

Pitch	3.96mm
Special	Wire to Board
Type	DIP

Y396 Series

Connector 제품규격 Product Specification

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● 제,개정 이력 『History Revision』

NO	DATE	ISS.	CHK.	APP.	SUMMARY
1	2006.07.20	L.K.O	K.S.I	C.G.N	Presentation
2	2012.11.13	L.J.H	K.S.I	C.G.N	총합삼입력, 발거력 SPEC 변경



아래와 같이 사양 승인원을 제출합니다.

『Yeon Ho Electronics CO.,LTD. submits the approval certification of connector specification.』

1. 업체명 : (주)연호전자

『Manufactured by : Yeon Ho Electronics CO.,LTD.』

2. 기안부서 : 품질관리실

『Written by : Quality Control Department』

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PRODUCT SPECIFICATION

Y396 Series

1. 적용 범위 『Scope』

본 사양서는 (주)연호전자 제품 Y396 series DIP type connector에 한하여 적용한다.
『This specification covers the requirements for Y396 series DIP type connector』

2. 형명 구성 『Numbering System of Products(Ordering Information of Products)』

Y W 396 - NN V

Number of Circuits
Parts: Straight Wafer
Series Name

Y H 396 - NN VR

Number of Circuits
Parts : Housing
Series Name

YH396 - NN VRT(RE) Parts: Retainer

YT396 C - RT Parts: Terminal

3. 원재료 『Material』

Item	Material	Maker	Plated / Color
Wafer Material	PA66	Rhodia	Natural
Housing Material	PA66	LG Chem	White
Retainer Material	PA66	Rhodia	Red
Pin Material	Brass	Poong San	Tin plated
Terminal Material	Phosphor Bronze	Poong San	Tin plated

4. 정 격 『Ratings』

항 목 (Item)	정 격 (Standard Data)
정격 전압 (Operating Voltage)	AC/DC 250V
정격 전류 (Current Rating)	AC/DC 5A
사용 온도 (Operating Temperature)	- 25℃ ~ + 85℃
적용 전선 (Applicable Wire)	AWG #16 ~ #20
적합 PCB (Applicable P.C.B)	1.2 ~ 1.6 mm



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5. 성능 『Performance Characteristics』

NO.	시험항목 『Test Title』	시험 방법 및 조건 『Test Procedures/Methods Conditions』	규격 『Requirements』
1.	외관 치수 『Dimensions』		첨부 제품도에 준한다. 『Refer to drawings』
2.	전기적 성능 『Electrical Characteristics』		
2-1.	절연저항	<ul style="list-style-type: none"> 인접 Terminal(Contact)간에 DC 500V ±5V 전압을 1분±5초간 인가하였을 때 절연저항을 측정한다. (1회 측정에서 규격치 미달인 경우 3시간 이내 재측정) 	1000MΩ 이상
2-1.	Insulation Resistance	<ul style="list-style-type: none"> Measured between adjacent contacts Test voltage : DC 500V ±5V / 1 min ±5 sec (Based upon MIL-STD-202G Method 302 Condition B) 	1000MΩ MIN
2-2.	내전압	<ul style="list-style-type: none"> 인접한 Terminal간에 AC 1500V 전압을 1분±5초간 인가한다. 	절연파괴/섬락이 없고 사용상 결함이 없을 것
2-2.	Dielectric Withstanding Voltage	<ul style="list-style-type: none"> Measured between adjacent contacts Test voltage : AC 1500V / 1 min ±5 sec (Based upon MIL-STD-202G Method 301) 	No flash over and no physical damage shall be observed
2-3.	접촉저항	<ul style="list-style-type: none"> Terminal과 Wafer Pin간의 접촉저항 측정 20mV. 10mA 	30mΩ 이하
2-3.	Contact Resistance	<ul style="list-style-type: none"> Measured the resistance of mated connector, 20mV. 10mA 	30mΩ MAX
3.	물리적 성질 『Physical Characteristics』		
3-1.	납땀성	<ul style="list-style-type: none"> FLUX (ROSIN 10%, METHANOL 90%)에 5~10초 동안 담근 후 SnAg(3.5)Cu(0.7)의 Pot 납땀조 온도 (240℃ ±5℃)에 3초±0.5초 동안 침전시킨다. 	침전 부위의 납땀이 90% 이상일 것
3-1.	Solder Ability	<ul style="list-style-type: none"> Immersion in flux consisting of rosin 10% and methanol 90% for a period of 5 to 10 seconds dip in molten solder consisting of SnAg(3.5)Cu(0.7) at 240℃ ± 5 ℃degrees for 3 ± 0.5 seconds. 	More than 90% of area dipped in molten solder should be coated by solder
3-2.	납땀내열성	<ul style="list-style-type: none"> ※ WAVE TYPE ● 온도 260℃ ±5℃ 5±0.5초간 침적시킨다. 	외관 변형등이 없을 것
3-2.	Solder Heat Resistance	<ul style="list-style-type: none"> ※ WAVE TYPE ● Solder consisting : 260℃ ±5℃ degrees for 5±0.5 seconds 	Appearance : Good
3-3.	Pin유지력	<ul style="list-style-type: none"> ● 사출물(수지)이 Pin을 유지하고 있는 힘 측정 * Pin을 25±3mm/min 속도로 뺄 때의 힘을 측정한다. 	1.0Kgf 이상
3-3.	Pin Retention Force	<ul style="list-style-type: none"> ● Measured withdrawal force that resin grips and supports pin * Velocity of withdrawal : 25 ±3mm/min 	1.0Kgf MIN



