



SPECIFICATION

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SPEC. NO.: PS-51973-XXXXX-XXX REVISION: 0

PRODUCT NAME: 2.50mm Pitch Battery Connector

PRODUCT NO: 51973 Series

PREPARED: BRAVE DATE: 2010.02.06	CHECKED: Sam DATE: 2010.02.06	APPROVED: Jason DATE: 2010.02.06
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RELEASE DATE: 2010.02.06

REVISION: 0

ECN No: 0911251

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: **51973 series**

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

1 Revision History

Rev.	ECN #	Revision Description	Approved	Date
O	ECN-0911251	RELEASE APD980446	Jason	2010.02.06

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ECN No: 0911251

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

2 SCOPE

This specification covers performance, tests and quality requirements for [2.50mm Pitch Battery Connector](#) .

3 APPLICABLE DOCUMENTS

EIA-364 **ELECTRONICS INDUSTRIES ASSOCIATION**

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 ([Phosphor Bronze](#))
Finish: Pls see Customer drawing.
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

4.3 Ratings

- 4.3.1 Voltage: [30 Volts AC \(per pin\)](#)
- 4.3.2 Current: [10Amperes \(Current:2 side contact only\)](#)
[6Amperes\(other contact\)](#)
- 4.3.3 Operating Temperature : [-20°C to +80°C](#)

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ECN No: 0911251

PAGE: **2** 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.
ELECTRICAL		
Item	Requirement	Standard
Low-signal Level Contact Resistance	30 m Ω Max.(initial)per contact ΔR 20 m Ω Max.	Mate connectors, measure by dry circuit, 20mV Max., 10mA Max. (EIA-364-23)
Insulation Resistance	1000 M Ω Min. (initial) 100 M Ω Min. (Final)	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	1000 V AC Min. at sea level for 1 minute. No discharge, flashover or breakdown. Current leakage: 1 mA max.	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 t stable. The ambient condition is still air at 25°C (EIA-364-70 METHOD 2)
MECHANICAL		
Item	Requirement	Standard
Durability	2000 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 \pm 3mm/min. (EIA-364-09)
Mating / Unmating Forces	Mating Force: 0.9Kgf Max.per pin Unmating Force: 0.03Kgf Min.per pin	Operation Speed : 25.4 \pm 3 mm/minute.. Measure the force required to mate/Unmate connector. (EIA-364-13)
Terminal / Housing Retention Force	0.5kgf MIN.	Apply axial pull out force at the speed rate of 25.4 \pm 3 mm/minute.

TITLE: 2.50MM PITCH BATTERY CONNECTOR

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REVISION: O

ECN No: 0911251

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

		On the terminal assembled in the housing.
Vibration	1 μ s 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 μ s Max.	Subject mated connectors to 50 G'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 100mA maximum for all contacts. (EIA-364-27, test condition A)

ENVIRONMENTAL

Item	Requirement	Standard
Resistance to Wave Soldering Heat	See Product Qualification and Test Sequence Group 9 (Lead Free)	Solder Temp. : 260 \pm 5 $^{\circ}$ C, 10 \pm 0.5sec.
Resistance to Reflow Soldering Heat	See Product Qualification and Test Sequence Group 9 (Lead Free)	Pre Heat : 150 $^{\circ}$ C~180 $^{\circ}$ C, 60~120sec. Heat : 230 $^{\circ}$ C Min., 40sec Min. Peak Temp. : 260 $^{\circ}$ C Max, 10sec Max.
Manual Soldering	Appearance:No damage	Temperature. : 350 $^{\circ}$ C \pm 5 $^{\circ}$ C, Duration :3 sec +1/0 sec
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 $^{\circ}$ C, 30 minutes +85 +3/-0 $^{\circ}$ C, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40 $^{\circ}$ C, 90~95% RH, Reefer to Method II.

TITLE: 2.50MM PITCH BATTERY CONNECTOR

RELEASE DATE: 2010.02.06

REVISION: 0

ECN No: 0911251

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

		(EIA-364-31, Test condition A)
Temperature life	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at 85°C for 96 hours . Measure Signal. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C . 1). Gold plated 5u" for 48 hours. 2). Gold plated 1u" for 8 hours. (EIA-364-26)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	And then into solder bath, Temperature at 245 ±5°C , for 4-5 sec. (EIA-364-52)

Note. Flowing Mixed Gas shall be conducted by customer request.

TITLE: **2.50MM PITCH BATTERY CONNECTOR**

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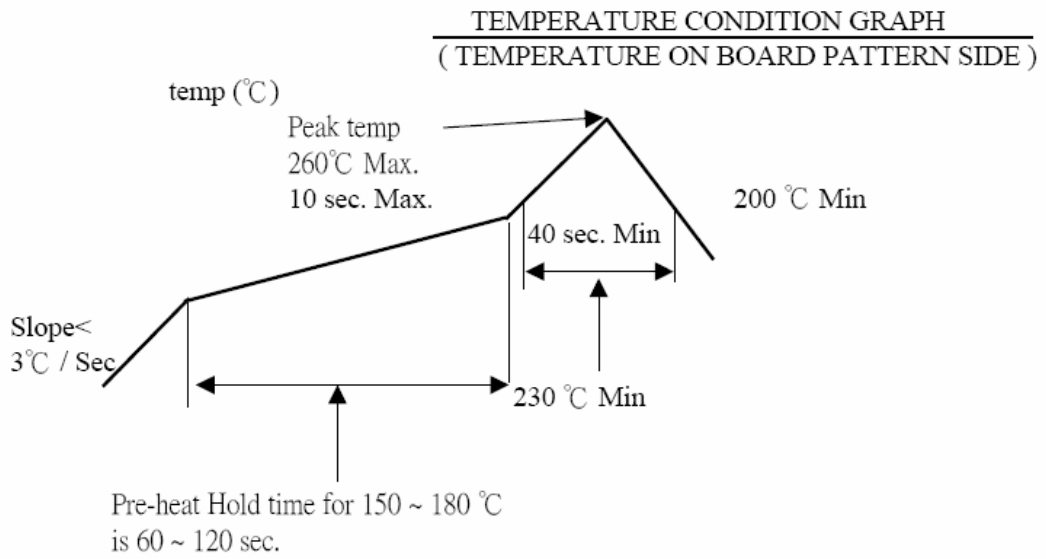
REVISION: 0

ECN No: 0911251

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

6 INFRARED REFLOW CONDITION

6.1. Lead-free Process



TITLE: **2.50MM PITCH BATTERY CONNECTOR**

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REVISION: 0

ECN No: 0911251

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

7 PRODUCT QUALIFICATION AND TEST SEQUENCE

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