

IX-UC2000

Part No. Receptacle: 30112

Product Specification

Qualification Test Report No. TR-18061

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IX-UC2000 Product Specification

1. Scope

This Product Specification defines the test conditions and the performances of the IX-UC2000 series , a USB type-C connector.

2. Product Name and Parts No.

2.1 Product Name

IX-UC2000 RECEPTACLE TOP MOUNT TYPE

2.2 Parts No.

Receptacle: 30112-024E-01

3. Rating

3.1 Operating Conditions

Amperage:

30112-024E-01: 5A AC/DC (For Vbus pin)

Voltage:

30112-024E-01: 5V AC

Operating temperature: 233~353K(-40°C~80°C) (Containing temperature rise by current)

Operating humidity: 85% max

3.2 Storage Conditions

Storage temperature: 248~333K(-25°C~60°C)

Storage humidity: 85% max. (Non-condensing)

4. Test and Performance

Test Condition

This initial test is equal to it's at shipping condition and unless otherwise specified, all tests and measurements shall be performed under the following conditions in accordance with EIA-364

Temperature: 288K~308K(15°C~35°C)

Pressure: 866hPa~1066hPa(650mmHg~800mmHg)

Relative humidity: 45~75%R.H.

4.1. Electrical Performance**1. Low level contact resistance**

Reference standard: EIA 364-23

Test conditions: Solder the receptacle connector to the test board and mate the plug connector together, then measure the contact resistance as shown in Fig.1 by the four terminal methods. Apply the low level condition of 20mV MAX. DC for the open circuit voltage and 100mA MAX. DC for the closed circuit current.

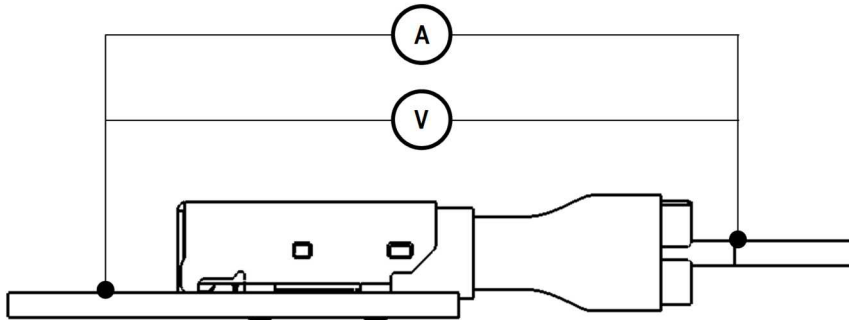


Fig.1

Pass criteria: Contact
Initial: 40 mΩ MAX.
After testing: 50 mΩ MAX.

2. Insulation resistance

Reference standard: EIA 364-21

Test conditions: Mate the plug and receptacle connector together, and then apply DC 100 V between the inner contact and the ground contact.

Pass criteria: Initial: 100 MΩ MIN. After testing: 100 MΩ MIN.

3. Dielectric withstanding voltage

Reference standard: EIA 364-20

Test conditions: Mate the receptacle and plug connector together, then apply AC 100V(rms) between the neighboring contacts for a minute.

Pass criteria: No creeping discharge, flashover, no insulator breakdown shall occur.

4. Temperature rising

Reference standard: 364-70 Method2

Test conditions: Mate the plug and receptacle connector together and then apply rating current per contact.

Pass criteria: Over ambient ΔT_{30} °C MAX.

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4.2. Mechanical Performance

1. Mating force and unmating force

Reference standard: EIA 364-13

Test conditions: Solder the receptacle connector to the test board, then place the board and plug on push-on/pull-off machine, measure of initial and mating/unmating 10000 cycles at a speed 12.5 ± 3 mm/min. along the mating axis.Pass criteria: Mating force: 5~20 N
Unmating force: Initial: 8~20 N 10000cycles: 6~20 N

2. Durability(Preconditioning)

Reference standard: EIA 364-09C

Test conditions: Solder the receptacle connector to the test board, then place the board and plug on the push-on/pull-off machine, and repeat mating and unmating 50cycles at a maximum rate of 500 ± 50 cycles per hour. along the mating axis.

Pass criteria: No evidence of physical damage

3. Durability

Reference standard: EIA 364-09

Test conditions: Solder the receptacle connector to the test board, then place the board and plug on the push-on/pull-off machine, and repeat mating and unmating 10000cycles at a maximum rate of 500 ± 50 cycles per hour. along the mating axis.

Pass criteria: Contact resistance: Shall meet 4.1.1

4. Vibration

Reference standard: EIA-364-28F

Test conditions: Solder the receptacle connector to the test board, then mate plug connector, and place them on the vibrator. Then apply the following vibration. During the testing, run 100mA DC to check electrical discontinuity.
Frequency: 20~50Hz
Power spectral density: $0.02g^2/Hz$
Duration: 15 minutes/axis
Grms: 3.10g
Directions: 3 mutually perpendicular direction.Pass criteria: Contact resistance: Shall meet 4.1.1.
Electrical discontinuity: No electrical discontinuity greater than $1\mu s$ shall occur.
Appearance: No abnormality

5. Reseating

Reference standard: -

Test conditions: Solder the receptacle connector to the test board, then place the board and plug on the manually, and repeat mating and unmating 3cycles. along the mating axis.

