





MINI-FIT BMI CONNECTOR SYSTEM

Female Crimp Terminal	Male Crimp Terminal
	
Series: 5556	Series: 5558



Receptacle Housing Single Row	Receptacle Housing Dual Row
	
Series: 5557	Series: 5557



[MOLEX MINI-FIT JR. WEB PAGE](#)


[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 1 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

Receptacle Housing, BMI	Plug Housing, BMI
	
Series: 42474	Series: 42475

Receptacle Header, BMI	Vertical Header, BMI
	
Series: 42385 , 42416	Series: 42440 , 43693

Right Angle Header, BMI

Series: 42404 , 43644 , 44499 , 44151

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 2 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

Table of Contents

<u>ITEMS</u>	<u>PAGE</u>
1.0 SCOPE	4
2.0 PRODUCT DESCRIPTION	4
2.1 PRODUCT NAME AND SERIES NUMBER (S)*	4
2.2 DIMENSIONS, MATERIALS, PLATING AND MARKINGS	5
2.3 ENVIRONMENTAL CONFORMANCE	5
2.4 SAFETY AGENCY APPROVALS	5
3.0 APPLICABLE DOCUMENTS AND SPECIFICATION	6
3.1 MOLEX DOCUMENTS	6
3.2 INDUSTRY DOCUMENTS	6
4.0 ELECTRICAL PERFORMANCE RATINGS	7
4.1 VOLTAGE AND SAFETY AGENCY RATINGS*	7
4.2 APPLICABLE WIRES	7
4.3 MAXIMUM CURRENT RATING**	7
4.4 TEMPERATURE	9
4.5 DURABILITY	9
4.6 GLOW WIRE SERIES	9
5.0 QUALIFICATION	9
6.0 WIRE-TO-WIRE PERFORMANCE	10
6.1 ELECTRICAL PERFORMANCE	10
6.2 MECHANICAL PERFORMANCE	11
6.3 ENVIRONMENTAL PERFORMANCE	13
7.0 WIRE-TO-BOARD PERFORMANCE	14
7.1 ELECTRICAL PERFORMANCE	14
7.2 MECHANICAL PERFORMANCE	15
7.3 ENVIRONMENTAL PERFORMANCE	17
8.0 BOARD-TO-BOARD PERFORMANCE	18
8.1 ELECTRICAL PERFORMANCE	18
8.2 MECHANICAL PERFORMANCE	19
8.3 ENVIRONMENTAL PERFORMANCE	20
9.0 TEST SEQUENCE GROUPS	21
10.0 SOLDER INFORMATION	23
11.0 PACKAGING	23
12.0 GAGES AND FIXTURES	23
13.0 CABLE TIE AND/ OR TWIST LOCATION	24
14.0 POLARIZATION AND KEYING OPTIONS	25

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 3 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

1.0 SCOPE

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

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME 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
Receptacle Housing, BMI	44516	Yes	Yes	No
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

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 4 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

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, PLATING AND MARKINGS

Dimensions & Plating: See individual sales drawings.

2.3 ENVIRONMENTAL CONFORMANCE

To find product compliance information:

- [Go to molex.com](http://molex.com)
- Enter the part number in the search field.
- At the bottom of the page go to "Environmental" to see compliance status.

2.4 SAFETY AGENCY APPROVALS

UL File: E29179
 CSA Certificate: LR 19980
 TUV Certificate: R72081037

Note: Safety agency approval is granted for the connector assembled with its associated terminals. The approval is documented in the agency file/license by the series number of the housing only. The terminal series number will not appear in the agency file/license as a stand-alone approved product. As a result, only the housings may bear the agency certification mark. Please note that even though the housings are marked as approved product, the safety agency approval does not apply if any terminals are installed other than those established for use with the product.

