


NUMBER <b>GS-12-659</b>	TYPE <b>Product Specification</b>		
TITLE <b>RJ45 1x8 WITH LED, DIP TYPE</b>		PAGE 1 of 8	REVISION A
		AUTHORIZED BY Wendy Chen	DATE 05/10/10
CLASSIFICATION <b>UNRESTRICTED</b>			

## 1 OBJECTIVE

This specification defines the performance, test and reliability requirements of RJ45 connector.

## 2 SCOPE

This specification is applicable to RJ45 connector. standard operating temperatures for this product is 0°C to 70°C.

## 3 CONNECTOR SPECIFICATION

3-1 Connector shape, dimensions and PCB layout are shown on the customer drawings.

3-2 Packaging condition is shown on package specification.

3-3 RoHS Compliance per EU Directive 2002/95/EC

3-4 Plastic Housings:


A. Main Housing: High Thermoplastic UL94V-0, Black.

3-5 Terminals:

A. RJ Contacts: Copper Alloy.

B. RJ Solder Pins: Copper Alloy.

C. LED Solder Pins: Steel.

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### 3-6 Shields:

- A. Shield: Copper Alloy.

### 3-7 Plating:


- A. RJ Contacts: As P/N specified.
- B. RJ Solder Pins: 1u" gold over 50u" Nickel under-plating
- C. LED Solder Pins: 100u" min. Matte Tin over 50u" Nickel under-plating
- D. Shield: 20u" Nickel over all.

## 4 OPERATING & TEST REQUIREMENTS

Product is designed to meet electrical, mechanical and environmental performance requirements specified below. All tests are performed at ambient environmental conditions per MIL-STD-1344A and EIA-364 unless otherwise specified.


4.1 Operating Temperature Range: 0°C TO +70°C

4.2 Storage Temperature: -40°C to 85°C


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### 4.3 Test requirements and procedure summary

ELECTRICAL			
	Item	Test Condition	Specification
4.3.1	Low Level Contact Resistance	Mate subject connector with compatible connector. EIA-364-23	40 mΩ max. initial 50 mΩ max. final
4.3.2	Insulation Resistance	Apply 100±10% Volts DC between adjacent contacts of mated connectors for one minute. EIA-364-21	1000 MΩ min initial 50 MΩ min final
4.3.3	Dielectric Withstanding Voltage	For mated specimens, 2250VDC between connected RJ interface contacts and all PCB tails connected together with shield. 1 mA cutoff current, 500 Volts per second maximum ramp. EIA-364-20	No discharge, flashover or breakdown for 1 min. Current leakage: 1 mA max.
MECHANICAL			
	Item	Test Condition	Specification
4.3.4	Mating and Un-mating Forces	Measure force necessary to mate and un-mate connectors using the free floating fixtures at rate of 25mm/min. EIA-364-05	Insertion Force: 22N max. Unlatched Withdrawal Force: 9.8N max.  Latched Withdrawal Force: 89N min.
4.3.5	Solderability	Subject the test area of contacts into flux for 5~10 seconds and then dip into solder bath, controlled at 265±5°C, for 5±0.5 seconds at a rate of 25±6mm per second.	Solderable area shall have minimum of 95% solder coverage.


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	Item	Test Condition	Specification
4.3.6	Physical Shock	Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. EIA-364-27	No electrical discontinuity greater than 1µsecond. Shall meet visual requirements, and show no physical damages.
4.3.7	Durability	The sample should be mounted in the tester and fully mated and unmated 300 times per hour at the rate of 25mm/min. EIA-364-09	1000 cycles with no function damage for RJ-45. Low Level Contact Resistance: 50mΩ max. final
4.3.8	Random Vibration	The electrical load condition shall be 100mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency which being varied uniformly between the approximate limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. EIA-364-28	No electrical discontinuity greater than 1µsecond. Shall meet visual requirements, and show no physical damages.

