



# PRODUCT SPECIFICATION

LANGUAGE

ENGLISH

## 【1. SCOPE】

This specification covers the 0.8 mm PITCH BOARD TO BOARD CONNECTOR series.

## 【2. PRODUCT NAME AND PART NUMBER】

Product Name	Part Number
Receptacle Housing Assembly	104249-0891
Embossed Tape Package for 104249-0891	104249-0810
Plug Housing Assembly	104250-0800
Embossed Tape Package for 104250-0800	104250-0820

REV.	0	1	A	
SHEET	1-12	1		
REVISE ON PC ONLY			TITLE:	
<b>A</b>	RELEASED		0.8 BB CONN. H=0.75 (ONLY POWER TERMINAL VER.) PRODUCT SPECIFICATION CONFIDENTIAL	
	'15/05/15 JHCHANG			
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**[3. RATINGS]**

Item	Standard	
Rated Voltage (MAX.)	50 V	
Rated Current (MAX.)	For 4 PINS	0.3A / 1PIN
	For 4 PINS	4.5A / 1PIN <sup>*3</sup>
Ambient Temperature Range <sup>*1</sup>	-40°C ~ + 85°C <sup>*2</sup>	
Storage condition after opening the Humidity prevention package	Temperature	-10°C~+50°C
	Humidity	85%R.H. MAX. (No condensation)
	Term	For 6 months after shipping (unopened package)

\*1. Non-operating connectors after reflow must follow the operating temperature range condition.

\*2. Including the terminal temperature rise generated by conducting electricity.

\*3. When 2 circuits are constructed via PWB/FPC circuit, 9A of current per 2-circuit is applicable. But the circuit via fitting nail shall not be acceptable for excessive temperature increase.

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**[4. PERFORMANCE]**

4-1. Electrical Performance

Item		Test Condition	Requirement
4-1-1	Contact Resistance	Mate connectors and measured by dry circuit, 20mV MAX., 10mA. MAX. (JIS C5402 5.4)	10 milliohm MAX. /PIN
4-1-2	Insulation Resistance	Mate connectors and apply 250V DC between adjacent terminal and ground. (JIS C5402 5.2/MIL-STD-202 Method 302)	100 Mega ohm MIN.
4-1-3	Dielectric Strength	Mate connectors and apply 250V AC (rms) for 1 minute between adjacent terminal and ground. (JIS C5402 5.1/MIL-STD-202 Method 301)	No Breakdown on function
4-1-4	Temperature Rise	Mate connectors and conduct the maximum rated current. (UL 498)	30 °C MAX.

4-2. Mechanical Performance

Item		Test Condition	Requirement	
4-2-1	Insertion and Withdrawal Force	Insert and withdraw connectors at the speed rate of 5cycle per minute.	Insertion	46.5 N MAX. {4.74 kgf}
			Withdrawal	10.0 N MIN. {1.02 kgf}
4-2-2	Terminal / Housing Retention Force	Apply axial pull out force at the speed rate of 25±3 mm/minute on the terminal assembled in the housing.	0.15N {0.015 kgf} MIN.	

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4-3. Environmental Performance and Others

Item		Test Condition	Requirement	
4-3-1	Repeated Insertion / Withdrawal	When mated up to 10 cycles repeatedly by the rate of 5 cycles per minute.	Contact Resistance	20milliohm MAX.
4-3-2	Vibration	Amplitude : 1.5mm P-P Frequency : 10~55~10 Hz in 1 minute. Duration : 2 hours in each X.Y.Z.axes. (MIL-STD-202 Method 201)	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.
			Discontinuity	1.0 microsecond MAX.
4-3-3	Mechanical Shock	490m/s <sup>2</sup> { 50G } , 3 strokes in each X.Y.Z.axes. (JIS C60068-2-27/MIL-STD-202 Method 213)	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.
			Discontinuity	1.0 microsecond MAX.
4-3-4	Heat Resistance	85±2°C, 96 hours (JIS C60068-2-2/MIL-STD-202 Method 108)	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.
4-3-5	Cold Resistance	-40±3°C, 96 hours (JIS C60068-2-1)	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.

