



TEST SUMMARY

Mini-Fit Sr. Series

1.0 SCOPE

This specification covers the 10.00 mm / (.394 in.) centerline tin plated and gold 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-****
Male Terminal	42817-****
Receptacle (single row)	42816-****
Plug (single row)	42818-****
Vertical Header (single row)	42819-****
Right Angle Header (single row)	42820-****
Receptacle (dual row)	43914-****
TPA (dual row)	43980-****
Vertical Header (dual row)	43915-****
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 No.: PS-42815-001

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 TESTING PROCEDURES AND SEQUENCES

For test procedures see the applicable test report. For sequences see pages 3 through 8.
Data results valid for stranded tinned wire termination.

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TEST SUMMARY

3.1 TESTING PROCEDURES AND SEQUENCES (CONTINUED)

Test Reports	Test Group					
	4930 5756	4927	4928 5756	4929 5756	4931	4932
Test Sequence	I	II	III	IV	V	VI
Initial Contact Resistance (low level)	T, G		T	T		
Insulation Resistance					T	
Dielectric Strength					T	
Contact Insertion and Withdrawal						T
Terminal Insertion Force						T
Crimp Terminal Retention Force						T
Header Terminal Retention Force						T
Latch Yield Strength						T
Durability	T, G			T		
Vibration without lubricant			T			
Vibration with lubricant			T			
Mechanical Shock			T			
Thermal Shock	T, G			T		
Thermal Aging	T, G					
Humidity (steady state)					T	
Cyclic Humidity without lubrication	T, G					
Immunity to Fretting Corrosion w/o lube				T, G		
Immunity to Fretting Corrosion w/ lube				T		
Temp. Rise and Current Cycling		T				
Solderability						T
IR Process Resistance						T
Number of Samples	96	40	84	168	60	42
Number of defects permitted	0	0	0	0	0	0

