



## SPECIFICATION

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SPEC. NO.: PS-31559-XXXXXXXXXX-XXX REVISION: 2

PRODUCT NAME: 1.02mm Pitch RJ45 Transformer Jack Conn.

PRODUCT NO: 31559 SERIES,31537 SERIES

PREPARED:  <b>Hu SHui Hong</b>  DATE: <b>2020/04/21</b>	CHECKED:  <b>Liu Rong Fang</b>  DATE: <b>2020/04/21</b>	APPROVED:  <b>hsieh,fu yu</b>  DATE: <b>2020/04/21</b>
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TITLE: **1.02mm Pitch RJ45 Transformer Jack Conn.**

RELEASE DATE: 2020/04/21

REVISION: 1

ECN No: 20xxxxx

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PROPOSAL  
SPECIFICATION



Aces P/N: **SPEC-31559-XXXXXXXXXX-XXX**

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### 1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
1	ECN-19xxxxx	NEW SPEC	Hu ShuiHong	2019/09/24
2	ECN-20xxxxx	ADD 31537 SERIES	Hu ShuiHong	2020/04/21

PROPOSAL  
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## 2 SCOPE

This product specification covers performance, tests and quality requirements for **RJ45 with/without LED**. When tests are performed on subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable product drawing.

## 3 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of the specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

### 3.1. APPLICABLE DOCUMENTS AND SPECIFICATIONS

EIA-364 : ELECTRONICS INDUSTRIES ASSOCIATION

## 4 REQUIREMENTS

### 4.1. Standard atmospheric condition:

Unless otherwise specified, the standard range of atmospheric condition for marking, measurement and tests is as follows:

Ambient temperature: **15°C to 35°C**

Relative humidity: **63% to 67%**

Air pressure: **86 kpa to 106 kpa**

### 4.2. Temperature:

Operating temperature: **-40°C to 85°C**

Storage temperature: **-40°C to 85°C**

### 4.3. Ratings

4.3.1 Voltage: **3.3 volts DC for signal pairs, 2.2 volts DC for LED signals.**

4.3.2 Current:

- **0.1 ampere maximum per contact for signal pins.**
- **0.02 ampere maximum for LEDs in forward direction.**
- **1.5 ampere maximum per contact, host board connector.**

### 4.4. Dimension

See applicable product drawing

### 4.5. Material, plating and markings

See applicable product drawing

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## 5 Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Future 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per EIA-364

### 5.1. Appearance requirements

Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan. <b>(EIA-364-18B)</b>
<b>ELECTRICAL</b>		
Low Level Contact Resistance	$\Delta R \leq 10 \text{ m}\Omega$ 60 m $\Omega$ maxi for each contact pin.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. <b>(EIA-364-23 B)</b>
Insulation Resistance	500 M $\Omega$ min	Apply a 500 VDC between adjacent terminals of Un-mate connectors <b>(EIA-364-21C)</b>
Dielectric Withstanding Voltage	No discharge; flashover or breakdown Current leakage :1 mA max	2250 VDC for 1 minute Test between output side and input side <b>(EIA-364-20)</b>
LED functional test	With LEDs are present, all LED colours illuminate and meet visual requirements. See Note (a).	Activate LEDs at application current and voltage. 20mA current and 2.2V TYP
<b>MECHANICAL</b>		
Solder ability	Solder able area shall have minimum of 95% solder coverage	And then into solder bath, Temperature at 245 $\pm$ 5 $^{\circ}$ C, for 5 sec. <b>(EIA-364-52)</b>
Mating / Unmating Forces.	Insertion Force: 22Nmax Unmating Force: 22N max	Operation Speed : 25 $\pm$ 3 mm/minute. Measure the force required to mate/unmate connector. See Note (a). <b>(EIA-364-13)</b>

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Physical Shock	1µs max	Subject mated plug and connector soldered to P.C. Board to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. 3 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. <b>(EIA-364-27, Method A )</b>
Durability	750 cycles	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 500±50 cycles per hour. <b>(EIA-364-09 C )</b>
Thermal shock	No evidence of damage.	Mate module and subject to follow condition for 5 cycles: -55 +0/-3 °C, 30 minutes +85 +3/-0 °C, 30 minutes <b>(EIA-364-32C)</b>
Vibration, Random	1µs max	Subject connector soldered to P.C. Board and mated with plug together. Each terminal shall be connected in series. The electrical load condition shall be 100mA maximum for all contacts. Subject the specimens to the following condition: Amplitude: 1.52mm Frequency: 10 – 55 – 10Hz This motion shall be applied for 2 hours in each of three mutually perpendicular directions (Total of 6 hours). <b>(EIA-364-28 D )</b>
Humidity-Temperature Cycling	The insulation resistance must coincide previously specification	Mated Connector 40°C, 90~95% RH, 96 hours. <b>(EIA-364-31, Condition A, Method II)</b>
Salt Spray	No Rust	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 24 hours <b>(EIA-364-26 B)</b>
Temperature Life	No evidence of damage. The electrical performances should meet the spec. specified.	Subject mated connectors to temperature life at 85 °C for 96 hours. <b>(EIA-364-17 Method A )</b>

**Figure-1**

(a). Shall meet visual requirements show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure-2.

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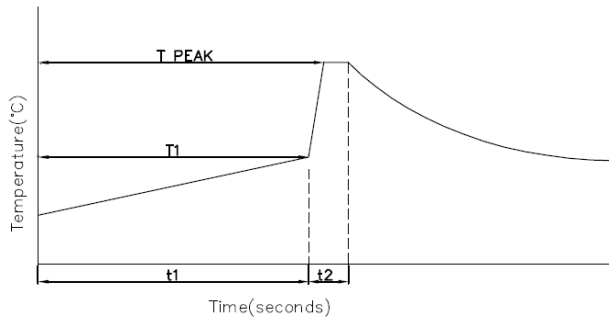
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## 6 RECOMMENDED SOLDERING CONDITION

Wave Soldering Process:



PARAMETER	REFERENCE	LEAD FREE SPECIFICATION
PREHEAT TEMPERATURE GRADIENT		+1~4℃/sec
PREHEAT TIME	t1	2~3 MIN
PREHEAT TEMPERATURE	T1	>100℃
SOLDER POT TEMPERATURE	T PEAK	265℃±5℃
DWELL TIME	t2	5 SEC
PEAK BOARD TOP TEMPERATURE		190℃
COOLING TEMPERATURE GRADIENT		-6℃/SEC MAX.

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## 7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group									
	1	2	3	4	5	6	7	8		
Examination of Product	1	1,4	1,6	1,5	1,4	1,4	1,4	1,5		
Low Level Contact Resistance		2,5	2,7		2,5	2,5	2,5			
Insulation resistance				2,7				2,7		
Dielectric withstand voltage				3,6				3,6		
LED functional test	2									
Solderability	3									
Mating /Unmating force			3,5							
Physical shock		3								
Durability			4							
Thermal shock				4						
Vibration,Random					3					
Humidity-Temperature Cycling						3				
Salt Spray							3			
Temperature Life								4		
Sample Size	2	2	2	2	2	2	2	2		

Figure-2

**Note:**

- (a) If the product without LED, please ignore and go to next step.
- (b) Without any caption use 750 cycles; other choice are 1000 cycles and 1500 cycles (need caption).