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Item		Test Condition	Requirement	
4-3-6	Humidity	Temperature : 60±2°C Relative Humidity : 90~95% Duration : 96 hours (JIS C60068-2-3/MIL-STD-202 Method 103)	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.
			Dielectric Strength	Must meet 4-1-3
			Insulation Resistance	50 Mega ohm MIN.
4-3-7	Temperature Cycling	5 cycles of : a) - 55°C, 30 minutes b) + 85°C, 30 minutes (JIS C0025)	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.
4-3-8	Salt Spray	48±4 hours exposure to a salt spray from the 5±1% solution at 35±2°C. (JIS C60068-2-11/MIL-STD-202 Method 101)	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.
4-3-9	SO <sub>2</sub> Gas	Density of SO <sub>2</sub> gas : 50±5ppm Temperature : 40±2°C Duration : 24 hours	Appearance	No Damage on function
			Contact Resistance	20milliohm MAX.
4-3-10	Solderability	Soldering Time : 3±0.5 sec. Solder Temperature : 245±5 °C	Solder Wetting	95% of immersed area must show no voids, pin holes.

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Item		Test Condition	Requirement	
4-3-11	Resistance to Soldering Heat ( Soldering iron method )	0.2mm from terminal tip and fitting nail tip. Soldering time : 5 seconds MAX. Solder temperature : 350°C±10°C	Appearance	No Damage on function

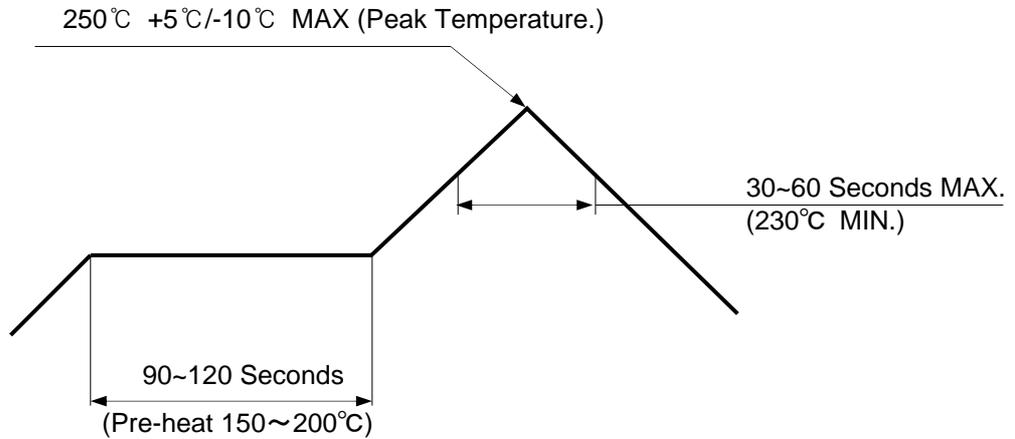
( ) : Reference Standard  
{ } : Reference Unit

**【 5 . PRODUCT SHAPE, DIMENSIONS AND MATERIALS 】**

Refer to the drawing.  
ELV AND RoHS COMPLIANT.

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**[6. INFRARED REFLOW CONDITION]**



**TEMPERATURE CONDITION GRAPH  
(TEMPERATURE ON BOARD PATTERN SIDE)**

NOTE; Please check the reflow soldering condition by your own devices beforehand.  
Because the condition changes by the soldering devices, PWB, and so on.  
Also please check mount condition in case of Nitrogen atmosphere.

**[7. INSTRUCTION UPON USAGE]**

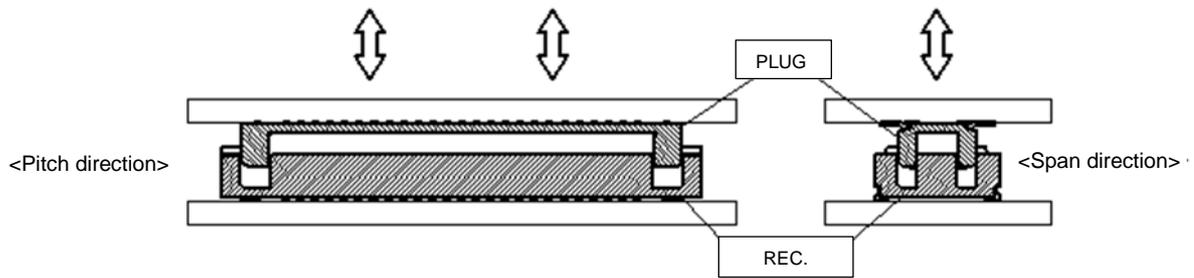
**[Mating]**

Please mate the connector with parallel manner. (Fig. 1)  
Please locate the inside wall of the rec. housing and the plug after mating.  
In the case of skew mating, please do not mate the connector at more than 10° lead in angle. (Fig. 2)  
Please do not mate the rec. and plug at an angle as this way, because the housing is broken. (Fig. 3)

