2 SCOPE

This specification covers performance, tests and quality requirements for the MINI ODD SATA CONN. SERIES products.

3 APPLICABLE DOCUMENTS

EIA-364 ELECTRONICS INDUSTRIES ASSOCIATION

4 REQUIREMENTS

4.1 Design and Construction

Connector shall be of the design, construction and physical dimensions specified on the applicable sales drawing. Aces' s P/N: 51205series

4.2 Materials and Finish

4.2.1 Contact: High performance copper alloy (Phosphor Bronze)
Plated: (a) Finish: See order information
(b) Under plate: Nickel-plated all over
(c) Solder tail: Gold flash on solder tail
4.2.2 Housing: Thermoplastic, High temp. UL94V-0, Halogen Free
Color: Black
4.2.3 Shell: High performance copper alloy (Phosphor Bronze)
Plated: (a) Finish: Matt tin plated all over
(b) Under plate: Nickel-plated all over

4.3 Ratings

4.3.1 Voltage: 15 Volts AC
4.3.2 Current: DC 1.0 Amperes
4.3.3 Operating Temperature : -35℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

ELECTRICAL		
Item	**Requirement**	**Standard**
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
Low-signal Level Contact Resistance	30 m Ω Max.(initial)per contact 15 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	100 M Ω Min.	Unmated connectors, apply 250 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown.	Test between adjacent contacts of unmated connectors. AC 100 VAC Min. at sea level for 1 minute. Current leakage: 2 mA max. (EIA-364-20)
Mated connector Impedance (Signal Port)	100 Ω ±15%	1. Set the Time Domain Reflectometer (TDR) pulse in differential mode with a positive going (V+) and a negative going pulse (V-). Define a reflected differential trace: Vdiff=V+ - V- 2. With the TDR connected to the risetime reference trace, verify an input risetime of 70 ps (measured 20% - 80% Vp). Filtering may be used to slow the system down (see NOTE 2) 3. Connect the TDR to the sample measurement traces. Calibrate the instrument and system (see NOTE 3) 4. Measure and record the maximum and minimum values of the near end connector impedance.

Temperature rise	30℃ Max. Change allowed	1. Mate connector: measure the temperature rise at rated current after: 1.5 A minimum Power contact. 2. The temperature rise above ambient shall not exceed 30℃ The ambient condition is still air at 25℃ 3. Wire power pins P1, P2, P8 and P9 in parallel for power 4. Wire ground pins P4, P5, P6, P10 and P12 in parallel for return 5. Supply 6A total DC current to the power pins in parallel, returning from the parallel ground pins (P4, P5, P6, P10 and P12)

NOTES

1. Time domain measurement equipment allows for delay adjustment of the pulses so launch times can be synchronized. Frequency domain equipment will require the use of phase-matched fixturing. The fixturing skew should be verified to be < 1ps on a TDR.
2. The system rise time is to be set via equipment filtering techniques. The filter risetime is significantly close to stimulus risetime. Therefore the filter programmed equals the square root of ($t_{r(observed)}$) squared – ($t_{r(stimulus)}$)squared. After filtering, verify the risetime is achieved using the risetime reference traces on the PCB fixture.
3. Calibrate the system by substituting either precision 50-ohm loads or precision air lines (also terminated in 50 ohm loads) for the test fixture. This places the calibration plane directly at the input interface of the test fixture.

MECHANICAL

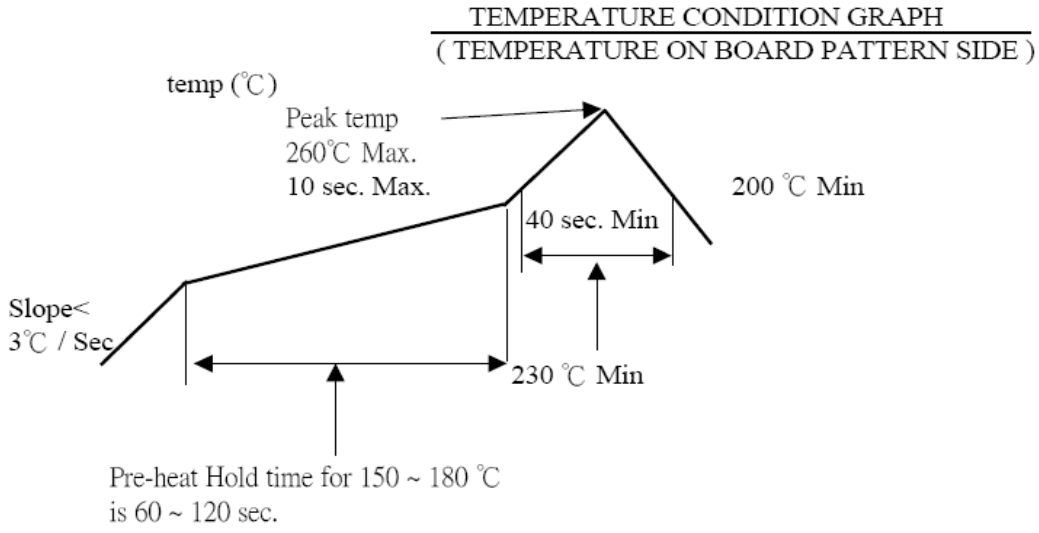
Item	Requirement	Standard
Durability	30 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 10 ± 3mm/min. (200 cycles per hour max.) (EIA-364-09)
Insertion Forces (Mating Force)	40N(4.0Kgf) Max.	Measure the force necessary to mate connector assemblies at a maximum rate of 12.5mm per minute. (EIA-364-13)
Removal Force (Un-mating Force)	3N(0.3Kgf) Min.	Measure the force necessary to Un-mate connector assemblies at a maximum rate of 12.5mm per minute. (EIA-364-13)
Contact retention force	1.96N(0.2Kgf)Min	Measure the force necessary to Un-mate connector assemblies at a maximum rate of 12.5mm per minute. (EIA-364-29)
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm(1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28, test condition I)
Shock (Mechanical)	1 μs Max.	Subject mated connectors to 30 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be DC 100mA maximum for all contacts. (EIA-364-27, test condition H)

ENVIRONMENTAL		
Item	**Requirement**	**Standard**
Resistance to **Hand** Soldering Heat	Excessive pressure shall not be applied to the terminals. See Product Qualification and Test Sequence Group 8	Soldering iron：350±10℃ Duration：3~4 sec.
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -40 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, Reefer to Method II. (EIA-364-31, Test condition A)
Temperature life	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at 85℃ for 96 hours. Measure Signal. (EIA-364-17, Test condition III Method A)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)

Note 1. Flowing Mixed Gas shell be conduct by customer request.

6 INFRARED REFLOW CONDITION

6.1. Lead-free Process



7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product		1、9		1、7	1、4						
Low-signal Level Contact Resistance		3、8	1、4	2、10	2、5			1、3			
Insulation Resistance				3、9							
Dielectric Withstanding Voltage				4、8							
Temperature rise	1										
Insertion Forces		2、7									
Removal Forces		4、6									
Durability		5									
Vibration			2								
Shock (Mechanical)			3								
Thermal Shock				5							
Humidity				6							
Temperature life					3						
Solder ability							1				
Resistance to Soldering Heat								2			
Impedance (Signal Port)						1					
Sample Size	2	4	4	4	4	4	4	2			