



RELIABILITY TEST REPORT

TEST ITEM: 1.ELECTRICAL
2.MECHANICAL
3.ENVIRONMENTAL

SERIES NO.: CI52 Series

TEST EQUIPMENT: 1.INSERTION & REMOVAL APPARATUS
2.ELECTRONIC MEASURING APPARATUS
3.ENVIRONMENTAL APPARATUS

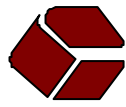
DATE OF TESTING: 3 / 12 / 03

TEST DEPART: QA

TESTER: chwq

CONTAIN: ATTACHED

REVIEWED : *Smith* APPROVED : *Smith* VERIFIED : *chwq*.

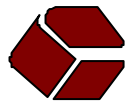


1.ELECTRICAL PERFORMANCE :

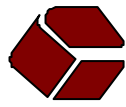
	ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
				Sample	
1-1	Contact resistance	Dry circuit of DC 20mV max.100mA max.	Less than 20 mΩ	Sample	20 mΩ max.
				1	1.60 mΩ
				2	1.74 mΩ
				3	1.67 mΩ
				4	1.68 mΩ
				5	1.70 mΩ
1-2	Dielectric strength	When applied AC 1500V 1 minute between adjacent terminal	No change	Sample	1500 V 1 minute
				1	Pass
				2	Pass
				3	Pass
				4	Pass
				5	Pass
1-3	Insulation resistance	When applied DC 500 V between adjacent terminal or ground	More than 1000 MΩ	Sample	1000 MΩ min.
				1	20×10 ⁵ MΩ
				2	20×10 ⁵ MΩ
				3	15×10 ⁵ MΩ
				4	20×10 ⁵ MΩ
				5	15×10 ⁵ MΩ

2. MECHANICAL PERFORMANCE:

	ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
				Sample	
2-1	Terminal crimp tensile strength	When crimped AWG# 16 size wire	More than 11.0 Kgf	Sample	> 11.0 Kgf
				1	13.45 Kgf
				2	13.47 Kgf
				3	13.87 Kgf
				4	13.58 Kgf
				5	14.02 Kgf
		When crimped AWG# 18 size wire	More than 9.0 Kgf	Sample	> 9.0 Kgf
				1	11.24 Kgf
				2	10.97 Kgf
				3	10.45 Kgf
				4	11.04 Kgf
		When crimped AWG# 20 size wire	More than 7.0 Kgf	Sample	> 7.0 Kgf
				1	7.98 Kgf
				2	7.14 Kgf
				3	7.87 Kgf
4	7.38 Kgf				
5	7.18 Kgf				



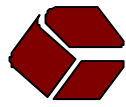
		When crimped AWG# 22 size wire	More than 5.0 Kgf	Sample	> 5.0 Kgf
				1	5.98 Kgf
				2	6.23 Kgf
				3	6.35 Kgf
				4	5.89 Kgf
				5	6.45 Kgf
2-2	Terminal insertion force	Insertion speed 25± 3 mm per minute into housing	Less than 1.5 Kgf	Sample	< 1.5 Kgf
				1	0.78 Kgf
				2	0.70 Kgf
				3	0.76 Kgf
				4	0.75 Kgf
				5	0.71 Kgf
2-3	Contact retaining force in insulator	Retention speed 25± 3 mm per minute from housing	More than 3.0 Kgf	Sample	> 3.0 Kgf
				1	7.31 Kgf
				2	7.67 Kgf
				3	6.87 Kgf
				4	7.23 Kgf
				5	7.10 Kgf
2-4	Single contact insertion force	Measure force to insertion using 1.14 mm square pin at speed 25±3 mm per minute	1.2 Kgf max.	Sample	1.2 Kgf max.
				1	0.62 Kgf
				2	0.65 Kgf
				3	0.72 Kgf
				4	0.69 Kgf
				5	0.67 Kgf
2-5	Single contact withdrawal force	Measure force to withdrawal using 1.14 mm square pin at speed 25±3 mm per minute	300 gram min.	Sample	300 gram min.
				1	571 gram
				2	510 gram
				3	594 gram
				4	542 gram
				5	526 gram
2-6	Durability	Connector shall be subjected to 100 cycles of insertion and withdrawal	Contact resistance: Less than twice of initial	Sample	< twice of initial
				1	1.68 mΩ
				2	1.76 mΩ
				3	1.69 mΩ
				4	1.76 mΩ
				5	1.76 mΩ
2-7	Pin retention force	Push pin from insulator base at speed 25±3mm per minute	More than 2.5 Kgf	Sample	> 2.5 Kgf
				1	4.06 Kgf
				2	4.44 Kgf
				3	4.27 Kgf
				4	3.98 Kgf
				5	4.47 Kgf