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NO.	시험항목 『Test Title』	시험 방법 및 조건 『Test Procedures/Methods Conditions』	규격 『Requirements』		
			Pos	Push(Kgf)	Pull(Kgf)
3-4.총합삽입력 3-4.Total Insertion Force	<ul style="list-style-type: none"> 회로수가 같은 Housing Ass`Y에 Wafer Ass`Y를 삽입할 때의 힘 측정 Measured forces to insert wafer assembly into the housing assembly which has same circuits 	<ul style="list-style-type: none"> 결합된 Housing Ass`Y로부터 Wafer Ass`Y를 발거할 때의 힘 측정 Measured forces to withdraw wafer assembly from the housing assembly which has same circuits 	2	3.5 Max	0.15 Min
			3	4.0 "	0.20 "
4	4.5 "		0.25 "		
5	5.0 "		0.30 "		
6	5.5 "		0.35 "		
7	6.0 "		0.40 "		
8	6.5 "		0.45 "		
9	7.0 "		0.50 "		
10	7.5 "		0.55 "		
11	8.0 "		0.60 "		
12	8.5 "		0.65 "		
13	9.0 "		0.70 "		
14	9.5 "		0.75 "		
15	10.0 "		0.80 "		
3-5.총합발거력 3-5.Total Withdrawal Force	<ul style="list-style-type: none"> 결합된 제품 Housing Ass`Y과 Wafer Ass`Y의 삽입 및 분리 동작을 10회/분 속도로 30회 행한 후 접촉저항 측정. Measured contact resistance after 30 cycles of total insertion and withdrawal operation. Withdrawal Rate : 10th/min. 		접촉저항 : 50mΩ 이하		
3-6.Durability of Contact Resistance		Contact Resistance : 50mΩ MAX			
3-7.Terminal 삽입력 3-7.Insertion Force of Terminal	<ul style="list-style-type: none"> Housing을 고정시키고 Terminal을 25 ±3mm/min 속도로 일직선으로 삽입할 때의 삽입력 측정. Insert a terminal into the housing straightly and measure insertion force Velocity of insertion : 25 ±3mm/min 	1.0Kgf 이하			
3-8.Terminal 조립강도 3-8.Terminal Retention Force		1.0Kgf 이상			
3-9.압착강도 3-9.Crimp Tensile Strength	<ul style="list-style-type: none"> Terminal에 Lead Wire를 압착한후 압착부위(심선부위)가 파괴될 때까지 25 ±3mm/min 속도로 인장강도 측정. Measured tensile strength of the crimped contact (stripped wire barrel section of contact) to conductor joint 	AWG #16 : 4.0kgf MIN			
		AWG #18 : 3.5kgf MIN			
		AWG #20 : 3.0kgf MIN			



