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ELECTRONICS

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Jameco Part Number 882381

FEATURES AND SPECIFICATIONS

Features and Benefits

- Positive housing locks to mate with Mini-Fit, Jr. single row receptacles 5557
- Fully isolated terminals to protect contacts from damage
- Peg-mounted vertical headers for increased board retention
- Drain hole option available in vertical headers

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: [5557](#) single row receptacle
 Designed In: Millimeters

Electrical

Voltage: 600V
 Current: (Used with 16 AWG)

| Circuits | 2-3 | 4-6 | 7-10 | 12-24 |
|-------------|-----|-----|------|-------|
| Amperes-Jr. | 9 | 8 | 7 | 6 |

Electrical (cont'd)

Contact Resistance: 10mΩ max.
 Dielectric Withstanding Voltage: 1500V AC
 Insulation Resistance: 1000 MΩ min.

Mechanical

Contact Insertion Force: 1.5kg max.
 Contact Retention to Housing: 3.0kg min.
 Wire Pull-Out Force: 9.0kg min.
 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

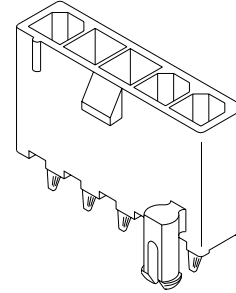
Physical

Housing: 6/6 nylon, UL 94V-2 or 94V-0
 Contact: Brass or Phosphor Bronze
 Plating: Tin, select Gold or overall Gold
 Operating Temperature: -40 to +105°C

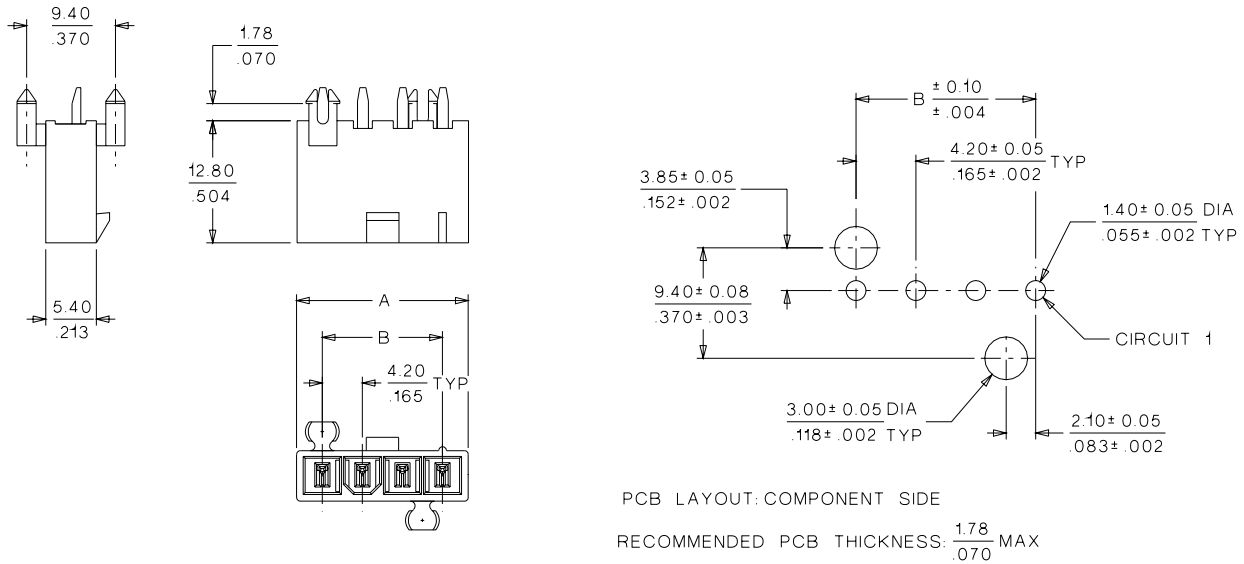
molex® 4.20mm (.165") Pitch Mini-Fit, Jr.™ Header

5566

Vertical, Single Row With Pegs



CATALOG DRAWING (FOR REFERENCE ONLY)



ORDERING INFORMATION AND DIMENSIONS

| Circuits | Order No. | | | | Drain Holes | Dimension | |
|----------|--------------|------------------------------|--------------------|------------------------------|-------------|--------------|--------------|
| | Tin Plated | | Gold Plated (30μ") | | | A | B |
| | 94V-2 | 94V-0 | 94V-2 | 94V-0 | | | |
| 3 | • 39-30-1039 | • 39-30-2030 | • 39-30-2031 | • 39-30-2032 | No | 13.80 (.543) | 8.40 (.331) |
| | • 39-30-2035 | • 39-30-2036 | • 39-30-2037 | • 39-30-2038 | Yes | | |
| 4 | • 39-30-2045 | | • 39-30-2047 | | No | 18.00 (.709) | 12.60 (.496) |
| | | | | | Yes | | |
| 5 | | • 39-30-2050 • 39-30-2056 | | • 39-30-2052 • 39-30-2058 | No | 22.20 (.874) | 16.80 (.661) |
| | | | | | Yes | | |

