1 Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of LCEDI wire to board connector.

This specification is adapted for all of the Pb free production of LCEDI wire to board connector,

2. Applicable Documents:

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 TE specifications

A. 109-5000 Test Specification, General Requirements for Test Methods

B. 501-99020 Test Report

C. 114-99000 Application specification

2.2 Commercial Standards and Specifications :

A. MIL-STD-202

B. EIA-364

3. Requirements :

3.1 Design and Construction :

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2 Materials :

A. Plug

1. Contact :

Material :Copper Alloy

Finish:

Contact area : Gold Plating

solder area : Gold Plating

Underplate : Nickel Plating

2. Plastic parts :

housing:

Material : High Temperature Thermo plastic

Flammability : UL94V-0

3. Metal parts :

Upper Shield , Lower Shield

Material :Brass

Finish:

Sn Plating all over.

Underplate : Nickel Plating

B. Receptacle

1. Contact :

Material :Copper Alloy

Finish:

Contact area : Gold Plating

solder area : Gold Plating

Underplate : Nickel Plating

2. Plastic parts :

housing:

Material : High Temperature Thermo plastic

Flammability : UL94V-0

3. Metal parts :

Solder Peg

Material :Brass

Finish:
Sn Plating all over.

Underplate : Nickel Plating

*Discoloration or changing to bright may happen during reflow process. However it's no impact for mechanical/electrical performance

3.3 Ratings :

A. Voltage Rating : 100 VAC

B. Current Rating : 0.3 A AC/DC[AWG#40](per a contact)
0.6 A AC/DC[AWG#38](per a contact)
0.8 A AC/DC[AWG#36](per a contact)
1.0 A AC/DC[AWG#28~34#](per a contact)

C. Temperature Rating : －20°C to 85°C

D. Reflow Peak Temperature: 260°C MAX.

3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements .All tests shall be performed in the room temperature, unless otherwise specified.

3.5 Test Requirements and Procedures Summary

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	Meets requirements of product drawing	Visual inspection No physical damage
		Electrical Requirements	
3.5.2	Termination Resistance (Low Level)	Initial Contact Contact….. 40 mΩ Max.. Ground…….. 50 mΩ Max. After testing Contact….. 40 mΩ Max (ΔR) Ground…… 40 mΩ Max (ΔR)	Subject mated contacts assembled in housing to closed circuit current of 10 mA Max. at open circuit voltage of 20mV Max. EIA-364-23 LLCR of wire should be deducted. As shown in Fig 1.
3.5.3	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage : 1 mA Max.	250VAC for 1 minute. Test between adjacent circuits of unmated connectors. MIL-STD-202 Method 301

3.5.4	Insulation Resistance	1000MΩ Min.(Initial) 500MΩ Min.(Final)	Impressed voltage 500 V DC. Test between adjacent circuits of unmated connectors. EIA-364-21
3.5.5	Temperature Rising	ΔT:30 °C Max. under loaded	Mate the plug and receptacle connector together, then apply rating current per contact. EIA-364-70 Test method 2
Mechanical Requirements			
Para.	Test Items	Requirements	Procedures
3.5.6	Vibration (Random)	No electrical discontinuity greater than 1 μ sec. shall occur. Contact resistance. ΔR=40 mΩ Max.	Subject mated connectors Vibration Frequency: 20 to 500 Hz Accelerated Velocity: 30.38m/s^2 (3.1G), rms. Vibration Direction: In each of 3 mutually perpendicular planes. Duration: 15 minutes each 100 mA applied. connector should be fixed on the test jig. EIA-364-28 Method Ⅶ condition D
3.5.7	Physical Shock (Normal test)	No electrical discontinuity greater than 1 μ sec. shall occur. ΔR=40 mΩ Max. (Final)	Accelerated Velocity: 490 m/s^2 (50 G) Waveform: Semi-Sine wave Duration: 11 m sec. Number of Drops: 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. EIA-364-27 Condition A
3.5.8	Mating/Un-mating Force	Mating Force 30P…….5.10 kgf Max 40P…….6.12 kgf Max Un-mating Force 30P…….0.51 kgf Min 40P…….0.61 kgf Min	Operation Speed: 25±3 mm/min. Solder the receptacle connector to the Test board, measure Mating/un-mating Force. EIA-364-13
3.5.9	Durability	ΔR=40 mΩ Max. (Final)	Repeated mating and un-mating of the connector for 30 cycles. EIA-364-9
3.5.10	Solder peg retention Force	Initial 204 gf Min After testing 153 gf Min	Operation Speed: 25±3 mm/min. Apply Force on solder peg along the direction opposite to the solder peg insertion.
3.5.11	Cable Retention Force	3.06 kgf Min	Operation Speed: 25±3 mm/min. Apply force on the cable along the direction, measure the force when the cable dislodges the plug connector.

