PRODUCT SPECIFICATION

DDR3 DIMM, 1.00mm Pitch, 240 Ckts, Vertical SMT

1.0 SCOPE

This Product Specification covers the 1.00 mm centerline gold plated DDR3 DIMM edge card connector for 1.27 +/- 0.10 thick memory modules.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

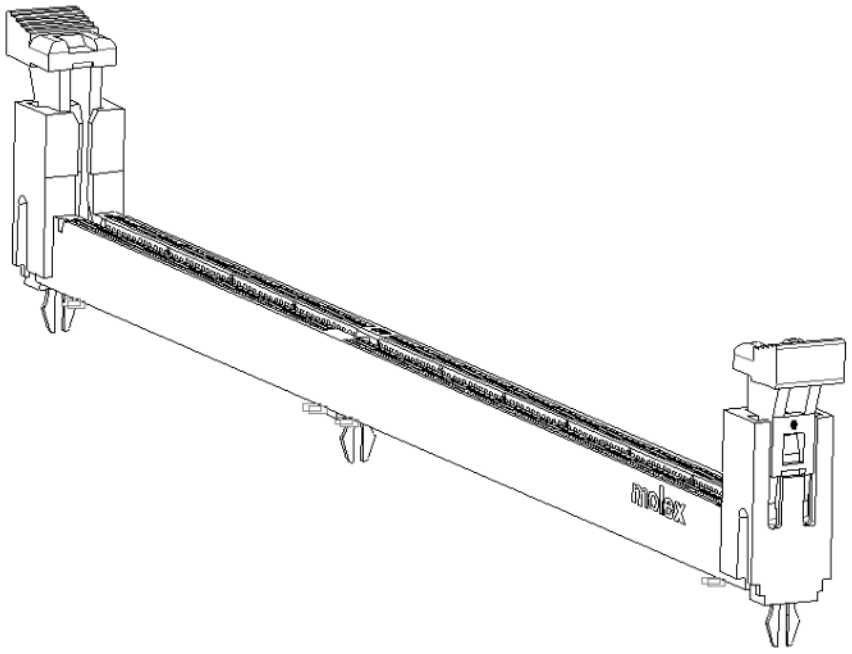
Part No.	Product Description
78156	DDR3 DIMM, 1.00mm Pitch, 240 Ckts, Vertical SMT, Forklock Version

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate Sales Drawings for information on dimensions, materials, plating and markings, recommended module outlines and footprint Specifications.

2.3 SAFETY AGENCY APPROVALS

UL File: E-29179
CSA File: 1699020 (LR 19980)



3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents are part of this specification between the requirements of this specified herewith. In the event of conflict between the requirements of this specification and the product drawings, the product drawings shall take precedence. In the event of conflict between the requirements of this specification and reference documents, this specification shall take precedence.

4.0 RATINGS

4.1 VOLTAGE

30 Volts AC (RMS) / DC

4.2 CURRENT

1.0 Amps / pin

4.3 FIELD LIFE AND TEMPERATURE

Field Life: 7 years
Field Temperature: 65°C

4.4 TEMPERATURE

Operating Temperature: -55°C ~ +85°C
Non Operating Temperature: -55°C ~ +85°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Contact Resistance (Low Level)**	Mate connectors: apply a maximum voltage of **20** mV and a maximum current of **100** mA. (EIA-364-23)	30 mΩ Max. Initial ΔR: 20 milliohms Max.
2	**Insulation Resistance**	Unmate & dismount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. (EIA-364-21)	1 MΩ Min.
3	**Dielectric Withstanding Voltage**	Apply 500 VAC for 1 minute between adjacent terminals of an unmated connector. (EIA-364-20)	No breakdown

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
4	**Module Insertion Force (w/ Latches)**	EIA-364-13 Insert a 1.37+ 0.015 mm thick steel gauge at a rate of 5 ± 1mm per minute. For metal gauge spec, refer to Jedec Standard GS-005.	10.8 kgf max.
5	**Terminal Retention Force**	Axial pullout force on the terminal in the housing at a rate of 25.4 ± 6 mm per minute.	Contact: 0.25kgf Min. Forklock: 1.36kgf Min.
6	**Durability (Preconditioning)**	Mate and unmated connectors up to 5 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	Contact Resistance: ΔR: 20 mΩ Max.
7	**Durability**	Mate and unmated connectors up to 25 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	Contact Resistance: ΔR: 20 mΩ Max.
8	**Vibration**	EIA-364-28 Module card, weighted 35 ± 5g with center of gravity 20-25 mm from module mating edge; Frequency range: 5 Hz to 500 Hz 5 to 20 Hz (slope): (0.01 g^2/ Hz)@5Hz, (0.02g^2/ Hz)@20Hz; 20 to 500 Hz (flat): (0.02g^2/ Hz)@20Hz Input acceleration is 3.13 g RMS; Random control limit tolerance: ± 3 dB; Duration: 10 mins in each X, Y, Z axis	No Physical Damage Contact Resistance: ΔR: 20 mΩ Max. No discontinuities of 1 microsecond or longer duration.

