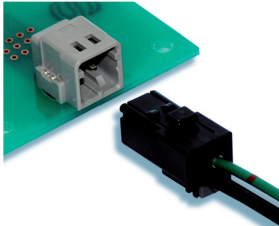
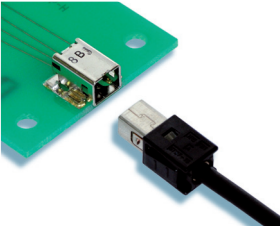
Automotive



Series	GT5	GT13	GT16	GT16G
Product image				
Type	Connector for coaxial cables SAE/USCAR-19 - standard	Connector for coaxial cables	Subminiature connector for coaxial cables	Subminiature connector for coaxial cables
Number of contacts	1-4 coax lines	1-4 coax lines	1	1
Termination AWG	20-22 / 24-28 / 30	20-22 / 24-28 / 30	24-28 / 30	24-28 / 30
Wire gauge mm2	0.35-0.5 / 0.08-0.22 / 0.05	20-22 / 24-28 / 30	0.08-0.22 / 0.05	0.08-0.22 / 0.05
Frequency range	Up to 2 GHz	Up to 1GHz	Up to 3 GHz	Up to 6 GHz
Application	Antenna, sensors, communication lines	In-car communication, sensors, audio, others	ETC, GPS, VICS	ETC, GPS, VICS
Variation	In-line board mounted coax cable with signal/ power Multi-position and colour/ keying Waterproof	In-line board mounted Coax cable with signal/power Multi-position and colour/ keying	In-line board mounted Coax cable with signal/power Multi-position and colour/ keying	In-line board mounted Coax cable with signal/power Multi-position and colour/ keying Waterproof
Notes	One step crimp Cost efficient termination Space saving design	One step crimp Cost efficient termination Space saving design	Space saving design	Space saving design
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Automotive



Series	GT19	GT21	GT26	GT27
Product image				
Type	Connector for window-mounted antenna	Subminiature connectors for coaxial cables	Subminiature connectors for coaxial cables	Subminiature connectors for coaxial cables
Number of contacts	1	1	1,2	1
Termination AWG	20-22 / 24-28 / 30	24 - 28 / 30	24-28 / 30	24-28
Wire gauge mm2	0.35-0.5 / 0.08-0.22 / 0.05	0.08-0.22 / 0.05	0.08-0.22 / 0.05	0.08-0.22
Frequency range	Up to 1GHz	Up to 3 GHz	Up to 1 GHz	Up to 6 GHz
Application	For window-mounted antennas	GSM, GPS, antenna, USB adapter	In-car communication, sensors, audio, others	Antenna, sensors, communication lines
Variation	Window-mounted	Board mounted	Board mounted Coax cable with signal/power Multi-position	Board mounted
Notes	One step crimp (GT19N) Cost efficient termination Space saving design (GT19S)	One step crimp Cost efficient termination Space saving design	Space-saving design	Space-saving design
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Automotive



Series	GT8E	GT34	GT9	GT23F
Product image				
Type	High contact pressure B-t-W connector	B-t-W connectors	High contact pressure B-t-B-connector	Floating B-t-B connector
Number of contacts	2,3,4,5,6,8,10,12,16,20,24	8 (others under development)	12,15,16,18,19,25	50
Termination AWG	20-22 / 24-28	20-22 / 24-28	-	-
Wire gauge mm2	0.35-0.5 / 0.08-0.22	0.35-0.5 / 0.08-0.22	-	-
Frequency range	-	-	-	-
Application	Internal power connection for EV/HEV, smart grid, robot etc.	Internal power connection for EV/HEV, smart grid, robot etc.	Automotive equipment, IPM, and IGBT	
Variation	SMD/DIP, Single/Double row, right angle/straight etc.	Right angled others planned	Single/Double row type Straight/Right angle type	Right angled B-t-B
Notes	Waterproof in-line plug is also available	The retainer improves contact safety and increases the cable retention force	Bottom entry type	Double contact point floating range: +/-0.5mm in X,Y,Z direction
Further information	Web / datasheet	Please contact HIROSE	Web / datasheet	Web / datasheet