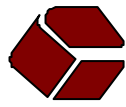
2-8	Mating and unmating force	Speed 25±3 mm per minute	2 pin Unit: Kgf Mating force 2.5 max. Unmating force 0.3 min.	Sample	Mating	unmating
				1	1.78	1.26
				2	1.64	1.48
				3	1.83	1.32
				4	1.72	1.37
			5	1.86	1.42	
			6 pin Mating force 5.0 max. Unmating force 0.7 min.	Sample	Mating	unmating
				1	4.13	3.77
				2	3.79	3.96
				3	4.20	3.85
				4	3.87	3.42
			5	4.08	3.57	
			12 pin Mating force 11.5 max. Unmating force 2.0 min.	Sample	Mating	unmating
				1	9.27	5.48
				2	10.25	6.50
3	9.79	5.62				
4	10.10	5.94				
5	9.71	6.22				

3. ENVIRONMENTAL PERFORMANCE:

	ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
3-1	Temperature rise	Then carried the rated current	30 max.	Sample	30 max.
3-2	Vibration	1.5 mm 10-55-10 HZ/minute each 2 hours for X, Y and Z directions	Appearance: No damage	Sample	No damage
			Discontinuity: 1 micro second max.	Sample	1 micro second max.
3-3	Solder ability	Soldering time: 5 ±0.5 sec. Soldering pot: 230 ±5	Minimum: 90% of immersed area	Sample	90% of Immersed area
				1	Pass
				2	Pass
				3	Pass
				4	Pass
5	Pass				
3-4	Resistance to soldering heat	Soldering time: 5 ±0.5 sec. Soldering pot: 260 ±5	No damage	Sample	No damage
				1	Pass
				2	Pass
				3	Pass
				4	Pass
5	Pass				



3-5	Heat aging	85 ± , 96 hours	No damage	Sample	No damage				
				1	Pass				
				2	Pass				
				3	Pass				
				4	Pass				
				5	Pass				
3-6	Humidity	40 ± , 90-95%RH, 96 hours measurement must be taken within 30 min. after tested	Appearance: No damage	Sample	No damage				
				1	Pass				
				2	Pass				
				3	Pass				
				4	Pass				
				5	Pass				
			Contact resistance: Less than twice of initial	Sample	< twice of initial				
				1	1.65 mΩ				
				2	1.70 mΩ				
				3	1.75 mΩ				
				4	1.72 mΩ				
			Dielectric strength: To pass Para 1-2	Sample	Pass para 1-2				
				1	Pass				
				2	Pass				
				3	Pass				
4	Pass								
3-7	Temperature cycling	One cycle consists of: 1. -55 ⁺⁰ ₋₃ , 30 min 2. Room temp. 10-15 min 3. 85 ⁺³ ₋₀ , 30 min 4. Room temp. 10-15 min	Appearance: No damage	Sample	No damage				
				1	Pass				
				2	Pass				
				3	Pass				
				4	Pass				
				5	Pass				
			Contact resistance: Less than twice of initial	Sample	< twice of initial				
				1	1.66 mΩ				
				2	1.68 mΩ				
				3	1.70 mΩ				
				4	1.72 mΩ				
			5	1.71 mΩ					
				3-8	Salt spray	Temperature:35±3°C Solution:5±1% Spray time:48±4hours Measurement must be taken after water rinse	Appearance: No damage	Sample	No damage
								1	Pass
								2	Pass
3	Pass								
4	Pass								
5	Pass								



			Contact resistance: Less than twice of initial	Sample	< twice of initial
				1	1.69 mΩ
				2	1.75 mΩ
				3	1.72 mΩ
				4	1.70 mΩ
				5	1.73 mΩ