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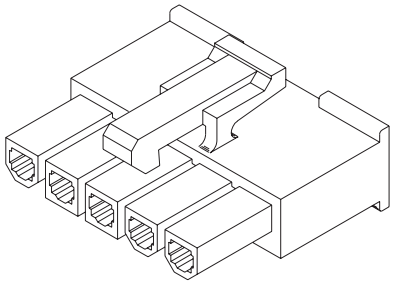
Jameco Part Number 1968689

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

5557
Single Row



Circuits	Order No.	
	94V-2	94V-0
3*	39-01-4030	39-01-4031
4	39-01-4040	39-01-4041
5	39-01-4050	39-01-4051

*3-circuit receptacle designed for first-mate/last-break applications

Features and Benefits
- Low profile design to accommodate height constraints
- Fully isolated terminals to protect contacts from damage
- For wire-to-wire or wire-to-board applications

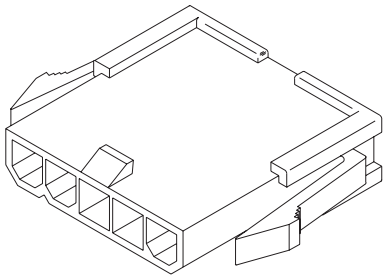
Reference Information
Packaging: Bag
UL File No.: E29179
CSA File No.: LR19980
TUV License No.: R75142
Mates With: 5559, 5566 and 5569 single row connectors
Use With: 5556, 46083 or 45750 terminals
Designed In: Millimeters

Mechanical
Contact Insertion Force: 1.5kg max.
Contact Retention to Housing: 3.0kg min.

Physical
Housing: 6/6 nylon, UL 94V-2 or 94V-0
Operating Temperature: -40 to +105˚C

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

5559
Single Row, with and Without Panel Mount Ears



Circuits	Order No.			
	Panel Mount		Free Hanging	
	94V-2	94V-0	94V-2	94V-0
3*	39-01-4032	39-01-4033	39-01-4036	39-01-4037
4	39-01-4042	39-01-4043	39-01-4046	39-01-4047
5	39-01-4052	39-01-4053	39-01-4056	39-01-4057

*3-circuit plug designed for first-mate/last-break applications

Features and Benefits
- Wire-to-wire plug for panel-mounted or free-hanging applications
- Available with and without panel mounting ears
- Positive housing locks to mate with Mini-Fit Jr. receptacle
- Fully isolated terminals to protect contacts from damage

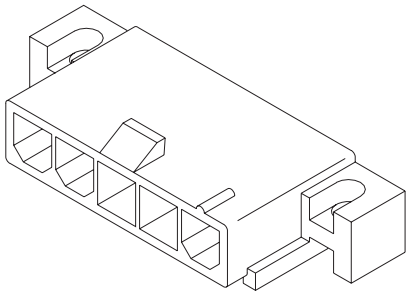
Reference Information
Packaging: Bag
UL File No.: E29179
CSA File No.: LR19980
TUV License No.: R75142
Mates With: 5557 single row receptacle
Use With: 5558, 30490, 46134 or 46012 terminals
Panel Thickness: .079 to 2.00mm (.031 to 0.80")
Designed In: Millimeters

Mechanical
Contact Insertion Force: 1.5kg max.
Contact Retention to Housing: 3.0kg min.

Physical
Housing: 6/6 nylon, UL 94V-2 or 94V-0
Operating Temperature: -40 to +105˚C

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

5569
Right Angle, Single Row With Flanges



Features and Benefits
- Flanges allow for screw-in retention to board-mounted headers
- Low profile is ideal for power applications with space constraints

Reference Information
Packaging: Tray or bag
UL File No.: E29179
CSA File No.: LR19980
TUV License No.: R75142
Mates With: 5557 single row receptacle
PCB Thickness: 1.60mm (.062")
Process: Wave solder
Designed In: Millimeters

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

Series	Circuits			
	2-3	4-6	7-10	12-24
46083	9.0A	8.0A	7.0A	6.0A
45750	12.0A	12.0A	12.0A	11.0A

Contact Resistance: 10 milliohms max.
Dielectric Withstanding Voltage: 1500V AC
Insulation Resistance: 1000 Megohms min.

