

SPEC. NO.: PS-50976-xxxxx-xxx

REVISION: D

PRODUCT NAME: 2.50mm BATTERY CONN. R/A T/H TYPE

PRODUCT NO: 50976,51971,53021,53022,53035,53028 SERIES

| | | |
|--|---|---|
| PREPARED: CHENBO DATE: 2012/09/12 | CHECKED: CARL DATE: 2012/09/12 | APPROVED: JASON DATE: 2012/09/12 |
|--|---|---|

TITLE: **2.50mm BATTERY CONN. R/A T/H TYPE**

RELEASE DATE: **2012.09.12**

REVISION: **D**

ECN No: **ECN-1208336**

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Aces P/N: **50976 series**

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1 Revision History

| Rev. | ECN # | Revision Description | Prepared | Date |
|------|-------------|------------------------|-----------|------------|
| 1 | ECN-0903082 | APD970286 NEW RELEASE | Jason | 2009/03/17 |
| O | ECN-0909118 | RELEASE O | Jason | 2009/10/23 |
| A | ECN-1003233 | 51971 SERIES | Jason | 2009/11/23 |
| B | ECN-1202300 | ADD 53021,53022 SERIES | SHM | 2012/02/23 |
| C | ECN-1208386 | ADD 53035 SERIES | XIAOXIONG | 2012/09/12 |
| D | ECN-1208336 | ADD 53028 SERIES | CHENBO | 2012/09/12 |
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2 SCOPE

This specification covers performance, tests and quality requirements for **2.50mm Battery Conn. R/A T/H 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 Voltage: **30 V AC (per pin)**

4.3.2 Current: **5.0 Amperes (per pin)**

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

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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 Level Contact Resistance | 20 m Ω Max.(initial)per contact ΔR 20 m Ω Max. | Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23) |
| Insulation Resistance | 500 M Ω Min. | Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21) |
| Dielectric Withstanding Voltage | No discharge, flashover or breakdown. Current leakage: 1 mA max. | 500 V AC Min. at sea level for 1 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 METHOD 1,CONDITION 1) |
| MECHANICAL | | |
| Item | Requirement | Standard |
| 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 \pm 3mm/min. |
| Mating /Unmating Forces | Mating force: 0.25kgf Max/ per pin Unmating force: 0.02kgf Min/ per pin | Operation Speed : 25.4 \pm 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13) |

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| Contact Retention Force | 0.5kgf Min. | Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with tester. |
| Lock Retention Force | 0.4kgf Min. | Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing. |
| 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

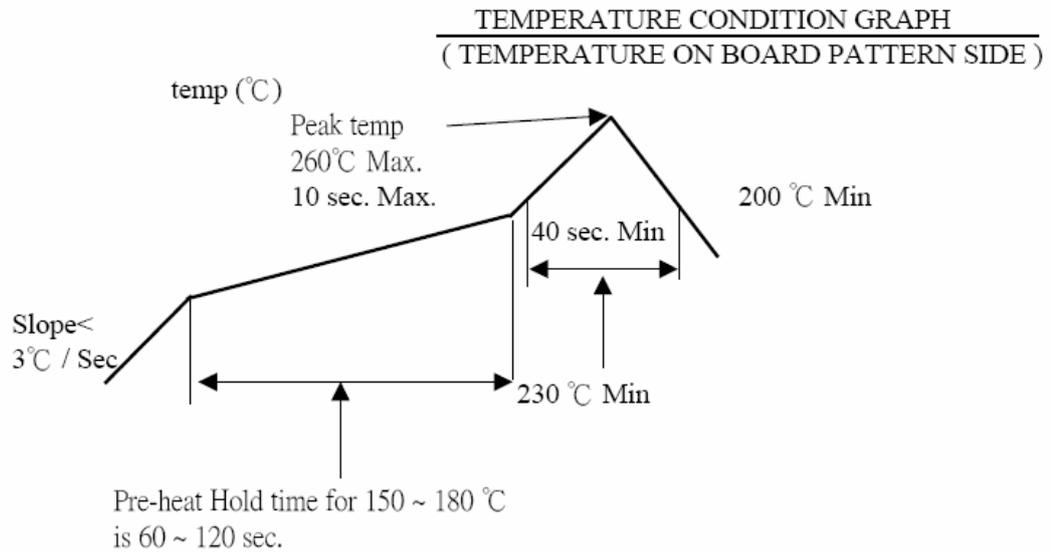
| Item | Requirement | Standard |
|-------------------------------------|--|--|
| Resistance to Wave Soldering Heat | See Product Qualification and Test Sequence Group 10 (Lead Free) | Solder Temp. : 260±5°C, 10±0.5sec. |
| Resistance to Reflow Soldering Heat | See Product Qualification and Test Sequence Group 10 (Lead Free) | Pre Heat : 150°C~180°C, 60~90sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max. |

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| 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 °C, 30 minutes +85 +3/-0 °C, 30 minutes (EIA-364-32, test condition I) |
| Humidity | See Product Qualification and Test Sequence Group 4 | Mated Connector 40°C, 90~95% RH, 96 hours. (EIA-364-31, Condition A, Method II) |
| Temperature Life | See product Qualification and test sequence group 5 | Subject mated connectors to temperature life at 85°C 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°C (I) Gold flash for 8 hours (II) Gold plating 5 u" for 96 hours. (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 245 ±5°C , for 4-5 sec. (EIA-364-52) |
| Hand Soldering Temperature Resistance | Appearance: No damage | T ≥ 350°C , 3sec at least. |

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

6 INFRARED REFLOW CONDITION



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 | |
| 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 Soldering Heat | | | | | | | | | | 3 | |
| Thermal Shock | | | | 5 | | | | | | | |
| Humidity | | | | 6 | | | | | | | |
| Temperature Life | | | | | 5 | | | | | | |
| Salt Spray(Only For Gold Plating) | | | | | | 3 | | | | | |
| Solder ability | | | | | | | 1 | | | | |
| Lock Retention Force | | | | | | | | | 1 | | |
| Hand Soldering Temperature Resistance | | | | | | | | | | | 1 |
| Sample Size | 2 | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 4 | 4 |