



PRODUCT SPECIFICATION

BATTERY CONNECTOR, 1.20MM HEIGHT, 1.60MM PITCH, DOUBLE ROW

1.0 SCOPE

This Product Specification covers the performance requirements of the Battery 1.20mm height 1.60mm pitch double row connector 78864 series.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name

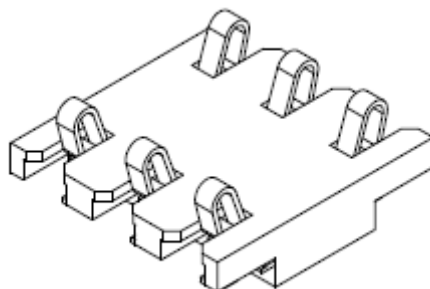
Series Number

BATTERY CONNECTOR, 1.20MM HEIGHT,
1.60MM PITCH, DOUBLE ROW

78864

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing RSD-78864-001 for information on dimensions, materials, platings and markings.



3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents form a part of this specification to the extended specified herewith. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence.

TENTATIVE RELEASE:

THIS SPECIFICATION IS BASED ON DESIGN OBJECTIVES AND IS STRICTLY TENTATIVE. PRELIMINARY TEST DATA MAY EXIST, BUT THIS SPECIFICATION IS SUBJECTED TO CHANGE BASED ON THE RESULTS OF ADDITIONAL TESTING AND EVALUATION.

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| REVISION: 1 | ECR/ECN INFORMATION: EC No: S2014-0076 DATE: 2013/08/01 | TITLE: BATTERY CONNECTOR ,1.20H, 1.60MM PITCH, DOUBLE ROW | SHEET No. 1 of 9 |
| DOCUMENT NUMBER: PS-78864-001 | CREATED / REVISED BY: Wang HL 2013/08/01 | CHECKED BY: Tan Johnson2013/08/27 | APPROVED BY: Lim Victor 2013/08/27 |



PRODUCT SPECIFICATION

4.0 RATINGS

4.1 CURRENT RATING

1.0 Amps Max. per pin

4.2 VOLTAGE RATING

10 Volt DC Max.

4.3 TEMPERATURE

Operating: - 40°C to + 85°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|-------------------------------------|--|---------------------------|
| 1 | Low Level Contact Resistance (LLCR) | Subject mated connector on test module (See Appendix A For test module setup), to a maximum voltage of 20mV and a current of 100mA. a) at 1.60mm working position; b) Flush to housing top surface. (EIA-364-23B) | Initial: 30 mΩ max |
| 2 | Insulation Resistance | Apply 500V DC voltage between adjacent terminals of the unmated connector. (EIA-364-21C) | 1000 MΩ minimum |
| 3 | Dielectric Withstanding Voltage | Apply Voltage of 100V AC between adjacent terminals of the unmated connector for 1 minute. (EIA-364-20B) | No voltage breakdown |
| 4 | Temperature Rise | Mated and measure the temperature rise of contact, when rated current is passed. (EIA-364-70 method 1) | 30°C max |

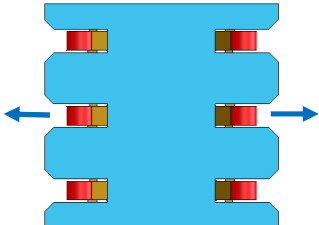
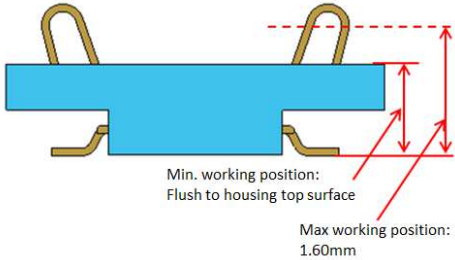
5.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|-------------|--|---|
| 5 | Durability | Subject terminals of connector on test module (See Appendix A For test module setup), to a max compression to housing surface (Flush to housing surface) 30 cycles at the speed rate of 10mm/minute. (EIA-364-09) | Appearance: no damage Contact resistance: 50 mΩ max |

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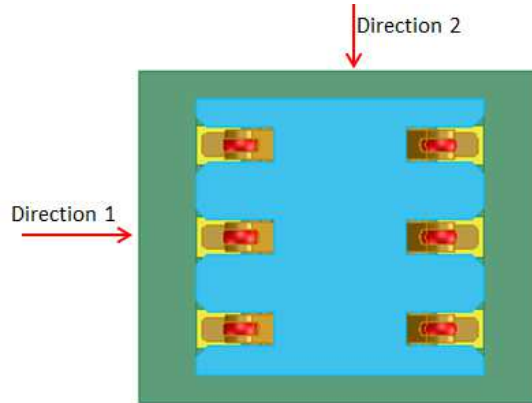
PRODUCT SPECIFICATION

