PRODUCT SPECIFICATION

3 CIRCUITS BATTERY CONNECTOR

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1.0 SCOPE

This Product Specification covers the 2.0mm (pitch) battery connector

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

PRODUCT NAME	*PRODUCT NUMBER*
BATTERY CONNECTOR, 2.0MM PITCH	1050400001

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See sales drawing **SD-105040-001**

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Please refer to the Sales Drawings **SD-47618-001**, and other sections of this Specification for specific references to applicable documents and specifications. In cases where the Product Specification differs from the Sales Drawings, the Sales Drawing will take precedence

4.0 RATINGS

4.1 Voltage: 12V DC Max.

4.2 Current: 1.0A DC Max.

4.3 Operating temperature: - 40℃ to + 85℃

4.4 Storage temperature: - 40℃ to + 100℃

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Contact Resistance (Low Level)**	Mated connectors and measure by dry circuit, **20**mV Max. open circuit,**100**mA Max. Except wire conductor resistance. Per EIA - 364 -23	**50** milliohm Max.
2	**Insulation Resistance**	Unmated connectors and apply a voltage **500**V DC for **1** minute between adjacent terminals or ground. Per EIA -364-21	**500** Megohms Min.
3	**Dielectric Withstanding Voltage**	Unmated connectors and apply a voltage **500**V AC, 60Hz for **1** minute between adjacent terminals or ground Per EIA -364-20	No breakdown;
4	**Temperature Rise**	Mated connectors and measure temperature rise of contact when apply the rated current 1.0A Per EIA-364-70	30ºC Max.

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	**Normal Force**	Measure contact normal force at 1.1mm deflection, Per EIA-364-04	120±20gf
6	**Durability**	Mated and un-mated connectors up to **10000** cycles at a maximum rate of **500** cycles per hour. At 1.1mm deflection Per EIA-364-09	Without degradation of electrical characteristics
7	**Mechanical Shock**	Mated connectors and subject to the shock following conditions: 3 mutually perpendicular axis (±X, ±Y, ±Z), 3 shocks in each direction, total 18 shocks Test pulse: half sine Peak value: 100g's Duration: 6ms Per EIA-364-27	Still meet the mechanical and electrical characteristics & Discontinuity < **1** microsecond
8	**Vibration (Random)**	Mated connectors and subject to the following vibration conditions: Random Vibration 3 mutually perpendicularly. 50~2000Hz, 0.02g2/Hz; 15 min per plane Per EIA-364-28	Still meet the mechanical and electrical characteristics & Discontinuity < **1** microsecond
9	**Terminal Retention Force (in Housing)**	Axial pullout force on the terminal in the housing at a rate of **25 ± 3** mm per minute. Per EIA-364-29	**3.0** N Minimum retention force

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
10	**Thermal Shock**	Mated connectors and expose to **5** cycles of: Temperature ℃ Duration (Minutes) **-55 +0/-3** **30** Dwell **+25 +10/-5** **5** MAXIMUM **+85 +3/-0** **30** Dwell **+25 +10/-5** **5** MAXIMUM Per EIA-364-32	Still meet the mechanical and electrical characteristics & Appearance: no damage
11	**Temperature life**	Mated connectors and expose to **85 ± 2**°C for **96** hours, Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed Per EIA - 364 -17	Still meet the mechanical and electrical characteristics & Appearance: no damage
12	**Steady State Humidity**	Mated connectors at precondition 50□ for 24 hours and subject to the condition of 40□±2□ , 90%~95% RH for 96 hours Per EIA-364-31	Still meet the mechanical and electrical characteristics & Appearance: no damage
13	**Salt Spray**	Mated connector and expose to the following salt mist condition. Duration: **48** hours exposure; Atmosphere: salt spray from a **5±1**% solution; Temperature: **35 ±2°**C Per EIA-364-26	Still meet the mechanical and electrical characteristics & Appearance: no damage
14	**Solder-ability**	Dip solder tails into the molten solder held at **250±5°**C for 3 **±**0.5 sec. Per EIA-364-52	Solder coverage: **95**% Min
15	**Resistance to soldering Reflow heat**	Three through IR Profile*****	Appearance: No Damage to insulator material

