

## RELIABILITY TEST REPORT

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

SERIES NO.: CI31 Series

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

DATE OF TESTING: 3 / 22 / 05

TEST DEPART: QA TESTER: Scott.Lien

CONTAIN: ATTACHED

REVIEWED : Jackal APPROVED : Rita VERIFIED : Scott.Lien .

**1.ELECTRICAL PERFORMANCE :**

	ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
				Sample	
1-1	Contact resistance	Dry circuit of DC 20 mV max.100 mA max.	Less than 20 mΩ	Sample	20 mΩ max.
				1	3.36 mΩ
				2	3.38 mΩ
				3	3.35 mΩ
				4	3.36 mΩ
				5	3.36 mΩ
1-2	Dielectric strength	When applied AC 1000V 1 minute between adjacent terminal	No change	Sample	1000 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	14×10 <sup>5</sup> MΩ
				2	15×10 <sup>5</sup> MΩ
				3	13×10 <sup>5</sup> MΩ
				4	15×10 <sup>5</sup> MΩ
				5	13×10 <sup>5</sup> MΩ

**2. MECHANICAL PERFORMANCE:**

	ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
				Sample	
2-1	Terminal crimp tensile strength	When crimped AWG# 22 size wire	More than 5.0 Kgf	Sample	> 5.0 Kgf
				1	6.21 Kgf
				2	6.78 Kgf
				3	7.01 Kgf
				4	6.89 Kgf
				5	7.21 Kgf
		When crimped AWG# 24 size wire	More than 3.0 Kgf	Sample	> 3.0 Kgf
				1	4.87 Kgf
				2	4.95 Kgf
				3	5.21 Kgf
				4	5.37 Kgf
5	5.17 Kgf				



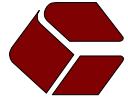
ITEM		TEST CONDITION	REQUIREMENT	TEST RESULT	
		When crimped AWG# 26 size wire	More than 2.0 Kgf	Sample	> 2.0 Kgf
				1	3.54 Kgf
				2	3.47 Kgf
				3	3.24 Kgf
				4	3.39 Kgf
		5	3.46 Kgf		
		When crimped AWG# 28 size wire	More than 1.3 Kgf	Sample	>1.3 Kgf
				1	2.09 Kgf
				2	2.29 Kgf
				3	2.12 Kgf
4	2.26 Kgf				
2-2	Terminal insertion force	Insertion speed 25± 3 mm per minute into housing	Less than 1.0 Kgf	Sample	< 1.0 Kgf
				1	0.32 Kgf
				2	0.31 Kgf
				3	0.32 Kgf
				4	0.34 Kgf
				5	0.32 Kgf
2-3	Contact retaining force in insulator	Retention speed 25± 3 mm per minute from housing	More than 2.0 Kgf	Sample	>2.0 Kgf
				1	3.54 Kgf
				2	3.49 Kgf
				3	3.75 Kgf
				4	3.47 Kgf
				5	3.69 Kgf
2-4	Single contact insertion force	Measure force to insertion using 0.64 mm square pin at speed 25 ± 3 mm per minute	600 gram max.	Sample	600gram max.
				1	318 gram
				2	323 gram
				3	310 gram
				4	330 gram
				5	326 gram
2-5	Single contact withdrawal force	Measure force to insertion using 0.64 mm square pin at speed 25 ± 3 mm per minute	60 gram min.	Sample	60 gram min.
				1	141 gram
				2	123 gram
				3	130 gram
				4	136 gram
				5	128 gram

	ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
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	3.40 mΩ
				2	3.39 mΩ
				3	3.38 mΩ
				4	3.41 mΩ
2-7	Pin retention force	Push pin from insulator base at speed 25 ± 3 mm per minute	More than 1.5 Kgf	Sample	> 1.5 Kgf
				1	1.98 Kgf
				2	2.38 Kgf
				3	2.36 Kgf
				4	2.21 Kgf
				5	2.27 Kgf

### 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	Solderability	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

ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
			Sample	TEST RESULT
3-5	Heat aging $85 \pm 2$ , 96 hours	No damage	Sample	No damage
			1	Pass
			2	Pass
			3	Pass
			4	Pass
			5	Pass
3-6	Humidity $40 \pm 2$ , 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	3.38 m $\Omega$
			2	3.39 m $\Omega$
			3	3.39 m $\Omega$
			4	3.40 m $\Omega$
		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	3.37 m $\Omega$
			2	3.39 m $\Omega$
			3	3.38 m $\Omega$
			4	3.37 m $\Omega$
5	3.38 m $\Omega$			



	ITEM	TEST CONDITION	REQUIREMENT	TEST RESULT	
3-8	Salt spray	Temperature: $35 \pm 3^{\circ}\text{C}$ Solution: $5 \pm 1\%$ Spray time: $48 \pm 4$ hours 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	3.41 m $\Omega$
				2	3.40 m $\Omega$
				3	3.41 m $\Omega$
				4	3.39 m $\Omega$
				5	3.41 m $\Omega$