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| 6 | Sinusoidal Vibration | Subject mated connector on test module. Amplitude: 1.52mm Frequency: 10-55-10Hz in 1 minute; 2 hours for each X, Y, Z axis, total 6 hours. (IEC 60068-2-64) | Appearance: no damage Contact resistance: 50 mΩ max Discontinuity <1 μs |
| 7 | Mechanical Shock | Subject mated connector on test module. Pulse shape half sine, peak acceleration 50G, pulse 11ms, 3 shocks in both directions in XYZ axis (18 shocks). (IEC60068-2-27Ea) | Appearance: no damage Contact resistance: 50 mΩ max Discontinuity <1 μs |
| 8 | Terminal Retention Force | Axial pullout force on the terminal from the housing (in the direction shown below) at a rate of 25.4 ± 6 mm per minute.  | 1N Min |
| 9 | Contact Normal Force | Subject connector to the below test conditions. (For test module setup, see Appendix A) Apply a perpendicular force to the contact in the direction indicated by arrow below. Rate at 12.5 ± 5mm per minute.  | 0.25N min. at max working position; 1.00N max at min. working position; |
| 10 | Peeling Off Force | Apply a load to the connector whole side surface parallel to the PCB in direction 1 and 2 (see figure below). | (5 x No. of Pin) N min. |

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PRODUCT SPECIFICATION



5.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|------------------------------|---|---|
| 11 | Steady State humidity | Expose mated connector to the condition of +60±2°C @ 90~95% Humidity for 96 hours. Recovery time 1~2 hours (EIA-364-31) | Appearance: no damage Contact resistance: 50 mΩ max |
| 12 | Low Temperature Life | Subject mated connector on test module to the condition of: a) -15°C for 2H; b) -40°C for 96H; c) -15°C for 2H; Return to normal temperature; Temperature change rate: 1°C/min Recovery: 2H. (IEC 60068-2-1) | Appearance: no damage Contact resistance: 50 mΩ max |
| 13 | High Temperature Life | Subject mated connector on test module to the condition of: a) +55°C for 2H; b) +85°C for 96H; c) +55°C for 2H; Return to normal temperature; Temperature change rate: 1°C/min Recovery: 2H. (IEC 60068-2-2) | Appearance: no damage Contact resistance: 50 mΩ max |

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PRODUCT SPECIFICATION

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| 14 | Thermal Shock | Subject mated connector on test module to the following condition for 26 cycles. a) -55°C for 30 minutes b) +25°C for 5 minutes c) +85°C for 30 minutes d) +25°C for 5 minutes Transit time shall be within 3 minutes, Recovery time 1~2 hours (IEC 60068-2-14Na) | Appearance: no damage Contact resistance: 50 mΩ max |
| 15 | Solderability | Solder paste is deposited on a ceramic plate via stencil. The connectors are steam aged and placed onto the solder paste print. The substrate is processed through a forced hot convection oven. The connectors are removed from the ceramic and inspected. Steam Aging: 1 hour (ANSI-J-STD 002) | Solder coverage = 95% minimum |
| 16 | Resistance to Soldering Condition | Soldering profile: See graph below. (JEDEC std J-STD-020C) | No damage After 2 times of reflow |

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in reels inside boxes. For details, kindly refer to Packaging spec PK-78864-001 and Sale drawing RSD-78864-001.

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PRODUCT SPECIFICATION

7.0 TEST SEQUENCES

| Group Number | 1(See note) | | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------------------|-------------|-----|---|-------|---|----|--------|-------|---|
| | 1a | 1b | | | | | | | |
| LLCR | 2,5 | 2,4 | | 2,4,6 | | | 2,6,10 | 2,4,6 | |
| Insulation Resistance | | | | | | | 3,7,11 | | |
| Dielectric Withstanding Voltage | | | | | | | 4,8,12 | | |
| Temperature Rise | | | 2 | | | | | | |
| Durability | 4 | 3 | | | | | | | |
| Sinusoidal Vibration | | | | 3 | | | | | |
| Mechanical Shock | | | | 5 | | | | | |
| Terminal Retention Force | | | | | 1 | | | | |
| Contact Normal Force | 3,6 | | | | | | | | |
| Peeling Off Force | | | | | | 2 | | | |
| Steady State Humidity | | | | | | | 5 | | |
| Low Temperature Life | | | | | | | | 3 | |
| High Temperature Life | | | | | | | | 5 | |
| Thermal Shock | | | | | | | 9 | | |
| Solderability | | | | | | | | | 1 |
| Resistance to soldering reflow heat | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | |
| Sample Size | 5 | 5 | 5 | 5 | 5 | 10 | 5 | 5 | 5 |

Note:

Group 1a measure LLCR at 1.60mm working position, Group 1b measure LLCR on housing top surface.