Automotive



Series	GT18W	GT25	GT15	GT11
Product image				
Type	Waterproof I/O connector for ECU interface	Board-to-Board	HID lamp DII socket	Twinax shielded cable connectors
Number of contacts	5	8, 12, 16, 24, 32, 40	2, 3	2, 4
Termination AWG	20-24	-	20-24	18-22 / 24-28
Wire gauge mm2	0.22-0.5	0.22-0.5	0.22-0.5	0.35-0.75 / 0.08-0.22
Frequency range	-	-	-	
Application	ECUs	ECUs, instrumental panels	HID lamp	Antenna, sensors, communication lines
Variation	-	Vertical and horizontal	-	In-line Board mounted Waterproof
Notes	3-piece construction for easy assembly to ECUs.	Tab size:025(0.025inch) space saving lead reflow metal hold downs	Engages with P32d type lamp base conforming to the IEC61-1 standard. Bulb check function available with types (e.g., GT15A and B).	-
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Automotive



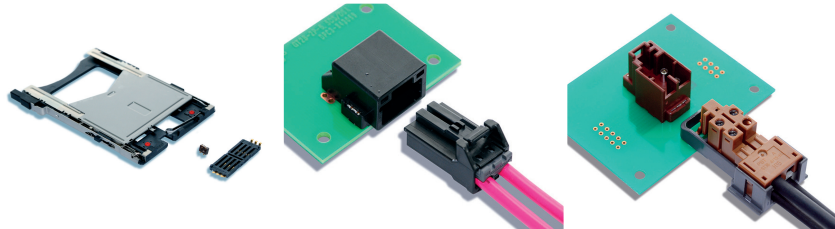
Series	GT17	GT17H	GT17HN	GT32 (10/19 pos)
Product image				
Type	Shielded connectors for USB, LVDS, GVIF transmission	Shielded connectors for USB, LVDS, GVIF transmission	Shielded connectors for USB, LVDS, GVIF transmission	Shielded connectors for USB3.0 HDMI
Number of contacts	6, 8, 10	4	4, 4/4, 16, 26	10 for USB 19 for HDMI
Termination AWG	20-22 / 24-28 / 30	24-28	24-28 / 26-30	24-28
Wire gauge mm2	0.35-0.5 / 0.08-0.22 / 0.05	0.08-0.22	0.08-0.22 / 0.05-0.13	0.08-0.22
Frequency range	-	-	-	Up to 5 Gbps
Application	In-car data communication	In-car data communication	In-car data communication	High speed data transmission
Variation	P / angled + straight R / angled + straight, DIP In-line	P / angled + straight R / angled + straight DIP, SMT in-line	P / angled + straight R / angled + straight DIP, SMT	Right angled
Notes	Ideal for USB or LVDS	Low height Key variations available	Space saving Key variations available	Pin-in-hole reflow method 2-point contact Fixation with screw
Further information	Web / datasheet	Web / datasheet	Web / datasheet	Web / datasheet

Automotive



Series	GT22	GT28	GT36	
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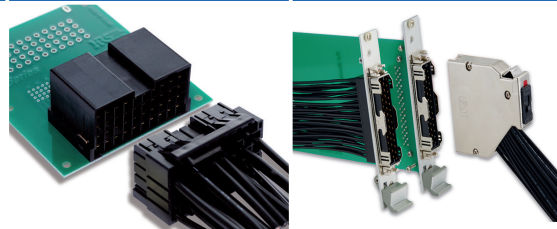
Product image