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NO.	시험항목 『Test Title』	시험 방법 및 조건 『Test Procedures/Methods Conditions』	규격 『Requirements』
4.	환경 시험 『Environmental Test』		
4-1.내진동성 시험	4-1.Vibration	<ul style="list-style-type: none"> ◎ DC 100mA 통전상태에서 진폭1.52mm 진동수 10-55-10HZ 진동 상태에서 X,Y,Z방향으로 각각 2시간씩 진동을 시킨 후 단전상태 및 접촉저항 측정 ◎ Current of 100mA shall be applied during the testing The vibration shall be along each axis for the period of two hours with the maximum amplitude of 1.52mm and frequency of 10-55-10Hz/Min (Based upon MIL-STD-202G Method 201A) 	1)접촉저항: 50mΩ 이하 2)단전상태: 1μ sec 동안 단전상태 없을것 1)Contact Resistance : 50mΩ MAX 2)Discontinue : 1μ sec MAX
4-2.염수분무 시험	4-2.Salt Spray	<ul style="list-style-type: none"> ◎ Connector를 결합한 상태에서 아래 조건으로 시험 후 흐르는 물에 세척 후 상온에서 4시간 방치 후에 특성을 측정한다. 조건: 염수농도 5% ±1% 염수분무 시간 48시간 ±4시간 시험온도 35℃ ±2℃ ◎ Measure after exposure to salt solution spray of 5 ±1% density at a temperature of 35℃ ±2℃ for 48hrs ±4hrs. after test wash and leave to dry (Based upon MIL-STD-202G Method 101E Condition B) 	1)접촉저항: 50mΩ 이하 2)외관: 흑녹현상 없을것 1)Contact Resistance : 50mΩ MAX 2)Appearance : Not black rust
4-3.내습성시험	4-3.Humidity	<ul style="list-style-type: none"> ◎ Connector를 결합한 상태에서 아래조건에 따라 시험을 행한 후 측정한다. 조건 : 시험조의 온도 40℃ ±2℃ 상 대 습 도 90% ~ 95% 시 험 시 간 96시간 ◎ Mated connector shall be left for 96 hours in an environment of 40 ±2℃, and 90 ~ 95% humidity. After the exposure the connector shall be left in an ambient condition for one hour before the measurement is done (Based upon MIL-STD-202G Method 103B Condition B) 	1)절연저항: 500MΩ 이상 2)접촉저항: 50mΩ 이하 3)외관 : 양호할 것 1)Insulation Resistance : 500MΩ MIN 2)Contact Resistance : 50mΩ MAX 3)Appearance : Good
4-4.내고온성 시험	4-4.Resistance to High Temperature	<ul style="list-style-type: none"> ◎ Connector를 결합한 상태에서 시험조의 온도 85 ±2℃에서 96시간 동안 시험 후 상온에서 30분간 방치 후 측정한다. ◎ Chamber temperature : 85 ±2℃ Exposed 30 minutes after being exposed 96 hours under the chamber temperature electrical characteristics were measured and tested (Based upon MIL-STD-202G Method 108A Condition A) 	1)접촉저항: 50mΩ 이하 1)Contact Resistance : 50mΩ MAX
4-5.내한성시험	4-5.Altitude Low Temperature	<ul style="list-style-type: none"> ◎ Connector를 결합한 상태에서 시험조의 온도 -40 ±3℃에서 96시간 동안 시험 후 상온에서 30분간 방치 후 측정한다. ◎ Chamber temperature : -40 ±3℃ Exposed 30 minutes after being exposed 96 hours under the chamber temperature electrical characteristics were measured and tested (Based upon JIS C60068-2-1) 	1)접촉저항: 50mΩ 이하 1)Contact Resistance : 50mΩ MAX



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NO.	시험항목 『Test Title』	시험 방법 및 조건 『Test Procedures/Methods Conditions』	규격 『Requirements』																														
4-6.	열충격시험 4-6. Thermal Shock	<p>◎ Connector를 결합한 상태에서 아래조건에 따라 5회 연속 시험을 행한 후 시험을 실시한다.</p> <table border="1" data-bbox="427 461 1131 591"> <thead> <tr> <th>단 계</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>온도(℃)</td> <td>-55 +0 -3</td> <td>25 +10 -5</td> <td>85 +3 -0</td> <td>25 +10 -5</td> </tr> <tr> <td>시간(분)</td> <td>30</td> <td>5</td> <td>30</td> <td>5</td> </tr> </tbody> </table> <p>◎ Mated connector shall be exposed five cycles as table #1 (Based upon MIL-STD-202G Method 107-A table #1)</p> <table border="1" data-bbox="427 696 1131 842"> <thead> <tr> <th>STEP</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Temperature (℃)</td> <td>-55 +0 -3</td> <td>25 +10 -5</td> <td>85 +3 -0</td> <td>25 +10 -5</td> </tr> <tr> <td>Exposed Time (MIN)</td> <td>30</td> <td>5</td> <td>30</td> <td>5</td> </tr> </tbody> </table>	단 계	1	2	3	4	온도(℃)	-55 +0 -3	25 +10 -5	85 +3 -0	25 +10 -5	시간(분)	30	5	30	5	STEP	1	2	3	4	Temperature (℃)	-55 +0 -3	25 +10 -5	85 +3 -0	25 +10 -5	Exposed Time (MIN)	30	5	30	5	<p>1)내전압: 절연파괴 및 섬락이 없고 사용상 결함이 없을 것 2)접촉저항: 50mΩ 이하 3)절연저항: 500MΩ 이상 4)외관 : 양호할 것</p> <p>1)Dielectric Strength : No flash over and no physical damage shall be observed 2)Contact Resistance : 50mΩ MAX 3)Insulation Resistance : 500MΩ MIN 4)Appearance : Good</p>
단 계	1	2	3	4																													
온도(℃)	-55 +0 -3	25 +10 -5	85 +3 -0	25 +10 -5																													
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Exposed Time (MIN)	30	5	30	5																													

6. 포장 및 식별방법 『Identification and Packing』

1) 포장 조건 『Packing Condition』 : Bulk Packing

2) 포장 방법 『Packing Method』 :

충분한 강도의 종이 BOX를 사용하여 충격을 방지하여 물리적 변형 또는 화학적 변화가 발생되지 않도록 하여야 한다.