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ENVIRONMENTAL			
	Item	Test Condition	Specification
4.3.9	Thermal Shock (Temperature Cycling)	Subject mated connectors to 5 cycles between -55°C and 85°C, 30 minutes duration at both temperature extremes. EIA-364-32	Shall meet visual requirements, show no physical damage. Low Level Contact Resistance: 50 mΩ max. final
4.3.10	Humidity-Temperature Cycling	Mated connectors placed in humidity chamber (Humidity 90-95%, Temperature 40±2°C) for 96 hours. EIA-364-31	Shall meet visual requirements, show no physical damage. Low Level Contact Resistance: 50 mΩ max. final
4.3.11	Temperature Life (Heat Aging)	Subject mated connectors to temperature life at 65±2°C for 96 hours. EIA-364-17, Method A	Shall meet visual requirements, show no physical damage. Low Level Contact Resistance: 50 mΩ max. final
4.3.12	Salt Spray	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 48 hours. EIA-364-26	Shall meet visual requirements, show no physical damage. Low Level Contact Resistance: 50 mΩ max. final

(a) All tests are for RJ45 Module unless otherwise specified.

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## 5 TEST PLAN

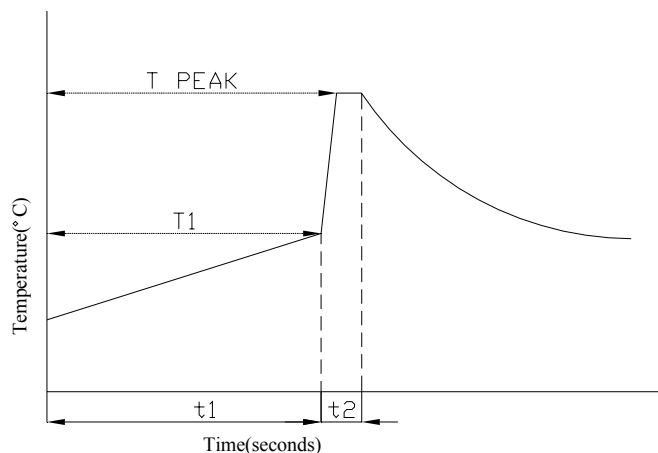
		Test group							
		A	B	C	D	E	F	G	H
Test Item		Test sequence							
<b>Examination of product</b>		1,7	1,7	1,5	1,5	1,5	1,4	1,5	1,7
4.3.1	<b>Low Level Contact Resistance</b>		2,6	2,4	2,4	2,4		2,4	3,6
4.3.2	<b>Insulation Resistance</b>	2,5							
4.3.3	<b>Dielectric Withstanding Voltage</b>	3,6							
4.3.4	<b>Mating and Un-mating Forces</b>		3,5				3		2
4.3.5	<b>Solderability</b>						2		
4.3.6	<b>Physical Shock</b>								5
4.3.7	<b>Durability</b>	4	4						
4.3.8	<b>Random Vibration</b>								4
4.3.9	<b>Thermal Shock</b>					3			
4.3.10	<b>Humidity-Temperature Cycling</b>				3				
4.3.11	<b>Temperature Life</b>			3					
4.3.12	<b>Salt Spray</b>							3	

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## 6 STORAGE REQUIREMENTS

All products shall be packaged against any physical damage and corrosion during shipment or in storage.

## 7 RECOMMEND WAVE SOLDERING PROFILE



PARAMETER	REFERENCE	LEAD FREE SPECIFICATION
PREHEAT TEMPERATURE GRADIENT		+1~4°C/sec
PREHEAT TIME	$t_1$	2~3 Min.
PREHEAT TEMPERATURE	$T_1$	>100°C
SOLDER POT TEMPERATURE	T PEAK	265°C±5°C
DWELL TIME	$t_2$	5 Sec.
PEAK BOARD TOP TEMPERATURE		190°C
COOLING TEMPERATURE GRADIENT		-6°C/SEC Max.

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**8**    APPLICABLE PART NUMBER:

Part Number	Product Description	Remark
10113616	RJ45 1x8 WITH LED/EMI WITHOUT TRANSFORMER, DIP TYPE	

Revision Record

Revision	Page	Description	ECR No.	Date
A	ALL	Release	T10-0122	08/02/10