

ENGINEERING DEPT.		PRODUCT SPECIFICATION For CP35 Single Row Series Power Connector	SPEC.NO.: SPCP044D
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1. SCOPE:

This specification contains the test requirement of subject connectors when tested under the condition and procedure with terminals crimped on the specified maximum size wire

2. APPLICABLE STANDARDS:

MIL - STD - 202	Methods for test of connectors for electronic equipment
MIL - STD - 1344	Test methods for electrical connectors
J-STD-020	Resistance to soldering Temperature for through hole Mounted Devices
SS-00254	Test methods for electronic components ,LEAD-FREE soldering Part design standards

3. APPLICABLE SERIES NO.: **CP35 Single Row Series**

4. SHAPE, CONSTRUCTION AND DIMENSIONS

See attached drawings

5. MATERIALS

See attached drawings

6. ACCOMMODATED P.C.BOARD

6.1 Thickness: 1.6 mm (.063")

6.2 P.C. Board Layout: See attached drawings

REVIEWED : Eisley APPROVED : Eisley VERIFIED : Eric .

7. ELECTRICAL PERFORMANCE:



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	ITEM	TEST CONDITION	REQUIREMENT		
7.1	Rated voltage(max.)		600V AC (r.m.s.)		
	Rated Current (max.) and Applicable Wire (Wire-to-Board)	Circuits/Wire gage	2	3-6	7-12
		AWG#18 wire gage	8.5A	7.0A	6.5A
		AWG#20 wire gage	7.0A	5.5A	5.0A
		AWG#22 wire gage	6.0A	4.5A	4.0A
		AWG#24 wire gage	5.5A	4.5A	3.5A
		AWG#26 wire gage	4.5A	4.0A	3.5A
		AWG#28 wire gage	4.0A	3.0A	3.0A
		AWG#30 wire gage	3.5A	3.0A	2.5A
	Rated Current (max.) and Applicable Wire (Wire-to-Wire)	Circuits/Wire gage	2	3-6	7-12
		AWG#18 wire gage	7.0A	6.0A	5.5A
		AWG#20 wire gage	6.5A	5.0A	4.5A
		AWG#22 wire gage	5.5A	4.0A	3.5A
		AWG#24 wire gage	5.0A	4.0A	3.0A
		AWG#26 wire gage	4.0A	3.0A	2.5A
		AWG#28 wire gage	3.0A	2.0A	2.0A
		AWG#30 wire gage	3.0A	2.0A	2.0A
7.2	Contact resistance	Dry circuit of DC 20mV max., 100mA max., Wire resistance shall be removed from the measured value. (EIA-364-23)	10 mΩ Max.		
7.3	Dielectric strength	When applied AC 1500 V 1 minute between adjacent terminal (EIA-364-20)	No Breakdown		
7.4	Insulation resistance	When applied DC 500 V between adjacent terminal or ground (EIA-364-21)	1000 MΩ Min.		
7.5	Contact resistance on Crimped portion	Crimp the wire to the terminal, measure by dry circuit, 20mV max., 100mA max., Wire resistance shall be removed from the measured value. (EIA-364-23)	5 mΩ Max.		

8. MECHANICAL PERFORMANCE:



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	ITEM	TEST CONDITION	REQUIREMENT
8.1	Wire size	Specified wire size	Accepts AWG #18 ~ #30
8.2	Terminal crimp strength	When crimped AWG#18 size wire	9.0 Kgf Min.
		When crimped AWG#20 size wire	7.0 Kgf Min.
		When crimped AWG#22 size wire	5.0 Kgf Min.
		When crimped AWG#24 size wire	3.0 Kgf Min.
		When crimped AWG#26 size wire	2.0 Kgf Min.
		When crimped AWG#28 size wire	1.2 Kgf Min.
		When crimped AWG#30 size wire	0.8 Kgf Min.
8.3	Terminal insertion force	Insertion speed 25 ± 3 mm per minute into housing (EIA-364-05)	1.5 Kgf Max.
8.4	Terminal retaining force in insulator	Retention speed 25 ± 3 mm per minute from Wire to Wire Housing (EIA-364-05)	3.0 Kgf Min.
8.5	Single contact insertion force	Measure force to insertion using mating square pin at speed 25 ± 3 mm per minute (EIA-364-13)	0.7 Kgf Max.
8.6	Single contact withdrawal force	Measure force to withdrawal using mating square pin at speed 25 ± 3 mm per minute (EIA-364-13)	0.15 Kgf Min.
8.7	Pin retention force in Board mount Header	Push Pin for insulator base at speed 25 ± 3 mm per minute	1.5 Kgf Max.
8.8	Durability	Connector shall be subjected to 30 cycles of insertion and withdrawal (EIA-364-09)	Contact resistance: Less than twice of initial
8.9	Locking force	While with drawing plug & receptacle without terminal at speed 25 ± 3 mm per minute	7.0 Kgf Min.

8.10 Insertion Force and Withdrawal Force:

8.10.1 Test method:

Housing with crimped contacts and a header shall be mated and unmated on the same axis. Initial insertion and withdrawal forces and withdrawal force at 30th shall be measured for single circuit and multi-circuits. For the measurement of single circuit, the housing lock shall be removed.