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 5 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

- [Mini-Fit BMI Connectors Test summary TS-5556-002-001](#)
- [Mini-Fit Jr. Appearance Specification AS-5557-001](#)
- [Molex Quality Crimping Handbook Order No. 63800-0029](#)
- [Molex Solderability Specification SMES-152](#)
- [Molex Heat Resistance Specification AS-40000-5013](#)
- [Molex Moisture Technical Advisory AS-45499-001](#)
- [Molex Package Handling Specification 454990100-PK](#)
- ATS – Application Tooling Specification*

See individual part sales drawings for other applicable documents and specifications.

*Application Tooling Specification for terminals is not provided in this document. ATS for terminals can be available from respective terminal part number page in Molex.com

3.2 INDUSTRY DOCUMENTS

- EIA-364-1000
- UL 1977
- CSA STD. C22.2 NO. 182.3-M1987
- IEC 61984

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 6 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE AND SAFETY AGENCY RATINGS*

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

* Voltage rating based on UL 1977. Maximum voltage allowed may vary dependent upon "End Use Application". Refer to the applicable end use standard for additional information on Voltage, Creepage and Clearance requirements.

4.2 APPLICABLE WIRES

Applicable Wire Gauges and Maximum Insulation Diameter	16 AWG Stranded, Copper: 3.15mm / .124 inches
	18-24 AWG Stranded, Copper: 3.10mm / .122 inches
	22-28 AWG Stranded, Copper: 1.80 mm / .071 inches

4.3 MAXIMUM CURRENT RATING**

Table 4 – MAXIMUM CURRENT RATING (Amperes) 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

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 7 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

Table 5 – MAXIMUM CURRENT RATING (Amperes) 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 – MAXIMUM CURRENT RATING (Amperes) 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

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 8 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

4.4 TEMPERATURE

	Terminal Type		
	Formed Brass	Solid Brass	Phos Bronze
Operating: *	-40°C to +80°C	-40°C to +105°C	-40°C to +105°C
Nonoperating:	-40°C to +80°C	-40°C to +105°C	-40°C to +105°C

Field Temperature and Field Life: 65° C for 3 years (based EIA-364-1000, table 8)*

NOTE: Temperature life test duration (section 6.3, 7.3, 8.3 item 2) is based on the assumption that the contact spends its entire life at the rated field maximum temperature (based on EIA-364-1000, table 8).

*Temperature values include 30°C terminal temperature rise at maximum rated current

4.5 DURABILITY

	Tin Plated Terminals	Gold Plated Terminals
Wire-to-Board	30 mating cycles	30 mating cycles
Board-to-Board	75 mating cycles	100 mating cycles

As tested in accordance with EIA-364-1000 test methods (see sec 6.2.3, 7.2.5 & 8.2.4 of this specification). Durability per EIA-364-09

4.6 GLOW WIRE SERIES

The following series include glow wire capable options: 42475, 42385, 44516.

Representative samples of 42475 and 42385 were tested and found compliant with EN 60695-2-11-2001 / IEC 60695-2-11-2000 Glow Wire Test Methods for End-Products. These were additionally investigated for compliance with EN 60335-1 / IEC 60335-1 750C / 2 sec with no flaming. VDE Test report available upon request.

5.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with EIA-364-1000.

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 9 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

6.0 WIRE-TO-WIRE PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	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]
6.1.2	Insulation Resistance	Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
6.1.3	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
6.1.4	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

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 10 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.1	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
6.2.2	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
6.2.3	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)
6.2.4	Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
6.2.5	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
6.2.6	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.
6.2.7	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
6.2.8	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]

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 11 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