『 Carton box for shipment must have enough strength in order to protect physical damage during transportation.』

3) 식별 표시 : 다음과 같은 사항을 제품포장 BOX에 명기한다.

『Identifications shall be marked as follows』

3-1. 제조회사, 제조자명 또는 상표 『Manufacture's LOGO』

3-2. 형명 또는 부품번호 『Part Number』

3-3. 수 량 『Quantity』

3-4. 제조 LOT NO 『Date Code』

3-5. 기타 상호 필요하다고 인정되는 사항

『Others agreed with manufacturer and customer』



7. 사용상 주의사항 『Caution for Use』

본 connector는 강(強)Lock 사양이므로, Connector 감합후의 Wire Harness의 부정확한 취급방향이나 과도하게 잡아당길 경우에는 납땜부의 파괴, Lock등 Connector자체의 파괴 또는 실장기판의 파괴등 Trouble를 발생시킬 가능성이 있습니다.

이와 같은 Trouble을 미연에 방지하고, Connector 성능을 충분히 내기 위해서는, Wire Harness를 취급할 때 다음과 같은 주의를 바랍니다.

『This connector is secure lock type, so the connector must be treated with care after mated. Incorrect handling direction and excessive pulling load to the wire harness may cause troubles which affect its performances such as degradation at solder tail, breakage of connector itself (lock devise, etc.) and a PCB for mounting. To prevent these troubles and make full use of connector's performances, special care should be taken on the following points when handling the wire harness.』

- 1) Connector에는 평소 Wire Harness 취급할 때, 인장하중 이외에 외력을 지속적으로 가하지 않는다.

『Do not apply an external force to a connector continuously except for pulling load and so on when handling wire harness as usual.』

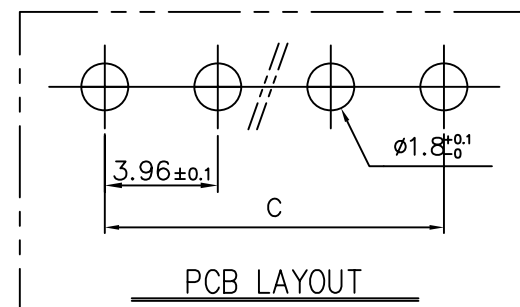
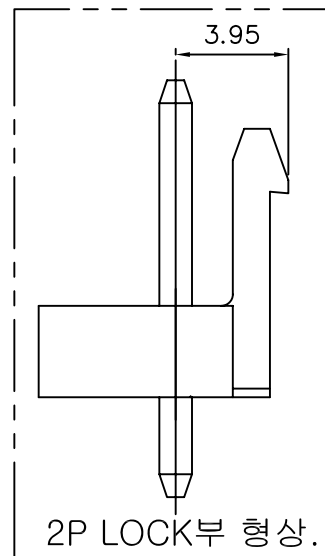
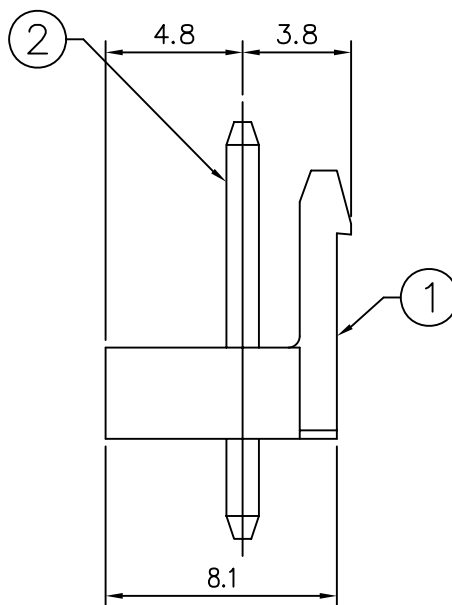
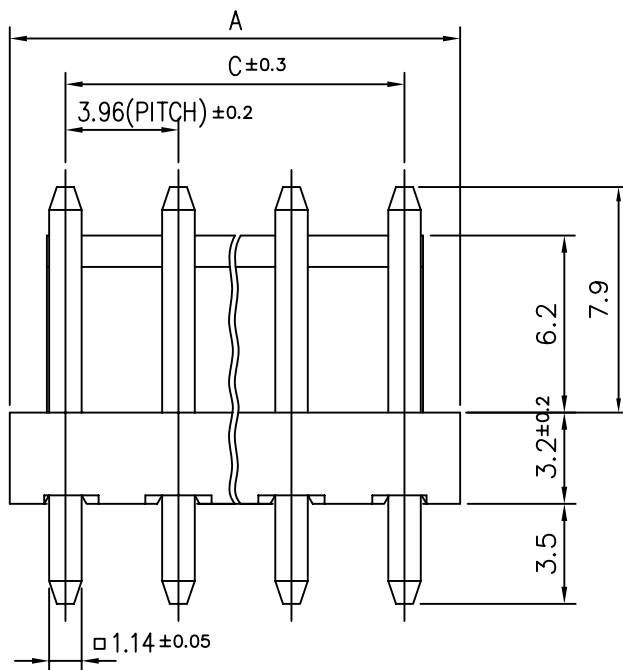
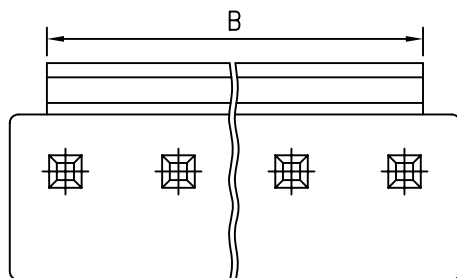
- 2) 전선에는 Connector의 삽발작업이 무리없이 이루어 질 수 있도록 “느슨하게” 설계하고 삽발작업은 감합축 선으로 한다.

