PRODUCT SPECIFICATION

DDR4 DIMM SOCKET

1.0 SCOPE

This Product Specification covers the 0.85mm centerline gold plated DDR4 DIMM edge card connector for 1.40 ± 0.10 thick memory modules.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

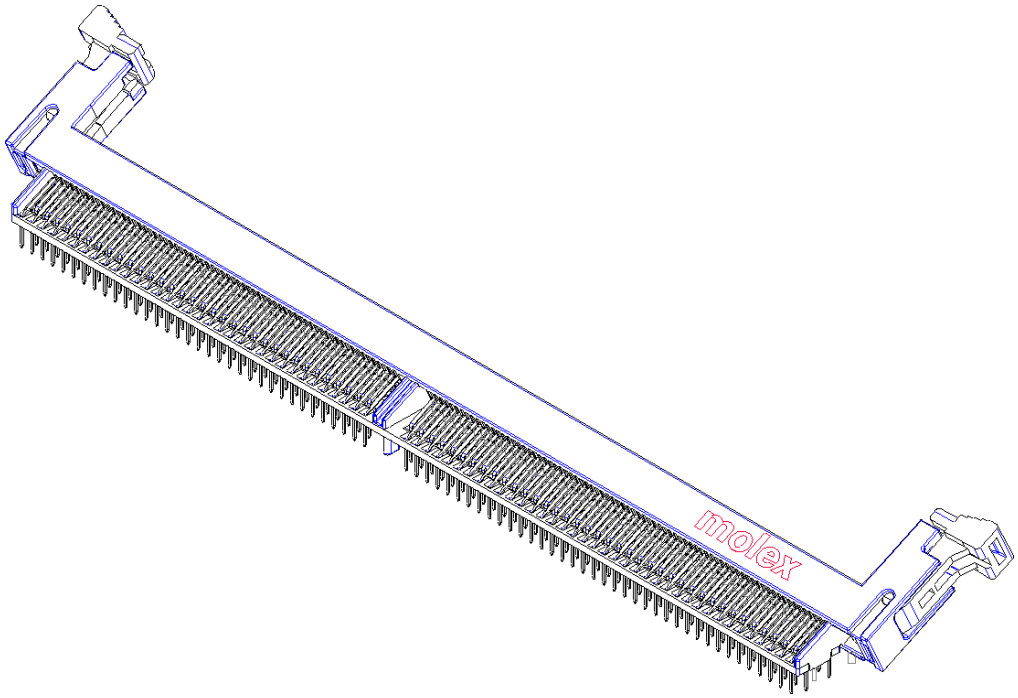
Series Number	Product Description
151080	DDR4DIMM 25° THROUGHHOLE 0.76Au 288CKT

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawing(s) for information on dimensions, materials, plating and markings, on recommended module outlines and footprint specifications.

2.3 SAFETY AGENCY APPROVALS

- UL File Number ..... TBA
- CSA File Number ..... TBA



TENTATIVE RELEASE:
THIS SPECIFICATION IS BASED ON DESIGN OBJECTIVES AND IS STRICTLY TENTATIVE. PRELIMINARY TEST DATA MAY EXIST, BUT THIS SPECIFICATION IS SUBJECTED TO CHANGE BASED ON THE RESULTS OF ADDITIONAL TESTING AND EVALUATION

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Refer to the appropriate sales drawing(s) and other sections of this specification for the necessary referenced documents and specifications. In the event of conflict between the requirements of this specification and the product drawing(s), the product drawing(s) shall take precedence. In the event of conflict between the requirements of this specification and the reference documents, this specification shall take precedence.

4.0 RATINGS

4.1 VOLTAGE

29 Volts AC (RMS) / DC

4.2 CURRENT

0.75 Amps / pin

4.3 TEMPERATURE

Operating: - 55°C to + 85°C
Nonoperating: - 55°C to + 85°C

4.4 FIELD LIFE AND TEMPERATURE

Field life: 5 Years
Field temperature: 65°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Low Level Contact Resistance (LLCR) (Initial)**	EIA-364-23 – Option 1 Mate connectors: apply a current of **100** mA maximum and voltage of **20** mV maximum.	**20** milliohms MAXIMUM
2	**Low Level Contact Resistance (LLCR) (Change from initial)**	EIA-364-23 – Option 1 Mate connectors. Apply a current of **100** mA maximum and a voltage of **20** mV maximum.	**10** milliohms MAXIMUM
3	**Insulation Resistance**	EIA-364-21 Unmate and unmount connectors: apply a voltage of **500** VDC between adjacent terminals and between terminals to ground.	**1** Megaohms MINIMUM
4	**Dielectric Withstanding Voltage**	EIA-364-20 – Method B Unmate connectors: apply a voltage of **500** VAC for **1** minute between adjacent terminals.	No breakdown