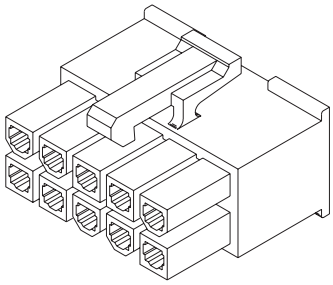
Mechanical
Insertion Force to PCB: 5.0kg max.
Durability: 30 cycles

Physical
Housing: 6/6 nylon, UL 94V-2 or 94V-0
Contact: Brass
Plating: Tin or Select Gold
Underplating: Nickel
Operating Temperature: -40 to +105˚C

Circuits	Order No.				Lead-free
	Tin Plated		Select Gold Plated		
	94V-2	94V-0	94V-2	94V-0	
3	39-30-6039	39-30-7030	39-30-4037	39-30-4038	Yes
4	39-30-6049		50-30-4443		

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

5557
Dual Row



Features and Benefits
- Positive housing lock for secure mating retention
- Fully isolated terminals to protect contacts from damage
- Thumblatch for easy unmating

Reference Information
Packaging: Bag
UL File No.: E29179
CSA File No.: LR19980
TUV License No.: R75142
Mates With: 5559, 5566, 5569, 42404, 42440, 42475, 43810, 43879 and 44068 dual row connectors
Use With: 5556, 46083 or 45750 terminals
Designed In: Millimeters

Electrical
Current: (Used with 16 AWG)

Series	Circuits			
	2-3	4-6	7-10	12-24
46083	9.0A	8.0A	7.0A	6.0A
45750	12.0A	12.0A	12.0A	11.0A

Mechanical
Contact Insertion Force: 1.5kg max.
Contact Retention to Housing: 3.0kg min.

Physical
Housing: 6/6 nylon, UL 94V-2 or 94V-0
Operating Temperature: -40 to +105˚C

Circuits	Order No.	
	94V-2	94V-0
2	39-01-2020	39-01-2025
4	39-01-2040	39-01-2045
6	39-01-2060	39-01-2065
8	39-01-2080	39-01-2085
10	39-01-2100	39-01-2105
12	39-01-2120	39-01-2125

Circuits	Order No.	
	94V-2	94V-0
14	39-01-2140	39-01-2145
16	39-01-2160	39-01-2165
18	39-01-2180	39-01-2185
20	39-01-2200	39-01-2205
22	39-01-2220	39-01-2225
24	39-01-2240	39-01-2245

PRODUCT SPECIFICATION

MINI-FIT JR.

Table of Contents

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)

Table 1 – WIRE-TO-WIRE

Description	Series Number	RoHS	UL	CSA	TUV
Female Crimp Terminal	5556	Yes	n/a	n/a	n/a
Receptacle Housing	5557	Yes	Yes	Yes	Yes
Male Crimp Terminal	5558	Yes	n/a	n/a	n/a
Plug Housing	5559	Yes	Yes	Yes	Yes

Table 2 – WIRE-TO-BOARD

Description	Series Number	RoHS	UL	CSA	TUV
Female Crimp Terminal	5556	Yes	n/a	n/a	n/a
Receptacle Housing	5557	Yes	Yes	Yes	Yes
Vertical Header	5566	Yes	Yes	Yes	Yes
Right Angle Header	5569	Yes	Yes	Yes	Yes

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 APPLICABLE WIRES

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

4.3 MAXIMUM CURRENT RATING (Amperes)

Table 3 - 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

Note: PCB trace design may greatly affect temperature rise results in Wire-to-Board Applications.