『For the wire, make an appropriate looseness to mate and unmate the connector on the mating axis without strain.』

- 3) Connector에서 Wire Harness를 분리할 때에는 Lock을 완전히 해제하고 발거한다.

『When withdraw wire harness from the connector, Lock should be unlocked perfectly and withdraw.』



NOTE1. GENERAL TOLERANCE : ± 0.5

2. PART No.

YW396-NN V (*)

COLOR

표시없음--WHITE

BK ---BLACK

BL ---BLUE

YE ---YELLOW

RE ---RED

GR ---GREEN

PART NO.	A	B	C
✓ YW396-02V	7.86	5.26	3.96
✓ YW396-03V	11.82	9.22	7.92
✓ YW396-04V	15.78	13.18	11.88
✓ YW396-05V	19.74	17.14	15.84
✓ YW396-06V	23.70	21.10	19.80
✓ YW396-07V	27.66	25.06	23.76
✓ YW396-08V	31.62	29.02	27.72
✓ YW396-09V	35.58	32.98	31.68
✓ YW396-10V	39.54	36.94	35.64
✓ YW396-11V	43.50	40.90	39.60
✓ YW396-12V	47.46	44.86	43.56
✓ YW396-13V	51.42	48.82	47.52
YW396-14V	55.38	52.78	51.48
✓ YW396-15V	59.34	56.74	55.44

2	PIN	BRASS	TIN PLATED
1	WAFER BODY	NYLON 66	UL94 V-0
I/NO	DESCRIPTION	MATERIAL	REMARK
		TITLE	
		YW396-NNV	
SCALE	DRAWN	DESIGN	CHECK
5/1	J.J.H		K.S.N
	98.5.18		98.5.18
			APPD
SIZE	DWG. NO	REV	
A3	YW396-00V-S		

