

MINIFIT SR. SILVER PLATED POWER CONNECTOR

1.0 SCOPE

This specification covers the 10.00 mm / (.394 in.) centerline silver plated connector series, single and dual row versions in wire to wire and wire to board applications.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND PART NUMBER(S)

<u>Product Name</u>	<u>Part Number</u>
Female Terminal	42815-***4
Male Terminal	42817-***4
Receptacle (single row)	42816-****
Plug (single row)	42818-****
Vertical Header (single row)	42819-***4
Right Angle Header (single row)	42820-***4
Receptacle (dual row)	43914-****
TPA (dual row)	43980-****
Vertical Header (dual row)	43915-4**
Panel Mount Plug (dual row)	43938-****

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 NUMBER

TITLE: PRODUCT SPECIFICATION FOR MINI-FIT SR. CONNECTOR SYSTEM

Document Number: PS-42815-001

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 TESTING PROCEDURES AND SEQUENCES

Refer Section 6.0 for Test Sequences

3.2 AGENCY APPROVALS

UL File #E29179

CSA Certificate #LR 19980-555

TUV Certificate #R 9751144, #R 9950481

4.0 QUALIFICATION

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

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5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.1.1	Initial Contact Resistance (Low Level)	Apply a maximum voltage of 20 mV and a current of 100 mA.	1.50 milliohms MAXIMUM [initial]	0.23 mΩ	0.18 mΩ	0.37mΩ
5.1.2	Insulation Resistance	Apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM	> 5000MOhm		
5.1.3	Dielectric Withstanding Voltage	2200 VAC for 1 minute between adjacent terminals & terminal to ground	No Breakdown	Meets Requirement		

Maximum Temperature Rise and Current Cycling Results

Single Row 2Ckt WTW **8AWG Wire - 29.6degC@50.0A**

Below values (Maximum Temperature Rise and Current Cycling) are taken from TS-42815-001, and are applicable to silver-plated terminals

5.1.4	<u>SINGLE ROW PRODUCT</u>	<i>2ckt. W to W</i>	<i>2ckt. W to PCB</i>	<i>6ckt W to W</i>	<i>6ckt. W to PCB</i>
	16 AWG		30degC @ 20A	25.3degC @ 20A	
14 AWG		30degC @ 25A	25.8degC @ 25A		
12 AWG			28degC @ 32A		26degC @ 28A
10 AWG			28degC @ 40A		29degC @ 33.5A
8 AWG			30degC @ 48A	28degC @ 45A	28degC @ 37A
12AWG Double Crimp			28degC @ 45A (22.5A per wire)		
	<u>DUAL ROW PRODUCT</u>	<i>6ckt. W to W</i>	<i>6ckt. W to PCB</i>	<i>14ckt W to W</i>	<i>14ckt. W to PCB</i>
	16AWG				
	14AWG				
	12 AWG	30degC @ 23A	30degC @ 25A	30degC @ 23A	30degC @ 22A
	10 AWG	30degC @ 32A	30degC @ 31A	30degC @ 29A	30degC @ 28A
	8 AWG	30degC @ 43A	30degC @ 37A	30degC @ 38A	30degC @ 36A

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5.2 MECHANICAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.2.1	Contact Insertion & Withdrawal force	Initial Mating	Max. Insertion = 3.0Kg	0.84 Kg	0.36 Kg	1.27Kg
		5 th Mating		1.22 Kg	0.93 Kg	1.41 Kg
		Final (25 th Mating)		1.04 Kg	0.80 Kg	1.30 Kg
		Initial Unmating	Min. Withdrawal = 0.25Kg	0.56 Kg	0.30 Kg	0.68 Kg
		5 th Mating		0.90 Kg	0.68 Kg	1.05 Kg
		Final (25 th Mating)		0.73 Kg	0.54 Kg	0.90 Kg
5.2.2	Connector Insertion & Withdrawal force (14 Ckt Wire to Wire fully loaded Connector)	Initial Mating	Max. Insertion = 3.0Kg/Contact	5.64 Kg	5.10 Kg	6.24 Kg
		5th Mating		11.85 Kg	11.42 Kg	12.25 Kg
		Initial Unmating	Min. Withdrawal = 0.25Kg/Contact	4.0 Kg	3.81 Kg	4.55 Kg
		5th Mating		9.52 Kg	9.13 Kg	10.03 Kg
5.2.3	Connector Insertion & Withdrawal force (14 Ckt Wire to Board fully loaded Connector)	Initial Mating	Max. Insertion = 3.0Kg/Contact	5.90 Kg	5.55 Kg	6.27 Kg
		5th Mating		13.79 Kg	13.14 Kg	14.34 Kg
		Initial Unmating	Min. Withdrawal = 0.25Kg/Contact	7.13 Kg	6.35 Kg	7.76 Kg
		5th Mating		10.88 Kg	10.51 Kg	11.61 Kg
5.2.4	Terminal Insertion force		Max. Insertion=7.0 Kg	1.70 Kg	1.33 Kg	2.80 Kg
5.2.5	Crimp Terminal Retention Force		Min. Retention = 10Kg	13.9 Kg	11.2Kg	16.3Kg
5.2.6	Header Terminal Retention Force		Min. Retention = 2.0Kg	6.1Kg	4.0Kg	8.5Kg
5.2.7	Normal Force		200 g min.	304g	287g	321g
5.2.8	Latch Yield Strength (43914 receptacle with 43938 dual row plug)		Yield = 7.0Kg min.	11.5Kg	7.2Kg	16.3Kg
5.2.9	Latch Yield Strength (all other)		Yield = 10.0Kg min.	15.3Kg	14.1Kg	17.3Kg
5.2.10	Durability 30 Cycles	See Section 6.0 for Test Sequence EIA-364-1000 Test Group-7	1.00 milliohms MAXIMUM (change from initial)	0.01 mΩ	0.00 mΩ	0.01mΩ

