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ELECTRONICS

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Jameco Part Number 304291

FEATURES AND SPECIFICATIONS

Features and Benefits

- Peg-mounted for increased board retention
- Low profile for space constraints
- Positive housing locks
- Fully isolated terminals to protect contacts from damage

Reference Information

Product Specification: PS-5556-0001

Packaging: Tray or bag UL File No.: E29179 CSA File No.: LR19980 TUV License No.: R75142

Mates With: <u>5557</u> dual row receptacle

Designed In: Millimeters



12-24

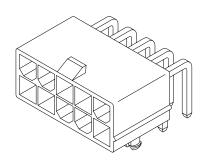
7-10

10

4.20mm (.165") Pitch Mini-Fit, Jr.™ Header

5569

Right Angle, Dual Row With Pegs



Contact Resistance: $10m\Omega$ max. Dielectric Withstanding Voltage: 1500V Insulation Resistance: $1000 \text{ M}\Omega$ min.

2-3

4-6

8

11

Mechanical

Electrical

Voltage: 600V

Circuits

Amperes-Jr.

Amperes-HCS

Current: (Used with 16 AWG)

Insertion Force to PCB: 5.0kg max. Mating Force: 0.7kg (1.54 lb) max. Unmating Force: 0.35kg (0.7 lb) min. Normal Force: 200g min.

Durability: 30 cycles

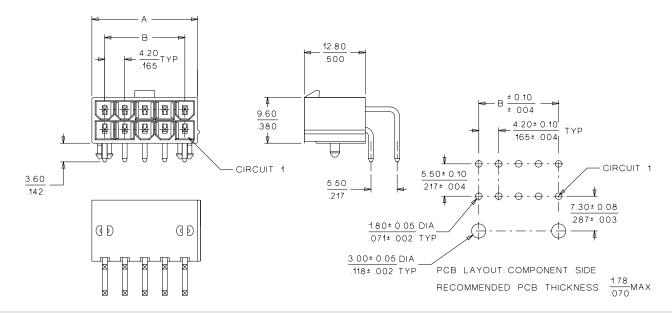
Physical

Housing: 6/6 nylon, UL 94V-2 or 94V-0

Contact: Brass

Plating: Tin, select Gold or overall Gold Operating Temperature: -40 to +105°C

CATALOG DRAWING (FOR REFERENCE ONLY)



ORDERING INFORMATION AND DIMENSIONS

| | | | Orde | er No. | | | Dimension | | | |
|----------|--------------|--------------|------------|--------------------|------------|---------------------------|---------------|---------------|--|--|
| Circuits | Tin P | Tin Plated | | Gold Plated (30µ") | | Select Gold Plated (30µ") | | , n | | |
| | 94V-2 | 94V-0 | 94V-2 | 94V-0 | 94V-2 | 94V-0 | 1 A | В | | |
| 2 | • 39-30-1020 | • 39-30-0020 | 39-30-1021 | 39-30-1022 | 39-30-0023 | 39-30-0024 | 5.40 (.213) | | | |
| 4 | • 39-30-1040 | • 39-30-0040 | 39-30-1041 | 39-30-1042 | 39-30-0043 | 39-30-0044 | 9.60 (.378) | 4.20 (.165) | | |
| 6 | • 39-30-1060 | • 39-30-0060 | 39-30-1061 | 39-30-1062 | | | 13.80 (.543) | 8.40 (.331) | | |
| 8 | • 39-30-1080 | • 39-30-0080 | 39-30-1081 | 39-30-1082 | | | 18.00 (.709) | 12.60 (.496) | | |
| 10 | • 39-30-1100 | • 39-30-0100 | 39-30-1101 | 39-30-1102 | | | 22.20 (.874) | 16.80 (.661) | | |
| 12 | • 39-30-1120 | • 39-30-0120 | 39-30-1121 | 39-30-1122 | | | 26.40 (1.039) | 21.00 (.827) | | |
| 14 | • 39-30-1140 | • 39-30-0140 | 39-30-1141 | 39-30-1142 | | | 30.60 (1.205) | 25.20 (.992) | | |
| 16 | • 39-30-1160 | • 39-30-0160 | 39-30-1161 | 39-30-1162 | | | 34.80 (1.370) | 29.40 (1.158) | | |
| 18 | • 39-30-1180 | | 39-30-1181 | | | | 39.00 (1.535) | 33.60 (1.323) | | |
| 20 | • 39-30-1200 | • 39-30-0200 | 39-30-1201 | 39-30-1202 | | | 43.20 (1.701) | 37.80 (1.488) | | |
| 22 | • 39-30-1220 | | 39-30-1221 | | | | 47.40 (1.866) | 42.00 (1.654) | | |
| 24 | • 39-30-1240 | • 39-30-0240 | 39-30-1241 | 39-30-1242 | | | 51.60 (2.031) | 46.20 (1.819) | | |

[•] US Standard Product, available through Molex franchised distributors

MX01 F-51



MINI-FIT JR.