LTR

REVISION RECORD

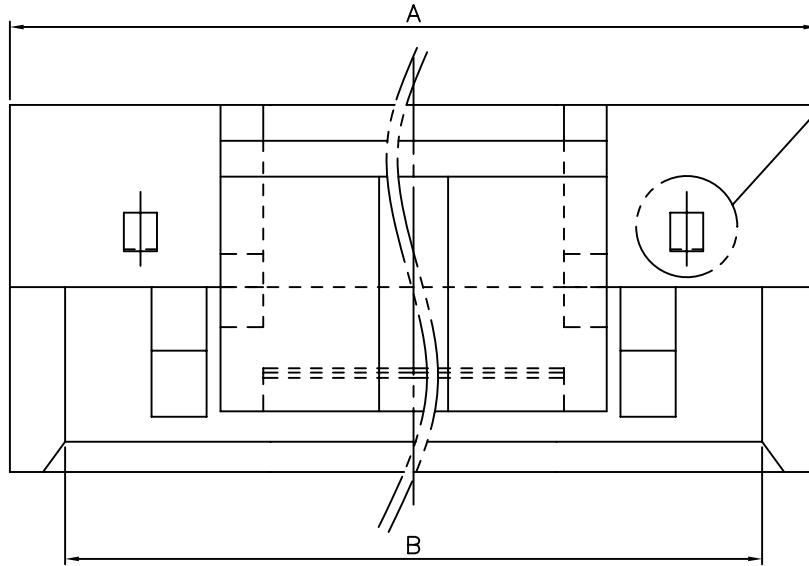
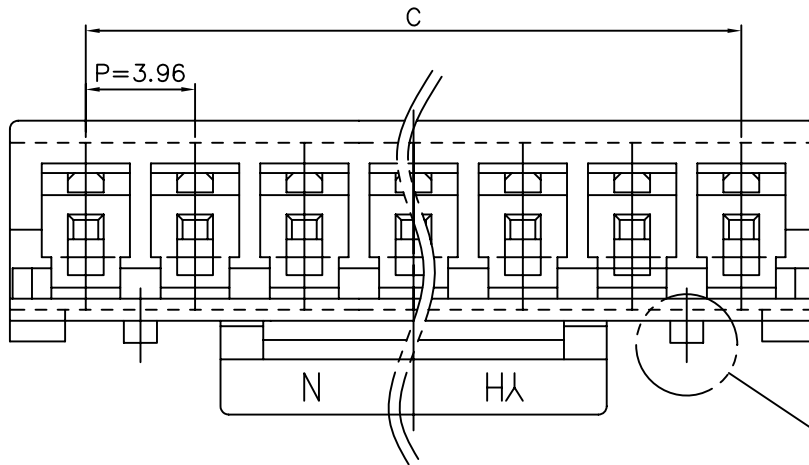
DR

CHK

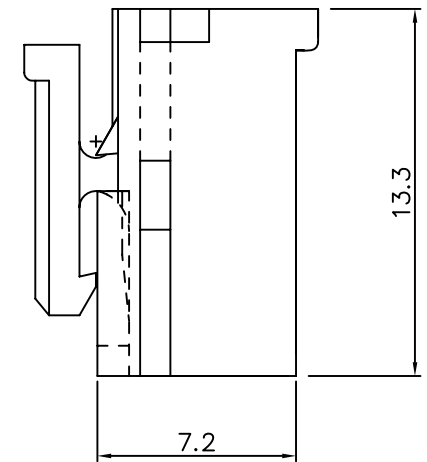
ECN

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POS	PART NO.	A	B	C
✓ 2	YH396-02VR	9.46	5.46	3.96
✓ 3	YH396-03VR	13.42	9.42	7.92
✓ 4	YH396-04VR	17.38	13.38	11.88
✓ 5	YH396-05VR	21.34	17.34	15.84
✓ 6	YH396-06VR	25.30	21.30	19.80
✓ 7	YH396-07VR	29.26	25.26	23.76
✓ 8	YH396-08VR	33.22	29.22	27.72
✓ 9	YH396-09VR	37.18	33.18	31.68
✓ 11	YH396-11VR	45.10	41.10	39.60
✓ 13	YH396-13VR	53.02	49.02	47.52
✓ 15	YH396-15VR	60.94	56.94	55.44



△ 형상추가(7P이상적용).



NOTE

- 일반공차 : ±0.3
- MATING PARTS
 - RETAINER: YH396-NNVRT
 - TERMINAL: YT396B-RT
- 형명구성 : YH396-NNVR(*)

COLOR _____
 없음 - WHITE
 BK - BLACK
 RE - RED
 BL - BLUE
 GR - GRAY

△	리테이너 유지력개선 형상추가.	07.08.07	K.K.S	J.J.H
△	원재료 변경	06.03.31	L.S.H	J.J.H
LTR	REVISION RECORD	DATE	DR	CHK
"본 도면은 연호전자의 지적재산이므로 임의 COPY 및 배포를 금합니다"				