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5.2 MECHANICAL PERFORMANCE RESULTS (continued)

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.2.11	Vibration	See Section 6.0 for Test Sequence	1.00 milliohms MAXIMUM (change from initial)	0.03 mΩ	-0.03 mΩ	0.18 mΩ
		EIA-364-1000 Table 3 – Test Group 3	Discontinuity < 1 microsecond	Meets Requirement		
5.2.12	Mechanical shock	See Section 6.0 for Test Sequence	1.00 milliohms MAXIMUM (change from initial)	0.05 mΩ	-0.01 mΩ	0.10 mΩ
		EIA-364-1000 Table 3 – Test Group 3	Discontinuity < 1 microsecond	Meets Requirement		
5.2.13	Wire Pullout Force (Axial)	16 AWG	14 Kg	34 Kg	33 Kg	35 Kg
		14 AWG	23 Kg	49 Kg	43 Kg	52 Kg
		12 AWG	31 Kg			
		10 AWG	36 Kg			
		8 AWG	40 Kg			

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5.3 ENVIRONMENTAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.3.1	Thermal shock	See Section 6.0 for Test Sequence	1.00 milliohms MAXIMUM (change from initial)	0.02mΩ	-0.01 mΩ	0.06 mΩ
		EIA-364-1000 Table 2 – Test Group 2	Visual: No Damage	Pass		
5.3.2	Temperature & humidity (Cyclic)	See Section 6.0 for Test Sequence	1.00 milliohms MAXIMUM (change from initial)	0.02 mΩ	-0.03 mΩ	0.17 mΩ
		EIA-364-1000 Table 2 – Test Group 2	Dielectric Withstanding Voltage: No Breakdown at 500 VAC	Meets Requirement		
			Insulation Resistance: 1000 Megohms MINIMUM	Meets Requirement		
			Visual: No Damage	Pass		
5.3.3	Temperature Life	See Section 6.0 for Test Sequence	1.00 milliohms MAXIMUM (change from initial)	0.01 mΩ	-0.05 mΩ	0.13 mΩ
		EIA-364-1000 Table 1 – Test Group 1	Visual: No Damage	Pass		
5.3.4	Thermal cycling	See Section 6.0 for Test Sequence	1.00 milliohms MAXIMUM (change from initial)	0.05 mΩ	0.00 mΩ	0.31 mΩ
		EIA-364-1000 Table 5 – Test Group 5	Visual: No Damage	Pass		
5.3.5	Mixed Flow Gas	See Section 6.0 for Test Sequence EIA-364-1000 Table 5 – Test Group 4	1.00 milliohms MAXIMUM (change from initial)	0.05 mΩ	0.01 mΩ	0.13 mΩ
5.3.6	Immunity to fretting Corrosion	See Section 6.0 for Test Sequence EIA-364-1000 Table 5 – Test Group 5	1.00 milliohms MAXIMUM (change from initial)	0.03 mΩ	0.00 mΩ	0.12 mΩ
5.3.7	Cold Temperature Resistance	See Section 6.0 for Test Sequence Test Group-1A	1.00 milliohms MAXIMUM (change from initial)	0.02 mΩ	-0.01 mΩ	0.56mΩ

