

PRODUCTS SPECIFICATION

Description : USB Cable Assembly
Customer :
COMOSS P/N : USBC Series
Date of Issue : 26-Sep-2002
Version : 1.0
Designer : Gary-Huang

Approval



Customer Signature



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1.0 General

USB can reach 480Mhz frequency, can extend maximum 127 devices, and can apply best convenient application. This product specification is compliance with USB version 2.0 and OTG specification. It contains the test method based on EIA standard-the general performance and requirements for USB series Cable Assemblies in the two specification, The requirement is based on Version 2.0, but it will be marked in underline and red words to show the requirement of OTG specification.

Series Description

USBC- A / 1---B / 2---B---0

(1)(2) (3) (4) (5) (6)

(1) (3) Contact Type

- A : STD A Plug
- B : STD A Socket
- C : STD B Plug
- D : Mini A Plug
- E : Mini A Socket
- F : Mini B Plug
- G : S/T type-Strip and Tinned

(2) (4) Overmold Type

- 1 : Straight
- 2 : Side Right Angle
- 3 : Down Right Angle


(5) Cable Length


- A : 1 meter
- B : 2 meter
- C : 3 meter
- D : 4 meter
- E : 4.5 meter
- F : 15 cm

(6) Options

0: None

*Any special request will add in this item.

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3.0 <u>Overall dimensions</u> See attachment (Drawings).				
4.0 Environment Performance				
Item	Description	Test Procedure	Performance Requirements	
4-1	Random Vibration	EIA 364-28 Test Condition V (Test Letter A) Subjected mated connector attached to a PCB to 5.35Gs RMS for 15 min, in each of three mutually perpendicular axes. Figure as shown on USB Spec.	There shall be no discontinuities 1us or longer duration when mated USB connectors are subjected to 11 ms duration 30Gs half-sine shock pluses.	
4-2	Physical Shock	EIA 364-27 Test condition H. Subjected mated connector attached to a PCB to 30G peak acceleration, half sine pulse of 11 ms, three shocks applied along three mutually perpendicular planes for a total of 18 shocks. Figure as shown on USB Spec.	There shall be no discontinuities 1us or longer duration when mated USB connectors are subjected to 5.35Gs RMS.	
5.0 Mechanical Performance				
5-1	Insertion Force	EIA 364-13B Measure force necessary to mate connector assemblies at maximum rate of 12.5mm per minute.	35 Newtons maximum.	
5-2	Extraction Force	EIA 364-13B Measure force necessary to unmate connector assemblies at maximum rate of 12.5mm per minute.	10 Newtons minimum. <u>(For Mini Series Connector)</u> <u>1. 7Newton in initial</u> <u>2. 3Newtons after 5000cycles</u>	
5-3	Durability	EIA 364-09 Mate and unmate connector ass'y for 1500 cycles <u>(5000 for mini-series connector)</u> at maximum rate of 200 cycles per hour.	1500 insertion/extraction cycles at a maximum rate of 200 cycles per hour. <u>(5000 for mini series connector)</u>	
5-4	Cable Pull-out	EIA 364-38 Test Condition A	After the application of a steady state axial load of 40 Newtons for one minute.	

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5-5	Cable flex	Flexing angle : $\pm 90^\circ$ Speed : 40-60 cycles/minute Cycles : 500	No loss of continuity during cycling	
6.0 Electrical Performance				
6-1	LLCR	EIA 364-23 Measure the contact resistance of specimen with a current 100mA and 20mV open circuit maximum.	30 m max. when measured at 20 mV maximum open circuit at 100mA. Mated test contacts must be in a connector housing. Or 10m of R <u>(50 m for mini-series connector)</u>	
6-2	Cable Impedance (only for full & high speed)	Connect the test sample to TDR to measure maximum and minimum differential impedance.	76.5 -103.5	
6-3	Signal pair attenuation (only for full/high speed)	1.connect the Network Analyzer port 1 to the input connector on the attenuation fixture. 2.connect the plug of the cable to be tested to the test fixture, leaving the other end open-circuited. 3.calibrate the Network Analyzer and fixture using the appropriate calibration standards over the desired the test frequency range.	Frequency (MHz)	Attenuation (Maximum)
			0.064	0.08
			0.256	0.11
			0.512	0.13
			0.772	0.15
			1.000	0.20
			4.000	0.39
			8.000	0.57
			12.000	0.67
			24.000	0.95
			48.000	1.35
96.000	1.9			
200.00	3.2			
400.00	5.8			
			*Attenuation unit : dB/Cable	
6-4	Propagation Delay	1.Set TDR head to differential mode, and use 50 cable for each signal. 2.Connect the cable to be tested to the test fixture. 3.Measure the propagation delay from input of test fixture to output of opposite test fixture.	Maximum one-way delay is 26ns	

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6-5	Propagation Delay Skew	1.Connect the TDR to the fixture with test sample cable, as in previous section. 2.Measure the difference in delay for the two conductors in the test test cable.	Maximum Skew must be less than 100ps
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