• US Standard Product, available through Molex franchised distributors



PRODUCT SPECIFICATION

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)

| <u>PRODUCT NAME</u> | <u>PART NUMBER</u> |
|-----------------------------|--------------------|
| 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

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

| | | | |
|--|---|--|---------------------------------|
| REVISION: C | EGR/ECN INFORMATION: EC No: UCP2004-2349 DATE: 2004 / 05 / 25 | TITLE: PRODUCT SPECIFICATION FOR MINI-FIT JR. CONNECTOR SYSTEM | SHEET No. 1 of 5 |
| DOCUMENT NUMBER: PS-5556-001 | CREATED / REVISED BY: BANDURA | CHECKED BY: BANDURA | APPROVED BY: MARGULIS |



PRODUCT SPECIFICATION

4.2 CURRENT AND APPLICABLE WIRES (continued)

| MAXIMUM CURRENT RATING (Amperes) | | | | | | | | | |
|----------------------------------|-------|-------|--------|---------|------------------|-------|-------|--------|---------|
| 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 |

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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|--|---|--|-------------------------------|
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| | | APPROVED BY: MARGULIS | |



PRODUCT SPECIFICATION

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 ± 6 mm (1 ± ¼ 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 ± 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 |
| 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 ± 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. |

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PRODUCT SPECIFICATION

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 ± 3 mm/minute. | 1.0 KGF MIN. |
| 12 | Thumb latch Operation Force | Depress latch at a speed rate of 25.4 mm/minute. | 1.7 KGF MAX. |
| 13 | Thumb latch 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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PRODUCT SPECIFICATION

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 (SO₂) | 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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NOTES:

1) HOUSING MATERIAL:

"BLANK" - NYLON 6/6, U.L. 94V-2,
COLOR: NATURAL.
210 - NYLON 6/6, U.L. 94V-0,
COLOR: NATURAL.

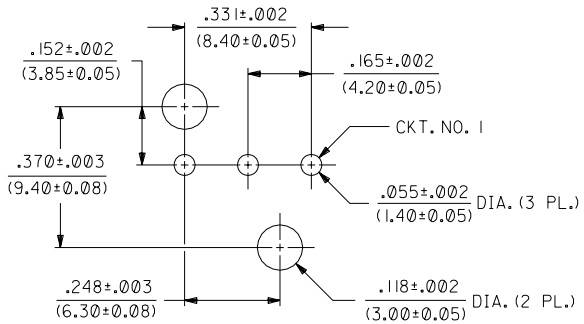
2) TERMINAL MATERIAL: BRASS ALLOY 260

3) TERMINAL PLATING:

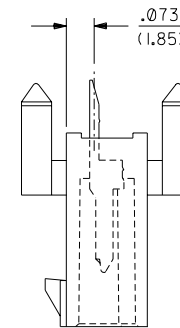
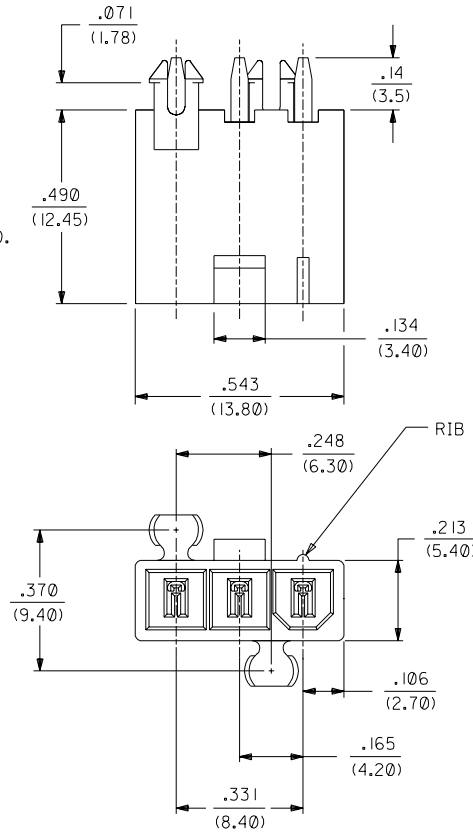
"BLANK" - .000035/(.00090) MIN. TIN OVER
.000020/(.00050) MIN. COPPER.
*GS2 - .000015/(.00038) MIN. SELECT GOLD AND
.000100/(.00254) MIN. SELECT MATTE TIN
OVER .000050/(.00127) MIN. NICKEL OVERALL.
*GS - .000030/(.00076) MIN. SELECT GOLD AND
.000100/(.00254) MIN. SELECT MATTE TIN
OVER .000050/(.00127) MIN. NICKEL OVERALL.
S - .000100/(.00254) MIN. TIN OVER
.000050/(.00127) MIN. NICKEL.

