



# PRODUCT SPECIFICATION

## USB A TYPE UPRIGHT REVERSE CONNECTOR

### 1.0 SCOPE

This specification covers the requirements for product performance and test methods of USB A TYPE UPRIGHT REVERSE (Universal Serial Bus Revision 2.0 ) CONNECTOR.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER (S)

2.1.1 PRODUCT NAME: USB A TYPE UPRIGHT REVERSE CONNECTOR

2.1.2 SERIES NUMBER: 48204

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See drawing no: SD-48204-001

### 3.0 RATINGS

#### 4.1 VOLTAGE

30 Volts AC (RMS) {or 30 Volts DC}

#### 4.2 CURRENT

1.5Amps

#### 4.3 TEMPERATURE

Operating: - 55°C to + 85°C

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DOCUMENT NUMBER: <b>PS-48204-001</b>	CREATED / REVISED BY: <b>COLIN DUAN</b>	CHECKED BY: <b>Allen Lin</b>	APPROVED BY: <b>Wilson Chang</b>

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## 4.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Low Level Contact Resistance	<b>EIA 364-23</b> Mate connectors: apply a maximum voltage of <b>20 mV</b> and a current of <b>100 mA</b> .	<b>30 milliohms</b> MAXIMUM
2	Insulation Resistance	<b>EIA 364-21</b> Unmate & unmount connectors: apply a voltage of <b>500 VDC</b> between adjacent terminals and between terminals to ground	<b>1000 Megohms</b> MINIMUM
3	Dielectric Withstanding Voltage	<b>EIA 364-20</b> Un-mate connectors: apply a voltage of <b>500 volts VAC</b> for <b>1 minute</b> between adjacent terminals and between terminals to ground.	No breakdown; current leakage < <b>0.5 mA</b>
4	Contact Capacitance	<b>EIA-364-30</b> Test between adjacent circuits of unmated connector at 1 MHz.  The object of this test is to detail a standard method to determine the capacitance between conductive elements of a USB connector.	2 pF Maximum per Contact
5	Contact Current Rating	<b>EIA 364-70 Method B</b> Mate connectors : measure the temperature rise at the rated current (1.5A).	Temperature rise : 30 °C maximum

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## 5.2 MECHANICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6	<b>Connector Mate And Un-mate Forces</b>	<b>EIA 364-13</b> Mate and un-mate connector (male to female) at a rate of 20 mm (1 ± ¼ inch) per minute.	<b>Mating Force: 35 N</b> MAXIMUM
			<b>Un-mating Force: 10 N</b> MINIMUM
7	<b>Durability</b>	<b>EIA-364-09</b> Mate and un-mate Connector assemblies for 1500 cycles at maximum rated of 300 cycles per hour.	Shall meet visual requirement, show no physical damage
8	<b>Vibration (Random)</b>	<b>EIA 364-28, test condition VII.</b> Mate connectors and vibrate per	1). No discontinuities of 1 microsecond or longer duration 2). Shall meet visual requirement, show no physical damage.
9	<b>Mechanical Shock</b>	<b>EIA 364-27 Test Condition H</b> Subject mated connectors to 30G's half-sine shock pulses of 11ms duration. Three shocks in each direction applied along three mutually perpendicular planes, 18 total shock.	1). No discontinuities of 1 microsecond or longer duration 2). Shall meet visual requirement, show no physical damage.

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## 5.3 ENVIRONMENTAL REQUIREMENTS

TEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
10	Humidity	<b>EIA 364-31 Test condition A method III</b> Subject mated connectors to 60 cycles temperature between $-25^{\circ}\text{C}$ to $+65^{\circ}\text{C}$ with 90 to 95% RH	1). Dielectric Withstanding Voltage: No Breakdown at 500 VAC 2). Insulation Resistance: 1000 Megohms MINIMUM 3). Visual: No Damage
11	Shock (Thermal)	<b>EIA 364-32, Test Condition I</b> Subject mated connectors to ten cycles between $-55^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ .	1). Dielectric Withstanding Voltage: No Breakdown at 500 VAC 2). Insulation Resistance: 1000 Megohms MINIMUM 3). Visual: No Damage
12	Temperature Life	<b>EIA 364-17 Test Condition 2 Method A</b> Subject mated connectors to temperature life at $85^{\circ}\text{C}$ for 500hours	1). 30 milliohms MAXIMUM 2). Shall meet visual requirement, show no physical damage.
13	Solderability	<b>EIA 364-52</b> After one hour steam aging.	The surface of the portion to be soldered shall at least 95% covered with new solder coating
14	Resistance To Solder Heat	<b>MIL-STD-202F, Method 210A, Test Condition B.</b> for WAVE SOLDERING Pre-heat: $80^{\circ}\text{C}$ , 60 Seconds Temperature: $265 \pm 5^{\circ}\text{C}$ Immersion duration: $10 \pm 1$ sec.	No mechanical defect on housing or other parts.

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## TEST SEQUENCES IDENTIFICATION

Test Group							
Test Item	Test Description	A	B	C	D	E	F
	Examination of product	1 9	1 5	1 9	1 3	1 3	1 3
1	Low Level Contact Resistance	3 7	2 4				
2	Insulation Resistance			3 7			
3	Dielectric Withstanding Voltage			4 8			
4	Contact Capacitance			2			
5	Contact Current Rating					2	
6	Mating & Un-mating Force	2 8					
7	Durability	4					
8	Random Vibration	6					
9	Mechanical Shock	5					
10	Humidity			5			
11	Thermal Shock			6			
12	Temperature Life		3				
13	Solder ability				2		
14	Resistance to solder heat						2
Number of Test Samples (Minimum)	5	5	5	5	5	5	5

Note:

- a. Samples shall be prepared in accordance with applicable manufacturer's instructions and shall be selected at random from current production.
- b. Precondition samples with 3 cycles durability.
- c. All the tests shall be performed in the sequence.

### 5.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

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