



PRODUCT SPECIFICATION

MINI-FIT BMI

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PRODUCT SPECIFICATION

1.0 SCOPE

This Product Specification covers performance requirements for the MINI-FIT BMI 4.20 mm (.165 inch) centerline (pitch) printed circuit board (PCB) connector series with Tin or Gold plating in Wire-To-Wire, Wire-to-Board and Board-To-Board and terminated with 16 to 28 AWG wire using Crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 NAMES AND SERIES NUMBER(S)

| Table 1 – WIRE-TO-WIRE | | | | |
|-------------------------|---------------|-----|-----|-----|
| Description | Series Number | UL | CSA | TUV |
| Female Crimp Terminal | 5556 | N/A | N/A | N/A |
| Receptacle Housing | 5557 | Yes | Yes | Yes |
| Male Crimp Terminal | 5558 | N/A | N/A | N/A |
| Receptacle Housing, BMI | 42474 | Yes | Yes | Yes |
| Plug Housing, BMI | 42475 | Yes | Yes | Yes |
| Plug Housing, BMI | 43558 | Yes | Yes | No |
| Plug Housing, BMI | 43770 | Yes | Yes | Yes |

| Table 2 – WIRE-TO-BOARD | | | | |
|-------------------------|---------------|-----|-----|-----|
| Description | Series Number | UL | CSA | TUV |
| Female Crimp Terminal | 5556 | N/A | N/A | N/A |
| Receptacle Housing | 5557 | Yes | Yes | Yes |
| Male Crimp Terminal | 5558 | N/A | N/A | N/A |
| Receptacle Header, BMI | 42385 | Yes | Yes | No |
| Right Angle Header, BMI | 42404 | Yes | Yes | No |
| Receptacle Header, BMI | 42416 | Yes | Yes | No |
| Right Angle Header, BMI | 42417 | Yes | Yes | No |
| Vertical Header, BMI | 42440 | Yes | Yes | No |
| Receptacle Housing, BMI | 42474 | Yes | Yes | Yes |
| Plug Housing, BMI | 42475 | Yes | Yes | Yes |
| Vertical Header, BMI | 42786 | Yes | Yes | Yes |
| Vertical Header, BMI | 43176 | No | No | No |
| Vertical Header, BMI | 43459 | Yes | Yes | No |
| Plug Housing, BMI | 43558 | Yes | Yes | No |
| Right Angle Header, BMI | 43644 | Yes | Yes | No |
| Vertical Header, BMI | 43693 | Yes | Yes | No |
| Right Angle Header, BMI | 44151 | Yes | Yes | No |
| Right Angle Header, BMI | 44499 | Yes | Yes | No |

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| Table 3 – BOARD-TO-BOARD | | | | |
|---------------------------------|---------------|-----|-----|-----|
| Description | Series Number | UL | CSA | TUV |
| Vertical Receptacle Header, BMI | 42385 | Yes | Yes | No |
| Vertical Receptacle Header, BMI | 42416 | Yes | Yes | No |
| Vertical Header, BMI | 42440 | Yes | Yes | No |
| Vertical Header, BMI | 42786 | Yes | Yes | Yes |
| Vertical Header, BMI | 43459 | Yes | Yes | No |
| Vertical Header, BMI | 43693 | Yes | Yes | No |
| Right Angle Header, BMI | 42404 | Yes | Yes | No |
| Right Angle Header, BMI | 42417 | Yes | Yes | No |
| Right Angle Header, BMI | 43644 | Yes | Yes | No |
| Right Angle Header, BMI | 44151 | Yes | Yes | No |
| Right Angle Header, BMI | 44499 | Yes | Yes | No |

Other products conforming to this specification noted on the individual drawings.

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

2.3 SAFETY AGENCY APPROVALS

UL File: E29179
 CSA Certificate: LR19980
 TUV Certificate: R72081037

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See sales drawings and the other sections of this specification for the necessary referenced documents and specifications.
 Test summary: TS-5556-002

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PRODUCT SPECIFICATION

4.0 RATINGS

4.1 VOLTAGE

600 Volts AC (RMS) (or 600 Volts DC)

4.2 APPLICABLE WIRES

| | |
|--|--------------------------------|
| Applicable Wire Gauges and Maximum Insulation Diameter | 16 AWG: 3.10 / .122 MAXIMUM |
| | 18-20 AWG: 3.10 / .122 MAXIMUM |
| | 22-28 AWG: 1.80 / .071 MAXIMUM |