T – TIN PLATED
G – GOLD PLATED

3.2 AGENCY APPROVALS

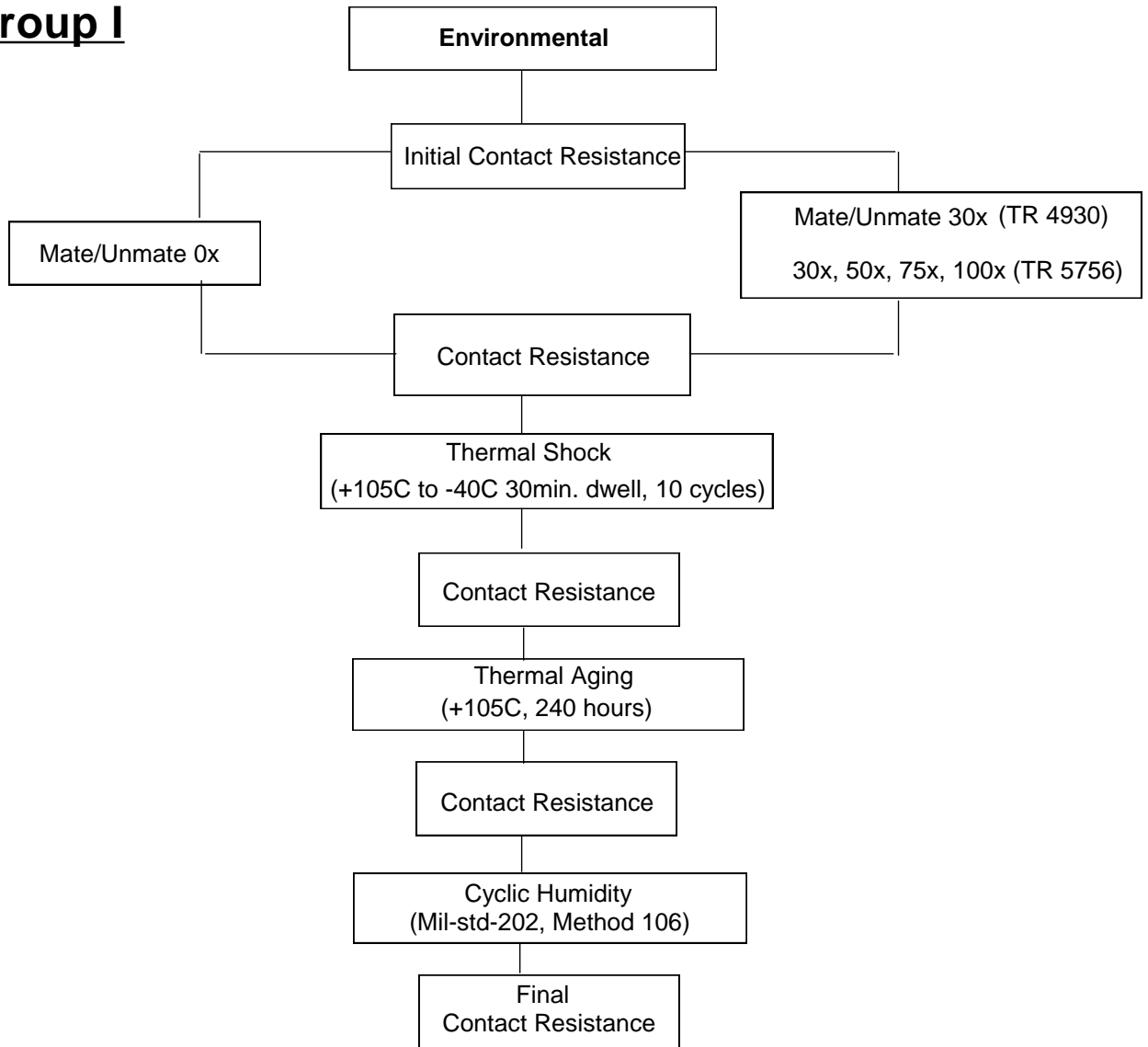
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CSA Certificate #LR 19980-555
TUV Certificate #R 9751144, #R 9950481

