1.0 General:

This specification covers the performance, minimum quality requirement and related application of DDR III connector with 240 position 1.0 mm pitch.

2.0 Product description:

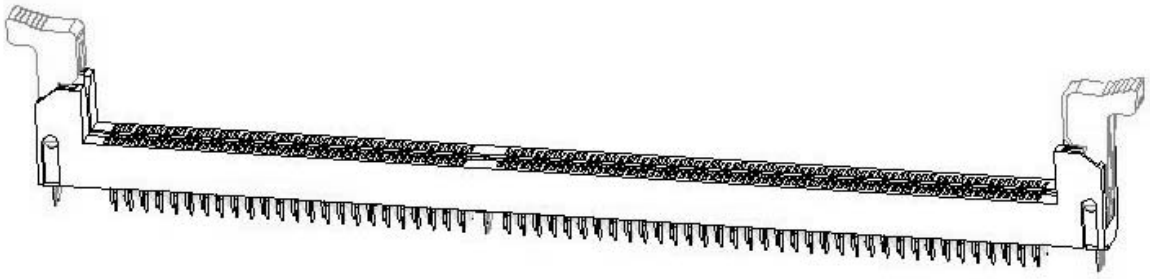
2.1 Part number and connector profile:

FCI engineering drawing P/N to be 10068597-xxxxx

10069007-xxxxx

10078239-xxxxx

10115766-xxxxx



2.2 Material:

Parts	Material	Finish / Grade	Remark
Housing	High temperature Nylon with glass fiber reinforced	UL 94-V0	Withstand 260 ℃ 10 sec wave soldering
Terminal	Hi performance copper alloy	Under plate: 50u" Nickel Contact: gold plated Solder tail: 100u"min pure matte Tin	
Ejector	High temperature Nylon with glass fiber reinforced	UL 94V-0	
Hold down	Copper alloy	plate: 50u" Nickel overall	Only for 10068597-xxxxx 10078239-xxxxx

The part number marked "LF" suffix meets the RoHS requirements for banned substances and can withstand the heat requirements of 260 ℃ 10 sec for ware solder process.

2.3 Recommended food print & module configuration:

See customer drawing 10058597-xxxxx, 10069007-xxxxx & 10078239-xxxxx for detail.

PCB footprint ref to JEDEC SO-007 for details.

Module card layout ref to MO-269 for detail.

2.4 Recommended work rating & temperature range:

Item	Rating
Voltage	30 V (AC/DC)
Current	0.5 A (AC/DC)
Storage temperature	-40 °C ~ 85 °C
Operating Temperature	-55 °C ~ 105 °C

3.0 **Requirements:**

3.1 Mechanical Characteristics:

Item	Description	Test method & Condition	Requirement
3.1.1	Visual Inspection	To visual inspect connector.	No evidence of physical damage and functional fail.
3.1.2	Durability	25 times Mating / un-mating cycles with max THK module (1.37mm) at inserting rate of 25mm / minute.	No evidence of physical damage and functional fail.
3.1.3	Module insertion force	Measure module card insertion force with 1.37mm THK steel gage at rate of 25mm / minute.	24 lbs Max.
3.1.4	Module withdraw force without latch	Measure module withdraws force without latch locked. Rip out rate at rate 12.7mm / min.	Min 3.7 lbs withdraw force. (14gf min)

3.2 Electrical Characteristics:

3.2 a AC Electrical:

Item	Description	Test method & Condition	Requirement
3.2.1	L11(signal-to-ground inductance)	Per JEDEC PS-001 "DDR3 connector specification" 5.4 & Annex A, AC Electrical measurement.	2.5 to 3.5 nH @ 266, 333, and 400 MHz
3.2.2	C11(coupling capacitance between adjacent signals)	Per JEDEC PS-001 "DDR3 connector specification" 5.4 & Annex A, AC Electrical measurement.	0.3 to 0.6 pF @ 266, 333, and 400 MHz
3.2.3	L12(signal loop inductance)	Per JEDEC PS-001 "DDR3 connector specification" 5.4 & Annex A, AC Electrical measurement.	0.9 nH Max @ 266, 333, and 400 MHz
3.2.4	C12(mutual capacitance between adjacent signals)	Per JEDEC PS-001 "DDR3 connector specification" 5.4 & Annex A, AC Electrical measurement.	0.3 pF Max @ 266, 333, and 400 MHz

3.2 b DCDC Electrical:

3.2.5	Contact Resistance	Measure LLCR with 4 wire resistance meter. Open circuit voltage: 20 mV and a current of 100 mA. EIA364-23.	Initial: 30 m-ohm max. After test: Delta R 10 m-ohm max increased.
3.2.6	Insulation resistance	The connector shall be loaded in accordance with EIA 364-21.	1 Mega-ohm min.
3.2.7	Dielectric withstanding voltage	Loaded in accordance with EIA364-20 (500VAC, 60s).	During this test, no flashover or breakdown.
3.2.8	Current Rating	The connector shall be loaded in accordance with EIA364-70. Apply 0.5 A DC	T rise 30 ℃ max.

		current in each contact. Measure the temperature rise.	

3.3 Frequency Domain Characteristics:

Not defined.