4.3 MAXIMUM CURRENT RATING (Amperes)**

| Table 4 – WIRE-TO-WIRE | | | | | | | | | |
|------------------------|-----|-------|--------|---------|------------------|-----|-------|--------|---------|
| Brass | | | | | Phosphor Bronze | | | | |
| Wire \ Ckt. Size | 2-3 | 4 - 6 | 7 - 10 | 12 - 24 | Wire \ Ckt. Size | 2-3 | 4 - 6 | 7 - 10 | 12 - 24 |
| AWG #16 | 9 | 8 | 7 | 6 | AWG #16 | 8 | 7 | 6 | 5 |
| AWG #18 | 9 | 8 | 7 | 6 | AWG #18 | 8 | 7 | 6 | 5 |
| AWG #20 | 7 | 6 | 5 | 5 | AWG #20 | 6 | 5 | 4 | 4 |
| AWG #22 | 5 | 4 | 4 | 4 | AWG #22 | 4 | 3 | 3 | 3 |
| AWG #24 | 4 | 3 | 3 | 3 | AWG #24 | 3 | 2 | 2 | 2 |
| AWG #26 | 3 | 2 | 2 | 2 | AWG #26 | 2 | 1 | 1 | 1 |
| AWG #28 | 2 | 1 | 1 | 1 | AWG #28 | 1 | 1 | 1 | 1 |

| | | | |
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4.3 MAXIMUM CURRENT RATING (Amperes) (continued)

| Table 5 – WIRE-TO-BOARD | | | | | | | | | | |
|-------------------------|-----|-------|--------|---------|------------------|-----|-------|--------|---------|--|
| Brass | | | | | Phosphor Bronze | | | | | |
| Wire \ Ckt. Size | 2-3 | 4 - 6 | 7 - 10 | 12 - 24 | Wire \ Ckt. Size | 2-3 | 4 - 6 | 7 - 10 | 12 - 24 | |
| AWG #16 | 9 | 8 | 7 | 6 | AWG #16 | 8 | 7 | 6 | 5 | |
| AWG #18 | 9 | 8 | 7 | 6 | AWG #18 | 8 | 7 | 6 | 5 | |
| AWG #20 | 7 | 6 | 5 | 5 | AWG #20 | 6 | 5 | 4 | 4 | |
| AWG #22 | 5 | 4 | 4 | 4 | AWG #22 | 4 | 3 | 3 | 3 | |
| AWG #24 | 4 | 3 | 3 | 3 | AWG #24 | 3 | 2 | 2 | 2 | |
| AWG #26 | 3 | 2 | 2 | 2 | AWG #26 | 2 | 1 | 1 | 1 | |
| AWG #28 | 2 | 1 | 1 | 1 | AWG #28 | 1 | 1 | 1 | 1 | |

Note: PCB trace design may greatly affect temperature rise results.

| Table 6 – BOARD-TO-BOARD | | | | | | | | | | |
|--------------------------|-----|-------|--------|---------|-----------------|-----|-------|--------|---------|--|
| Brass | | | | | Phosphor Bronze | | | | | |
| Ckt. Size | 2-3 | 4 - 6 | 7 - 10 | 12 - 24 | Ckt. Size | 2-3 | 4 - 6 | 7 - 10 | 12 - 24 | |
| | 9 | 8 | 7 | 6 | | 8 | 7 | 6 | 5 | |

Note: PCB trace design may greatly affect temperature rise results.

** Ratings shown represent *MAXIMUM* current carrying capacity of a fully loaded connector with all circuits powered. Ratings are based on a 30°C maximum temperature rise limit over ambient (room temperature). Above charts are intended as a guideline. Current rating is application dependent. Appropriate de-rating is required depending on factors such as higher ambient temperature, smaller copper weight of PCB traces, gross heating from adjacent modules or components and other factors that influence connector performance.

4.4 TEMPERATURE

Operating: * - 40°C to + 105°C

Nonoperating: - 40°C to + 105°C

**Including 30°C terminal temperature rise at rated current*

4.5 WAVE SOLDER PROCESS TEMPERATURE

Headers with pegs: 240°C MAX.

Headers without pegs: 260°C MAX.