Type	Smart card socket	Power supply connector 6.5mm pitch	Small, Multi-Terminal, B-t-W connector	
Number of contacts	6	2	2x pair coaxial cable 1x power line	
Termination AWG	-	12-14	-	
Wire gauge mm2	-	2.08-3.31	-	
Frequency range	-	-	Up to 3GHz	
Application	Smart card socket	Power supply	Roof antennas	
Variation	-	Straight type Right angled	One-step connection	
Notes	Designed to accommodate smart card according to ISO7816 standard card detection switch	High current (30A) Rated voltage (600V) 3-point contact	Clear tactile click High vibration resistance RoHS and ELS compliant	
Further information	Web / datasheet	Web / datasheet	Web / datasheet	

Series	TQ	TJ-A		
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Product image



Type	Railway high voltage connector	Interface connector for rail cars		
Current rating (Amps)	5	4		
Rated voltage	AC/DC 600V	30VAC / 130VDC		
Termination AWG	14-16	16		
Contact style	crimp	crimp		
Termination style	Horizontal in THT	Snap in / with Lock-button		
Number of contacts	40	50		
Mating mechanism	Positive one-touch lock	One-step lock structure		
Shielded (EMI prevention)	-	-		
Temperature range	-40°C to +105°C	-40°C to +105°C		
Durability (mating / unmating cycle)	500	500		
Notes	Double row & quadruple-row supports VME rack	4-color matching keys for visual check 16 key variations possible Fits into 3U4HP rack		

Further information	Web / datasheet	Web / datasheet		
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Board-to-Board Connector Overview

Stack Height	Series	No. of contacts	Pitch	Male	Female
0.60	BM10	10, 20, 24, 30, 40, 50, 60	0.40	SMT	SMT
0.80	BM10	10, 16, 20, 24, 30, 34, 40, 44, 50, 60	0.40	SMT	SMT
0.80	BM14	10, 14, 16, 20, 22, 24, 30, 34, 40, 44, 50, 60, 64	0.40	SMT	SMT
0.80	BM15	60	0.35	SMT	SMT
0.80	BM20	10, 20, 24, 30, 34, 40	0.40	SMT	SMT
0.90	DF30	10, 14, 20, 22, 24, 30, 34, 40, 44, 50, 60, 70, 80	0.40	SMT	SMT
0.98	DF37	10, 16, 20, 24, 30, 34, 40, 44, 50, 60, 70, 74	0.40	SMT	SMT
1.30	BM14	40, 44, 54	0.40	SMT	SMT
1.40	BM26	6, 8	4.80	Compression type	
1.50	DF18	20, 30, 40, 50, 60, 70, 80, 100, 120	0.40	SMT	SMT
1.50	DF23	10, 12, 14, 16, 18, 20, 22, 30, 40, 50, 60	0.50	SMT	SMT
1.50	DF37	24, 30, 50, 60	0.40	SMT	SMT
1.50	DF40	10, 12, 20, 24, 30, 34, 40, 50, 60, 70, 80, 90, 100	0.40	SMT	SMT
1.50	DF40G	30, 48	0.40	SMT	SMT
1.50	FX12	24, 40, 60, 80	0.40	SMT	SMT
2.00	DF16	14, 16, 20, 30, 40, 50, 60, 80	0.50	SMT	SMT
2.00	DF40	10, 12, 20, 24, 30, 40, 44, 50, 60, 70, 80	0.40	SMT	SMT
2.00	FX11L	68, 92, 116, 140, 60/6, 80/8, 100/10, 120/12	0.50	SMT	SMT
2.50	DF16	20, 30, 34, 40, 50, 60	0.50	SMT	SMT
2.50	DF40	20, 30, 40, 50, 60	0.40	SMT	SMT
2.50	FX11	80, 100, 60/6, 80/8, 100/10	0.50	SMT	SMT
3.00	DF12	10, 14, 20, 30, 32, 36, 40, 50, 60, 80	0.50	SMT	SMT
3.00	DF40	30, 40, 44, 50, 60, 70, 80, 100	0.40	SMT	SMT
3.00	FX11	80, 100, 60/6, 80/8, 100/10	0.50	SMT	SMT
3.00	FX8	40, 60, 80, 90, 100, 120, 140	0.60	SMT	SMT
3.50	DF12	20, 30, 36, 40, 50, 60	0.50	SMT	SMT
3.50	DF40	20, 30, 50, 60, 80	0.40	SMT	SMT
3.50	FX12	24, 40, 60, 80	0.40	SMT	SMT
4.00	BM26	6	4.80	Compression type	
4.00	DF12	20, 30, 32, 36, 40, 50, 60	0.50	SMT	SMT