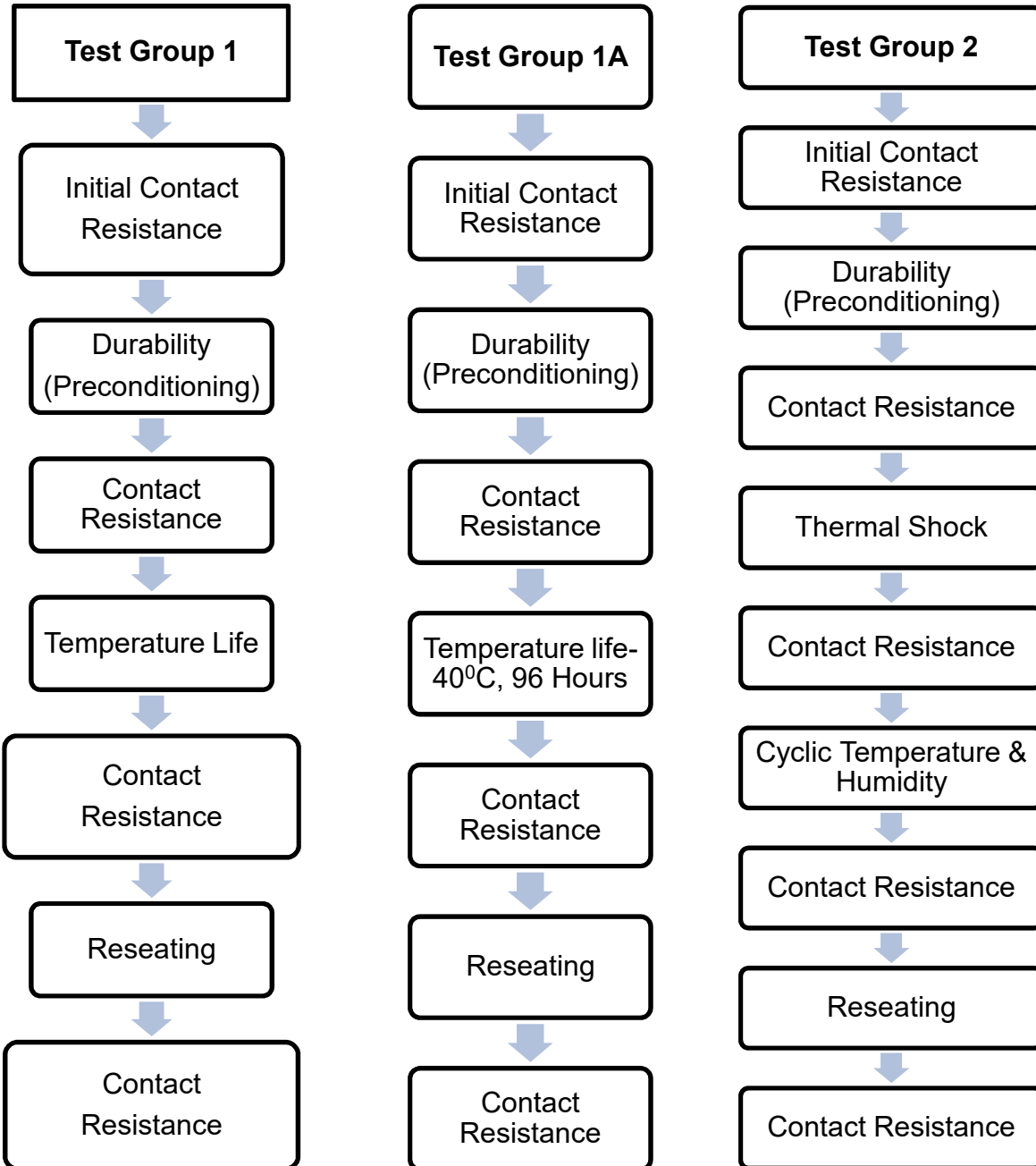
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5.3 ENVIRONMENTAL PERFORMANCE RESULTS (Continued.)

