



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-30175-XXXXX-XXX REVISION: F

PRODUCT NAME: USB 3.1 A TYPE

PRODUCT NO: 30175、30186、30188、3019x、311xx、
30179、302xx SERIES

PREPARED: LIAO WAN TING DATE: 2021.04.06	CHECKED: TENG CHANG HO DATE: 2021.04.06	APPROVED: KUO JUNG HSUN DATE: 2021.04.06
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Aces P/N: **30175 series**

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-1806374	NEW SPEC	LIAO WAN TING	2018.06.27
A	ECN-1901439	Add 30186 series	LIAO WAN TING	2019.01.28
B	ECN-1903167	Add 30188 series	LIAO WAN TING	2019.03.12
C	ECN-1904068	Add 3019x series	LIAO WAN TING	2019.04.03
D	ECN-1912436	Change correct Differential Impedance Add 311xx Series	LIAO WAN TING	2019.12.24
E	ECN-000932	Add 30179 Series	LIAO WAN TING	2020.10.27
F	ECN-001959	Add 302xx Series	LIAO WAN TING	2021.04.06

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2 SCOPE

This specification covers performance, tests and quality requirements for **USB 3.1 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 R.o.H.S. 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 drawing](#).
(b) Under plate: [Refer to the drawing](#).
(c) Solder area: [Refer to the drawing](#).
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp.
- 4.2.3 Shell: [Refer to the drawing](#).

4.3 Ratings

- 4.3.1 Voltage: **30 Volts AC (per pin)**
- 4.3.2 Current: **1.8 A FOR PIN 1 AND PIN 4**
0.25A FOR ALL THE OTHER CONTACTS
- 4.3.3 Operating Temperature : **-55°C to +85°C**

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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 for VBUS and GND contacts. 50 mΩ (Max) initial for all other contacts. 40 mΩ (Max) after for VBUS and GND contacts. 60 mΩ (Max) after for all other contacts.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	100 M Ω Min.	Unmated and mated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric withstanding voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	100 VAC Min. at sea level for 1 minute. Test between adjacent contacts of unmated and mated connectors. (EIA-364-20)
Temperature rise	30°C Max. Change allowed	A current of 1.8 A shall be applied to VBUS pin and its corresponding GND pin. Additionally, a minimum current of 0.25 A shall be applied to all the other contacts. when measured at an ambient temperature of 25 °C. (EIA-364-70 METHOD 2)
Differential Impedance	90Ω +/-10Ω Refer to High Frequency Graphic Figure 1	Mated connector 50 ps (20%-80%) Risetime.

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MECHANICAL		
Item	Requirement	Standard
Durability	5000 cycles.	The durability test shall be done at a maximum rate of 200 cycles per hour and no physical damage to any part of the connector and cable assembly shall occur. (EIA-364-09)
Insertion / Extraction Force	Insertion Force: 25 N Max. Extraction Force: 10 N~25N (initial) 8 N~25N (after test)	Operation Speed : 12.5 ± 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
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)
ENVIRONMENTAL		
Item	Requirement	Standard
Resistance to Reflow Soldering Heat	See Product Qualification and Test Sequence Group 8	Pre Heat : 150°C~180°C, 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max. (EIA-364-56)
Thermal Shock	See Product Qualification and Test Sequence Group 4	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)

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Humidity	See Product Qualification and Test Sequence Group 4	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 5	Subject mated connectors to temperature life at 105°C for 96 hours . (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C, 48 hours (EIA-364-26)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	And then into solder bath, Temperature at 245 ±5°C , for 5 sec. (EIA-364-52)

Note. Flowing Mixed Gas shall be conduct by customer request.