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5.0 WIRE-TO-WIRE PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|---|--|---|
| 1 | Contact Resistance (Low Level) | Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. Wire resistance shall be removed from the measured value. | 10 milliohms MAXIMUM [initial] |
| 2 | Insulation Resistance | Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. | 1000 Megohms MINIMUM |
| 3 | Dielectric Withstanding Voltage | Mate connectors: apply a voltage of 2200 VAC for 1 minute between adjacent terminals and between terminals to ground. | No breakdown. Current leakage < 5 mA |
| 4 | Temperature Rise (via Current Cycling) | Mate connectors. Measure the temperature rise at the rated current after 96 hours, during current cycling (45 minutes ON and 15 minutes OFF per hour) for 240 hours, and after final 96-hour steady state. | Temperature rise: +30°C MAXIMUM |

5.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|--|---|---|
| 1 | Terminal Mate and Unmate Forces Per Circuit | Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 14.7 N (3.30 lbf) MAXIMUM insertion force & 0.5 N (0.11 lbf) MINIMUM withdrawal force |
| 2 | Crimp Terminal Retention Force (in Housing) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 30 N (6.74 lbf) MINIMUM retention force |
| 3 | Durability | Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests. | 20 milliohms maximum (change from initial) |

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5.2 MECHANICAL REQUIREMENTS (continued)

| | | | | |
|----|--|--|---|--|
| 4 | Vibration (Random) | Mate connectors and vibrate per EIA 364-28, test condition VII. | 10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond | |
| 5 | Shock (Mechanical) | Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X, ±Y, ±Z axes, (18 shocks total). | 20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond | |
| 6 | Wire Pullout Force (Axial) | Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch). | 16 Awg = 88.0 N (19.8 lbf) Min. 18 Awg = 88.0 N (19.8 lbf) Min. 20 Awg = 59.0 N (13.3 lbf) Min. 22 Awg = 39.0 N (8.78 lbf) Min. 24 Awg = 29.0 N (6.52 lbf) Min. 26 Awg = 19.0 N (4.27 lbf) Min. 28 Awg = 9.80 N (2.20 lbf) Min. | |
| 7 | Crimp Terminal Insertion Force (into Housing) | Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch). | 15.0 N (3.37 lbf) MAXIMUM insertion force | |
| 8 | Normal Force | Apply a perpendicular force. | 0.49 N (50 grams) MINIMUM [Gold (noble) plating] OR 1.47 N (150 grams) MINIMUM [Tin (non-noble) plating] | |
| 9 | PCB Engagement And Separation Forces | Engage and separate a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. (Applies to parts with PCB retention features only with PCB holes at nominal diameter) | Standard | 49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force |
| | | | Press-Fit | T.B.D. |
| | | | Metal Clip | T.B.D. |
| 10 | Thumb Latch Operation Force | Depress latch at a rate of 25 ± 6mm (1 ± ¼ inch) per minute. | 16.67 N (3.75 lbf) MAXIMUM | |
| 11 | Thumb Latch Yield Strength | Mate loaded connectors fully. Pull connectors apart at a rate of 25 ± 6mm (1 ± ¼ inch) per minute. | 68 N (15.29 lbf) MINIMUM | |

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5.2 MECHANICAL REQUIREMENTS (continued)

| | | | |
|----|--|---|---|
| 12 | Panel Insertion and Withdrawal Forces (for 42474) | Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force |
| 13 | Panel Insertion and Withdrawal Forces (for 44516) | Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 0.0 MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force |
| 14 | Panel Insertion and Withdrawal Forces (for 42475) | Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force |

5.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|--------------------------------|--|---|
| 1 | Thermal Shock | Mate connectors: expose for 5 cycles Between temperatures -55 and 105° C; Dwell 0.5 hours at each temperature. | 20 milliohms MAXIMUM (change from initial) Visual: No Damage Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 |
| 2 | Thermal Aging | Mate connectors; expose to: 96 hours at 105 ± 2° C | 20 milliohms MAXIMUM (change from initial) & Visual: No Damage |
| 3 | Humidity (Steady State) | Mate connectors: expose to a temperature of 60 ± 2° C with a relative humidity of 90-95% for 96 hours. | 20 milliohms MAXIMUM (change from initial) Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 Visual: No Damage |
| 4 | Mixed Flowing Gas | EIA-364-65 with Class IIa Gas concentrations (Gold plated only) | 20 milliohms MAXIMUM (change from initial) Visual: No Damage |

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6.0 WIRE-TO-BOARD PERFORMANCE