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TEST SUMMARY

Group I



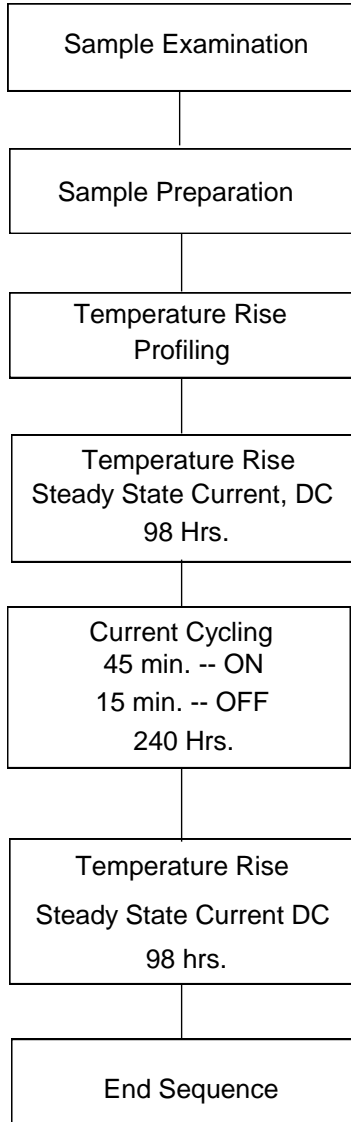
TR 4930 TR5756

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TEST SUMMARY

Group II



TR 4927

TR 6159

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TEST SUMMARY

Group III

Uncycled
1/2 Lubed / 1/2 Dry

Cycled
1/2 Lubed / 1/2 Dry

Contact Resistance

Mechanical Shock
Mil-Std-202, method 213,
test condition A

Contact Resistance

Vibration

Final
Contact Resistance

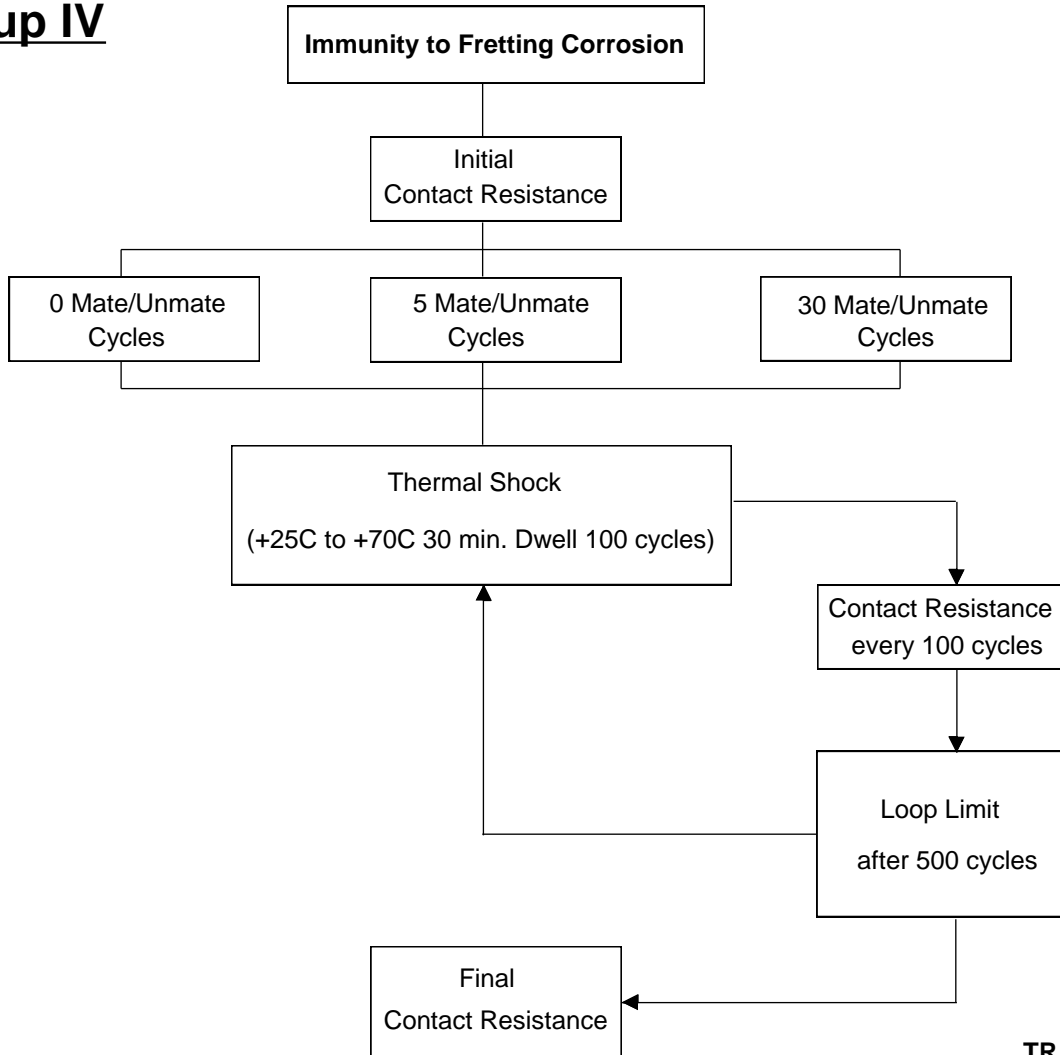
TR 4928 TR 5756

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TEST SUMMARY

Group IV



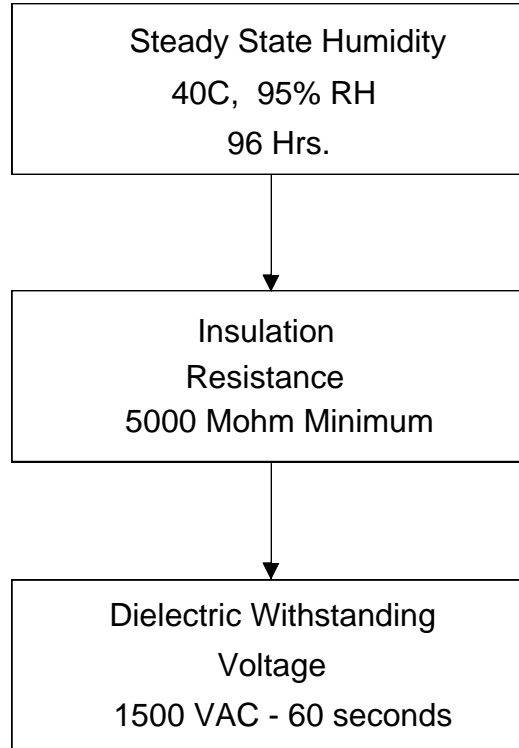
TR 4929 TR 5756