4.4 TEMPERATURE

Operating: * - 40℃ to + 105℃
Nonoperating: - 40℃ to + 105℃
**Including 30℃ terminal temperature at rated current*

4.5 WAVE SOLDER PROCESS TEMPERATURE

Headers with pegs: 240℃ Maximum
Headers without pegs: 260℃ Maximum

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	**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
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℃ 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 and 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

5.2 MECHANICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
4	**Vibration (Random)**	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) and 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 and 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.	Sn	1.47 N (150 grams) MINIMUM
			Au	0.49 N (50 grams) MINIMUM
9	**Panel Insertion and Withdrawl Forces**	Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. (Applies only to plugs with panel retention feature)	225 N (50.7 lbf) MAXIMUM insertion force and 157 N (35.3 lbf) MINIMUM withdrawl force	
10	**Thumblatch Operation Force**	Depress latch at a speed rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	16.67 N (3.75 lbf) MAXIMUM	
11	**Thumblatch Yield Strength**	Mate loaded connectors fully. Pull apart via wires at a speed rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	68 N (15.3 lbf) MINIMUM	

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℃	20 milliohms MAXIMUM and Visual: No Damage
3	**Humidity (Steady State)**	Mate connectors: expose to a temperature of 60 ± 2℃ with a relative humidity of 90-95% for 96 hours.	20 milliohms MAXIMUM Visual: No Damage Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4
4	**Cold Resistance**	Mate connectors: Duration: 96 hours; Temperature: -40 ± 3℃	20 milliohms MAXIMUM and Visual: No Damage
5	**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℃	20 milliohms MAXIMUM and Visual: No Damage

6.0 WIRE-TO-BOARD PERFORMANCE

6.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQURIEMENT
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
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℃ MAXIMUM

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 and 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

6.2 MECHANICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
4	**Vibration (Random)**	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) and 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 and 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.	Sn	1.47 N (150 grams) MINIMUM
			Au	0.49 N (50 grams) MINIMUM
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)	49.0 N (11.0 lbf) MAXIMUM insertion force and 10.0 N (2.24 lbf) MINIMUM withdrawal force	
10	**Pin Retention Force**	Apply axial push force at the speed rate of 25 ± 3mm/minute.	9.81 N (2.20 lbf) MINIMUM RETENTION FORCE	
11	**Thumblatch Operation Force**	Depress latch at a speed rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	16.67 N (3.75 lbf) MAXIMUM	
12	**Thumblatch Yield Strength**	Mate loaded connectors fully. Pull apart via wires at a speed rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	68 N (15.3 lbf) MINIMUM	

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 Visual: No Damage Dielectric Strength per 6.1.5 Insulation Resistance per 6.1.4
2	**Thermal Aging**	Mate connectors; expose to: 96 hours at 105 ± 2℃	20 milliohms MAXIMUM and Visual: No Damage
3	**Humidity (Steady State)**	Mate connectors: expose to a temperature of 60 ± 2℃ with a relative humidity of 90-95% for 96 hours.	20 milliohms MAXIMUM Visual: No Damage Dielectric Strength per 6.1.5 Insulation Resistance per 6.1.4
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℃	Visual: No Damage to insulator material
6	**Cold Resistance**	Mate connectors: Duration; 96 hours; Temperature: -40 ± 3℃	20 milliohms MAXIMUM and 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℃	20 milliohms MAXIMUM and Visual: No Damage

7.0 TEST SEQUENCES

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

8.0 PACKAGING

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

PART NO.	ENG. NO.	CKT SIZE	MATERIAL (SEE NOTE 1)
39-01-4030	5557-03R2	3	UL 94V-2
39-01-4031	5557-03R2-210	3	UL 94V-0
39-01-5039	5557-03R2-BL	3	UL 94V-2, BLACK