3.4 Environmental Characteristics:

Item	Description	Test method & Condition	Requirement
3.4.1	Random Vibration	EIA-364-28 Module weight 35g +/- 5g with the center of gravity of 20-25 mm from the module mating edge. Duration: 10 minutes per axis for all 3 axes on all samples. Frequency Range: 5 Hz to 500 Hz. 5 to 20Hz (slope): ($0.01g^2$/Hz)@5Hz, ($0.02g^2$/Hz)@20Hz; 20 to 500Hz (flat): ($0.02g^2$/Hz)@20Hz; Input acceleration is 3.13 g RMS; Random control limit tolerance: ± 3 dB.	No evidence of physical damage No discontinuities of 1 microsecond or longer duration.
3.4.2	Physical Shock	Per EIA364-27 Module weight 35g +/-5g with center of gravity of 20~25 mm from module mating edge. 1. Acceleration: 50 g, Trapezoidal. 2. Shock duration: 11 ms. 3. 3 shocks in each of 6 directions. 4. Min Velocity change: 67 cm/sec, +/-10%.	No evidence of physical damage No discontinuities of 1 microsecond or longer duration.
3.4.3. a	High Temperature Life	Test per EIA364-17 Method A, 105 ℃, 165 hrs for 15u" gold & below to simulate 7 years at 65C field temperature. 105 ℃, 240 hrs for 30u" gold to simulate 10 years at 65C field temperature.	Per EIA364-1000.01 table 8 condition
3.4.3. b	High Temperature Life (preconditioning)	Test per EIA364-17 Method A, 105 ℃, 91 hrs for 15u" gold & below to simulate 7 years at 65C field temperature. 105 ℃, 120 hrs for 30u" gold to simulate 10 years at 65C field temperature.	Per EIA364-1000.01 table 9 condition
3.4.4	Thermal Shock	Per EIA 364-32 , test condition 1. cycle the connector –55 to +85 ℃ . Dwell time of 30 minutes at extreme temperature, transfer time 5 mins Max. Perform such 10 cycles.	

3.4.5	Cyclic Temperature & Humidity	EIA 364-31 method III Specimens shall be mated during test, Temperature : 25 ~ 65 ℃. Humidity: 80%RH at 25 C, 50% RH at 65C. Time per cycle: 8h (1 hour dwell at low temperature, 0.5 hour ramp from low to high temperature, 1 hour dwell at high temperature, 0.5 hour ramp from high to low temperature). Perform 24 cycles.	
3.4.6	Mixed flowing gas	Per EIA364-65 class IIA 5 days to simulate a 3 year field life for gold flash plating. 7 days to simulate a 5 year field life for 10u" gold plating. 10 days to simulate a 7 year field life for 15u" gold plating. 14 days to simulate a 10 year product life for 30u" gold plating.	
3.4.7	Thermal disturbance	Cycling the connector between 15℃ +/-3C and 85 +/-3℃ ,Thermal ramp 2 ℃ /minute Min. Dwell time should insure that the contacts reach the extremes at least 5 minutes. Perform 10 such cycles.	
3.4.8	RoHS Compatible	FCI P/N with "LF" suffix means lead free and this product meets European Union Directives regulations on banned substance: Lead : 1000 PPM Cadmium: 100 PPM Mercury: 1000 PPM Hexavalent Chromium: 1000 PPM PBBs : 1000 PPM PBDEs: 1000 PPM.	Not above the threshold level for all homogenous materials.
3.4.9	Dust	Per EIA364-91 Specimens unmated during the test.	

4.0 **Product qualification provision:**

4.1 Inspection condition:

Unless otherwise specified, all measurement and tests shall be carried out at temperatures between 15 ℃ and 35 ℃, relative humidity of 40% to 85% and atmospheric pressure (960hpa to 1060hpa).

4.2 Test plan:

Test Items	Refer to	TEST SEQUENCE

		GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8
Visual Inspection	3.1.1	1	1	1	1	1	1	1	1
Durability(preconditioning) [5 cycles]	3.1.2	3	3	3	3	5	3		3
Module insertion force	3.1.3					3			
Module wiithdraw force without latch	3.1.4					4			
LLCR	3.2.5	2,5	2,5,8	2,7	2,5,7,9	2,7,9	2,6		2,5,7
Insulation resistance	3.2.6		7						
Dielectric withstanding voltage	3.2.7						5		
Current Rating	3.2.8						4		
Random Vibration	3.4.1			5					
Physical Shock	3.4.2			6					
High Temperature Life	3.4.3.a	4							
High Temperature Life (preconditioning)	3.4.3.b			4	4	6			
Thermal Shock	3.4.4		4			8			
Cycling Temperature & Humidity	3.4.5		6						
Mixed flowing gas	3.4.6				6				
Thermal disturbance	3.4.7				8				6
Dust test	3.4.9								4
RoHS	3.4.8							3	
Hi-frequency test	3.3							2	
Sample Quantity		5	5	5	5	5	5	5	

5.0 Packaging and handling:

5.1 Packaging per FCI spec GS-14-899, the traceability of all parts must be guaranteed by date code on each product.

REVISION RECORD

REV	PAGE	DESCRIPTION	EC #	DATE
A	All	New product spec release	DG06-0186	18/09/06
B	All	Add new P/N 10078239 in spec; Delete "Frequency Domain Characteristics" and up date environment test criteria per JEDEC PS-001 specification.	DG08-0049	03/02/08
C	All	Add new P/N 10115766 and correct a mistake(group 3)	N10-0345	11/09/10