Stack Height	Series	No. of contacts	Pitch	Male	Female
4.00	DF15	20, 30, 40, 50	0.65	SMT	SMT
4.00	DF40	50, 60, 80, 90	0.40	SMT	SMT
4.00	FX10	96, 120, 144, 168, 80/8, 100/10, 120/12, 140/14	0.50	SMT	SMT
4.00	FX8	40, 60, 80, 90, 100, 120, 140	0.60	SMT	SMT
4.30	DF9	9, 11, 13, 15, 17, 19, 21, 23, 25, 31, 41, 51	1.00	SMT	SMT
5.00	DF12	20, 30, 36, 40, 50, 60	0.50	SMT	SMT
5.00	DF15	20, 30, 40, 50	0.65	SMT	SMT
5.00	DF17	20, 26, 30, 40, 50, 60, 70, 80	0.50	SMT	SMT
5.00	FX10	96, 120, 144, 168, 80/8, 100/10, 120/12, 140/14	0.50	SMT	SMT
5.00	FX4	20, 32, 40, 52, 60, 68, 80	1.27	DIP	DIP
5.00	FX6	12, 20, 40, 50, 60, 80, 100	0.80	SMT	SMT
5.00	FX8C	60, 80, 90, 100, 120, 140	0.60	SMT	SMT
5.10	A3A & A3C	4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 28, 32, 44, 50	2.00	DIP	DIP
5.50	DF17	26, 80	0.50	SMT	SMT
6.00	A3B & A3C	4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 28, 32, 44, 50	2.00	DIP	DIP
6.00	DF15	20, 30, 40, 50	0.65	SMT	SMT
6.00	DF17	20, 30, 40, 50, 60, 70, 80	0.50	SMT	SMT
6.00	FX4	20, 32, 40, 52, 60, 68, 80	1.27	DIP	DIP
6.00	FX6	12, 20, 40, 50, 60, 80, 100	0.80	SMT	SMT
6.00	FX8C	60, 80, 90, 100, 120, 140	0.60	SMT	SMT
6.50	DF17	26, 80	0.50	SMT	SMT
6.60	DF3	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	0.50	SMT	THT
7.00	DF15	20, 30, 40, 50	0.65	SMT	SMT
7.00	DF17	20, 30, 40, 50, 60, 70, 80	0.50	SMT	SMT
7.00	FX4	20, 32, 40, 52, 60, 68, 80	1.27	SMT/DIP	SMT/DIP
7.00	FX6	12, 20, 40, 50, 60, 80, 100	0.80	SMT	SMT
7.00	FX8C	60, 80, 90, 100, 120, 140	0.60	SMT	SMT
7.50	DF3	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	0.50	THT	THT
7.55	DF11	4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30	2.00	DIP	SMT
7.80	DF11	6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32	2.00	DIP	DIP