LEGEND

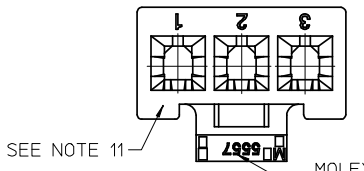
5557-03R2-***

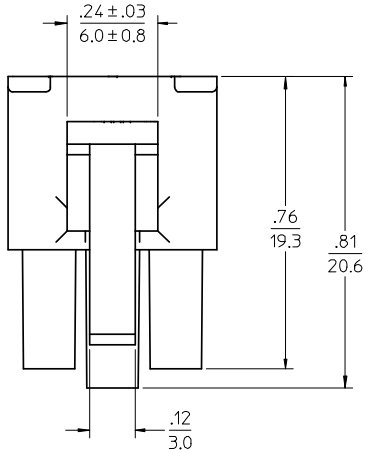
CKT SIZE

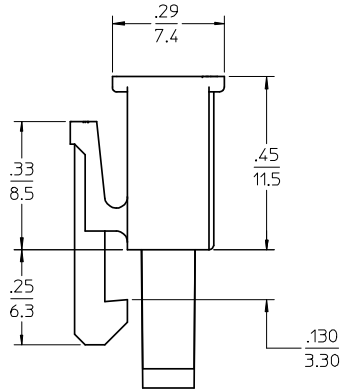
RECEPTACLE

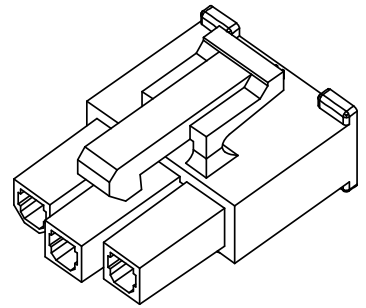
MATERIAL OPTION: (SEE NOTE 1)

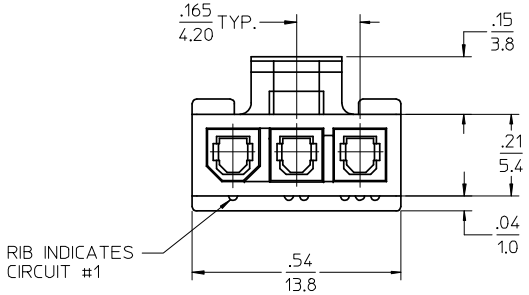
NOTES:
1. MATERIAL:
   "BLANK"=NYLON 6/6, UL94V-2, COLOR: NATURAL
   "210"=NYLON 6/6, UL94V-0, COLOR: NATURAL
   "BL"=NYLON 6/6, UL94V-2, COLOR: BLACK
2. FINISH: NOT APPLICABLE
3. PRODUCT SPECIFICATION: PS-5556-001
4. PACKAGING: PK-5557-002
5. PART MATES WITH MOLEX RIGHT ANGLE HEADER #5569-03A*, VERTICAL HEADER #5566-03A3* AND PLUG #5559-03P*.
6. PART TO BE USED WITH MOLEX FEMALE TERMINAL #5556.
7. WHEN MATING WITH ANOTHER CONNECTOR, THE CENTER CIRCUIT WILL "MAKE FIRST AND BREAK LAST".
8. PART IS NOT DESIGNED FOR CURRENT SHARING.
9. CONNECTOR ASSEMBLIES ARE NOT TO BE MATED OR UNMATED WHILE CIRCUITS ARE LIVE.
10. WIRES ARE TO BE DRESSED IN SUCH A MANNER TO ALLOW THE TERMINALS TO FLOAT FREELY IN THE POCKET.
11. "MX" TRADEMARK MAY BE LOCATED ON LATCH OR SURFACE INDICATED. CAVITY NO. MAY BE LOCATED ON EITHER SIDE OF ENGINEERING NO. ON LATCH.
12. PART CONFORMS TO CLASS "B" REQUIREMENTS OF COSMETIC SPECIFICATION PS-45499-002.











REVISE NOTE 11
EC NO: UCP2007-2526 2008/08/19
DRWN:GAVERILL 2008/08/19
CH'KD: JBELL
APPR:FSMITH 2008/08/22
DESCRIPTION
REV G

QUALITY SYMBOLS
▼=0
▽(C)=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± .010
2 PLACES	± 0.25	± .015
1 PLACE	± 0.38	± ---
ANGULAR ±1/2°		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE: IN/MM
SCALE: 4:1
DESIGN UNITS: METRIC
THIRD ANGLE PROJECTION

		DATE
DRAWN BY	GEP	1990/10/02
CHECKED BY	RJF	1990/10/02
APPROVED BY	RAS	1990/10/02

TITLE: 3 CIRCUIT RECEPTACLE, (MINI-FIT JR.) (MAKE-FIRST/BREAK-LAST)

MOLEX INCORPORATED

MATERIAL NO.: SEE CHART
DOCUMENT NO.: SD-5557-03R2*
SHEET NO.: 1 OF 1
SIZE: C

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