

SPEC. NO.: PS-50971-xxxx

REVISION: 0

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

PRODUCT NO: 50971-xxxxx Series

APPROVED:  JASON  DATE: 2009/11/02	CHECKED:  SAM  DATE: 2009/11/02	PREPARED:  BRAVE  DATE: 2009/11/02
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TITLE: **2.00MM BATTERY CONN. R/A T/H TYPE**

RELEASE DATE: 10/01/08

REVISION: 0

ECN No: ECN-0910280

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Aces P/N: **50971series**

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## 1 Revision History

Rev.	ECN #	Revision Description	Approved	Date
1	ECN-0910280	NEW SPEC	Jason	2009/11/02
O	ECN-1001025	RELEASE	Jason	2010/01/08

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## 2 SCOPE

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

## 3 APPLICABLE DOCUMENTS

The following documents form 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

Connector shall be of the design, construction and physical dimensions specified on the applicable sales drawing. Aces' s P/N:50971 Series

### 4.1 Materials and Finish

4.1.1 Contact: High performance copper alloy  
Finish: please refer to Customer drawing

4.1.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

### 4.2 Ratings

4.2.1 Voltage: **30V AC,DC**

4.2.2 Current: **7.0 Amperes AC,DC**

4.2.3 Operating Temperature : **-40°C to +85°C**

## 5 Performance

### 5.1. Test Requirements and Procedures Summary

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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
Contact Resistance	initial : 20 m $\Omega$ Max. after test: 40 m $\Omega$ 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 $\Omega$ Min. 500 m $\Omega$ 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).

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Temperature rise	30°C Max.Change allowed	Mate connector :measure the temperature rise at rated current after:0.5A/Power contact. The temperature rise above ambient shall not exceed 30°C the ambient condition is still air at25°C(EIA-364-70,METHOD2)
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**MECHANICAL**

Mating /Unmating Forces	Mating /Force: <b>0.25kg/f Max per pin</b> Unmating/Force: <b>0.02kg/fMin per pin</b>	contacts and a header shall be mated and unmated on the same axis. Initial Mating and Unmating forces and also Unmating force at 5000 <sup>th</sup> shall be measured. . (Testing Speed : <b>25.4 ± 3</b> mm/minute)
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Contact Retention Force	<b>0.5kg/f Min.</b>	The end of a post(mating end)shall de pushed in a perpendicular to housing (Testing Speed : <b>25.4 ± 3</b> mm/minute)
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Lock Retention Force	<b>0.4kg/f Min.</b>	The end of a post(mating end)shall de pushed in a perpendicular to housing (Testing Speed : <b>25.4 ± 3</b> mm/minute)
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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 <b>10 and 55 Hz</b> . The entire frequency range, from <b>10 to 55 Hz</b> and return to <b>10 Hz</b> , 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)

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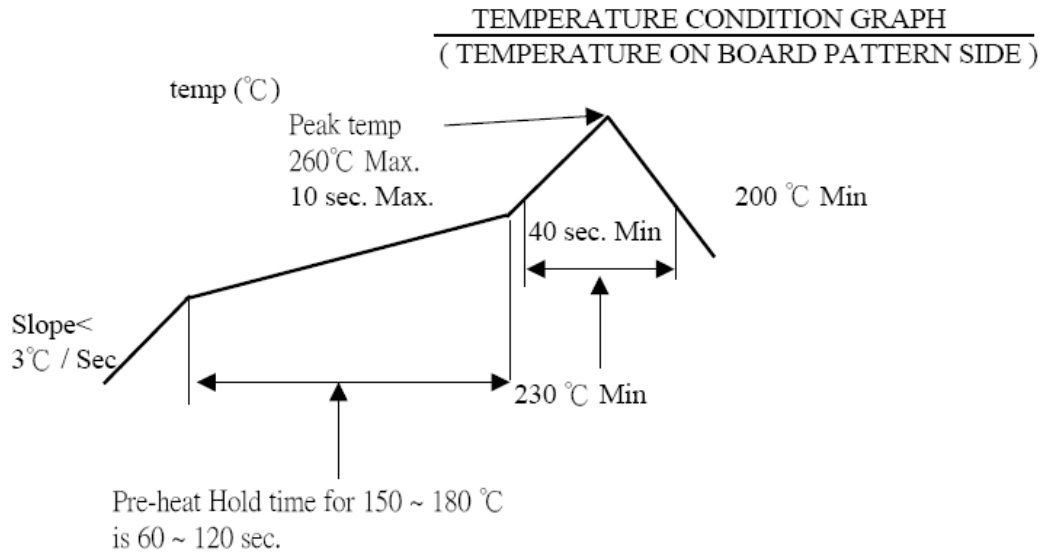
Resistance to <b>Wave</b> Soldering Heat	See Product Qualification and Test Sequence Group 10 ( <b>Lead Free</b> )	Solder Temp. : 260±5℃, 10±0.5sec.
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 10 ( <b>Lead Free</b> )	Pre Heat : 150℃~180℃, 60~90sec. Heat : 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 <b>48 hours</b> . (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 <b>245 ±5℃</b> , for <b>4-5</b> sec. (EIA-364-52)

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



## 6 INFRARED REFLOW CONDITION

### 6.1. Lead-free Process



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**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