



TEST SUMMARY

MINI-FIT JR. CONNECTOR SYSTEM STANDARD AND BLIND MATE INTERFACE (BMI) (WIRE TO PCB AND WIRE TO WIRE)

1.0 SCOPE

This specification covers the 4.20 mm (.165 inch) centerline connector series terminated with 18 to 24 Awg wire using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBERS:

Description	Series Number
BMI Right Angle Header	42404
BMI Vertical Header	42440
BMI Plug Housing	42475
BMI Receptacle Header	42385
BMI Receptacle	44516
BMI Receptacle	42474
Mini-Fit Jr. Receptacle Housing	5557
Mini-Fit Jr Plug Housing	5559
Mini-Fit Jr Terminal-Male	5558
Mini-Fit Jr Terminal-Female	5556
Mini-Fit Jr Vertical Header	5566
Mini-Fit Jr Right Angle Header	5569

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

2.3 PRODUCT SPECIFICATION TITLE AND DOCUMENT NUMBERS

Product Specification Title: Mini-Fit Jr BMI	Document Number: PS-5556-002
Product Specification Title: Mini-Fit Jr	Document Number: PS-5556-001
Product Specification Title: Mini-Fit BMI	Document Number: PS-44516-001

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 TESTING PROCEDURES AND SEQUENCES

None

3.2 OTHER DOCUMENTS

None

4.0 QUALIFICATIONS

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

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<u>DOCUMENT NUMBER:</u> TS-5556-002	<u>CREATED / REVISED BY:</u> NNGUYEN	<u>CHECKED BY:</u> JBELL	<u>APPROVED BY:</u> FSMITH



TEST SUMMARY

5.0 PERFORMANCE

5.1.1 ELECTRICAL PERFORMANCE RESULTS (with Brass material and Tin plating)

TEST CONDITION	TREATMENT	REQUIREMENT	UNIT	Mean	Min	Max
Contact Resistance (Low Level)	After Durability (Mated/Unmated Cycling)	20 Maximum (change from initial)	milliohm	3.09	2.85	3.39
	After Vibration	20 Maximum (change from initial)	milliohm	2.79	2.60	2.95
		Discontinuity	No Opens			
	After Thermal Shock	20 Maximum (change from initial)	milliohm	2.61	2.43	2.79
		Discontinuity	No Opens			
	After Mechanical Shock	20 Maximum (change from initial)	milliohm	2.70	2.54	2.89
		Appearance	No Damage			
	After Humidity (Steady State) 250 hours	20 Maximum (change from initial)	milliohm	2.54	2.44	2.67
		Appearance	No Damage			
	After Flowers of Sulfur	20 Maximum (change from initial)	milliohm	2.50	2.37	2.66
		Appearance	No Damage			
	After Ammonia Gas	20 Maximum (change from initial)	milliohm	2.56	2.44	2.66
		Appearance	No Damage			
	After Salt Spray	20 Maximum (change from initial)	milliohm	2.63	2.47	2.73
Appearance		No Damage				

5.1.2 ELECTRICAL PERFORMANCE RESULTS (with Phos Bronze material and Tin plating)

TEST CONDITION	TREATMENT	REQUIREMENT	UNIT	Mean	Min	Max
Contact Resistance (Low Level)	After Durability (Mated/Unmated Cycling)	20 Maximum (change from initial)	milliohm	2.45	2.36	2.56
	After Vibration	20 Maximum (change from initial)	milliohm	2.32	2.04	2.58
		Discontinuity	No Opens			
	After Mechanical Shock	20 Maximum (change from initial)	milliohm	2.38	2.11	2.69
		Discontinuity	No Opens			
	After Temperature Cycling	20 Maximum (change from initial)	milliohm	2.21	2.01	2.49
		Appearance	No Damage			