6.2 MECHANICAL PERFORMANCE (CONTD.)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.9	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 with PCB holes at nominal diameter)	49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force
6.2.10	Thumb Latch Operation Force	Depress latch at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	16.67 N (3.75 lbf) MAXIMUM
6.2.11	Thumb Latch Yield Strength	Mate loaded connectors fully. Pull connectors apart at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	68 N (15.29 lbf) MINIMUM
6.2.12	Panel Insertion and Withdrawal Forces (for 42474)	Insert and withdraw a connector at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	225 N (50.7 lbf) MAXIMUM INSERTION FORCE & 157 N (35.3 lbf) MINIMUM WITHDRAWAL FORCE
6.2.13	Panel Insertion and Withdrawal Forces (for 44516)	Insert and withdraw a connector at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	0.0 MAXIMUM INSERTION FORCE & 157 N (35.3 lbf) MINIMUM WITHDRAWAL FORCE
6.2.14	Panel Insertion and Withdrawal Forces (for 42475)	Insert and withdraw a connector at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 12 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.1	Thermal Shock	Mate connectors: expose for 5 cycles Between temperatures -55°C and 105°C ; Dwell 0.5 hours at each temperature.	20 milliohms MAXIMUM (change from initial) Visual: No Damage Dielectric Strength per 6.1.3 Insulation Resistance per 6.1.2
6.3.2	Thermal Aging	Mate connectors; expose to: 96 hours at $105 \pm 2^{\circ}\text{C}$	20 milliohms MAXIMUM (change from initial) & Visual: No Damage
6.3.3	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 6.1.3 Insulation Resistance per 6.1.2 Visual: No Damage
6.3.4	Mixed Flowing Gas	EIA-364-65 with Class II a Gas concentrations (Gold plated only)	20 milliohms MAXIMUM (change from initial) Visual: No Damage

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 13 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

7.0 WIRE-TO-BOARD PERFORMANCE

7.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
7.1.1	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]
7.1.2	Insulation Resistance	Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
7.1.3	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
7.1.4	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

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 14 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

7.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
7.2.1	Terminal Mate and Unmate Forces Per Circuit	Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	14.7 N (3.30 lbf) MAXIMUM insertion force & 0.5 N (0.11 lbf) MINIMUM withdrawal force
7.2.2	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
7.2.3	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 ($1 \pm \frac{1}{4}$ inch) per minute.	9.81 N (2.20 lbf) MINIMUM retention force
7.2.4	Stamped PC Tail Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	30 N (6.74 lbf) MINIMUM retention force
7.2.5	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)
7.2.6	Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
7.2.7	Shock (Mechanical)	Mate connectors and shock at 50 g's with $\frac{1}{2}$ sine wave (11 milliseconds) shocks in the $\pm X$, $\pm Y$, $\pm Z$ axes, (18 shocks total).	20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
7.2.8	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.
7.2.9	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

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 15 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

7.2 MECHANICAL PERFORMANCE (CONTD.)

ITEM	DESCRIPTION	Test Condition	Requirement
7.2.10	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]
7.2.11	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 with PCB holes at nominal diameter)	49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force
7.2.12	Thumb Latch Operation Force	Depress latch at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	16.67 N (3.75 lbf) MAXIMUM
7.2.13	Thumb Latch Yield Strength	Mate loaded connectors fully. Pull connectors apart at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	68 N (15.29 lbf) MINIMUM
7.2.14	Panel Insertion and Withdrawal Forces (for 42474)	Insert and withdraw a connector at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force
7.2.15	Panel Insertion and Withdrawal Forces (for 44516)	Insert and withdraw a connector at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	0.0 MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force
7.2.16	Panel Insertion and Withdrawal Forces (for 42475)	Insert and withdraw a connector at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 16 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

7.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
7.3.1	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 7.1.3 Insulation Resistance per 7.1.2
7.3.2	Thermal Aging	Mate connectors; expose to: 96 hours at $105 \pm 2^{\circ}\text{C}$	20 milliohms MAXIMUM (change from initial) & Visual: No Damage
7.3.3	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 7.1.3 Insulation Resistance per 7.1.2 Visual: No Damage
7.3.4	Solderability	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)
7.3.5	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
7.3.6	Mixed Flowing Gas	EIA-364-65 with Class II a Gas concentrations (Gold plated only)	20 milliohms MAXIMUM (change from initial) Visual: No Damage

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 17 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

