SPECIFICATION

宏致電子股份有限公司

桃園縣中壢市東園路13號

No.13, Dongyuan Rd., Jhongli City,

Taoyuan County 320, Taiwan (R.O.C.)

TEL: +886-3-463-2808
FAX: +886-3-463-1800

SPEC. NO.: PS-31507-XXXXX-XXX **REVISION:** A

PRODUCT NAME: RJ45 IMC 10/100/1000 Base-T

PRODUCT NO: 31507 SERIES

PREPARED:	CHECKED:	APPROVED:
DENG JIAN XIANG	**TENG CHANG HO**	**KUO JUNG HSUN**
DATE: **2022/04/15**	DATE: **2022/04/15**	DATE: **2022/04/15**

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
A	ECN-007395	NEW SPEC	DENG JIAN XIANG	2022.04.15

2 SCOPE

This specification covers performance, tests and quality requirements for RJ45 IMC 10/100/1000 Base-T Connector.

3 APPLICABLE DOCUMENTS

EIA-364: ELECTRONICS INDUSTRIES ASSOCIATION

4 REQUIREMENTS

4.1 Design and Construction

4.1.1 Product shall be of design, construction and physical dimensions specified on applicable product drawing.
4.1.2 All materials conform to RoHS and the standard depends on TQ-WI-140101.

4.2 Materials and Finish

4.2.1 Contact: High Performance Copper Alloy.
Finish: (a) Contact Area: Refer to the individual drawings.
(b) Under-plating: Refer to the individual drawings.
(c) Solder Area: Refer to the individual drawings.

4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
Refer to the individual drawings.

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4.2.3 Shell: Stainless Steel or Copper Alloy.
Finish: (a) Plating: Refer to the individual drawings.

4.3 Ratings

4.3.1 Voltage: 150V [AC(RMS.)/DC] MAX.
4.3.2 Operating Temperature: Refer to the individual drawings
4.3.3 Storage Temperature: -40 ˚C to +85 ˚C

5 PERFORMANCE

5.1. Test Requirements and Procedures Summary

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.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low Level Contact Resistance	30 mΩ Max. (initial) 50 mΩ Max. (after test)	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	500 MΩ Min.	Un-mate connectors, apply 500 VDC between adjacent terminals and between terminals to ground. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA Max.	Un-mate connectors, apply 1500 VAC at sea level for 1 minute between input to output terminals. (EIA-364-20)

MECHANICAL		
Item	**Requirement**	**Standard**
Durability (Locking device inoperative)	750 cycles Contact Resistance: 30 mΩ Max. (initial) 50 mΩ Max. (after test)	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min. (EIA-364-09)
Mating / Un-mating Forces (test with RJ45 plug latch depressed)	Mating Force: 22N Max. Un-mating Force: 44N Max.	Operation Speed： 25.4±3 mm per minute. Measure the force required to mate/un-mate connector. (EIA-364-13)
ENVIRONMENTAL		
Item	**Requirement**	**Standard**
Resistance to Wave Soldering Heat	No damage or deformation. Contact Resistance: 30 mΩ Max. (initial) 50 mΩ Max. (after test)	Pre Heat：~130 ˚C at 5 ˚C /s Max. Peak Temp.：260 ˚C Max, 10sec Max. (EIA-364-56)

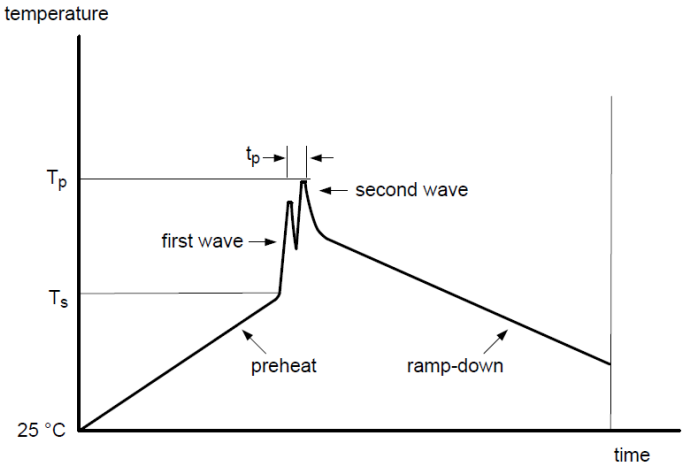
Thermal Shock	See Product Qualification and Test Sequence Group 2	Mate module and subject to follow condition for 5 cycles. 1 cycles: -55 +0/-3 ˚C, 30 minutes +85 +3/-0 ˚C, 30 minutes (EIA-364-32, Test condition I)
Humidity	See Product Qualification and Test Sequence Group 2	Mated Connector 40 ˚C, 90~95% RH, 96 hours. (EIA-364-31,Condition A, Method II)
Temperature Life	See Product Qualification and Test Sequence Group 3	Subject mated connectors to temperature life at 85 ˚C for 96 hours. (EIA-364-17, Test condition A)
Cold Resistance	See Product Qualification and Test Sequence Group 4	Subject mated connectors to temperature life at -40 ˚C for 96 hours. (EIA-364-59)
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the 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 Condition I)
Salt Spray	No damage. Contact Resistance: 30 mΩ Max. (initial) 50 mΩ Max. (after test)	Subject mated/unmated connectors to 5% salt-solution concentration, 35 ˚C for 24 hours (EIA-364-26)
Solderability	Solderable area shall have minimum of 95% solder coverage.	Immerse terminal tail into solder bath, and temperature at 245±5˚C, for 3~5 sec. (EIA-364-52)

6 RECOMMENDED SOLDERING CONDITION

➢ Wave Soldering Process:

Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate	~ 200 °C/s	~ 200 °C/s
Heating rate during preheat	typical 1-2, max 4 °C/s	typical 1-2, max 4 °C/s
Final preheat temperature T_S	~ 130 °C	~ 130 °C
Peak temperature T_P	235 °C	260 °C
Time within peak temperature t_P	10 s	10 s
Ramp-down rate	5 °C/s maximum	5 °C/s maximum

Wave Soldering Profile



7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group									
	1	2	3	4	5	6	7	8		
	Test Sequence									
Examination of Product	1、6	1、6	1、5	1、5	1、4	1、4	1、3	1、4		
Low Level Contact Resistance	2、7				2、5	2、5		2、5		
Insulation Resistance		2、7	2、6	2、6						
Dielectric Withstanding Voltage		3、8	3、7	3、7						
Mating / Un-mating Forces	3、5									
Durability (Locking device inoperative)	4									
Thermal Shock		4								
Humidity		5								
Temperature Life			4							
Cold Resistance				4						
Vibration					3					
Salt Spray						3				
Solder ability							2			
Resistance to Wave Soldering Heat								3		
Sample Size	4	4	4	4	4	4	4	4		