*THE PRIMARY SHIPPING CARTON WILL BE LABELED
"COMPLIANT TO RoHS DIRECTIVE 2002/95/EC AND
ELV ANNEX II OF DIRECTIVE 2000/53/EC."
CARTONS WITHOUT THIS LABEL MAY CONTAIN
PRODUCT WITH TIN-LEAD PLATING.

- 4) PART IS DESIGNED IN METRIC.
5) PART MATES WITH MINI-FIT JR. RECEPTACLE NO. 5557.
6) ALL DIMENSIONS ARE REFERENCE, UNLESS OTHERWISE SPECIFIED.
7) PRODUCT SPECIFICATION AND PROCESSING PARAMETERS:
SEE PS-5556-001



RECOMMENDED HOLE LAYOUT FOR
.070/(1.78) MAX. THICK P. C. BOARD



| PART NO. | ENG. NO. | ASS'Y. TYPE | HOUSING MAT'L. (SEE NOTE 1) | PLATING (SEE NOTE 3) |
|------------|----------------|-------------|-----------------------------|----------------------|
| 39-30-1039 | 5566-03A3 | A | "BLANK" | "BLANK" |
| 39-30-2033 | -03A3GS2 | A | ↑ | GS2 |
| 39-30-2031 | -03A3GS | A | | GS |
| 39-30-5037 | -03A3S | A | | S |
| 39-30-2035 | -03B3 | B | | "BLANK" |
| 39-30-2039 | -03B3GS2 | B | | GS2 |
| 39-30-2037 | -03B3GS | B | ↓ | GS |
| 39-30-5039 | -03B3S | B | "BLANK" | S |
| 39-30-2030 | -03A3-210 | A | 210 | "BLANK" |
| 39-30-2034 | -03A3GS2-210 | A | ↑ | GS2 |
| 39-30-2032 | -03A3GS-210 | A | | GS |
| 39-30-5038 | -03A3S-210 | A | | S |
| 39-30-2036 | -03B3-210 | B | | "BLANK" |
| 39-30-3030 | -03B3GS2-210 | B | | GS2 |
| 39-30-2038 | -03B3GS-210 | B | ↓ | GS |
| 39-30-6030 | 5566-03B3S-210 | B | 210 | S |

LEGEND

5566-03*3*-***

BASE NO. _____
CIRCUIT SIZE _____
ASS'Y. TYPE _____
A = WITHOUT DRAIN HOLES
B = WITH DRAIN HOLES
MOUNTING _____
3 = PEGS
PLATING _____
(SEE NOTE 3)
HOUSING MATERIAL _____
(SEE NOTE 1)

| | | | | | | | |
|--|----------------|------------------------------|--|--|--|---------------------------|--|
| DIMENSIONS SHOWN (METRIC) INCH UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± 1/2° | | ▽ = 0 | | ▽ = 0 | | REVISE ONLY ON CAD SYSTEM | |
| 3 PLACE ± .010 | INCH | METRIC | TITLE MINI-FIT JR. VERT. HEADER ASSY. W/PEGS, WITH & W/O DRAIN HOLE (SINGLE ROW, 3 CKT. ONLY) | | | | |
| 2 PLACE ± .015 ± 0.25 | | | MOLEX INCORPORATED SHEET NO. DATE U.S.A. 1 OF 1 6/ 7/90 | | | | |
| 1 PLACE -- ± 0.38 | | | PART NO. DRWG. NO. SEE CHART SDA-5566-03*3* | | | | |
| DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS | | FILE NAME 555663X1 001 | | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION | | | |
| DRWG. BY: GEP | CHK'D. BY: RJF | SCALE: 4 : 1 | | DIV. SIZE: CP C | | | |

| | |
|----|---|
| KI | REVISED RIB PICT. ECN #UCP2005-0449 CSTEWART,08-26-04 |
| K | REMOVED TIN-LEAD ECN #UCP2004-1788 3/23/2004 MSC |
| J | REV. PS NOTE UCP2003-0396 9/5/2002 SAMIEC |
| H | ADD .073 DIM. ECN 1140780 94-06-23 A.GUZIK |
| G | REV. PROD. SPEC. ECN U11610 GEP 8-1-91 RJF |
| F | ADDED PROD. SPEC. ECR U100831 GEP 10-24-90 RJF |
| E | REDRAWN ON CAD ECR U100422 GEP 6-7-90 RJF |