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TEST SUMMARY

Group V



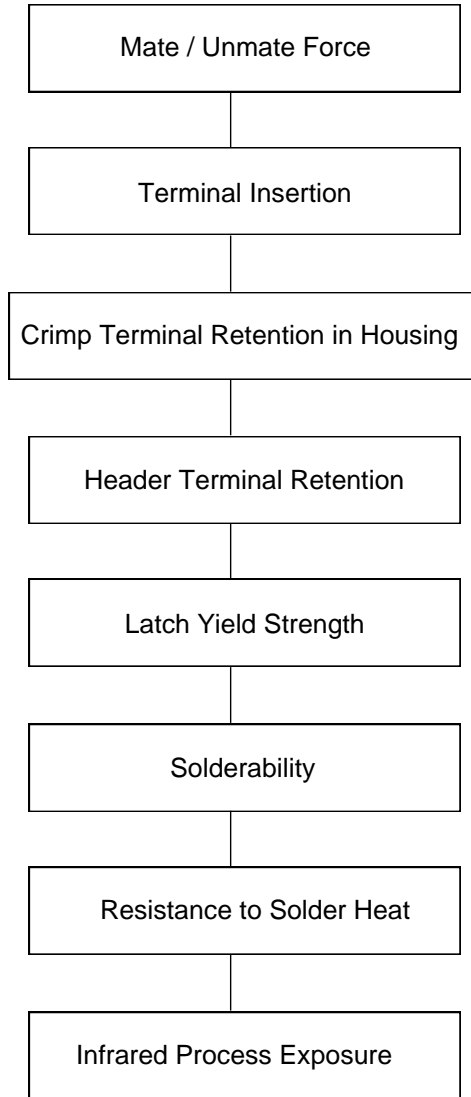
TR 4931

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TEST SUMMARY

Group VI



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TEST SUMMARY

4.0 QUALIFICATION

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

5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE

Section	Item	Requirement	Mean	Min.	Max.
5.1.1	Initial Contact Resistance (low level)	1.5 mOhm max.	1.41	1.39	1.42
5.1.2	Insulation Resistance	1000 MOhm min.		> 5000MOhm	
5.1.3	Dielectric Strength	No Breakdown at 2200V		Passed	
5.1.4	Contact Resistance (rated)	1.5mOhm max.			
5.1.5	Contact Resistance on Crimp	1.0mOhm max.			

