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ELECTRONICS

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Jameco Part Number 741407

FEATURES AND SPECIFICATIONS

Features and Benefits

- Positive housing locks to mate with Mini-Fit, Jr. receptacles
- Fully isolated terminals to protect contacts from damage
- Mini-Fit, BMI connectors have the capability of being selectively loaded with longer pins for grounding
- 43759 is a first-mate/last-break header

Reference Information

Product Specification: PS-5556-0002 Packaging: Tray and bag

UL File No.: E29179 CSA File No.: LR19980 TUV License No.: R75142

Mates With: 42385, 42474, 44475 and 5557

dual row receptacles

Use With: Standard Mini-Fit terminals

Designed In: Millimeters

7-10

10

4-6

8

11

12-24

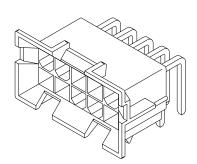
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9

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

42404/43759

Right Angle Dual Row



Mechanical

Electrical

Voltage: 600V

Circuits

Amperes-BMI

Amperes-BMI with HCS

Current: (Used with 16 AWG)

Contact Resistance: $10m\Omega$ max.

Dielectric Withstanding Voltage: 1500V

Insulation Resistance: $1000 \text{ M}\Omega$ min.

2-3

9

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

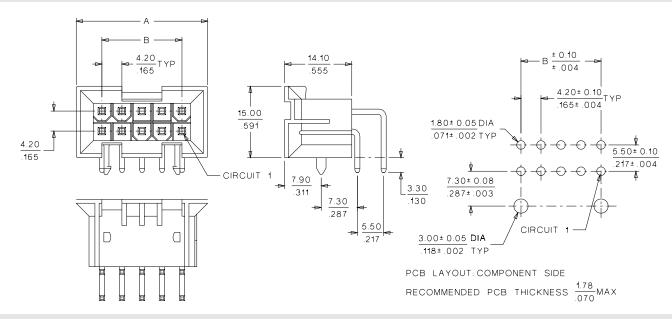
Physical

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

		Order No.				Dimension	
Circuits	Tin F	lated	Gold Plated			n	
	94V-2	94V-0	94V-2	94V-0	T A	В	
4	• 15-24-6040	• 15-24-9044	• 15-24-9043	• 15-24-9045	15.00 (.590)	4.20 (.165)	
6	• 15-24-6060	• 15-24-9064	• 15-24-9063	• 15-24-9065	19.20 (.760)	8.40 (.331)	
10	• 15-24-6100	• 15-24-9104	• 15-24-9103	• 15-24-9105	27.60 (1.090)	16.80 (.661)	
14	• 15-24-6140	• 15-24-9144	• 15-24-9143	• 15-24-9145	36.00 (1.420)	25.20 (.992)	
16		• 15-24-9164		• 15-24-9165	40.20 (1.580)	29.40 (1.157)	
18	• 15-24-6180	• 15-24-9184	• 15-24-9183	• 15-24-9185	44.40 (1.750)	33.60 (1.323)	
24	• 15-24-6240	• 15-24-9244	• 15-24-9243	• 15-24-9245	57.00 (2.240)	46.20 (1.819)	
36	• 43759-0001				82.20 (3.240)	71.40 (2.811)	

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

MX01 F-67



MINI-FIT BMI

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, and The MINI-FIT BMI 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	<u>PART NUMBER</u>
Female Crimp Terminal	5556-***
Male Crimp Terminal	5558-***
Receptacle Housing	42474-***
Plug Housing	42475-***
Vertical Header Assembly	42440-***
Right Angle Header Assembly	42404-***
Receptacle Header Assembly	42385-***
Plug Housing	43588-06*1
Right Angle Header Assembly	44499-***

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

DEVICION. FOR/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

REVISION:	EC No: UCP2005-1352	PRODUCT SPECIFICATION FOR MINI-FIT BMI		1 of 5	
D3	DATE: 2005 / 01 / 05	CONNECTOR SYSTEM		1013	
DOCUMENT NUMBER:		CREATED / REVISED BY:	CHECKED BY:	APPRO\	/ED BY:
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4.2 CURRENT AND APPLICABLE WIRES (continued)

	MAXIMUM CURRENT RATING (Amperes)								
Brass				Phosphor Bronze					
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]

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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 Mate and Unmate 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	Crimp 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	Terminal Pin to Header Retention Force	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 $\pm \frac{1}{4}$ inch) per minute.	4.45 N (1.00 lbf) MINIMUM retention force
4	Durability Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.		20 milliohms MAXIMUM
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 & Discontinuity < 1 microsecond

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5.2 MECHANICAL REQUIREMENTS (continued)

		• • • • • • • • • • • • • • • • • • • •	
7	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.
8	Crimp 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
9	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]
10	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)	49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force
11	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

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 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	

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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 Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 Visual: No Damage
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5.3 ENVIRONMENTAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
4	Solderability	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)
5	Solder Resistance	Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 235 ± 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: $40 \pm 3^{\circ}C$	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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