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| ENGINEERING DEPT. | PRODUCT SPECIFICATION For CP05 Series Halogen-Free Power Connector | SPEC.NO.: SPCP046A |
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1. SCOPE:

This specification contains the test requirement of subject connectors when tested under the condition and procedure with terminals crimped on the specified maximum size wire

2. APPLICABLE STANDARDS:

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| MIL - STD - 202 | Methods for test of connectors for electronic equipment |
| MIL - STD - 1344 | Test methods for electrical connectors |
| J-STD-020 | Resistance to soldering Temperature for through hole Mounted Devices |
| SS-00254 | Test methods for electronic components ,LEAD-FREE soldering Part design standards |

3. APPLICABLE SERIES NO.: Housing: CP0502S0000 (Halogen-Free)
Header: CP0502P*M*0-NH (Halogen-Free)
CP0502P*H*0-NH (Halogen-Free)
Terminal: CP05T021PE0

4. SHAPE, CONSTRUCTION AND DIMENSIONS

See attached drawings

5. MATERIALS

See attached drawings

6. ACCOMMODATED P.C.BOARD

6.1 P.C. Board Layout: See attached drawings



REVIEWED : Alex APPROVED : Eisley VERIFIED : Eager .

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7. ELECTRICAL PERFORMANCE:

| | ITEM | TEST CONDITION | REQUIREMENT |
|-----|---------------------------|---|---------------------------------|
| 7.1 | Rated current and voltage | | 1.0A (AWG #24) , 1400V AC/DC |
| 7.2 | Contact resistance | Dry circuit of DC 20mV max. , 100mA max., Wire resistance shall be removed from the measured value. | Less than 10 mΩ |
| 7.3 | Dielectric strength | When applied AC 3800 V 1 minute between adjacent terminal | No Breakdown |
| 7.4 | Insulation resistance | When applied DC 500 V between adjacent terminal or ground | More than 1000 MΩ |

8. MECHANICAL PERFORMANCE:

| | ITEM | TEST CONDITION | REQUIREMENT | |
|-----|---|---|---|--------------------|
| 8.1 | Wire size | Specified wire size | Accepts AWG#24-#28 | |
| 8.2 | Terminal crimp strength | When crimped AWG#24 size wire | More than 3 kgf. | |
| | | When crimped AWG#26 size wire | More than 2 kgf | |
| | | When crimped AWG#28 size wire | More than 1.3 kgf | |
| 8.3 | Terminal insertion force | Insertion speed 25± 3 mm per minute into housing | Less than 0.5 Kgf | |
| 8.4 | Terminal retaining force in insulator | Retention speed 25± 3 mm per minute from Wire to Wire Housing | More than 1.0 kgf | |
| 8.5 | Single contact insertion force | Measure force to insertion using mating square pin at speed 25± 3 mm per minute | 500 gram max. | |
| 8.6 | Single contact withdrawal force | Measure force to withdrawal using mating square pin at speed 25± 3 mm per minute | 100 gram min. | |
| 8.7 | Pin retention force in Board mount Header | Push Pin from insulator base at speed 25± 3 mm per minute | More than 0.7 kgf | |
| 8.8 | Mating and Unmating force | Speed 25± 3 mm per minute | Mating (Max.) | Unmating (Min.) |
| | | | 2.5 kgf | 0.5 kgf |
| 8.9 | Durability | Connector shall be subjected to 30 cycles of insertion and withdrawal | Contact resistance: Less than twice of initial | |

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9. ENVIRONMENTAL PERFORMANCE:

| | ITEM | TEST CONDITION | REQUIREMENT |
|-----|---------------------|--|--|
| 9.1 | Temperature rise | Then carried the rated current | 30°C max. |
| 9.2 | Vibration | 1.5 mm 10-55-10 HZ/minute each 2 hours for X, Y and Z directions | Appearance: No damage Discontinuity: 1 micro second max. |
| 9.3 | Heat aging | 85± 2°C, 96 hours | No damage |
| 9.4 | Humidity | 40± 2°C, 90-95% RH, 96 hours measurement must be taken within 30 min. after tested | Appearance: No damage Contact resistance: Less than twice of initial Dielectric strength: To pass para 7-3 |
| 9.5 | Temperature cycling | One cycle consists of : (1) -55 ⁺⁰ ₋₃ °C , 30 min. (2) Room temp. 10-15 min. (3) 85 ⁺³ ₋₀ °C , 30 min. (4) Room temp. 10-15 min. Total cycle: 5 cycle | Appearance: No damage Contact resistance: Less than twice of initial |
| 9.6 | Salt spray | Temperature: 35± 3°C Solution: 5± 1% Spray time: 48± 4 hours Measurement must be taken after water rinse | Appearance: No damage Contact resistance: Less than twice of initial |
| 9.7 | Solder ability | Tin-Lead Process Soldering time: 5 ± 0.5 second Soldering pot: 230 ± 5°C Lead-Free Process Soldering time: 3 ± 0.5 second Soldering pot: 245 ± 5°C | Minimum: 90% of immersed area |

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| | ITEM | TEST CONDITION | REQUIREMENT |
|-----|------------------------------|--|-------------|
| 9.8 | Resistance to soldering heat | DIP Type Lead-Free Process: Soldering time: 5 ± 0.5 second Soldering pot: $260 \pm 5^{\circ}\text{C}$ SMT Type Lead-Free Process: Soldering time: 20 second Max. Soldering pot: $250\sim 260^{\circ}\text{C}$ Refer Reflow temperature profile(11.2) | No damage |

10. AMBIENT TEMPERATURE RANGE: -25 to $+85^{\circ}$

11. Recommended IR Reflow Temperature Profile:

11.1 Using Lead-Free Solder Paste