1.0 SCOPE

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

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

| PRODUCT NAME | PART NUMBER |
|-----------------------------|-------------|
| Female Crimp Terminal | 5556-*** |
| Male Crimp Terminal | 5558-*** |
| Receptacle Housing | 5557-*** |
| Plug Housing | 5559-*** |
| Vertical Header Assembly | 5566-*** |
| Right Angle Header Assembly | 5569-*** |

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: LR 19980 TUV Certificate: R75142-8

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See sales drawings and the other sections of this specification for the necessary referenced documents and specifications

4.0 RATINGS

4.1 VOLTAGE

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

4.2 CURRENT AND APPLICABLE WIRES

DEVISION: ECD/ECN INFORMATION: TITLE:

| Maximum Insulation Diameter | 16 AWG: 3.10/. 122 MAXIMUM |
|-----------------------------|-------------------------------|
| and | 18-24 AWG: 3.10/. 122 MAXIMUM |
| Applicable Wire Gauges | 22-28 AWG: 1.80/. 071 MAXIMUM |

| C | EC No: UCP2004-2349 DATE: 2004 / 05 / 25 | | T SPECIFICATION MINI-FIT JR. NECTOR SYSTEM | | 1 of 5 |
|------------------|---|-----------------------|--|--------|---------|
| DOCUMENT NUMBER: | | CREATED / REVISED BY: | CHECKED BY: | APPRO\ | /ED BY: |
| PS-5556-001 | | BANDURA | BANDURA BANDURA MARGULIS | | BULIS |
| | TEMPI ATE FILENAME: PRODUCT, SPECISIZE AVV 1) DOC | | | | |

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4.2 CURRENT AND APPLICABLE WIRES (continued)

| | MAXIMUM CURRENT RATING (Amperes) | | | | | | | | |
|-------------------|----------------------------------|-------|--------|---------|-------------------|-------|----------|--------|---------|
| | Brass | | | | | Phosp | hor Bron | ıze | |
| Ckt. Size Wire | 2 & 3 | 4 - 6 | 7 - 10 | 12 - 24 | Ckt. Size Wire | 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 |

4.3 TEMPERATURE

Operating: * - 40°C to + 105°C Nonoperating: - 40°C to + 105°C

*Including 30°C terminal temperature at rated current

5.0 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 | Contact Resistance @ Rated Current | Mate connectors: apply a maximum voltage of 20 mV at rated current. | 10 milliohms MAXIMUM [initial] |
| 3 | Contact Resistance of Wire Termination (Low Level) | Terminate the applicable wire to the terminal and measure wire using a voltage of 20 mV and a current of 100 mA. | 5 milliohms MAXIMUM [initial] |
| 4 | Insulation Resistance | Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. | 1000 Megohms MINIMUM |

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5.1 ELECTRICAL REQUIREMENTS (continued)

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|---|--|---|
| 5 | Dielectric Withstanding Voltage | Mate connectors: apply a voltage of 1500 VAC for 1 minute between adjacent terminals and between terminals to ground. | No breakdown. Current leakage < 5 mA |
| 6 | 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 Insertion and Withdrawal Forces | Insert and withdraw terminal (male to female) at a rate of 25 \pm 6 mm (1 \pm $\frac{1}{4}$ inch) per minute. | 14.7 N (3.30 lbf) MAXIMUM insertion force & 1.0 N (0.02 lbf) MINIMUM withdrawal force |
| 2 | Terminal Retention Force (in Housing) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 $\pm \frac{1}{4}$ 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 |
| 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 & Discontinuity < 1 microsecond |
| 6 | Wire Pullout Force (Axial) | Apply an axial pullout force on the wire at a rate of 25 ± 6 mm $(1 \pm \frac{1}{4}$ 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. |

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5.2 MECHANICAL REQUIREMENTS (continued)

| 7 | Terminal Insertion Force (into Housing) | Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm $(1 \pm \frac{1}{4}$ 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 ($1 \pm \frac{1}{4}$ inch) per minute. (Applies to parts with PCB retention features only) | 49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force |
| 10 | Panel Insertion and Withdrawal Forces | Insert and withdraw a connector at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute. (Applies to parts with panel retention features only) | 225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force |
| 11 | Pin Retention Force | Apply axial push force at the speed rate of 25 ± 3mm/minute. | 1.0 KGF MIN. |
| 12 | Thumblatch Operation Force | Depress latch at a speed rate of 25.4 mm/minute. | 1.7 KGF MAX. |
| 13 | Thumblatch Yield Strength | Mate loaded connectors fully. Pull apart via wires at a speed rate of 25.4 mm/minute. | 7.0 KGF MIN. |

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5.3 ENVIRONMENTAL REQUIREMENTS (continued)

| 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 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 & 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 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 Resistance | Dip connector terminals tail in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 260 ± 5°C | Visual: No Damage to insulator material | |
| 6 | Cold Resistance | Mate connectors: Duration; 96 hours; Temperature: -40 ± 3°C | 20 milliohms MAXIMUM Visual: No Damage | |
| 7 | Corrosive Atmosphere: Sulfur Dioxide Gas (SO ₂) | Mate connectors: Duration; 24 hours exposure. Atmosphere: 50 parts per million (ppm) SO ₂ Gas. Temperature: 40 ± 3°C | 20 milliohms MAXIMUM Visual: No Damage | |

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

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