8.0 BOARD-TO-BOARD PERFORMANCE

8.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8.1.1	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]
8.1.2	Insulation Resistance	Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
8.1.3	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
8.1.4	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

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 18 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

8.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8.2.1	Terminal Mate and Unmate Forces Per Circuit	Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	14.7 N (3.30 lbf) MAXIMUM insertion force & 0.5 N (0.11 lbf) MINIMUM withdrawal force
8.2.2	Stamped PC Tail Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	30 N (6.74 lbf) MINIMUM retention force
8.2.3	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 ($1 \pm \frac{1}{4}$ inch) per minute.	9.81 N (2.20 lbf) MINIMUM retention force
8.2.4	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)
8.2.5	Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
8.2.6	Shock (Mechanical)	Mate connectors and shock at 50 g's with $\frac{1}{2}$ sine wave (11 milliseconds) shocks in the $\pm X$, $\pm Y$, $\pm Z$ axes, (18 shocks total).	20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
8.2.7	Normal Force	Apply a perpendicular force.	1.96 N (200 grams) MINIMUM
8.2.8	PCB Peg 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 with PCB holes at nominal diameter)	98.0 N (22.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 19 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

8.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8.3.1	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 8.1.3 Insulation Resistance per 8.1.2
8.3.2	Thermal Aging	Mate connectors; expose to: 96 hours at $105 \pm 2^{\circ}\text{C}$	20 milliohms MAXIMUM (change from initial) & Visual: No Damage
8.3.3	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 8.1.3 Insulation Resistance per 8.1.2 Visual: No Damage
8.3.4	Solderability	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)
8.3.5	Solder Temperature Heat Transfer	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
8.3.6	Mixed Flowing Gas	EIA-364-65 with Class IIa Gas concentrations (Gold plated only)	20 milliohms MAXIMUM (change from initial) Visual: No Damage

[MOLEX MINI-FIT JR. WEB PAGE](#)

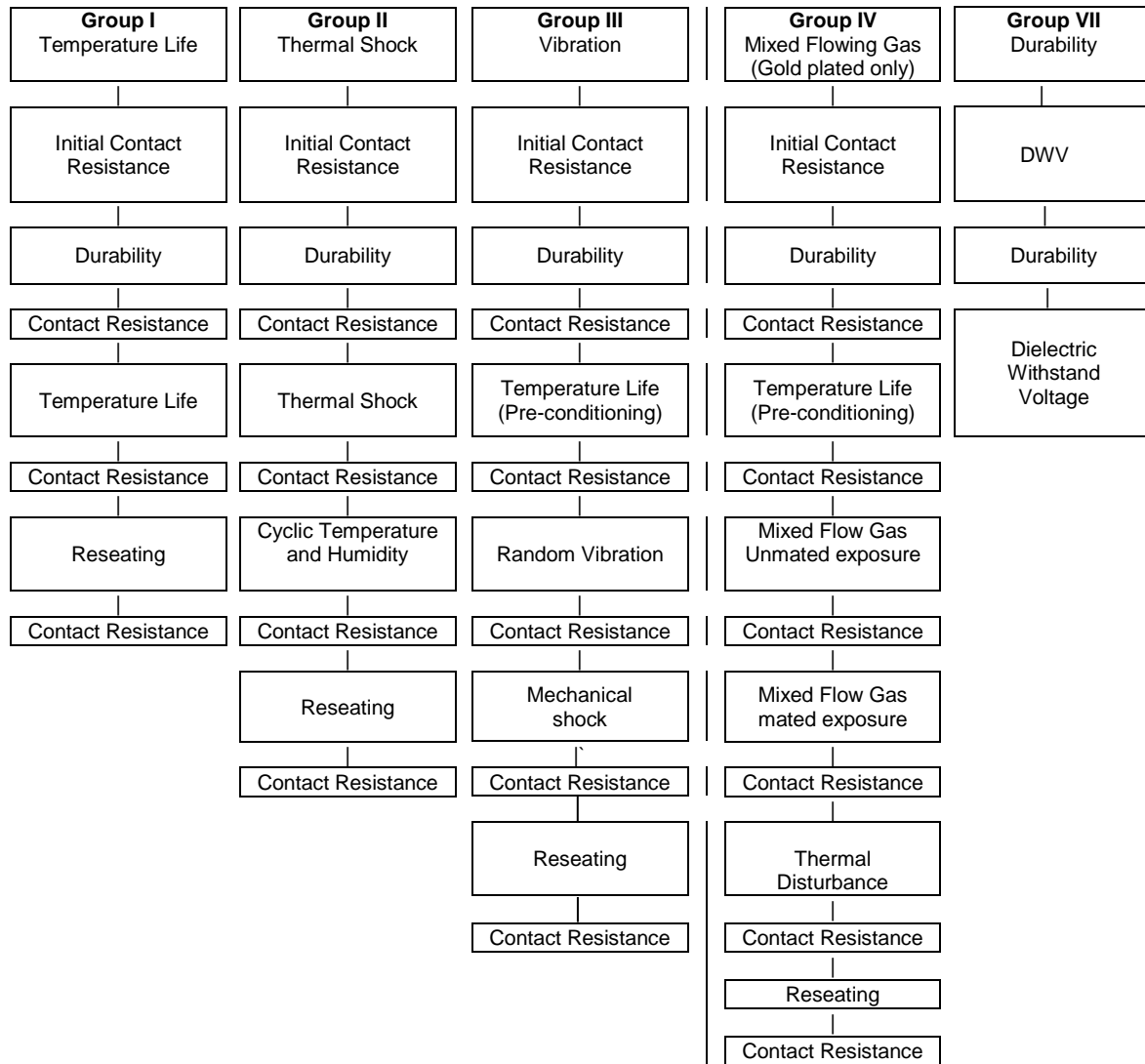
[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 20 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH