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	After Humidity (Steady State)	20 Maximum (change from initial)	milliohm	2.26	2.05	2.42
		Appearance	No Damage			
	After Flowers of Sulfur	20 Maximum (change from initial)	milliohm	2.22	2.01	2.40
		Appearance	No Damage			
	After Ammonia Gas	20 Maximum (change from initial)	milliohm	-	-	-
		Appearance	No Damage			
	After Salt Spray	20 Maximum (change from initial)	milliohm	2.32	2.07	2.55
		Appearance	No Damage			

5.1.3 ELECTRICAL PERFORMANCE RESULTS (with Brass material and Gold plating)

TEST CONDITION	TREATMENT	REQUIREMENT	UNIT	Mean	Min	Max
Contact Resistance (Low Level)	After Durability (Mated/Unmated Cycling)	20 Maximum (change from initial)	milliohm	2.62	2.24	3.35
	After Vibration	20 Maximum (change from initial)	milliohm	3.26	2.59	5.36
		Discontinuity	No Opens			
	After Mechanical Shock	20 Maximum (change from initial)	milliohm	2.98	2.47	3.69
		Discontinuity	No Opens			
	After Temperature Cycling	20 Maximum (change from initial)	milliohm	-	-	-
		Appearance	No Damage			
	After Humidity (Steady State)	20 Maximum (change from initial)	milliohm	3.05	2.32	4.69
		Appearance	No Damage			
	After Flowers of Sulfur	20 Maximum (change from initial)	milliohm	-	-	-
		Appearance	No Damage			
	After Ammonia Gas	20 Maximum (change from initial)	milliohm	-	-	-
		Appearance	No Damage			
	After Salt Spray	20 Maximum (change from initial)	milliohm	-	-	-
		Appearance	No Damage			

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5.2.1 MECHANICAL PERFORMANCE (Brass material with Tin plating)

TEST CONDITION	TREATMENT	REQUIREMENT	UNIT	Mean	Min	Max
Connector Mate and Unmate Forces (per 2 ccts)	Initial Mating	2.0 Maximum	Kgf	0.85	0.78	0.88
		(4.4) Maximum	(lbf)	(1.9)	(1.7)	(1.9)
	Final Mating	2.0 Maximum	Kgf	0.39	0.38	0.41
		(4.4) Maximum	(lbf)	(0.86)	(0.84)	(0.90)
	Initial Unmating	0.2 Minimum	Kgf	0.44	0.41	0.47
		(0.44) Minimum	(lbf)	(0.97)	(0.90)	(1.04)
Final Unmating	0.1 Minimum	Kgf	0.16	0.13	0.18	
	(0.22) Minimum	(lbf)	(0.35)	(0.29)	(0.40)	
Terminal Retention Force (to housing)	Initial-Male	3 (6.6) Minimum	Kgf (lbf)	11.5 (25)	10.5 (23)	12.5 (27)
	Initial-Female	3 (6.6) Minimum	Kgf (lbf)	13.8 (30)	12.0 (26)	15.7 (35)
Terminal Insertion Force (into housing)	Initial-Male	1.5(3.3) Maximum	Kgf (lbf)	0.38 (0.8)	0.23 (0.5)	0.54 (1.2)
	Initial-Female	1.5(3.3) Maximum	Kgf (lbf)	0.68 (1.5)	0.61 (1.3)	0.78 (1.7)
Wire Pullout Force (Wire to Terminal Retention)	18 Awg	9.0 Minimum	Kgf	11.70	10.40	12.60
		(19.9) Minimum	(lbf)	(25.80)	(22.90)	(27.80)
	20 Awg	6.0 Minimum	Kgf	12.60	10.30	13.40
		(13.2) Minimum	(lbf)	(27.80)	(22.70)	(29.50)
	22 Awg	4.0 Minimum	Kgf	7.80	6.00	8.70
		(8.8) Minimum	(lbf)	(17.20)	(13.20)	(19.20)
24 Awg	3.0 Minimum	Kgf	4.90	4.00	5.80	
	(6.6) Minimum	(lbf)	(10.80)	(8.80)	(12.80)	