FPC/FFC Connector Overview

Pitch	Series	Pin Counts	height	Depth	FPC/FPC	contact	flip
0.2	FH43B	21, 25, 29, 31, 35, 41, 45, 51, 61, 71	0.9	2.75	FPC	Bottom	Front
0.2	FH53	41	0.65	3.20	FPC	Top	Back
0.2	FH54	41	0.9	3.20	FPC	Top	Back
0.3	FH26	13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 45, 51, 55, 57, 61, 71	1.0	4.80	FPC	Bottom	Front
0.3	FH30	60, 80, 90, 96	3.0	6.55	FPC/FFC	Bottom	Front
0.3	FH35C	9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 31, 33, 35, 37, 39, 41, 45, 49, 51, 61	0.9	3.20	FPC	Top & Bottom	Back
0.3	FH36	11, 15, 17, 19, 23, 25, 27, 29, 31, 33, 35, 39, 45, 51, 61	1.0	2.70	FPC	Bottom	Front
0.3	FH36W(Halogen Free)	11, 15, 17, 19, 23, 25, 27, 29, 31, 33, 35, 39, 45, 51, 61	1.0	2.70	FPC	Bottom	Front
0.3	FH39	23, 25, 27, 29, 33, 39, 45, 51, 67	1.1	3.45	FPC	Top & Bottom	Back
0.3	FH42	11, 19, 23, 31	0.65	3.08	FPC	Top	Back
0.4	FH55M	40	1.5	4.2	FPC	Bottom	Front
0.4	FH30M	80, 96	3.0	6.55	FPC/FFC	Bottom	Front
0.4	FH33M	16, 65	1.2	2.35	FPC/FFC	Bottom	Front
0.4	FH37	15 (3-30 On Request)	0.48	3.25	FPC	Bottom	Front
0.5	FH12	5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 33, 34, 36, 40, 45, 49, 50, 53, 60	2.0	5.40	FPC/FFC	Bottom	Front
0.5	FH12A	10, 12, 15, 16, 18, 20, 22, 24, 26, 28, 29, 30, 32, 33, 34, 36, 40, 42, 45, 50	2.0	5.40	FPC/FFC	Top	Front
0.5	FH12E	45	2.0	5.40	FPC/FFC	Bottom	Front
0.5	FH12S	26, 30, 40, 45, 50, 53	2.4	5.40	FPC/FFC	Bottom	Front
0.5	FH12-xS-0.55V	10, 12, 13, 15, 16, 17, 18, 20, 22, 24, 26, 30, 32, 33, 34, 36, 40, 45, 49, 50, 60	5.5	5.40	FPC/FFC	vertical	-
0.5	FH19C	4, 5, 6, 7, 8, 9, 10, 12, 13, 15, 17, 20, 21, 24, 27, 30, 34, 40, 50	0.9	3.00	FPC t=0.2	Bottom	Front
0.5	FH19SC	4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 24, 26, 27, 28, 30, 32, 40, 45, 50	0.9	3.00	FPC t=0.3	Bottom	Front
0.5	FH28	10, 15, 20, 28, 30, 40, 45, 50, 55, 60, 64, 68, 74, 80	2.55	4.15	FPC/FFC	Bottom	Front
0.5	FH28D	20, 28, 30, 50, 55, 64, 68, 74	2.55	4.15	FPC/FFC	Bottom	Front
0.5	FH28E	20, 30, 40, 50, 60, 68	2.55	4.15	FPC/FFC	Bottom	Front
0.5	FH28H	80	2.55	4.15	FPC/FFC	Bottom	Front
0.5	FH33	4, 6, 9, 10, 12, 14, 16, 19, 20, 26, 28, 30, 32, 36, 40, 45	1.2	2.35	FPC/FFC	Bottom	Front
0.5	FH33J (Halogen Free)	4, 10, 12, 16, 18, 40	1.2	2.35	FPC/FFC	Bottom	Front
0.5	FH34S	4, 6, 7, 8, 10, 11, 12, 14, 16, 18, 20, 22, 23, 24, 26, 30, 34, 40	1.0	3.20	FPC/FFC	Top or Bottom	Back
0.5	FH40	10, 20, 24, 30, 40, 45, 50, 60, 64, 80	5.8	3.55	FFC/FPC	Bottom	Front
0.5	FH41	15, 28, 30, 31, 40, 50, 68	2.5	6.2	Shielded FPC	Bottom	Front
0.5	FH48	31, 40, 50, 68	6.18	4.7	FFC/FPC	Vertical	Front
0.5	FH50	28, 40	3.7		FPC	Bottom	
0.5	FH52	6, 8, 10, 11, 12, 15, 18, 20, 24, 25, 28, 30, 32, 40, 42, 45, 50, 60, 64, 68	2.0	5.7	FPC/FFC	Bottom	Front
0.5	FH55	22, 31, 40	1.5	4.2	FPC	Bottom	Front
1.0	FH12-xS-15H	5, 6, 7, 8, 9, 11, 12, 16, 17, 22, 26,	2.0	5.40	FPC/FFC	Bottom	Front
1.0	FH12-xS-15V	6, 7, 8, 16, 20, 22, 24,	5.5	5.40	FPC/FFC	vertical	-
1.0	FH33J (Halogen Free)	4, 10, 12, 16, 18, 40	1.2	2.35	FPC/FFC	Bottom	Front