9.0 TEST SEQUENCE GROUPS

Reliability Test Sequences Per EIA-364-1000



[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 21 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

Individual Tests

Terminal mate & Unmate forces per circuit

Crimp Terminal Insertion force

Crimp Terminal Retention force

Wire Pullout force (Axial)

Normal force

PCB Peg Engagement & Separation forces

Thumb Latch operation force

Thumb Latch Yield strength

Panel insertion & withdrawal

Solid PC tail Header Pin Retention Force

Stamped PC Tail Terminal Retention Force

Temperature Rise

T-Rise Profiling

Steady State Temperature Rise

[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 22 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

10.0 SOLDER INFORMATION

These specifications establish standard solderability test methods used to evaluate a products ability to accept molten solder. Solder Process Temperatures and Reflow Solder Profiles will vary based on application, equipment, solder paste, PCB Thickness etc.

10.1 WAVE SOLDER PROCESS TEMPERATURES

Headers with pegs: 240°C MAX.
 Glow Wire Headers with pegs: 220°C MAX.
 Headers without pegs: 260°C MAX.

[Molex Solderability Specification](#)
[SMES-152](#)
[\(Click Here\)](#)

11.0 PACKAGING

Parts shall be packaged to protect against damage during normal handling, transit and storage. For specific part packaging details, refer to the packaging specification called out on the applicable product sales drawing. Nylon parts should remain in their original packaging until ready for use to prevent moisture loss or gain. Nylon will absorb moisture which causes dimensions to increase. Excess moisture gain can result in dimensions exceeding specification. See AS-45499-001.

12.0 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.