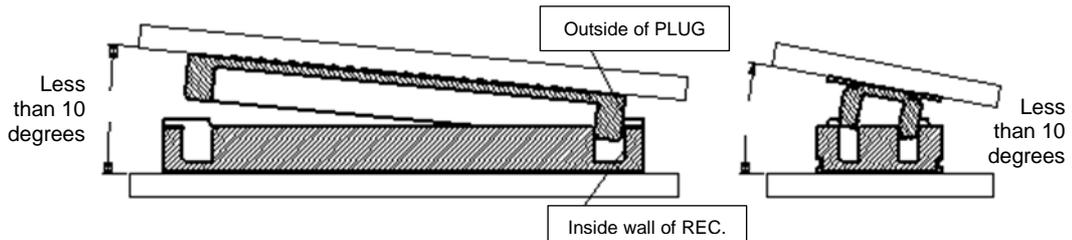
**[Un-mating]**

Please extract the connector with parallel manner (Fig. 1), or swing them right to left slightly. (Fig. 4)  
Please do not mate connector at an angle as this manner, because the housing might be broken.  
Please be very careful when extracting the connection at an angle.  
This many cause damage to the connector. (Fig. 5)  
(Please take care of twist extraction.)

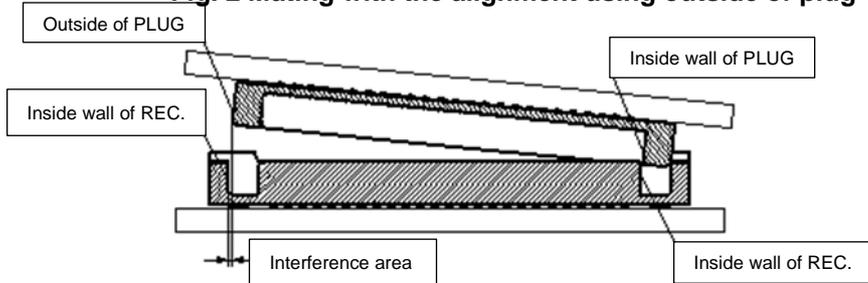
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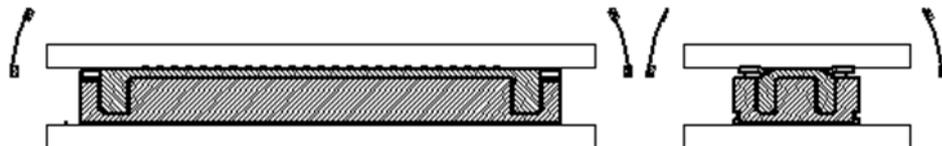
**Fig. 1 Mating & Un-mating in parallel manner (Ideal)**



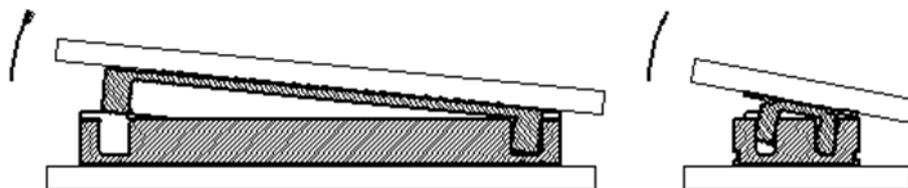
**Fig. 2 Mating with the alignment using outside of plug**