8.10.2 Requirements:

Unit: Kgf



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NO. OF CIRCUITS	INSERTION FORCE (Max.)	WITHDRAWAL FORCE (Min.)
2	1.63	0.75
3	2.45	1.13
4	3.26	1.51
5	4.08	1.89
6	4.89	2.26
7	5.71	2.64
8	6.52	3.02
9	7.34	3.39
10	8.15	3.77
11	8.97	4.15
12	9.79	4.53

9. ENVIRONMENTAL PERFORMANCE:

	ITEM	TEST CONDITION	REQUIREMENT
9.1	Temperature rise	Then carried the rated current	30°C max.
9.2	Vibration	1.5 mm 10-55-10 HZ/minute each 2 hours for X, Y and Z directions (EIA-364-28 Condition I)	Appearance: No damage Discontinuity: 1 micro second max.
9.3	Heat aging	105± 2°C, 96 hours (EIA-364-17 Condition 4, Method A)	No damage
9.4	Humidity	40± 2°C, 90-95% RH, 96 hours measurement must be taken within 30 min. after tested (EIA-364-31 Condition II, Method A)	Appearance: No damage Contact resistance: Less than twice of initial Dielectric strength: To pass para 7-3
9.5	Temperature cycling	5 cycle consists of: (1) -55 +0/-3 °C , 30 min. (2) Room temp. 10-15 min. (3) 105 +3/-0 °C , 30 min. (4) Room temp. 10-15 min. (EIA-364-32 Table 2, Condition VII)	Appearance: No damage Contact resistance: Less than twice of initial
	ITEM	TEST CONDITION	REQUIREMENT



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9.6	Salt spray	Temperature: $35 \pm 3^{\circ}\text{C}$ Solution: $5 \pm 1\%$ Spray time: 48 ± 4 hours Measurement must be taken after water rinse (EIA 364-26B / MIL-STD-202 Method 101)	Appearance: No damage Contact resistance: Less than twice of initial
9.7	Solder ability	Soldering time: 5 ± 0.5 second Soldering pot: $245 \pm 5^{\circ}\text{C}$ (J-STD-020E)	Minimum: 95% of immersed area
9.8	Resistance to soldering heat	DIP Type Lead-Free Process Soldering time: 5 ± 0.5 second Soldering pot: $260 \pm 5^{\circ}\text{C}$ SMT Type Lead-Free Process: Soldering time: 20 second Max. Soldering pot: $250 \sim 260^{\circ}\text{C}$ Refer Reflow temperature profile (11.2) (J-STD-075)	No damage

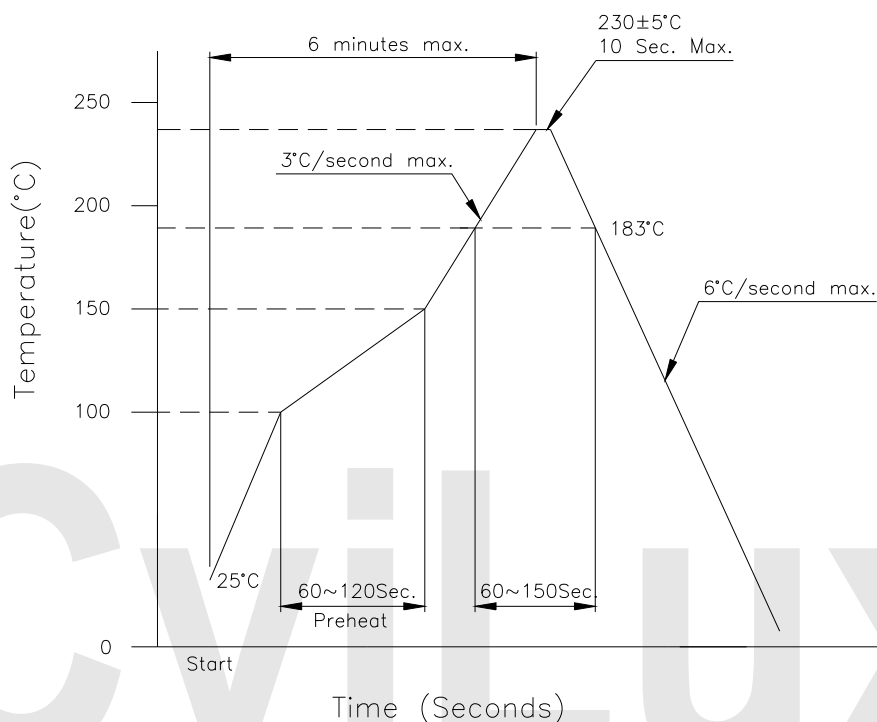
10. AMBIENT TEMPERATURE RANGE: -40 to $+105^{\circ}\text{C}$ (Including Terminal Temperature Rise)



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11. Recommended IR Reflow Temperature Profile:

11.1 Using Typical Solder Paste



11.2 Using Lead-Free Solder Paste

