SPEC. NO.: PS-50972-xxxxx **REVISION:** C

PRODUCT NAME: 2.00MM BATTERY T/H R/A TYPE CONN

PRODUCT NO: **50972 Series; 50974 Series ;50967Series**
50968 Series ;50989Series; 51972Series

PREPARED:	CHECKED:	APPROVED:
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DATE: 2010/02/07	DATE: 2009/12/10	DATE: 2009/12/10

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1 Revision History

Rev.	ECN #	Revision Description	Approved	Date
1	ECN-0811200	FOR APD970361 INITIAL RELEASE	Jason	2008/11/25
O	ECN-0903269	RELEASE	Jason	2009/06/05
A	ECN-0903269	Add P/N.------50967 & 50968	Jason	2009/08/05
B	ECN-0912091	Add P/N.------50989	Jason	2009/12/10
C	ECN-0911134	Add P/N.------51972	Jason	2010/02/07

2 SCOPE

This specification covers performance, tests and quality requirements for 2.00mm pitch Battery R/A T/H R/A TYPE CONN

3 APPLICABLE DOCUMENTS

The following documents from a part of this specification to the extent specified here with. In the event of conflict between the requirements of the 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
EIA-364 Test methods for Electronic and Electrical component parts
EIA-364 Test methods for Electronic Connectors

4 REQUIREMENTS

4.1 Design and Construction

4.1.1 Product shall be of design, construction and physical dimensions specified on applicable product drawing.
4.1.2 All materials conform to R.o.H.S. and the standard depends on TQ-WI-140101.

4.2 Materials and Finish
4.2.1 Contact: High performance copper alloy
Finish: please refer to Customer drawing
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

4.3 Ratings
4.3.1 Voltage: 30V AC,DC
4.3.2 Current: 5.0A AC,DC
4.3.3 Operating Temperature : -40℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Contact Resistance	initial : 20 m Ω Max. after test: 40 m Ω Max.	Test between points A and B of the specimen assembled for actual use shown in the figure on the right side shall be measured under the following conditions and method (voltage: 20 mV max .test current :10mA DC)
Insulation Resistance	1000 M Ω Min. 500 M Ω Min.(Humidity& Thermal Shock test)	Unmated connectors, apply 500 V DC between adjacent terminals.
Dielectric Withstanding Voltage	No breakdown.	Test between adjacent contact for 1 minutes. Initial: 500 V AC After test: 500V AC(Humidity & Thermal Shock test).

Temperature rise	30℃Max.Change allowed	Mate connector (Per Contact): measure the temperature rise at rated current after:5A/Power contact. The temperature rise above ambient shall not exceed 30℃ the ambient condition is still air at25℃(EIA-364-70,METHOD2)
MECHANICAL		
Mating /Unmating Forces	Mating /Force: 0.25kg/f Max per pin Unmating/Force: 0.02kg/fMin per pin	contacts and a header shall be mated and unmated on the same axis. Initial Mating and Unmating forces and also Unmating force at 5000th shall be measured. . mating the plug conn vertically when the long terminal contact PIN hole,Then matting (Testing Speed：25.4 ± 3 mm/minute)
Contact Retention Force	0.4kg/f Min.	The end of a post(mating end)shall de pushed in a perpendicular to housing (Testing Speed：25.4 ± 3 mm/minute)
Lock Retention Force	0.4kg/f Min.	The end of a post(mating end)shall de pushed in a perpendicular to housing (Testing Speed：25.4 ± 3 mm/minute)

MECHANICAL		
Item	**Requirement**	**Standard**
Durability	Contact resistance shall be 40 mΩ Max. after the test.	A housing with crimped contacts and a head shall be mated and unmated. after repeated 5000 cycles, contact resistance shall be measured.
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28 Condition I)
Shock (Mechanical)	1 μs Max.	Subject mated connectors to 50G's(peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 10mA maximum for all contacts. (EIA-364-27, test Condition A)

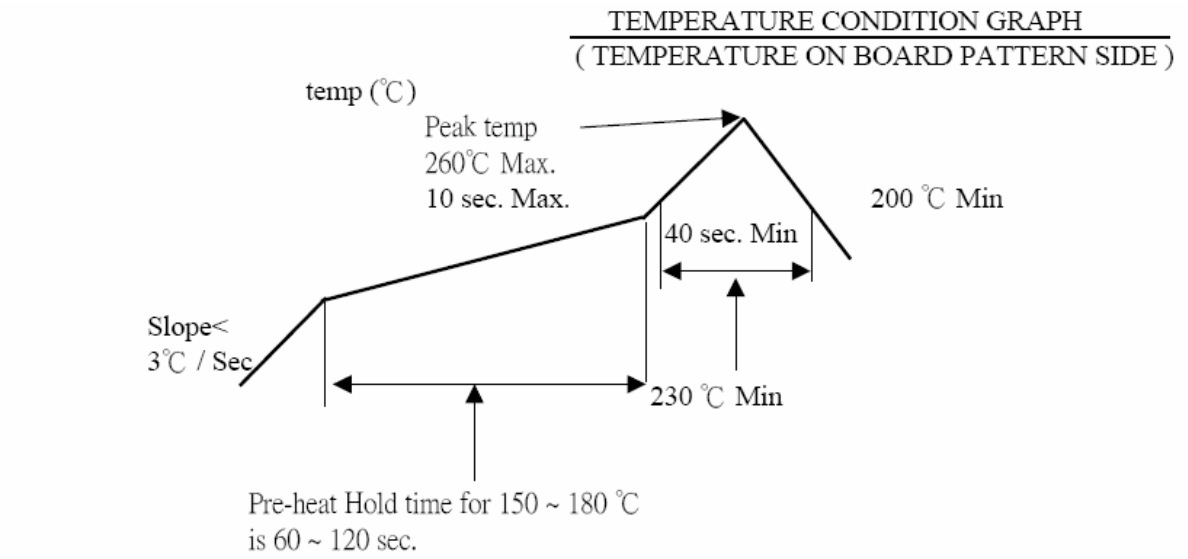
ENVIRONMENTAL		
Resistance to **Wave** Soldering Heat	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Solder Temp.： 260±5℃, 10±0.5sec.
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Pre Heat：150℃~180℃, 60~90sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -40 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, 96H Reefer to Method II. (EIA-364-31, Test condition A)
Temperature life	See product Qualification and test sequence group5	Subject mated connectors to temperature life at 85℃for 96 hours. Measure signal. (EIA-364-31, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ for 8 hours. (EIA-364-26,Test condition B)

Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)

Note. Flowing Mixed Gas shell be conduct by customer request.

6 INFRARED REFLOW CONDITION

6.1. Lead-free Process



7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group									
	1	2	3	4	5	6	7	8	9	10
	Test Sequence									
Examination of Product	1,3			1,7	1,6	1,4				1,4
Low-signal Level Contact Resistance		1,5	1,4	2,10	2,9	2,5				2,5
Insulation Resistance				3,9	3,8					
Dielectric Withstanding Voltage				4,8	4,7					
Temperature rise	2									
Mating / Unmating Forces		2,4								
Contact Retention Force								1		
Durability		3								
Vibration			2							
Shock(Mechanical)			3							
Resistance to Soldering Heat										3
Thermal Shock				5						
Humidity				6						
Temperature life					5					
Salt Spray						3				
Solder ability							1			
Lock Retention Force									1	
Sample Size	2	4	4	4	4	4	2	4	4	4