9	**Shock (Mechanical)**	Module card, weighted 35 ± 5g with center of gravity 20-25 mm from module mating edge; Profile: Trapezoidal shock of 50 g. + 10% Duration: 11ms Minimum Velocity change: 170 inches /sec, + 10%. Quantity: Three drops in each of six directions. Total 18 drops per connector.	No Physical Damage Contact Resistance: ΔR: 20 mΩ Max. No discontinuities of 1 microsecond or longer duration.
10	**Reseating**	Manually mate and unmate the connector with PCB for 3 cycles.	No damage.
11	**Latch Overstress Force**	Apply an actuation force on the latch at a rate of 25 ± 6 mm / min in the fully open position.	3.5kgf (7.7lbs) min force held for 10 sec. with no damage.
12	**Latch Actuation Force**	Apply an actuation force on the latch at a rate of 25 ± 6 mm/ min with recommended test module inserted into connector.	The force to fully actuate the latch open shall be 4.5kgf (10lbs) max. per latch.
13	**Module Rip Out Force**	Pull up from the center of the module with the latches closed at a rate of 25 ± 6 mm/min.	9.1kgf (20lbs) min. retention force of the module in connector with no damage
14	**Retention of Connector to PCB**	Pull or push connector with a force of 0.45kgf on connector mounted on the PCB prior at the rate of 12.7 ± 3 mm forklock PCB hole size: 2.45 ± 0.05 mm.	No lifting of connector from applicable PCB.
15	**Insertion Force of Connector into PCB**	Push connector into applicable PCB at a rate of 12.7 ± 3 mm. Forklock PCB hole size: 2.45 ± 0.05 mm.	Total insertion force to be 6.8kgf (15lbs) max.
16	**Module Unmate Force**	Pull out 1.17 thick test blade from connector with latches removed at a rate of 12.7± 3 mm/min	1.68kgf min per connector or 14gf per pin pair.

5.2 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
17	**Shock (Thermal)**	Mate connectors; expose to 10 cycles of: Temperature °C Duration (Minutes) -55 +0/-3 30 +25 ± 10 5 MAXIMUM +85 +3/-0 30 +25 ± 10 5 MAXIMUM EIA-364-32	Contact Resistance: ΔR: 20 mΩ Max. Appearance: No Damage
18	**Temperature Life (Preconditioning)**	Mate connectors; expose to: 91 hours at 105 ± 3°C Per EIA-364-17	Contact Resistance: ΔR: 20 mΩ Max. Appearance: No Damage
19	**Temperature Life**	Mate connectors; expose to: 165 hours at 105 ± 3°C Per EIA-364-17	Contact Resistance: ΔR: 20 mΩ Max. Appearance: No Damage
20	**Solderability**	Steam age for 8 hour +/- 5 min. Solder 5 ± 0.5 seconds. Solder temperature: 260 ± 5 °C. Non-activated flux.	Solder coverage: 95% MINIMUM
21	**Temperature Rise**	Mate the connectors, series 6 contacts and measure the temperature rise at the rated current of 1.0A after 4 hours.	Maximum Temperature Rise: 30 °C above ambient.
22	**Cyclic Temperature & Humidity**	Cycle the connector between 25ºC ± 3ºC at 80% ± 3% RH and 65ºC ± 3ºC at 50% ± 3% RH. Ramp times should be 0.5 hour and dwell times should be 1 hour. Dwell times start when the temperature and humidity have stabilized within the specified levels. Perform 24 such cycles. EIA-364-31	Contact Resistance: ΔR: 20 mΩ Max. Appearance: No Damage
23	**Mixed Flowing Gas**	EIA-364-65, class IIA; expose unmated connector for 160hrs in MFG chamber. Expose mated (to same test module mated during temp life preconditioning) connector for 80hrs in MFG chamber..	Contact Resistance: ΔR: 20 mΩ Max.
24	**Thermal Disturbance**	Cycle the connector between 15°C±3°C and 85°C±3°C, as measured on the part. Ramps should be a minimum of 2°C per minute, and dwell times should insure that contacts reach temperature extreme for a minimum of 5minutes. No humidity control. 10 cycles total.	Contact Resistance: ΔR: 20 mΩ Max