**Fig. 3 Mating with the alignment using inside of plug (Not preferred)**



**Fig. 4 Un-mating by shaking back or force**



**Fig. 5 Un-mating with one strong rotation (can damage connector)**

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**[11. OTHERS]**

1. Prohibit from applying an excessive load to the housing around terminals before mounting the connector onto PWB.
2. Please do not touch the terminals and fitting nails before or after mounting the connector onto PWB.
3. There may be slight differences in the housing coloring, but there will be no influence on the product's performance.
4. Specification is met although black spots, scratch on the housing, or a minim air bubble and so on may exist on mold resin.  
As LCP is used as the mold material, the weld lines may be visible in some cases. However, they do not affect product performance.
5. Please ensure that the connector is fully mated. After setting the connector and cable assembly in the device, please ensure that the connector does not become unengaged due to vibration and shock conditions. There may be case of coming off if mating is insufficient and connectors get an inclines of 5 degrees.
6. There is instruction of design the following.  
Please prepared without pattern area.  
When an excessive mounting gap occurs, there may be contact area solder wicking.
7. The mounting specification for coplanarity does not include the influence of warpage of PWB.  
The warpage of PWB should be a maximum of 0.02mm if measuring from one connector edge to the other.
8. This connector performance was tested based on using rigid epoxy-glass PWB.  
If you need to mount the connector on FPC, please make sure to conduct the reflow test in advance.
9. Recommend to place any stiffener board or film on the backside of FFC/FPC when you mount the connector to prevent deformation.  
Due to the low profile design, please be cautious to set the reflow condition to prevent solder wicking.
10. Fillet condition might be different depending on the mounting condition, please care of fillet condition of connectors.
11. There may be a case which changes housing color by depending on reflow conditions. However, it does not effect on connector performance.
12. There may be a case that the plated surface looks wavy by depending on reflow conditions. However, it does not effect on connector performance.
13. There is no influence in the product performance though discoloration might be seen in the soldering tail after the reflow. There is no solder on the top surface of tail in spec, and there is no influence in performance.

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14. Because this product has a cut off area on the tip of the terminal, the solderability performance in this area is not as good as compared to the side/back of the terminal. However, by building a good soldering fillet at the side/back of the terminal, there will be no issue on either the product function or the retention force of PWB.
15. If you leave any soldering area on this product open, there may be the possibility of a missing terminal short circuiting between pins, terminal buckling or the potential for the connector to come off of PWB. Therefore, please solder all of the terminals and fitting nails on PWB.
16. If there is accidental contact with the connector while it is going through the reflow machine, there may be deformation or damage caused to the connector. Please check to prevent this.
17. When conducting manual repairs using a soldering iron, please follow the soldering conditions shown in the product specification. If the conditions in the product spec are not followed, it may cause the terminals to fall off, a change in the contact gap, a deformation of the housing, melting of the housing, and damage the connector.
18. When conducting manual repairs with a soldering iron, please do not use excessive solder or flux than needed. This may cause solder wicking or flux wicking issues, also it may eventually cause a contact defect and functional issues.
19. Please do not stack up PWB directly after mounted the connector on it.
20. If an alternative solder past is used (other than Sn-Ag-Cu 96.5%-3%-0.5%), please ensure in advance that the solder ability and PWB peeling force will not have any issues.
21. Please do not use the connector in a condition where the wire, PWB, or the contact area is experiencing a sympathetic vibration of wires and PWB, and constant movement of devices. This may cause a defect in the contact due to the contact area being worn down. Therefore, please fix wires and PWB on the chassis, and reduces sympathetic vibration.
22. Please do not conduct any "washing process" on the connector because it may damage the product's function.
23. Please investigate the mounting condition (reflow soldering condition) on your own devices beforehand. The mounting conditions may change due to the soldering temperature, soldering paste, air reflow machine, Nitrogen reflow machine, and the type of PWB. The different mounting conditions may have an influence on the product's performance.
24. Please do not use the connector alone to provide mechanical support for PWB. Please ensure that there is a fixed structure on the phone chassis or other component support for PWB.
25. There should not be more than one board to board connection between two separate PWB. When mounting several board to board connectors between parallel PWB, please ensure to separate each mated board to board connectors by using separate PWB.
26. Please keep enough clearance between connector and chassis of your application in order not to apply any pressure on the connector.

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- 27. This product is not designed for the mating and un-mating of the connectors to be performed under the condition of an active electrical circuit. It may cause a spark and product defect if the connectors are mated and un-mated in this way.
- 28. After mated the connector, please do not allow PWB to apply pressure on the connector in either the pitch direction or the span direction. It may cause damage to the connector and may crack the soldering.
- 29. Due to the low profile design, there might be the flux going up to receptacle terminal beam part , anchor part and the other side of plug contacting part. However, it does not effect on connector performance.
- 30. To prevent excessive temperature increase, please make appropriate circuit design for PWB/FPC on which the connectors mount.
- 31. Notes of caution about wiring of power circuit
  - To prevent excessive temperature increase, please make appropriate circuit design for PWB/FPC on which the connectors mount.
  - The heat capacity of micro connector is very lower than PWB, so the temperature rise by power distribution depends on the wiring condition of PWB mainly. Also the reasonable dimension of wiring section on PWB is 1.0mm width x 35μm thickness in case of applying 1A.
  - It is possible to apply Max. 9A on this connector by shunting current to 2 power pins on PWB wiring. But the circuit via fitting nail shall not be acceptable for excessive temperature increase. In addition, the fitting nail in this product can't be acceptable for the electrical circuit.

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