6.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|---|--|---|
| 1 | Contact Resistance (Low Level) | Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. Wire resistance shall be removed from the measured value. | 10 milliohms MAXIMUM [initial] |
| 2 | Insulation Resistance | Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. | 1000 Megohms MINIMUM |
| 3 | Dielectric Withstanding Voltage | Mate connectors: apply a voltage of 2200 VAC for 1 minute between adjacent terminals and between terminals to ground. | No breakdown. Current leakage < 5 mA |
| 4 | Temperature Rise (via Current Cycling) | Mate connectors. Measure the temperature rise at the rated current after 96 hours, during current cycling (45 minutes ON and 15 minutes OFF per hour) for 240 hours, and after final 96-hour steady state. | Temperature rise: +30°C MAXIMUM |

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6.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|--|--|---|
| 1 | Terminal Mate and Unmate Forces Per Circuit | Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 14.7 N (3.30 lbf) MAXIMUM insertion force & 0.5 N (0.11 lbf) MINIMUM withdrawal force |
| 2 | Crimp Terminal Retention Force (in Housing) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 30 N (6.74 lbf) MINIMUM retention force |
| 3 | Solid PC Tail Header Pin Retention Force (in Housing) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 4.45 N (1.00 lbf) MINIMUM retention force |
| 4 | Stamped PC Tail Terminal Retention Force (in Housing) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 30 N (6.74 lbf) MINIMUM retention force |
| 5 | Durability | Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests. | 20 milliohms MAXIMUM (change from initial) |
| 6 | Vibration (Random) | Mate connectors and vibrate per EIA 364-28, test condition VII. | 10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond |
| 7 | Shock (Mechanical) | Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X, ±Y, ±Z axes, (18 shocks total). | 20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond |
| 8 | Wire Pullout Force (Axial) | Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch). | 16 Awg = 88.0 N (19.8 lbf) Min. 18 Awg = 88.0 N (19.8 lbf) Min. 20 Awg = 59.0 N (13.3 lbf) Min. 22 Awg = 39.0 N (8.78 lbf) Min. 24 Awg = 29.0 N (6.52 lbf) Min. 26 Awg = 19.0 N (4.27 lbf) Min. 28 Awg = 9.80 N (2.20 lbf) Min. |
| 9 | Crimp Terminal Insertion Force (into Housing) | Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch). | 15.0 N (3.37 lbf) MAXIMUM insertion force |

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6.2 MECHANICAL REQUIREMENTS (continued)

| | | | |
|----|--|---|--|
| 10 | Normal Force | Apply a perpendicular force. | 0.49 N (50 grams) MINIMUM [Gold (noble) plating] OR 1.47 N (150 grams) MINIMUM [Tin (non-noble) plating] |
| 11 | PCB Engagement And Separation Forces | Engage and separate a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. (Applies to parts with PCB retention features only with PCB holes at nominal diameter) | Standard 49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force |
| | | | Press-Fit T.B.D. |
| | | | Metal Clip T.B.D. |
| 12 | Thumb Latch Operation Force | Depress latch at a rate of 25 ± 6mm (1 ± ¼ inch) per minute. | 16.67 N (3.75 lbf) MAXIMUM |
| 13 | Thumb Latch Yield Strength | Mate loaded connectors fully. Pull connectors apart at a rate of 25 ± 6mm (1 ± ¼ inch) per minute. | 68 N (15.29 lbf) MINIMUM |
| 14 | Panel Insertion and Withdrawal Forces (for 42474) | Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force |
| 15 | Panel Insertion and Withdrawal Forces (for 44516) | Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 0.0 MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force |
| 16 | Panel Insertion and Withdrawal Forces (for 42475) | Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force |

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6.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|--|--|---|
| 1 | Thermal Shock | Mate connectors: expose for 5 cycles Between temperatures -55 and 105°C ; Dwell 0.5 hours at each temperature. | 20 milliohms MAXIMUM (change from initial) Visual: No Damage Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 |
| 2 | Thermal Aging | Mate connectors; expose to: 96 hours at $105 \pm 2^{\circ}\text{C}$ | 20 milliohms MAXIMUM (change from initial) & Visual: No Damage |
| 3 | Humidity (Steady State) | Mate connectors: expose to a temperature of $60 \pm 2^{\circ}\text{C}$ with a relative humidity of 90-95% for 96 hours. | 20 milliohms MAXIMUM (change from initial) Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 Visual: No Damage |
| 4 | Solderability | Per SMES-152 | Solder coverage: 95% MINIMUM (per SMES-152) |
| 5 | Solder Temperature Heat Transfer Resistance | Dip connector terminals tail in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: $260 \pm 5^{\circ}\text{C}$ | Visual: No Damage to the insulator where the terminal or pin locks to the connector housing |
| 6 | Mixed Flowing Gas | EIA-364-65 with Class IIa Gas concentrations (Gold plated only) | 20 milliohms MAXIMUM (change from initial) Visual: No Damage |

