

**SPEC. NO.:** PS-50975-XXXXX-XXX

**REVISION:** Q

**PRODUCT NAME:** 2.00mm BATTERY CONN. R/A TYPE

**PRODUCT NO:** 50975,5098X,50969,5197X,53042,53041,5198X ,5199X,  
53010,53009,53024,53017,53018,53040,53032,54953,53047,  
53016,54960,53045,54965 SERIES

<b>PREPARED:</b>  LLJ  <b>DATE:</b> 2014/01/17	<b>CHECKED:</b>  ANDREW  <b>DATE:</b> 2014/01/17	<b>APPROVED:</b>  SIMON  <b>DATE:</b> 2014/01/17
---	---	---

TITLE: **2.00mm BATTERY CONN. R/A TYPE**

RELEASE DATE: 2014/01/17

REVISION: Q

ECN No: ECN-1311322

PAGE: **2** OF **9**

1	REVISION HISTORY .....	3
2	SCOPE.....	4
3	APPLICABLE DOCUMENTS .....	4
4	REQUIREMENTS .....	4
5	PERFORMANCE .....	5
6	INFRARED REFLOW CONDITION.....	8
7	PRODUCT QUALIFICATION AND TEST SEQUENCE.....	9

Aces P/N: **50975 SERIES**

TITLE: **2.00mm BATTERY CONN. R/A TYPE**

RELEASE DATE: 2014/01/17

REVISION:Q

ECN No: ECN-1311322

PAGE: **3** OF **9**

## 1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0905015	RELEASE (APD980006)	LIUWEI	2009/05/13
A	ECN-0906144	ADD 50986/50987 TYPE	JASON	2009/07/10
B	ECN-0908007	ADD 50969	JASON	2009/08/03
C	ECN-1003054	ADD 51975/51976	JASON	2010/03/02
D	ECN-1103041	APD1000051 RELEASE	BRAVE	2011/03/03
E	ECN-1110091	APD1000352 RELEASE	WANGLI	2011/10/18
F	ECN-1203313	ADD 53024 & 53017 TYPE	WENDE	2012/04/17
G	ECN-1206497	ADD 53042 53041TYPE	SHM	2012/06/28
H	ECN-1206539	ADD 53040 TYPE	XHX	2012/08/01
J	ECN-1207050	ADD 53032 TYPE	TANGENGHUI	2012/08/28
K	ECN-1212322	ADD 54953 & 53047 TYPE	XIAOXIONG	2012/12/20
L	ECN-1212172	ADD 53016 TYPE	YUXIANG	2013/01/29
M	ECN-1307003	ADD 54960 TYPE	JIAJIE	2013/07/04
N	ECN-1308330	ADD 53045 TYPE	FENGXIAO	2013/09/04
P	ECN-1310187	ADD 54965 TYPE	XUBIN	2013/11/16
Q	ECN-1311322	ADD 53018 TYPE	LLJ	2014/01/17

TITLE: **2.00mm BATTERY CONN. R/A TYPE**

RELEASE DATE: 2014/01/17

REVISION:Q

ECN No: ECN-1311322

PAGE: **4** OF **9**

## **2 SCOPE**

This specification covers performance, tests and quality requirements for **2.00mm pitch Battery Conn. R/A Type**.

## **3 APPLICABLE DOCUMENTS**

EIA-364 : ELECTRONICS INDUSTRIES ASSOCIATION

## **4 REQUIREMENTS**

### 4.1 Design and Construction

- 4.1.1 Connector shall be of the design, construction and physical dimensions specified on the applicable sales 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: Pls. refer to the drawing.
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.3 Board Lock: High performance copper alloy  
Finish: Pls. refer to the drawing.
- 4.2.4 Screw: High performance copper alloy  
Finish: Pls. refer to the drawing.

### 4.3 Ratings

- 4.3.1 Working Voltage Less than **36 Volts AC** (per pin)
- 4.3.2 Voltage: 30V AC,DC (per pin)
- 4.3.3 Current: 5.0A AC,DC (per pin)
- 4.3.4 Operating Temperature : **-40°C to +85°C**

TITLE: **2.00mm BATTERY CONN. R/A TYPE**

RELEASE DATE: 2014/01/17

REVISION: Q

ECN No: ECN-1311322

PAGE: **5** OF **9****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.
<b>ELECTRICAL</b>		
Item	Requirement	Standard
Low Level Contact Resistance	Initial: 20 m $\Omega$ Max. After test: 40 m $\Omega$ Max.	Mate connectors, measure by dry circuit, <b>20mV</b> Max., <b>100mA</b> Max. (EIA-364-23)
Insulation Resistance	500 M $\Omega$ Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No breakdown.	<b>500 V</b> AC Min. at sea level for <b>1</b> minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	30°C Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25°C (EIA-364-70, METHOD1, CONDITION1)
<b>MECHANICAL</b>		
Item	Requirement	Standard
Mating /Unmating Forces	Mating Force: <b>0.25kgf</b> Max / per pin Unmating Force: <b>0.02kgf</b> Min / per pin	Operation Speed : 25.4 $\pm$ 3 mm/minute. Measure the force required to mate/unmated connector. (EIA-364-13)