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage see packaging drawing **PK-105040-001**

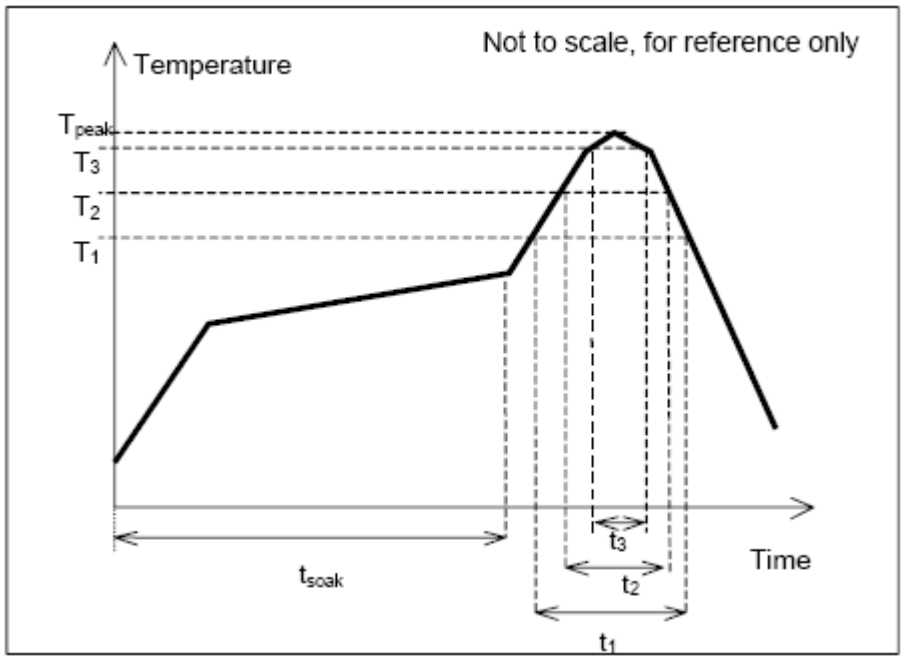
7.0 TEST GROUPINGS

Item	Description	A	B	C	D	E	F	G	H
1	Resistance to soldering Reflow heat	1	1	1	1	1	1		
2	Contact Resistance (LLCR)	2,5	3,6 8,10		2,4	3,5			
3	Insulation Resistance			3,6					
4	Dielectric Withstanding Voltage			2,7					
5	Temperature rise						2		
6	Normal Force		2,5			2,6			
7	Durability		4						
8	Mechanical Shock	3							
9	Vibration (Random)	4							
10	Retention Force								1
11	Thermal Shock		7	4					
12	Temperature life					4			
13	Humidity (Steady state)		9	5					
14	Salt Spray				3				
15	Solder-ability							1	
Sample Size		5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs

APPENDIX 1: Reflow soldering profile for soldering heat resistance testing

The reflow profile specified in this section describes expected maximum heat exposure of components during the reflow process of NMP product PWBs. Temperature is measured on top of component. All components have to tolerate at least this profile three times (3x) without affecting electrical performance, mechanical performance or reliability.

Pb-free reflow profile requirements for soldering heat resistance		
Parameter	**Reference**	**Specification**
Average temperature gradient in preheating		2.5℃/s
Soak time	t_{soak}	2-3 minutes
Time above 217℃	t_1	Max 60 s
Time above 230℃	t_2	Max 50 s
Time above 250℃	t_3	Max 10 s
Peak temperature in reflow	T_{peak}	255℃ (–0/+5℃)
Temperature gradient in cooling		Max -5℃/s



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