3.5.12	Solderability	Wet Solder Coverage: 95 % Min.	Solder Temperature : 245± 5 ℃ Immersion Duration : 3±0.5 seconds Flux : Alpha 100
Environmental Requirements			
Para.	Test Items	Requirements	Procedures
3.5.13	Resistance to Reflow Soldering Heat	No physical damage shall occur	Test connector on P.C.B Temperature is measured on a soldering pad. Pre-Heat150～200℃: 60～180sec. Heat 217℃ Min.: 60～150sec. Heat Peak 260+0/-5℃ IPC/JEDEC J-STD-020C
3.5.14	Thermal Shock	ΔR=40 mΩ Max. (Final)	Mated connector －55 +0/-3℃ /30 min., 85 +3/-0℃ /5 min. Making this a cycle, repeat 5 cycles.
3.5.15	Humidity (Steady State)	Insulation resistance 500 MΩ Min. (Final) ΔR=40 mΩ Max. (Final) Dielectric withstanding Voltage Shall meet 3.5.3	Mated connector, 40±2℃, 90～95 R.H. 240 hours. MIL-STD-202, Method 103,Condition A.
3.5.16	Humidity (Cycling)	Insulation resistance 500 MΩ Min. (Final) ΔR=40 mΩ Max. (Final) Dielectric withstanding Voltage Shall meet 3.5.3	Mated connector, -10～65℃,90～95 R.H. 10 Cycle(240 hours.) MIL-STD-202, Method 106.
3.5.17	High Temperature Life	ΔR=40 mΩ Max. (Final)	Mated connector 85±2℃, Duration: 250 hours MIL-STD-202, Method 108,Condition B.
3.5.18	Gas	ΔR=40 mΩ Max.	Mated connector 25℃±2℃、75% R.H., 24hours H_2S: 10 ppm.
3.5.19	Salt Water Spray	ΔR=40 mΩ Max.	Mated connector 35℃±2℃ Salt water density:5±1% (by weight) Duration:48hours MIL-STD-202,Method 101,condition B

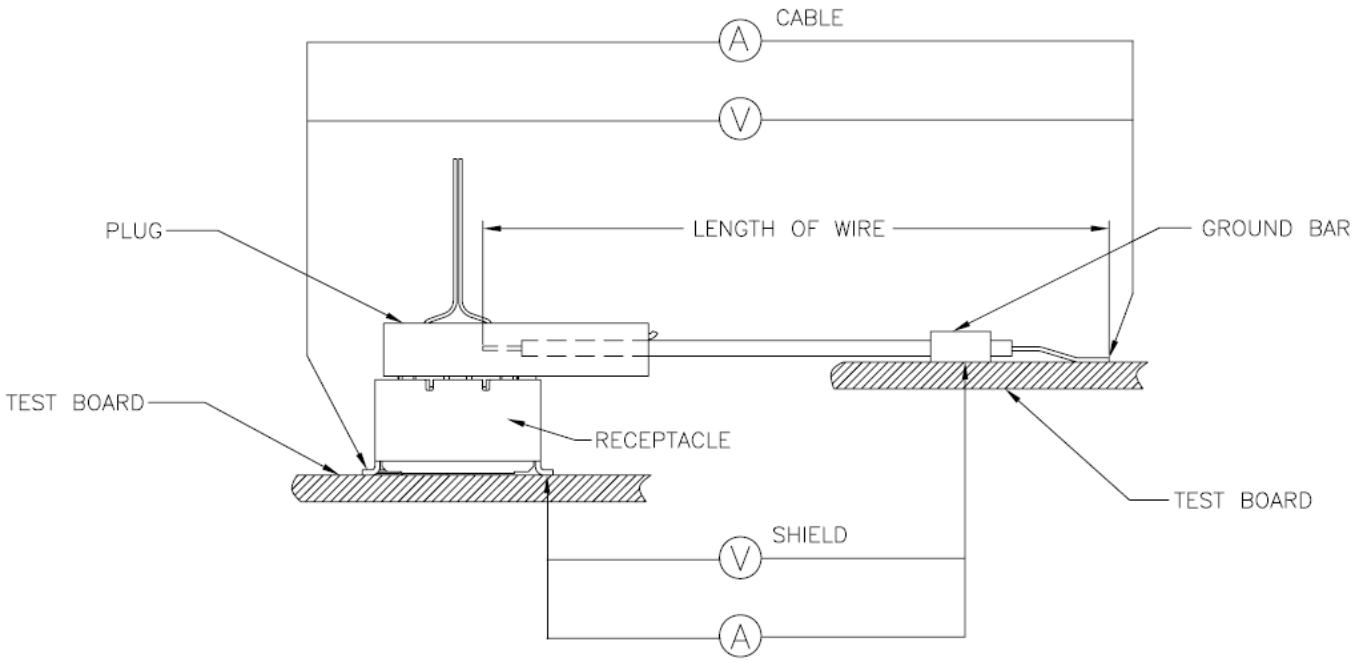

Fig.1 Contact Resistance Measurement

4.Product Qualification Test Sequence

Test Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product	1, 3	1, 7	1, 5	1, 7	1, 5	1, 5	1, 9	1, 5	1, 5	1, 3	1, 3
Termination Resistance (Low Level)		3, 5		2, 4, 6	2, 4	2, 4	2, 6	2, 4	2, 4		
Dielectric withstanding Voltage							3, 7				
Insulation Resistance							4, 8				
Temperature rising	2										
Vibration (Random)				3							
Physical Shock				5							
Mating/Un-mating Force		2									
Durability		4									
Solder peg retention Force			2, 4								
Cable Retention Force		6									
Solderability										2	
Resistance to Reflow Soldering Heat											2
Thermal Shock					3						
Humidity (Steady state)							5				
Humidity (Cycling)											
HighTemperature Life			3			3					
Gas									3		
Salt Water Spray								3			

Table 1

(a)Numbers indicate sequence in which the tests are performed.

(b)No electrical discontinuity shall occur.