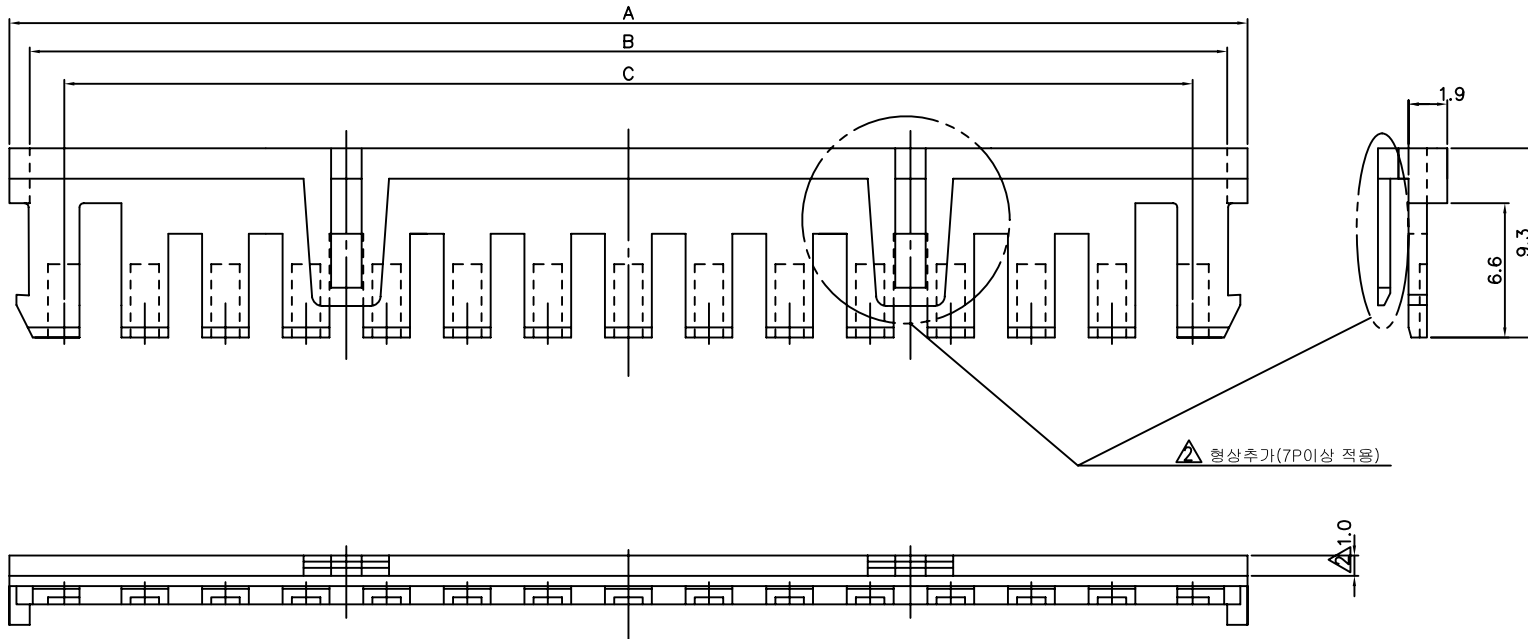
1	HOUSING	△ PA66 PBT		UL94V-0
I/NO	DESCRIPTION	MATERIAL	QTY	REMARK
		TITLE		
		YH396-NNVR		
SCALE	DRAWN	DESIGN	CHECK	APPD
5/1	05.12.12	K.K.S		
SIZE	DWG. NO			REV
A3	YH396-NNVR-S			02

PART NO.	△A	△B	△C
▽ YH396-02VRT	9.36	7.36	3.96
▽ YH396-03VRT	13.32	11.32	7.92
▽ YH396-04VRT	17.28	15.28	11.88
▽ YH396-05VRT	21.24	19.24	15.84
▽ YH396-06VRT	25.20	23.20	19.80
▽ YH396-07VRT	29.16	27.16	23.76
▽ YH396-08VRT	33.12	31.12	27.72
▽ YH396-09VRT	37.08	33.12	35.08
▽ YH396-11VRT	45.00	41.04	43.00
▽ YH396-13VRT	52.92	48.96	50.92
▽ YH396-15VRT	60.84	56.88	58.84
			31.68
			31.12
			39.04
			35.64
			46.96
			43.56
			51.48

NOTE

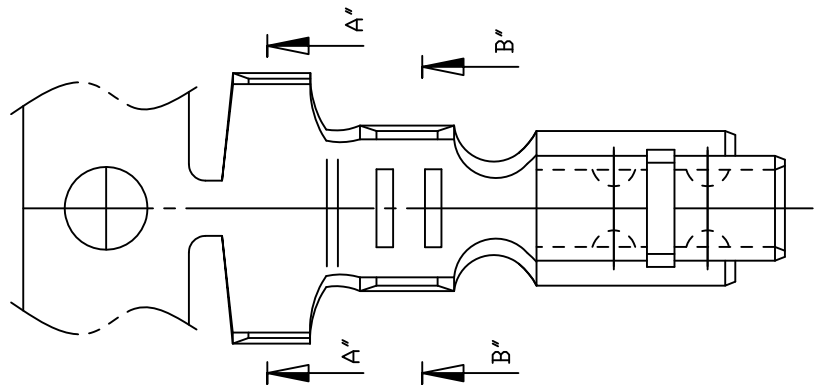
- 일반공차 : ±0.3
- MATING PARTS
 - HOUSING: YH396-NNVR
 - TERMINAL: YT396B-RT
- 형명구성 : YH396-NNVRT(*)