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PRODUCT SPECIFICATION

7.0 BOARD-TO-BOARD PERFORMANCE

7.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|---|--|---|
| 1 | Contact Resistance (Low Level) | Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. Wire resistance shall be removed from the measured value. | 10 milliohms MAXIMUM [initial] |
| 2 | Insulation Resistance | Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. | 1000 Megohms MINIMUM |
| 3 | Dielectric Withstanding Voltage | Mate connectors: apply a voltage of 2200 VAC for 1 minute between adjacent terminals and between terminals to ground. | No breakdown. Current leakage < 5 mA |
| 4 | Temperature Rise (via Current Cycling) | Mate connectors. Measure the temperature rise at the rated current after 96 hours, during current cycling (45 minutes ON and 15 minutes OFF per hour) for 240 hours, and after final 96-hour steady state. | Temperature rise: +30°C MAXIMUM |

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PRODUCT SPECIFICATION

7.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT | |
|------|---|--|---|--|
| 1 | Terminal Mate and Unmate Forces Per Circuit | Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 14.7 N (3.30 lbf) MAXIMUM insertion force & 0.5 N (0.11 lbf) MINIMUM withdrawal force | |
| 2 | Stamped PC Tail Terminal Retention Force (in Housing) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 30 N (6.74 lbf) MINIMUM retention force | |
| 3 | Solid PC Tail Header Pin Retention Force (in Housing) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. | 4.45 N (1.00 lbf) MINIMUM retention force | |
| 4 | Durability | Mate connectors up to 75 (Sn) or 100 (Au) cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests. | 20 milliohms MAXIMUM (change from initial) | |
| 5 | Vibration (Random) | Mate connectors and vibrate per EIA 364-28, test condition VII. | 10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond | |
| 6 | Shock (Mechanical) | Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X, ±Y, ±Z axes, (18 shocks total). | 20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond | |
| 7 | Normal Force | Apply a perpendicular force. | 1.96 N (200 grams) MINIMUM | |
| 8 | PCB Peg Engagement and Separation Forces | Engage and separate a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. (Applies to parts with PCB retention features only with PCB holes at nominal diameter) | Standard | 98.0 N (22.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force |
| | | | Press-Fit | T.B.D. |
| | | | Metal Clip | T.B.D. |

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7.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|---|--|---|
| 1 | Thermal Shock | Mate connectors: expose for 5 cycles Between temperatures -55 and 105° C; Dwell 0.5 hours at each temperature. | 20 milliohms MAXIMUM (change from initial) Visual: No Damage Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 |
| 2 | Thermal Aging | Mate connectors; expose to: 96 hours at 105 ± 2°C | 20 milliohms MAXIMUM (change from initial) & Visual: No Damage |
| 3 | Humidity (Steady State) | Mate connectors: expose to a temperature of 60 ± 2°C with a relative humidity of 90-95% for 96 hours. | 20 milliohms MAXIMUM (change from initial) Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 Visual: No Damage |
| 4 | Solderability | Per SMES-152 | Solder coverage: 95% MINIMUM (per SMES-152) |
| 5 | Solder Temperature Heat Transfer | Dip connector terminals tail in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 260 ± 5°C | Visual: No Damage to the insulator insulator where the terminal or pin locks to the connector housing |
| 6 | Mixed Flowing Gas | EIA-364-65 with Class IIa Gas concentrations (Gold plated only) | 20 milliohms MAXIMUM (change from initial) Visual: No Damage |

8.0 TEST SEQUENCES

Testing sequences to be performed in accordance with EIA-364-1000.01

9.0 PACKAGING

Parts shall be packaged to protect against damage during normal handling, transit and storage. Nylon parts should remain in there original packaging until ready for use to prevent moisture loss or gain.