AWG Conductor size table

AWG	Diameter Inches	mm	Area mm ²	Max Current A	AWG	Diameter Inches	mm	Area mm ²	Max Current A
0000 (4/0)	0.4600	11.680	107.2000	302	24	0.0201	0.5110	0.2050	0.577
000 (3/0)	0.4100	10.400	85.0100	239	25	0.0179	0.4550	0.1620	0.457
00 (2/0)	0.3650	9.2660	67.4300	190	26	0.0159	0.4050	0.1290	0.361
0 (1/0)	0.3250	8.2500	53.4900	150	27	0.0142	0.3610	0.1020	0.288
1	0.2890	7.3500	42.4000	119	28	0.0126	0.3210	0.0810	0.226
2	0.2580	6.5400	33.6200	94	29	0.0113	0.2860	0.0642	0.182
3	0.2290	5.8300	26.6700	75	30	0.0100	0.2550	0.0510	0.142
4	0.2040	5.1900	21.1500	60	31	0.0089	0.2270	0.0404	0.113
5	0.1820	4.6200	16.7500	47	32	0.0080	0.2020	0.0320	0.091
6	0.1620	4.1100	13.3000	37	33	0.0071	0.1800	0.0254	0.072
7	0.1440	3.6700	10.5500	30	34	0.0063	0.1600	0.0201	0.056
8	0.1280	3.2600	8.3700	24	35	0.0056	0.1430	0.0160	0.044
9	0.1140	2.9100	6.6300	19	36	0.0050	0.1270	0.0127	0.035
10	0.1020	2.5900	5.2600	15	37	0.0044	0.1130	0.0100	0.0289
11	0.0907	2.3000	4.1700	12	38	0.0040	0.1010	0.0080	0.0228
12	0.0808	2.0500	3.3100	9.3	39	0.0035	0.0897	0.0063	0.0175
13	0.0720	1.8300	2.6200	7.4	40	0.0032	0.0799	0.0050	0.0137
14	0.0641	1.6300	2.0800	5.9	41	0.0028	0.0711	0.0040	
15	0.0571	1.4500	1.6500	4.7	42	0.0025	0.0632	0.0031	
16	0.0508	1.2900	1.3100	3.7	43	0.0022	0.0564	0.0025	
17	0.0453	1.1500	1.0380	2.9	44	0.0020	0.0500	0.0020	
18	0.0403	1.0240	0.8230	2.3	45	0.0018	0.0447	0.0016	
19	0.0359	0.9120	0.6530	1.8	46	0.0016	0.0399	0.0013	
20	0.0320	0.8120	0.5180	1.5	47	0.0014	0.0355	0.0010	
21	0.0285	0.7230	0.4100	1.2	48	0.0012	0.0316	0.0008	
22	0.0254	0.6440	0.3260	0.92	49	0.0011	0.0281	0.0006	
23	0.0226	0.5730	0.2580	0.729	50	0.0010	0.0250	0.0005	

* all data without engagement

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