COLOR
RE - RED



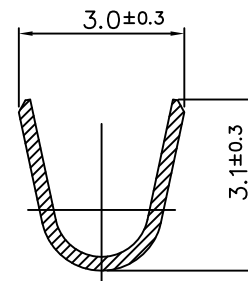
1	RETAINER	PA 66	UL94V-0	(RE)GF10%
I/NO	DESCRIPTION	MATERIAL	TREATMENT	QTY
YEONHO ELECTRONICS CO., LTD.			TITLE	
			YH396-NNVRT	
SCALE	DRAWN	DESIGN	CHECK	APPD
10/1	05.12.20	K.K.S		
SIZE	DWG. NO	REV		
A2	YH396-00VRT-S	02		

△	리테이너 유지력개선 형상추가.	07.08.07	K.K.S	J.J.H
△	치수 오타 수정	07.07.18	P.J.M	J.J.H
LTR	REVISION RECORD	DATE	DR	CHK

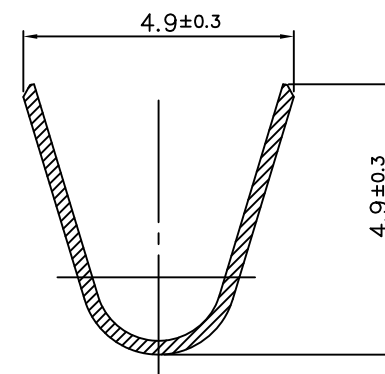
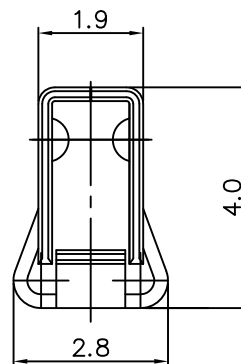
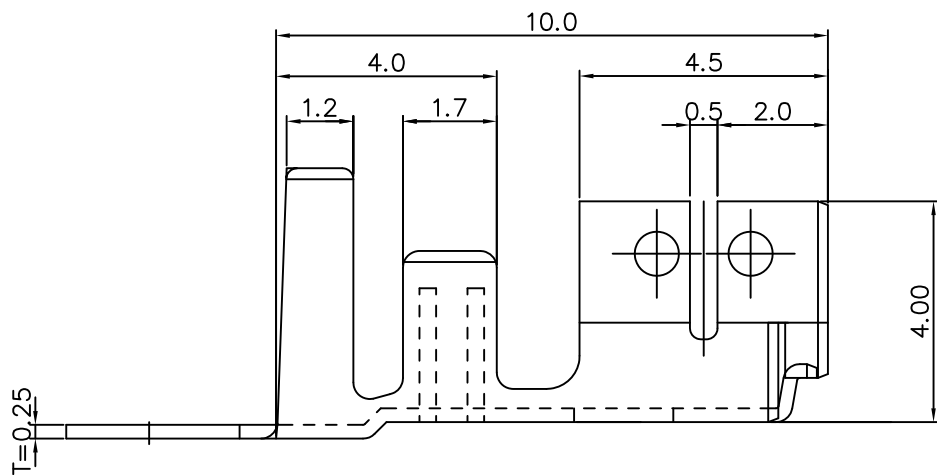


NOTE

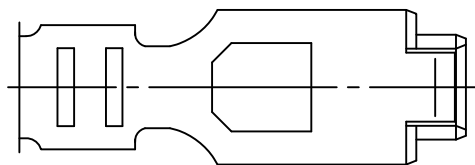
1. MATERIAL : KS D5506 Phosphor Bronze.
2. FINISH : TIN PLATED.
3. 사용전선 : AWG #16 ~ # 20
4. 피복외경 : $\phi 2.6 \sim \phi 3.1$
5. 관련부품
 - HOUSING : YH396-NNVR
 - WAFER : YW396-NNV.
 - TERMINAL : YT396C-RT
6. GENERAL TOL. : ± 0.2



SECTION B-B



SECTION A-A



1	TERMINAL	PHOSPHOR BRONZE		TIN PLATED
I/NO	DESCRIPTION	MATERIAL	QTY	REMARK
		TITLE		
		YT396C-RT		
SCALE	DRAWN	DESIGN	CHECK	APPD
10/1	11.07.13 J.H.J	11.07.13 J.J.H	11.07.13 K.J.K	
SIZE		DWG. NO		REV
A3		YT396C-RT-S		

LTR	REVISION RECORD	DR	CHK	ECN
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