# Product specification

## 1. Scope

This specification applies to the power module connector, specifying the product's performance indicators, test methods and test requirements.

Applicable Product Model: F00MPC-P13SD850-01/ F00MPC-S13SD850-01/ F0CLCT-05004190-01/ F0P0CT-05004190-01/ F0P0CT-00801010-01/ F0CLCT-00801010-01

## 2. Applicable Standards

The following documents form a part of this specification. In the event of conflict between the requirements of this 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.

## 3. Parameter Range

| Parameter Name | Value & Unit |
|---|---|
| Rated Voltage | 200V AC/DC for Signal Pin<br>1000V AC/DC for Power Pin |
| Rated Current | 3.0A for Signal Pin<br>85A for Power Pin |
| Operating Temperature | -55℃~+125℃(including terminal temperature rise) |
| Applicable Wire Gauge | 22 AWG for Signal Pin<br>6 AWG for Power Pin |

## 4. Appearance and Dimensions

4.1 Appearance: Product surface without defect、dirt、crack、and mechanical damage, Contacts without rust; plating without oxidation and peeling

4.2 Appearance and dimensions shall comply with the requirements of product drawings.

4.3 Exchangeable: Exchangeable with same specification products

## 5. Materials

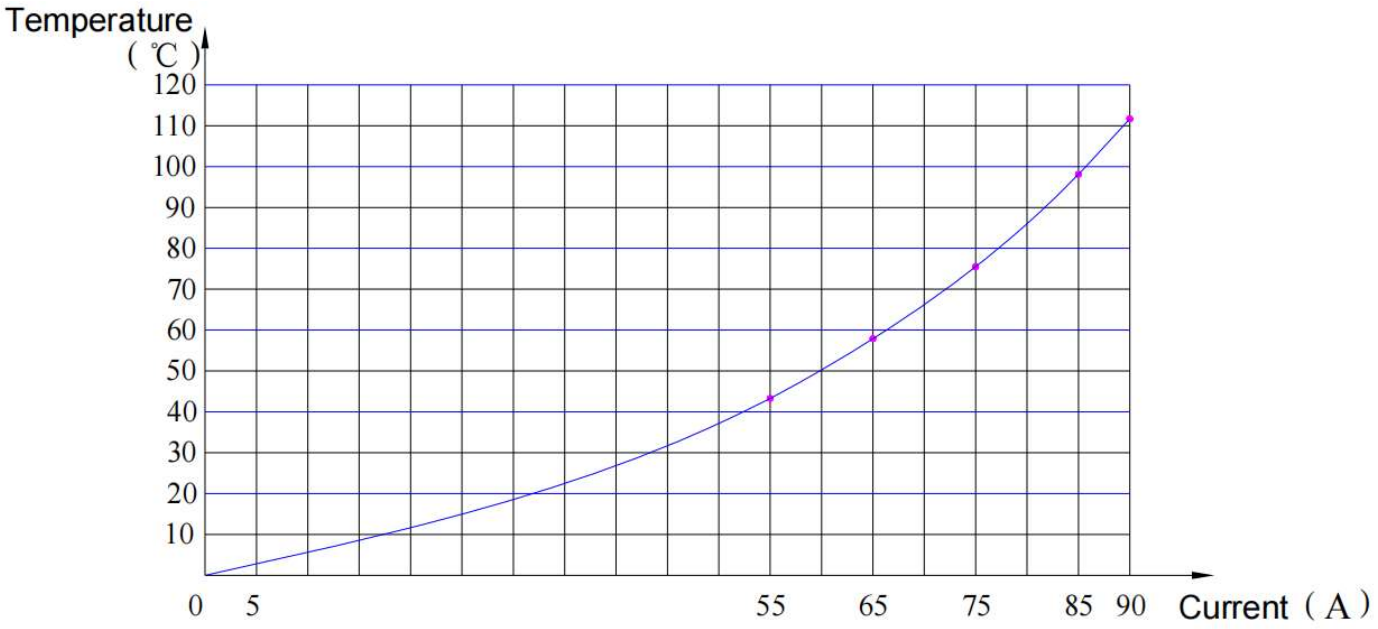
| Component | Material Specification | Surface Information |
|---|---|---|
| Housing | PBT (UL94V-0) | Black |
| Pawl spring | Beryllium copper | - |
| Termina | Brass/Red Copper | 1.5 μm Silver Plated for Power Pin<br>0.025 μm Gold Plated for Signal Pin |
| Crown spring | Beryllium copper | 1.5 μm Silver Plated for Power Pin<br>0.025 μm Gold Plated for Signal Pin |