5.2 MECHANICAL PERFORMANCE

	Item	Requirement	Mean	Min.	Max.
5.2.1	Contact Insertion and Withdrawal	Max. Insertion = 3.0Kg Min. Withdrawal = 0.5Kg	1.39Kg 1.58Kg	0.99Kg 0.91Kg	2.02Kg 2.43Kg
5.2.2	Connector Insertion and Withdrawal	Max. Insertion = 3.0Kg/ckt Min. Withdrawal = 0.5Kg/ckt.	1.39Kg/ckt 1.58Kg/ckt	0.99Kg/ckt 0.91Kg/ckt	2.02 Kg/ckt 2.43 Kg/ckt
5.2.3	Terminal Insertion Force	Max. Insertion = 7.0Kg	5.6Kg	4.2Kg	6.3Kg
5.2.4	Crimp Terminal Retention Force	Min. Retention = 10Kg	13.9Kg	11.2Kg	16.3Kg

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5.2 MECHANICAL PERFORMANCE (CONTINUED)

Section	Item	Requirement	Mean	Min.	Max.
5.2.5	Header Terminal Retention Force	Min. Retention = 2.0Kg	6.1Kg	4.0Kg	8.5Kg
5.2.6	Wire Pull Out Force	16AWG = 14 Kg 14AWG = 23 Kg 12AWG = 31 Kg 10AWG = 36 Kg 8AWG = 40 Kg	34 Kg 49 Kg	33 Kg 43 Kg	35 Kg 52 Kg
5.2.7	Normal Force	200 g min.	304g	287g	321g
5.2.8	PCB Insertion and Withdrawal Force	Insertion = 2Kg max. Withdrawal = 1Kg min.			
5.2.9	Panel Insertion & Withdrawal	Insertion = 5Kg max. Withdrawal = 10Kg min.			
5.2.10	Latch Yield Strength (43914 receptacle with 43938 dual row plug)	Yield = 7.0Kg min. TS 6052	11.5Kg	7.2Kg	16.3Kg
5.2.10A	Latch Yield Strength (all other)	Yield = 10.0Kg min.	15.3Kg	14.1Kg	17.3Kg
5.2.11	Durability (T)Tin-plated after 30 cycles (G)Gold-plated after 100 cycles	Contact Res. change = 1.0mOhm max.	(T) -.001 mOhm (G) .037 mOhm	(T) -.005 mOhm (G) -.072 mOhm	(T) .01 mOhm (G) .166 mOhm
5.2.12	Vibration Tin-plated without lubrication Not Recommended	Contact Res change = 4.0mOhm max. Discontinuity not greater than 1 microsecond	1.39 mOhm	.57 mOhm	2.14 mOhm
5.2.12A	Vibration Tin-plated with lubrication (Nyogel 760G)	Contact Res change = 1.0mOhm max Discontinuity not greater than 1 microsecond	0.65 mOhm	0.32 mOhm	0.98 mOhm
5.2.13	Mechanical Shock	Contact Res. change = 1.0mOhm max. Discontinuity not greater than 1 microsecond	0.16 mOhm	0.01 mOhm	0.35 mOhm

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5.3 ENVIRONMENTAL PERFORMANCE

Section	Item	Requirement	Mean	Min.	Max.
5.3.1	Cold Resistance	Appearance: No damage Contact Res. change = 1.0mOhm max.			
5.3.2	Thermal Shock (T) Tin-plated (G) Gold-plated	Appearance: No damage Contact Res. change = 1.0mOhm max.	(T) 0.03 mOhm (G) 0.034 mOhm	(T) -0.01 mOhm (G) -0.096 mOhm	(T) 0.07 mOhm (G) 0.167 mOhm
5.3.3	Thermal Aging (T) Tin-plated (G) Gold-plated	Appearance: No damage Contact Res. change = 1.0mOhm max	(T) 0.12 mOhm (G) 0.021 mOhm	(T) -0.004 mOhm (G) -0.131 mOhm	(T) 0.25 mOhm (G) 0.226 mOhm
5.3.4	Humidity (Steady State)	Appearance: No damage Contact Res. change = 1.0mOhm max Dielectric withstanding voltage: No breakdown Insul. res: 1000M Ohm min.		Passed Passed Passed Passed	
5.3.5	Humidity (cyclic) (T) Tin-plated without lubricant (G) Gold-plated	Appearance: No damage Contact Res. change = 2.0mOhm max Dielectric withstanding voltage: No breakdown Insulation resistance: 1000M Ohm min.	(T) 0.03 mOhm (G) 0.042 mOhm	(T) 0.00 mOhm (G) -0.165 mOhm Passed Passed	(T) 0.10 mOhm (G) 0.219 mOhm