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| Screen Test Group Number | 1(See note) | | 2 | 3 | 4 |
|-------------------------------------|-------------|-----|---|----|---|
| | 1a | 1b | | | |
| LLCR | 2,5 | 2,4 | | | |
| Insulation Resistance | | | | | |
| Dielectric Withstanding Voltage | | | | | |
| Temperature Rise | | | | | |
| Durability | 4 | 3 | | | |
| Sinusoidal Vibration | | | | | |
| Mechanical Shock | | | | | |
| Terminal Retention Force | | | 1 | | |
| Contact Normal Force | 3,6 | | | | |
| Peeling Off Force | | | | 2 | |
| Steady State Humidity | | | | | |
| Low Temperature Life | | | | | |
| High Temperature Life | | | | | |
| Thermal Shock | | | | | |
| Solderability | | | | | 1 |
| Resistance to soldering reflow heat | 1 | 1 | | 1 | |
| Sample Size | 5 | 5 | 5 | 10 | 5 |

Note:

Group 1a measure LLCR at 1.60mm working position, Group 1b measure LLCR on housing top surface.

| | | | |
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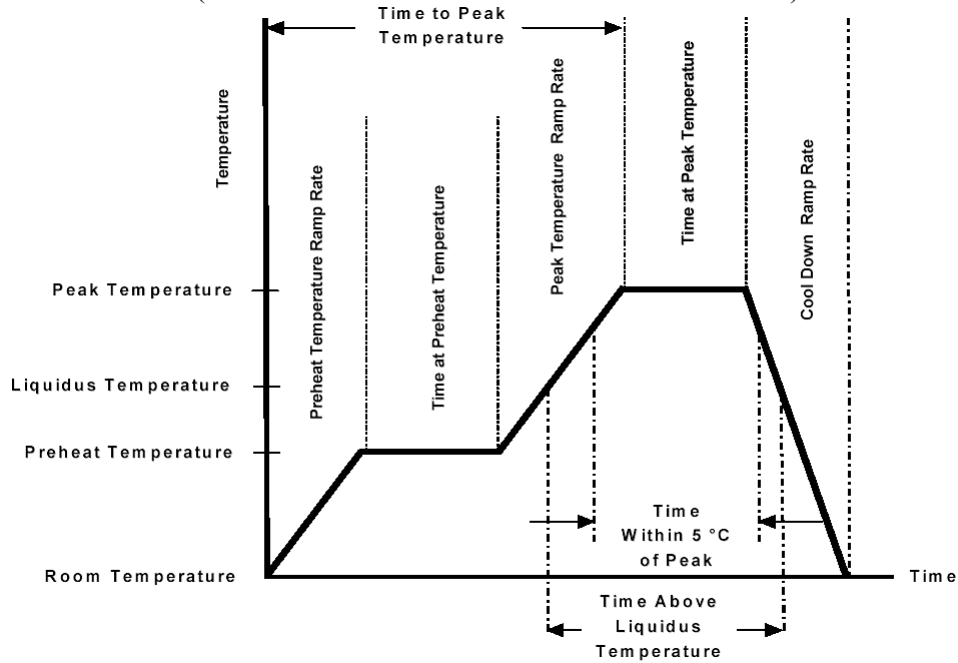


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9.0 SOLDERING PROFILE

Lead-free reflow profile requirement for solderability testing

TEMPERATURE CONDITION GRAPH
(TEMPERATURE ON BOARD PATTERN SIDE)



| Description | Requirement |
|----------------------------|------------------------|
| Average Ramp Rate | 3°C/sec Max |
| Preheat Temperature | 150°C Min to 200°C Max |
| Preheat Time | 45 to 180 sec |
| Ramp to Peak | 3°C/sec Max |
| Time over Liquidus (217°C) | 60 to 150 sec |
| Peak Temperature | 245 +0/-5°C |
| Time within 5°C of Peak | 20 to 40 sec |
| Ramp - Cool Down | 6°C/sec Max |
| Time 25°C to Peak | 8 min Max |

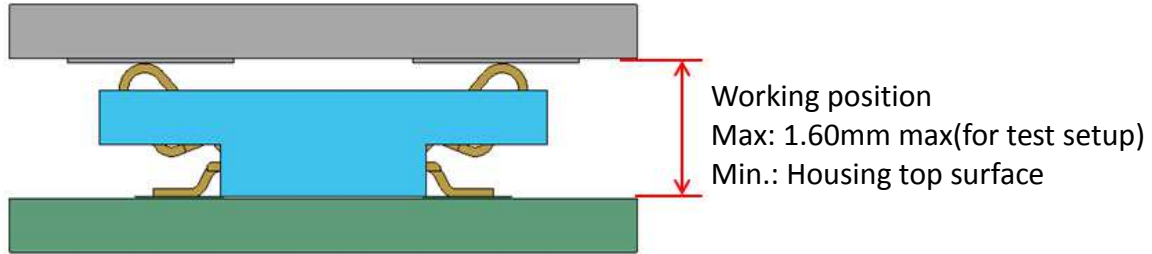
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PRODUCT SPECIFICATION

APPENDIX A:

Test Module Setup



| | | | |
|--|--|--|---|
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