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## 6. Test Requirements and Procedures Summary

| Serial No. | Item | Test Method | Technical Requirements |
|---|---|---|---|
| 1 | Examination of Product | Visual inspection | Meet the drawing requirements, no damage or abnormality in visual appearance |
| Electrical Requirement | | | |
| 2 | Dielectric Withstanding Voltage | Apply 3000V AC(rms)for I minute and the leakage current shall not exceed 1mA to the adjacent terminal and ground of the mate connectors | No flashover or insulation breakdown |
| 3 | Contact Resistance | Mate the connector, test with a low-power circuit | Signal Pin: 12mΩ Max;<br>Power Pin: 1mΩ Max |
| 4 | Insulation Resistance | Apply 500 V DC voltage between adjacent circuits of the unmate connector for 1 min to test insulation resistance | Insulation Resistance：1000 MΩ Min |
| Mechanical Characteristics | | | |
| 5 | Single contact Withdrawal force | Axial pull-out force between mated male and female terminals | Power Pin Withdrawal force:4N~10N<br>Signal Pin Withdrawal force:0.3N~2N |
| 6 | Crimp Tensile Strength of Terminal | Fix the terminal crimped with wire, apply tensile force along the wire axis, test speed ≤25±3 mm/min | 6AWG: ≥445N<br>22AWG: ≥18N |
| 7 | Pin Retention Force | Terminal and housing cavity mating, axial withdrawal along the axis | Retention Force ≥98N |
| 8 | Durability | Operation speed: maximum 10 times/min; durability cycle times: 500 times | Appearance: No damage; Contact Resistance≤0.7mΩ；Insertion Force≤4N~10N； |
| 9 | Vibration | Waveform: Sine sweep. Frequency range: 10Hz | Appearance: Nodamage; |

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|---|---|---|---|
| | | ~2000Hz. Acceleration amplitude: 147 m/s² (15g). Sweep rate: 1 oct/min (octave per minute). Directions: Three orthogonal axes X, Y, Z, tested separately for each axis. Duration per axis: 120 min. | CurrentDiscontinuity ≤1μs; Contact Resistance≤0.7mΩ; |
| 10 | Mechanical Shock | Waveform: Half-sine wave. Peak acceleration: 980 m/s² (100g). Pulse duration: 6ms. Directions: X, Y, Z three axes, both positive and negative directions for each axis. Number of shocks: 3 shocks per direction. | |
| Environmental Performance | | | |
| 11 | Temperature Rising | Mate the connector and measure the temperature rise of contacts at different current levels. | Refer to the attachment Figure 6.1 |
| 12 | Thermal Shock | The connector under unmated condition is placed in a test chamber for temperature cycling test. Each cycle consists of exposure at -55±5℃ for 2 hours and 125±5℃ for 2 hours, total of 3 cycles. After test, the housing and contact assembly | Appearance: Nodamage; Contact Resistance≤0.7mΩ; |
| 13 | Humidity-Temperature Cycle | Test Temperature: 40℃±2℃, Relative Humidity: 98%±2% RH, Duration: 240h (10 days, Condition A). | Appearance: No damage; Contact resistance≤0.7mΩ; Insulation resistance≥1000MΩ; No flashover or insulation breakdown; |
| 14 | Salt Spray | Salt concentration: 5%, temperature: (35±2) ℃, test time: (24±2) h; after the test, rinse residual salt with clean water, wipe dry before measurement (EIA-364-26A Condition A) | Appearance: Nodamage; Contact Resistance≤0.7mΩ; |


Temperature
( ℃ )
120
110
100
90
80
70
60
50
40
30
20
10
0
5
55
65
75
85
90
Current ( A )