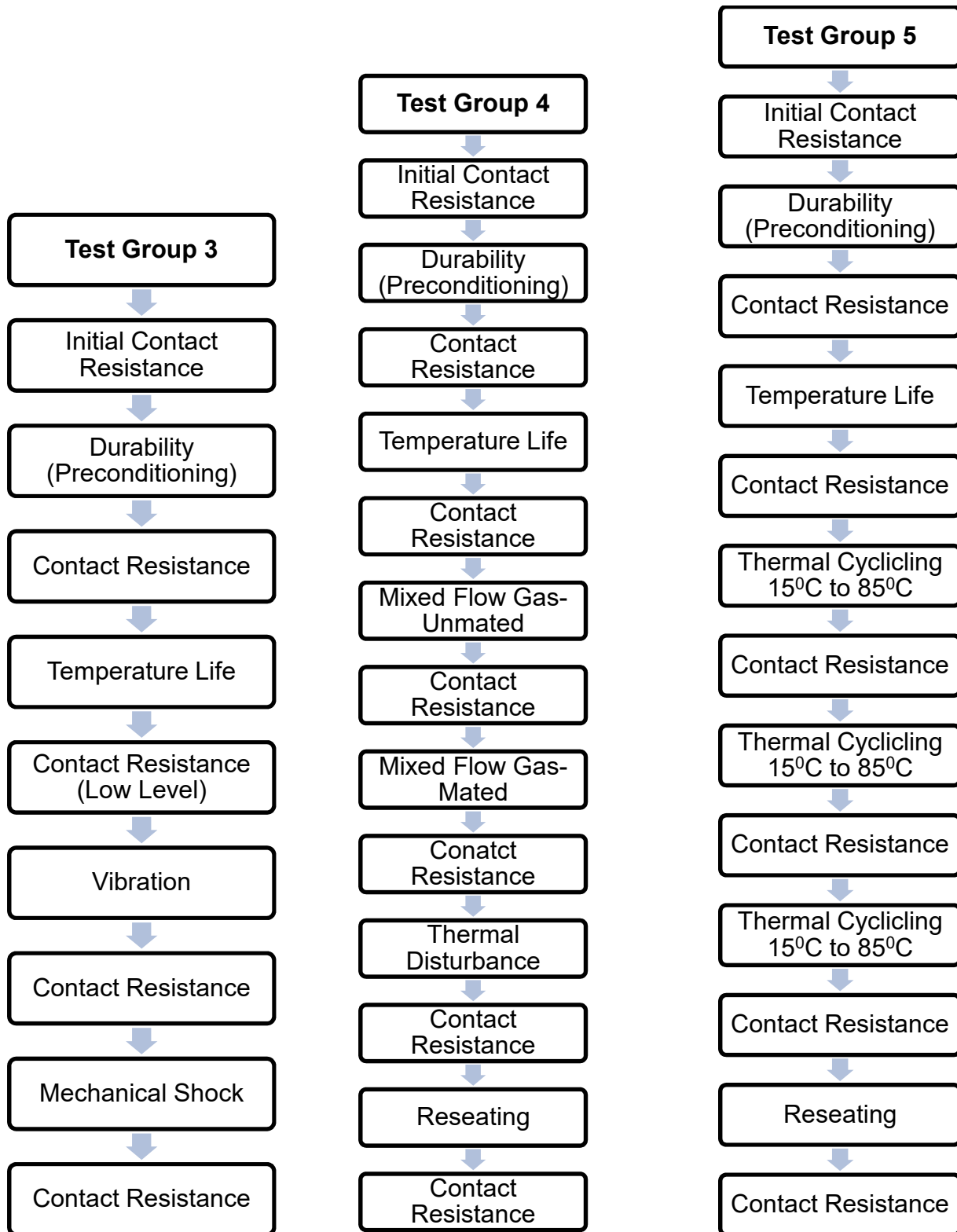
ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.3.8	Reflow Solder Heat Resistance	Reflow Solder Process 235 ⁰ C max per AS-40000-5013	Appearance: No damage Dimensional: Conformance to sales drawing requirements			Passed
5.3.9	Solderability	Per SMES-152	95% of the immersed area must show no voids or pin holes			Passed
5.3.10	Wave Solder Heat Resistance	Dip header terminal tails in solder: Solder Duration: 3±0.5 seconds, Solder Temperature: 260±5°C, Per AS-40000-5013	Appearance: No damage			Passed
5.3.11	Resistance to Solvents		Appearance: No damage			Passed

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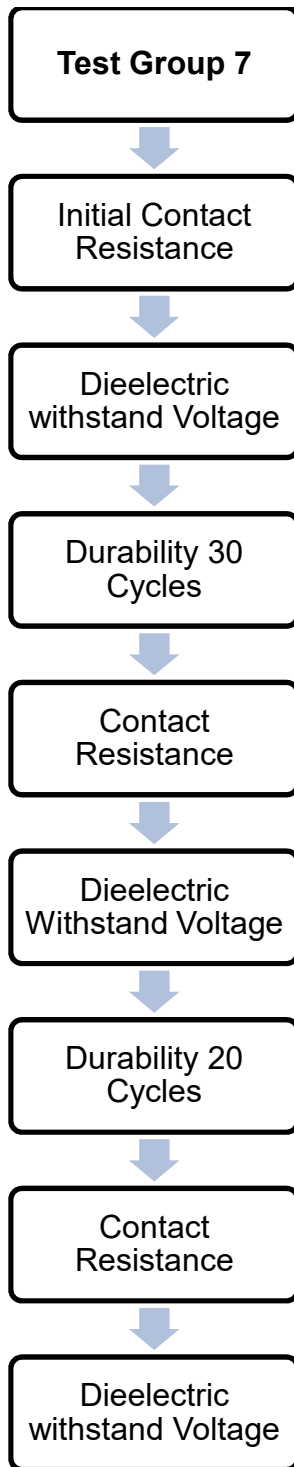
6.0 TEST SEQUENCES



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