Pass criteria: No evidence of physical damage

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4.3. Environmental Performance

1. High temperature life(Preconditioning)

Reference standard: EIA 364-17C

Test conditions: Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment.
 Temperature: $358\pm 2K$ ($105\pm 2^{\circ}C$)
 Duration: 72 hours

Pass criteria: Contact resistance: Shall meet 4.1.1.
 Appearance: No abnormality

2. High temperature life

Reference standard: EIA-364-17

Test conditions: Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment.
 Temperature: $358\pm 2K$ ($105\pm 2^{\circ}C$)
 Duration: 120 hours

Pass criteria: Contact resistance: Shall meet 4.1.1.
 Appearance: No abnormality

3. Thermal shock

Reference standard: EIA 364-32

Test conditions: Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment.
 Temperature: $218K(-55^{\circ}C)$,30min. \rightarrow $358K(85^{\circ}C)$,30min.
 Transition time: 5min. MAX.
 No. of cycles: 10 cycles

Pass criteria: Contact resistance: Shall meet 4.1.1.
 Appearance: No abnormality

4. Thermal disturbance

Reference standard: EIA 364-110

Test conditions: Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment.
 Temperature: $288K(15^{\circ}C)$,5min. \rightarrow $358K(85^{\circ}C)$,5min.
 Transition time: $2^{\circ}C/min$. MIN.
 No. of cycles: 10 cycles

Pass criteria: Contact resistance: Shall meet 4.1.1.
 Appearance: No abnormality

5. Cyclic temperature and humidity

Reference standard: EIA 364-31

Test conditions: Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment.
 Temperature and humidity : $298K(25^{\circ}C)80\% RH\rightarrow$ $338K(65^{\circ}C)50\%RH$
 Ramp times: 0.5 hour Dwell times: 1 hour
 Duration: 24cycles (72hours)

Pass criteria: Contact resistance: Shall meet 4.1.1.
 Appearance: No abnormality

4.3. Environmental Performance

6. Mixed flowing gas	
Reference standard:	EIA 364-65 Class II A
Test conditions:	Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment. Temperature: $303 \pm 2K$ ($30 \pm 2^{\circ}C$) Relative humidity: $70 \pm 5\%RH$ Gas: Cl ₂ $10 \pm 3ppb$ NO ₂ $200 \pm 50ppb$ H ₂ S $10 \pm 5ppb$ SO ₂ $100 \pm 2ppb$ Duration: 168 hours
Pass criteria:	Contact resistance: Shall meet 4.1.1. Appearance: No abnormality

4.4. Others

1. Solder ability	
Reference standard:	EIA 364-52
Test conditions:	Dip the solder tine of the contact in the solder bath at $528 \pm 5K$ ($255 \pm 5^{\circ}C$) for 5 ± 0.5 seconds after immersing the tine in the flux of RMA or R type for 5 to 10 seconds.
Pass criteria:	More than 95% of the dipped surface shall be evenly wet.

2. Soldering heat resistance	
Reference standard:	IPC/JEDEC-STD-020C
Test conditions:	Reflow temperature as shown in Fig.2. The number of times of Reflow is within 2.
<p>The graph plots Temperature (°C) on the vertical axis against Time (s) on the horizontal axis. The temperature starts at 25°C and ramps up to 150°C within a 60~120s interval. From 150°C, it continues to rise through a 'Preheat area' to 217°C. It then reaches a peak of 245°C, which is maintained for 30 seconds. The cooling phase follows with a maximum ramp down rate of 6°C/s and a total duration of 60~150s. The maximum ramp up rate is 3°C/s.</p>	
Fig.2	
Pass criteria:	No abnormality adversely affecting the performance shall not occur.

4.5 Test Sequence and Specimen Quantity

Table.1 Test Sequence and Sample Quantity

Test Item	Group							
	A	B	C	D	E	F	G	H
Contact resistance		2,7	1,4,6	1,4,6	1,4,6,8	1,4,6,8,10		
Insulation resistance		1,8						
Dielectric withstanding voltage		9						
Temperature rising	1							
Mating force		3						
Unmating force		4,6						
Durability(preconditioning)			2	2	2	2		
Durability		5						
Vibration				5				
Reseating			5		7	9		
High temperature life (preconditioning)				3		3		
High temperature life			3					
Thermal shock					3			
Thermal disturbance						7		
Cyclic temperature and humidity					5			
Mixed flowing gas						5		
Solder ability							1	
Soldering heat resistance								1
Specimen quantity.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.

※Numbers indicate sequence in which tests are performed.

5. Recommended Metal Mask

Refer to drawing for the recommended metal mask thickness and opening dimension.