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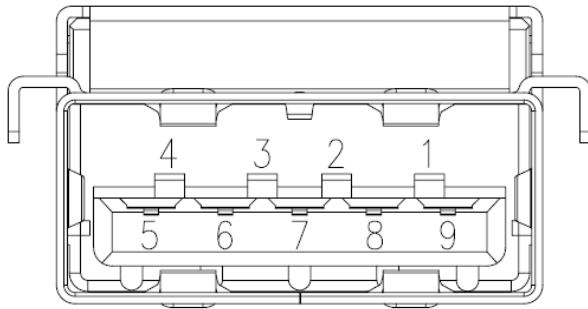
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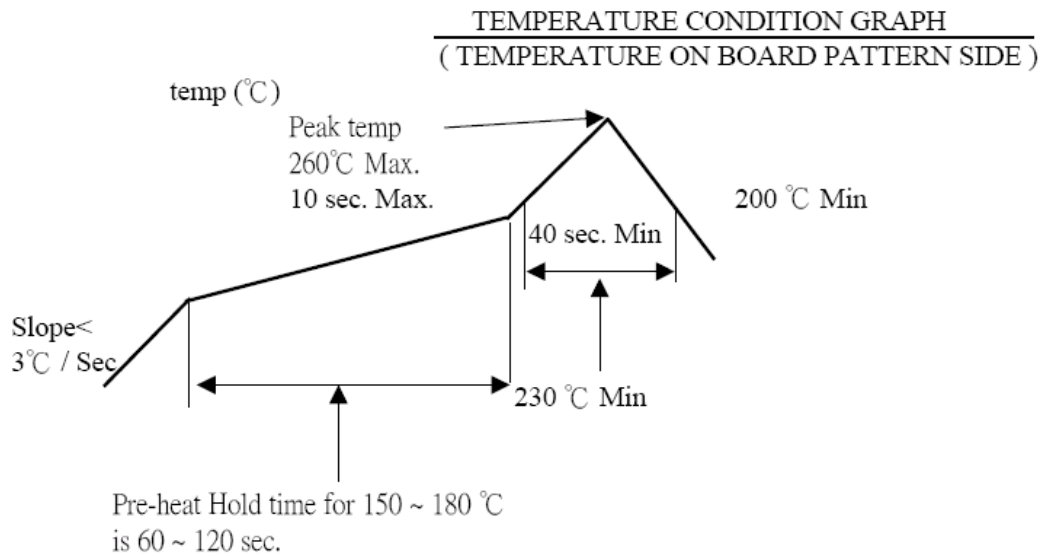
6 PIN ASSIGNMENTS



Schematic diagram

Pin Number	Signal Name
1	VBUS
2	D-
3	D+
4	GND
5	StdA_SSRX-
6	StdA_SSRX+
7	GND_DRAIN
8	StdA_SSTX-
9	StdA_SSTX+
Shell	Shield

7 INFRARED REFLOW CONDITION



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8 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group									
	1	2	3	4	5	6	7	8	9	10
	Test Sequence									
Examination of Product				1、7	1、6	1、4		1		
Low Level Contact Resistance		1、5	1、3	2、10	2、9	2、5		3		
Insulation Resistance				3、9	3、8					
Dielectric Withstanding Voltage				4、8	4、7					
Temperature rise	1									
Insertion / Extraction Force		2、4								
Durability		3								
Vibration			2							
Thermal Shock				5						
Humidity				6						
Temperature life					5					
Salt Spray						3				
Solder ability							1			
Resistance to Soldering Heat								2		
Sample Size	2	4	4	4	4	4	2	4		

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9 HIGH FREQUENCY GRAPHIC

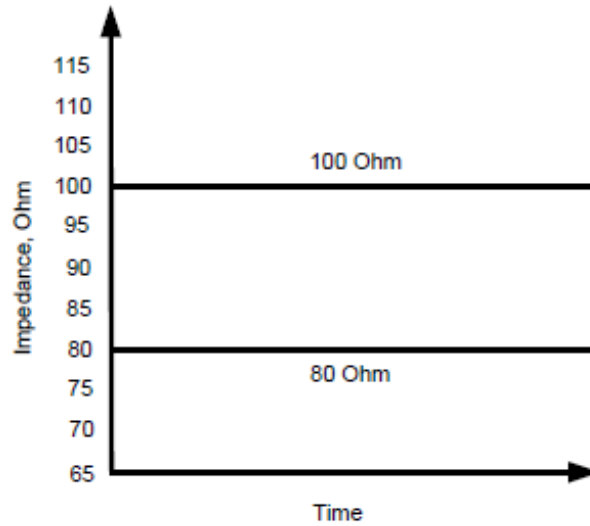


Figure 1

Impedance Limits of a Mated Connector