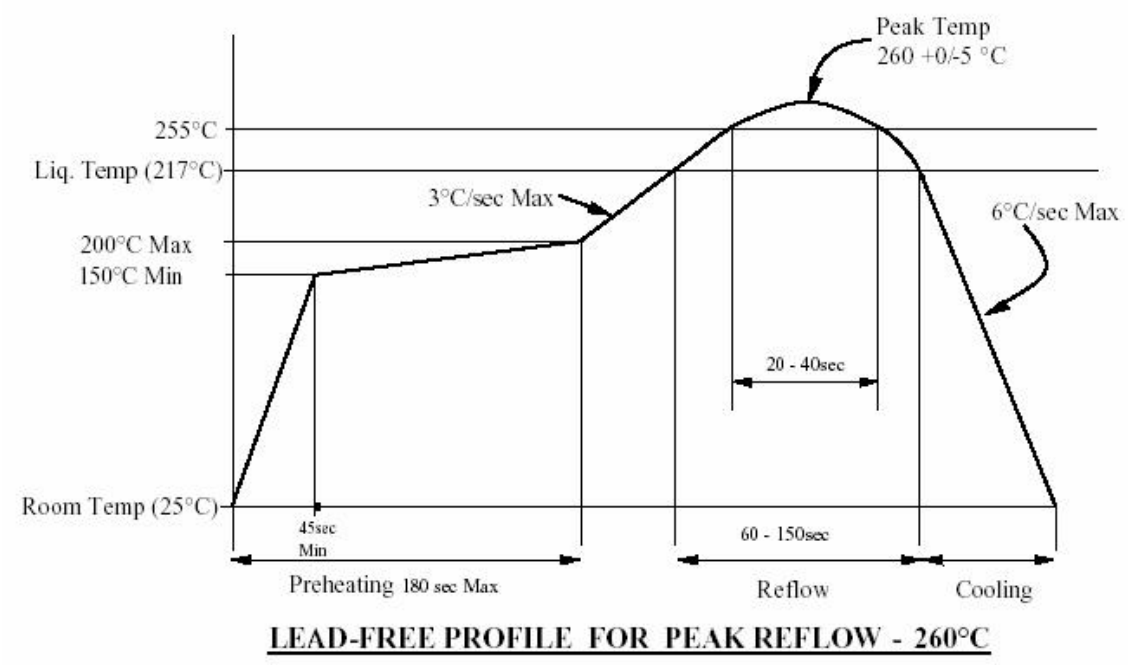
6.0 TEST SEQUENCE

TEST DESCRIPTION SEQUENCE	TEST GROUP											
	1	2	3	4	5	6	7	8	9	10	11	12
Initial Contact Resistance	1	1	1		1							1
Durability (preconditioning)	2	2	2									2
Durability					2							
Insulation Resistance				1 5								
Dielectric Withstand Voltage				2 6								
Contact Resistance	4 6	4 6 8	3 5 7		3							4 6 8 10 12
Temperature Life (Preconditioning)												3
Temperature Life	3											
Thermal Shock		3		3								
Thermal Disturbance												9
Cyclic Temp & Humidity		5		4								
Mixed Flowing Gas (unmated condition)												5
Mixed Flowing Gas (mated condition)												7
Mechanical Shock			6									
Vibration			4									
Reseating	5	7										11
Temperature Rise						1						
Solderability							1					
Module Insertion Force									1			
Latch Actuation Force										1		
Latch Overstress Force										2		
Module Rip Out Force									2			
Connector Insertion and Retention to PCB											1	
Contact Retention								1				
Forklock Retention								2				
Module Unmate Forces											2	
Sample Size per Test Group	5	5	5	5	5	5	5	5	5	5	5	5

7.0 PACKAGING

Parts shall be packed in trays and protected against damage during handling, transportation and storage.

8.0 RECOMMENDED LEAD-FREE REFLOW PROFILES



LEAD-FREE PROFILE FOR PEAK REFLOW - 260°C

Notes

1) Temperature indicated refers to the PCB surface temperature at solder tail area.

2) Connector can withstand up to 2 reflow cycles with a cool-down to room temperature in-between.

3) Actual reflow profile also depends on equipment, solder paste, PCB thickness, and other components on the board. Please consult your solder paste & reflow equipment manufacturer for their recommendations to adopt a suitable process.