DONGGUAN MOLEX INTERCONNECT.,LTD

LANGUAGE

ENGLISH

PRODUCT SPECIFICATION

USB 3.0 CABLE ASSEMBLY

		TITLE: **USB 3.0 CABLE ASSEMBLY**	
A	INITIAL RELEASE	THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.	
REV. DESCRIPTION			
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		Approved By: FRED NIE	DATE: 2014.06.12

1. Scope

This specification covers the requirements for the USB 3.0 CABLE ASSEMBLY.

2. Product Description

See the sales drawing and the other section of this specification for the necessary

Referenced document and specification, the part number covered in this specification

As following:

USB 3.0 A MALE TO FEMALE

USB 3.0 A MALE TO B MALE

USB 3.0 A MALE TO MICRO B MALE

3. Ratings

3.1 Voltage

Rated Voltage: 30V AC

3.2 Current

1.8A for VBUS pin and its corresponding GND pin, a minimum

Current of 0.25A shall be applied to all the other contacts.

3.3 Temperature

Operating temperature: 0 °C to +50 °C

Storage temperature: -20 °C to +60 °C

4. Performance

4.1 Electrical characteristics

Table 1: Electrical characteristics

Item	Test condition	Requirement
Contact Resistance	Mate connectors, measure at 20mV (Max) open circuit at 100mA per EIA-364-23	1. 30 m Ω (Max) initial for VBUS and GND contacts 2. 50 m Ω (Max) initial for all other contacts
Insulation Resistance	Applied between adjacent contacts of unmated and mated connectors per EIA-364-21	100 M Ω MIN.
Dielectric Strength	Applied between adjacent contacts of unmated and mated connectors per EIA-364-20	No breakdown shall occur when 100 volts AC(RMS) is applied
Propagation Delay	Connect cable to test fixture, measure by TDR.	UTP: 26 ns/cable Max
Intra-Pair Skew	Connect the cable to test fixture, measure by TDR	UTP: 100ps /cable Max STP: 15ps /m
Differential Impedance	Connect cable to test fixture, measure by TDR.	Connector and terminal area: STP: 90 ± 15 Ω (RT=50 ps (20%~80%) Cable area: STP: 90 ± 7 Ω UTP: 90 ± 13.5 Ω (RT=200 ps (10%~90%))
Common mode Impedance	Connect cable to test fixture, measure by TDR.	UTP: 30 ± 9 Ohms (RT=200 ps (10%~90%))
Attenuation	The differential insertion loss,SDD12, measures the differential signal energy transmitted through the mated cable assembly.	Refer to the table 1

Differential to common mode conversion	Connect cable to connector on test fixture, measure by Network Analyzer.	≤ -20 dB /Cable @ 100 MHz~7.50 GHz
Differential near-End crosstalk between superspeed pairs	Only the differential near-end crosstalk(DDNEXT) is specified per EIA-360-90	Vertices that defines the DDNEXT limit are: 100MHz, -27dB 2.5GHz, -27 dB 3.0GHz, -23dB 7.5GHz, -23dB
Differential crosstalk between D+/D- and superspeed pairs	Connect cable to connector on test fixture, measure by Network Analyzer per EIA-360-90	Vertices that defines the DDNEXT and DDFEXT limit are : 100MHz, -21dB 2.5GHz, -21 dB 3.0GHz, -15dB 7.5GHz, -15dB

Table 1 Attenuation

Frequency (MHz)	Attenuation (max) (dB/cable)
0.064	0.08
0.256	0.11
0.512	0.13
0.772	0.15
1	0.2
4	0.39
8	0.57
12	0.67
24	0.95
48	1.35
96	1.9
200	3.2
400	5.8

For UTP pairs

Frequency	Attenuation (max) (dB/cable)
100 MHz	-1.5dB
1.25 GHz	-5.0dB
2.5 GHz	-7.5dB
7.5 GHz	-25dB

For STP pairs

4.2 Mechanical characteristics

Table 1: Mechanical Characteristics.

<table>
<tr><th>Item</th><th>Condition</th><th>Specification</th></tr>
<tr><td>Appearance (cable assembly)</td><td>Visual inspection</td><td>No defects such as cable damage, short scratches or blemishes</td></tr>
<tr><td>Mating and Un-mating force for connector</td><td>Mate and un-mate connector at a maximum rate of 12.5mm per minute EIA-364-13</td><td>1.Mating force:35N Max.
2.Un-mating force:10N min. initial and 8N min. after the specified insertion/extraction or durability cycles.</td></tr>
<tr><td>Durability or Insertion/Extraction cycles</td><td>The durability test shall be done at a maximum rate of 200 cycles per hour (EIA-364-09)
<table><tr><th>Connector</th><th>Standard Durability class</th><th>High Durability class</th></tr><tr><td>Usb 3.0 standard A connector</td><td>1500 cycles min</td><td>5000 cycles min.</td></tr><tr><td>Usb 3.0 standard B connector</td><td>1500 cycles min</td><td>5000 cycles min.</td></tr><tr><td>Usb 3.0 Micro connector family</td><td>10000 cycles min</td><td></td></tr></table></td><td>No physical damage to any part of the connector and cable assembly shall occur</td></tr>
<tr><td>Cable flexing</td><td>To the cable assembly with dimension X=3.7 times the cable diameter and 100 cycles in each of two planes per EIA 364-41,condition I</td><td>No physical damage or discontinuity to the cable assembly</td></tr>
<tr><td>Cable Pull out force</td><td>It is subjected to a 40N axial load for a minimum of 1 minute while clamping one end of the cable plug(EIA-364-38 condition A)</td><td>No physical damage to the cable assembly</td></tr>
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