[MOLEX MINI-FIT JR. WEB PAGE](#)

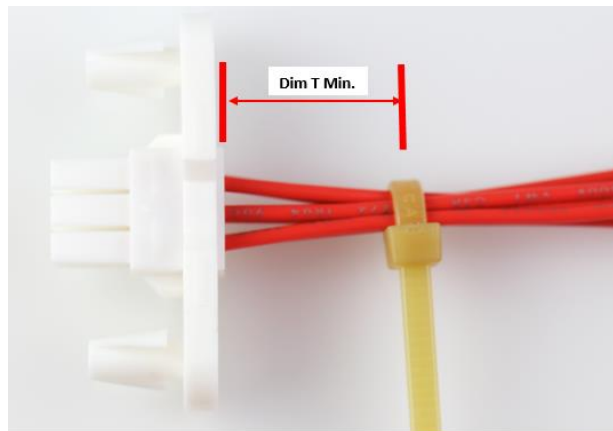
[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM				SHEET No. 23 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER	CHECKED BY: DSTEIER	APPROVED BY: FSMITH	
TEMPLATE FILENAME: 1703070003 REV A						

13.0 CABLE TIE AND/ OR TWIST LOCATION

Circuit Sizes		Dimension T Minimum
Dual Row	Single Row	
2-6	2-3	.50" (12.7 mm)
8	4	.75" (19.1 mm)
10-12	5-6	1.00" (25.4 mm)
14-16	7-8	1.25" (31.75 mm)
18-20	9-10	1.50" (38.09 mm)
22-24	11-12	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.

[MOLEX MINI-FIT JR. WEB PAGE](#)

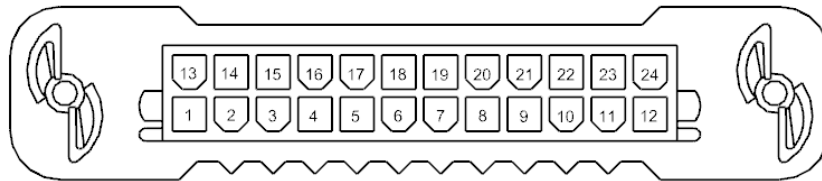
[TABLE OF CONTENTS](#)



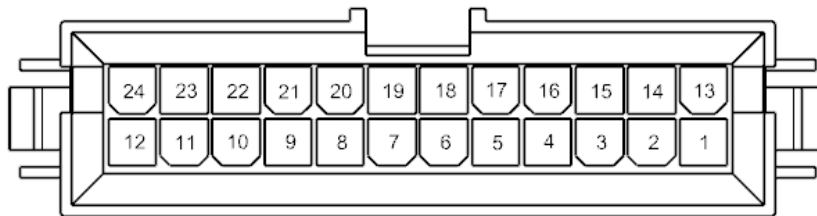
REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 24 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			

14.0 POLARIZATION AND KEYING OPTIONS

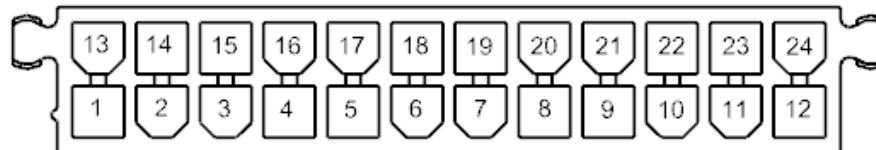
14.1 Receptacle Housing, BMI (Series: [42474](#))



14.2 Plug Housing/Right Angle/Vertical Header, BMI (Series: [42475](#) , [42404](#) , [42440](#) , [43644](#) , [44499](#) , [43693](#) , [44151](#))



14.3 Receptacle Header, BMI (Series: [42385](#) , [42416](#))



[MOLEX MINI-FIT JR. WEB PAGE](#)

[TABLE OF CONTENTS](#)



REVISION: H1	ECM INFORMATION: EC No: 632051 DATE: 2020/04/29	TITLE: PRODUCT SPECIFICATION MINI-FIT JR. BMI CONNECTOR SYSTEM	SHEET No. 25 of 25
DOCUMENT NUMBER: PS-5556-002	DOC TYPE: PS	DOC PART: 001	CREATED / REVISED BY: DSTEIER
		CHECKED BY: DSTEIER	APPROVED BY: FSMITH
TEMPLATE FILENAME: 1703070003 REV A			