TITLE: **2.00mm BATTERY CONN. R/A TYPE**

RELEASE DATE: 2014/01/17

REVISION:Q

ECN No: ECN-1311322

PAGE: **6** OF **9**

Contact Retention Force	0.4kgf Min	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
Lock Retention Force	0.35kgf Min	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
Durability	5000 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min.
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)

TITLE: **2.00mm BATTERY CONN. R/A TYPE**

RELEASE DATE: 2014/01/17

REVISION:Q

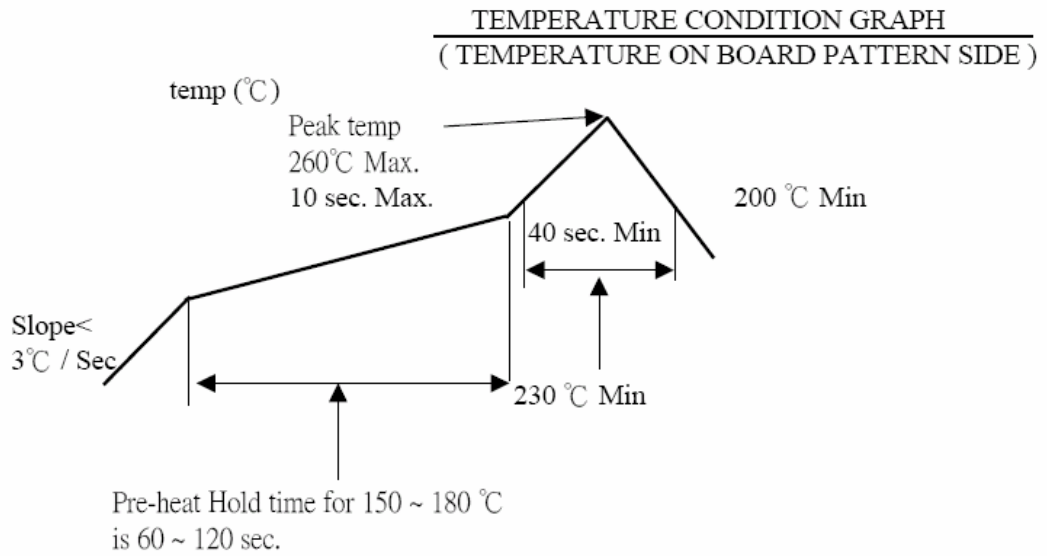
ECN No: ECN-1311322

PAGE: **7** OF **9****ENVIRONMENTAL**

Resistance to <b>Wave</b> Soldering Heat	See Product Qualification and Test Sequence Group 10 ( <b>Lead Free</b> )	Solder Temp. : 265±5℃, 10±0.5sec.
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 10 ( <b>Lead Free</b> )	Pre Heat : 150℃~180℃, 60~120sec. 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: -55+0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition I)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, 96 hours. (EIA-364-31,Condition A, Method II)
Temperature life	See product Qualification and test sequence group5	Subject mated connectors to temperature life at 85℃ for 96 hours. (EIA-364-17, Test condition A)
Salt Spray (Only For Gold Plating)	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ (I) <b>Gold flash for 8 hours</b> (II) <b>Gold plating 5 u" for 96 hours.</b> (EIA-364-26)
Solder ability	Tin plating: Solder able area shall have minimum of 95% solder coverage. Gold plating: Solder able area shall have minimum of 75% solder coverage	And then into solder bath, Temperature at <b>245 ±5℃</b> , for <b>4-5</b> sec. (EIA-364-52)
Hand Soldering Temperature Resistance	Appearance: No damage	T ≥ 350℃, 3sec at least.

**Note.** Flowing Mixed Gas shall be conduct by customer request.

## 6 INFRARED REFLOW CONDITION





TITLE: **2.00mm BATTERY CONN. R/A TYPE**

RELEASE DATE: 2014/01/17

REVISION: Q

ECN No: ECN-1311322

PAGE: **9** OF **9**

**7 PRODUCT QUALIFICATION AND TEST SEQUENCE**

Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product	1,3			1,7	1,6	1,4				1,4	1
Low 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 Hand Soldering Heat										3	
Thermal Shock				5							
Humidity				6							
Temperature life					5						
Salt Spray						3					
Solder ability							1				
Lock Retention Force									1		
Hand Soldering Temperature Resistance											2
Sample Size	2	4	4	4	4	4	2	4	4	4	4