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10.0 OTHER INFORMATION

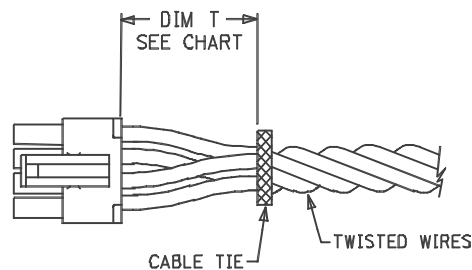
10.1 GAGES AND FIXTURES

It is recommended that test plugs (Series 44281) be used for continuity testing of receptacles. Standard mating parts should not be used for harness testing.

NOTE: The use of unauthorized testing devices and/or probes with a Molex product may cause damage to and affect functionality of the Molex product, and such use may void any and all warranties, expressed or implied.

10.2 CABLE TIE AND OR WIRE TWIST LOCATION

| CKT Sizes | Dim T | Min. |
|-----------|-------|------------|
| 2-6 | .50" | (12.7 mm) |
| 8 | .75" | (19.1 mm) |
| 10-12 | 1.00" | (25.40 mm) |
| 14-16 | 1.25" | (31.75 mm) |
| 18-20 | 1.50" | (38.09 mm) |
| 22-24 | 1.75" | (44.45 mm) |



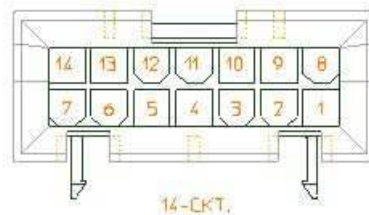
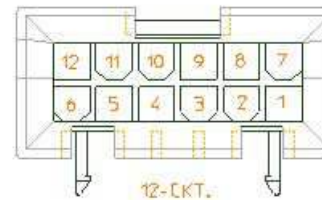
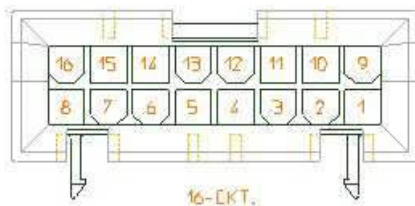
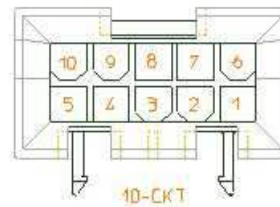
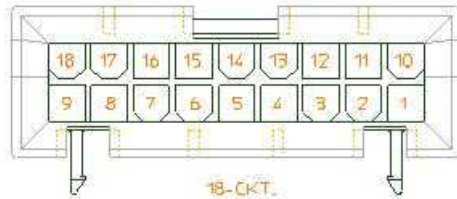
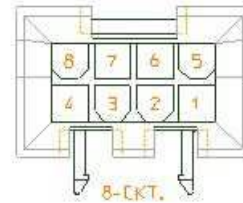
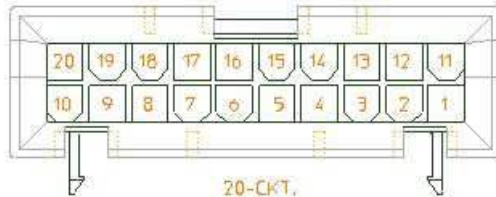
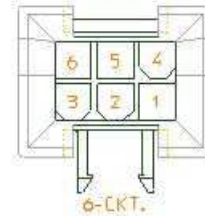
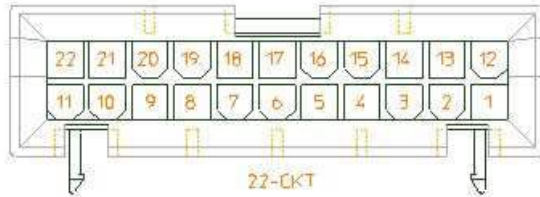
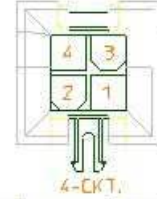
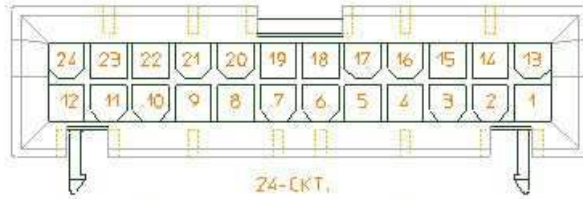
The "T" dimension defines a "free" length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket. This dimension is general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.

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11.0 STANDARD POLARIZATION FOR HEADERS AND PLUGS (HEADERS ARE SHOWN)



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12.0 STANDARD POLARIZATION FOR RECEPTACLES



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