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5.3 ENVIRONMENTAL PERFORMANCE (CONTINUED)

Section	Item	Requirement	Mean	Min.	Max.
5.3.6	Immunity to Fretting Corrosion Tin-plated without lubrication Not Recommended	Appearance: No damage Contact Res. change = 4.0mOhm max	0.91 mOhm	0.19 mOhm	3.13 mOhm
5.3.6A	Immunity to Fretting Corrosion Tin-plated with lubrication (Nyogel 760G)	Appearance: No damage Contact Resistance change = 1.0mOhm max	0.14 mOhm	0.09 mOhm	0.21 mOhm
5.3.6B	Immunity to Fretting Corrosion Gold-plated	Appearance: No damage Contact Resistance change = 1.0mOhm max	-0.108 mOhm	0.026 mOhm	0.104 mOhm
5.3.7	Temp. Rise & Current Cycling	Max. Temp. Rise = 30deg. C		See Charts On Pg. 15	
5.3.8	Solderability	95% of the immersed area must show no voids or pin holes		Passed	
5.3.9	IR Process Resistance	Appearance: No damage Dimensional: Conformance to sales drawing requirements		Passed	
5.3.10	Resistance to Solder	Appearance: No damage		Passed	
5.3.11	Resistance to Solvents	Appearance: No damage		Passed	

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5.3.7 MAX. TEMP. RISE & CURRENT CYCLING RESULTS

SINGLE ROW PRODUCT	2ckt. W to W	2ckt. W to PCB**	4ckt. W to W	4ckt. W to PCB**	6ckt W to W	6ckt. W to PCB**
8 AWG	27degC @ 50A	30degC @ 48A	-	-	28degC @ 45A	28degC @ 37A
10 AWG	-	28degC @ 40A	-	-	-	29degC @ 33.5A
12 AWG	-	28degC @ 32A	-	-	-	26degC @ 28A
14 AWG	30degC @ 25A	25.8degC @ 25A	-	-	-	-
16 AWG	30degC @ 20A	25.3degC @ 20A	-	-	-	-
12 AWG Double Crimp	-	28degC @ 45A (22.5A per wire)	-	-	-	-

SINGLE ROW PRODUCT	2ckt. W to W	2ckt. W to PCB**	4ckt. W to W	4ckt. W to PCB**	6ckt W to W	6ckt. W to PCB**
5mm ²	30degC @ 36A	-	-	-	-	-
6mm ²	30degC @ 36A	-	-	-	-	-

DUAL ROW PRODUCT	6ckt. W to W	6ckt. W to PCB**	10ckt. W to W	10ckt. W to PCB**	14ckt W to W	14ckt. W to PCB**
8 AWG	30degC @ 43A	30degC @ 37A	-	-	30degC @ 38A	30degC @ 36A
10 AWG	30degC @ 32A	30degC @ 31A	-	-	30degC @ 29A	30degC @ 28A
12 AWG	30degC @ 23A	30degC @ 25A	-	-	30degC @ 23A	30degC @ 22A
14AWG	-	-	-	-	-	-
16AWG	-	-	-	-	-	-

** To eliminate the influence of PCB variability, testing was performed with wire leads soldered to the PC tails. PCB trace design may greatly effect temperature rise results.

6.0 FIXTURES AND TEST EQUIPMENT

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7.0 OTHER INFORMATION

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