

PRODUCTS SPECIFICATION

Description : Serial ATA Connector
Customer :
COMOSS P/N : SATA Series
Date of Issue : 20-Sep-2002
Version : 1.0
Designer : Ben

Approval



Customer Signature



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Subject :

Product Specification - Serial ATA connectors.

1.0 General

This specification covers the Serial ATA connector including both plug and receptacle for defining its physical, electrical, environmental specification & high frequency characteristics. All performances are designed for complying with Serial ATA (High Speed Serialized AT Attachment).

2.0 Series Description

SATA S 07 F 0 0 0 S 0 0
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

1. Series

SATA: Serial ATA

2. Types:

S: Soldering

E: DIP soldering type

M: SMT type

3. Pin Count:

07: 7 pin for signal transmission

15: 15 pin for power transmission

22: 22 pin for signal & power transmission

4. Genders:

M: plug

F: receptacle

5. Contact finish:

0: Gold Flash

1: 15u"

2: 30u"

6. Tail Finish:

0: Tin/Lead

1: Glod flash

7. Insulator Colour

0: black

8. Version:

V: Vertical

S: Straight (also for cable receptacle)

R: R/A, Standard

U: R/A, Reverse

9. Mounting option:

- 0: none for soldering type
- 1: in-line footprint for DIP type
- 2: dual-line footprint(1.50mm pitch) for DIP type
- 3: dual-line footprint(3.20mm pitch) for DIP type
- 4: staggered footprint for SMT type

10. Guide Option

- 0: None
- 1: Single guide solt
- 2: Dual guide solt
- 3: Full enveloped

3.0 Application

(1) Ambient Temperature Range : -25 to +85 .

4.0 Overall Dimensions

See attachment.

5.0 Electrical performance

Item	Description	Test methods and Condition	Requirements
5-1	Contact Current Rating (Power Segment)	*Mount a connector to a test PCB *Wire power pins P1, P2, P8, and P9 in parallel for power *Wire ground pins P4, P5, P6, P10, and P12 in parallel for return. *Supply 6A total DC current to the power pins in parallel, returning from the parallel ground pins (P4, P5, P6, P10, and P12.) *Record temp. rise when terminal equilibrium is reached.	1.5 A per pin minimum. The temperature rise above ambient shall not exceed 30 at ant point in the connector when contact positions are powered. The ambient condition is still air at 25
5-2	LLCR	EIA 364-23 Subject mated contacts assembled in housing to 20mV maximum open circuit at 100 mA maximum	Initial: 30m max Max. Change: 15m
5-3	Insulation Resistance	EIA 364-21 After 500 Vdc for 1 minute measure the I.R. between the adjacent contacts of mated and unmated connectors	1000M Minimum.

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5-4	Dielectric Withstanding Voltage	EIA 364-20 method B Test between adjacent contacts of mated and unmated connectors at 500Vdc for 1 min.	No flashover No sparkover No excess leakage No breakdown	
6.0 Mechanical performance				
Item	Description	Test methods and Condition	Requirements	
6-1	Mating Force	EIA 364-13 Measure force necessary to mate connector at max rate of 12.5mm per minute.	45N maximum.	
6-2	Unmating Force	EIA 364-13 Measure force necessary to unmate connector at max rate of 12.5mm per minute.	10.0N min.	
6-3	Durability	EIA 364-09 50 cycles for internal cable application; 500 cycles for backplane/ blindmate application. Test done at a maximum rate of 200 cycles per hour	Contact Resistance 15m max change. Unmating force 10.0N min No physical damage.	
7.0 Solderability				
Item	Description	Test methods and Condition	Requirements	
7-1	Solderability	Solder Time : 3 +/- 0.5 Sec. Solder Temperature : 245 +/- 5	75% minimum.	
7-2	Resistance to soldering Heat	Immerse test sample into molten solder (260+/-5) to 1.2mm from the datum line. The dwell time shall be 5 +/-0.5 Sec. After 30 Sec. (Interval) immerse the sample into solder (260+/-5) for 3 +/- 0.5 Sec.	No Damage.	
8.0 Environmental performance				
Item	Description	Test methods and Condition	Requirements	
8-1	Physical Shock	EIA 364-27, Condition H Subject mated connectors to 30 g's half-sine shock pulses of 11 ms duration. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks.	No discontinuity at 1 us or longer No physical damage	

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8-2	Temperature Life	EIA 364-17 Condition III, Method A Subject mated connectors to temp. life at +85 for 500 hrs	Appearance : No damage 15m max change	
8-3	Humidity Cycle	EIA 364-31 Condition A, Method II Subject mated connectors to 96 hr at 40 with 90% to 95% RH	I.R.: 1000M min	
8-4	Thermal Shock	EIA 364-32 10cycles (mated) Test condition I between -55 and +85	Withstanding voltage must be No flashover, no sparkover, no excess leakage, and no breakdown.	
8-5	Mixed Flow Gas	EIA 364-65, Class II A Half of the samples are exposed unmated for 7 days, then mated for remaining 7 days. Other half of the samples are mated during entire testing.	LLCR: 15m max. Change	
8-6	Vibration	EIA 364-28, Condition V (A) Subject mated connectors to 5.35 g's RMS. 30 minutes in each of three mutually perpendicular planes.	No discontinuity at 1 us or longer	
9.0 High Frequency Characteristic				
Item	Description	Test methods and Condition	Requirements	
9-1	Mated Connector Impedance	<ol style="list-style-type: none"> 1.Minimize skew 2.Set the TDR pulsers in differential mode with a positive going pulse(V+) and a negative going pulse(V-). Define a reflected differential trace: $V_{diff}=V+ - V-$ 3.With the TDR connected to the risetime reference trace, verify an input risetime of 70ps(measured 20%~80% Vp). Filtering may be used to slow the system down. 4.Connect the TDR to the sample measurement trace. Calibrate the instrument and system. 	100 +/- 15%	

		5. Measure and record the maximum and minimum value of the near end connector impedance. (Refer to Serial ATA standard for details.)	
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