5.2.2 MECHANICAL PERFORMANCE (Phos Bronze material with Tin plating)

TEST CONDITION	TREATMENT	REQUIREMENT	UNIT	Mean	Min	Max
Connector Mate and Unmate Forces (per 2 ccts)	Initial Mating	2.9 Maximum	Kgf	1.15	1.00	1.26
		(6.4) Maximum	(lbf)	(2.5)	(2.2)	(2.8)
	Final Mating	2.9 Maximum	Kgf	2.03	1.88	2.24
		(6.4) Maximum	(lbf)	(4.5)	(4.1)	(4.9)
	Initial Unmating	0.1 Minimum	Kgf	0.68	0.65	0.71
		(0.22) Minimum	(lbf)	(1.5)	(1.4)	(1.6)
Final Unmating	0.1 Minimum	Kgf	1.00	0.84	1.14	
	(0.22) Minimum	(lbf)	(2.2)	(1.85)	(2.5)	
Terminal Retention Force (to housing)	Initial-Male	3 (6.6) Minimum	Kgf (lbf)	- (-)	- (-)	- (-)
	Initial-Female	3 (6.6) Minimum	Kgf (lbf)	11.43 (25.2)	10.3 (22.7)	13.80 (30.4)
Terminal Insertion Force (into housing)	Initial-Male	1.5(3.3) Maximum	Kgf (lbf)	- (-)	- (-)	- (-)

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	Initial-Female	1.5(3.3) Maximum	Kgf (lbf)	0.81 (1.8)	0.67 (1.5)	1.06 (2.3)
Wire Pullout Force (Wire to Terminal Retention)	18 Awg	9.0 Minimum	Kgf	16.8	15.7	18.4
		(19.9) Minimum	(lbf)	(37.0)	(34.6)	(40.6)
	20 Awg	6.0 Minimum	Kgf	13.4	12.7	14.3
		(13.2) Minimum	(lbf)	(26.5)	(28.0)	(31.5)
	22 Awg	4.0 Minimum	Kgf	8.3	7.7	8.6
		(8.8) Minimum	(lbf)	(18.3)	(17.0)	(19.0)
24 Awg	3.0 Minimum	Kgf	4.9	4.2	5.9	
	(6.6) Minimum	(lbf)	(10.8)	(9.3)	(13.0)	

5.3.1 ENVIRONMENTAL PERFORMANCE (with Brass Material and Tin plating)

TEST CONDITION	Wire Awg	Amps	REQUIREMENT	Max Temp Rise Degrees C
Temperature Rise & Current Cycling	18	2A	30 Deg C max temp rise	2.6
	18	4A	30 Deg C max temp rise	9.7
	18	6A	30 Deg C max temp rise	21.1
	18	7.5A	30 Deg C max temp rise	32.2
	20	1A	30 Deg C max temp rise	1.1
	20	3A	30 Deg C max temp rise	9.2
	20	5A	30 Deg C max temp rise	23.6
	20	6A	30 Deg C max temp rise	33
	22	2A	30 Deg C max temp rise	5.2
	22	3A	30 Deg C max temp rise	11.4
	22	4A	30 Deg C max temp rise	19.5
	22	5A	30 Deg C max temp rise	30.4
	24	1A	30 Deg C max temp rise	2.2
	24	2A	30 Deg C max temp rise	8.1
	24	3A	30 Deg C max temp rise	17.6
24	4A	30 Deg C max temp rise	30.2	

5.3.2 ENVIRONMENTAL PERFORMANCE (with Phos Bronze Material and Tin plating)

TEST CONDITION	Wire Awg	Amps	REQUIREMENT	Max Temp Rise Degrees C
Temperature Rise & Current Cycling	22	1A	30 Deg C max temp rise	1.6
	22	2A	30 Deg C max temp rise	6.7
	22	3A	30 Deg C max temp rise	13.4
	22	4A	30 Deg C max temp rise	21.4
	22	5A	30 Deg C max temp rise	31.8
	24	1A	30 Deg C max temp rise	2.3
	24	2A	30 Deg C max temp rise	8.5
	24	3A	30 Deg C max temp rise	18.2
	24	4A	30 Deg C max temp rise	30.2

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