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	**Insertion Force (Module to connector with latches)**	EIA-364-13 – Method B Mate a **1.50 ± 0.01**mm thickness gauge (GS-010-1) to the connector at a rate of **25.4**mm per minute.	**106.8** N MAXIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6	**Retention Force – Terminal**	EIA-364-29 – Method C Axial pull-out of terminal in the housing at a maximum rate of **25.4**mm per minute.	**300**gf MINIMUM per pin
7	**Retention Force – Fork lock**	EIA-364-29 – Method C Axial pull-out of fork lock in the housing at a maximum rate of **25. 4**mm per minute.	**13.3** N MINIMUM per fork lock
8	**Durability (Preconditioning)**	EIA-364-09 Perform **5** plug-and-unplug cycles at a maximum rate of **5** cycles per minute.	No evidence of physical damage
9	**Durability**	EIA-364-09 Perform **25** plug-and-unplug cycles at a maximum rate of **5** cycles per minute.	No evidence of physical damage
10	**Vibration**	EIA-364-28 Mated connectors Random profile: **5** Hz @ **0.01** g^2/Hz to **20** Hz @ **0.02** g^2/Hz (slope up) **20** Hz to **500** Hz @ **0.02** g^2/Hz (flat) Input acceleration is **3.13** g RMS **10** minutes per axis for all **3** axes on all samples Random control limit tolerance is ± **3** dB Module weight **40 ± 2**g with center of gravity **18**-**20**mm from module mating edge.	No evidence of physical damage No discontinuities of ≥ 1 microsecond
11	**Shock (Mechanical)**	Mated Connectors. Profile: Trapezoidal shock **50** g, ± **10**% Duration : **11** millisecond Velocity change : **170**" per second, ± **10**% Quantity: Three drops in each of six directions. Total **18** drops per connector Module weight **40 ± 2**g with **18.75**mm card height with center of gravity **8**-**10**mm from module mating edge.	No evidence of physical damage No discontinuities of ≥ 1 microsecond
12	**Reseating**	EIA-364-09 Manually mate and unmate the connector with the module card for **3** cycles at a maximum rate of **5** cycles per minute.	No evidence of physical damage
13	**Latch Overstress Force**	Unmated connectors: apply an actuation force on the latch at a rate of **25.4 ± 6**mm per minute in the fully open position.	**3.5**kgf MINIMUM force held for **10** seconds with no damage
14	**Latch Actuation Force**	Apply an actuation force on the latch at a rate of **25.4 ± 6**mm per minute with the test blade of **1.50 ± 0.01**mm (GS-010-1) inserted into the connector.	The force to fully actuate the latch open shall be **3.5**kgf MAXIMUM per latch
15	**Module Rip-out**	Pull up from the center of the test module	**9.1**kgf MINIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
	Force	**1.50 ± 0.01**mm thick (GS-010-1) at a rate of **25.4 ± 6**mm per minute. with the latches closed.	Retention force of the module in the connector with no damage
16	**Insertion Force – Connector to board**	EIA-364-05 Unmated connectors: Push connector into applicable PCB at a rate of **12.7 ± 3**mm per minute. Fork lock PCB hole size: **2.45 ± 0.05**mm	**75** N MAXIMUM
17	**Retention Force – Connector to board**	EIA-364-05 Unmated connectors: Pull or push with a force of **0.45**kgf the connector mounted on the PCB at a rate of **12.7 ± 3**mm per minute. Fork lock PCB hole size: **2.45 ± 0.05**mm	No lifting of connector from applicable PCB
18	**Unmating Force (per pin pair)**	EIA-364-13 – Method B Pull out **1.30 ± 0.01**mm thick (GS-010-2) test blade from connector with latches removed at a rate of **12.7 ± 3**mm per minute.	**2.02**kgf MINIMUM for 288 circuits (**14**gf per pin pair)

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
19	**Shock (Thermal)**	EIA-364-32 – Method A, Test Condition I, Duration A-4 Mate connectors: expose to 10 cycles of Temperature (°C) / Duration (min) -55^{+0}_{-3} / **30** Specimen transfer from cold to hot / **5** MAXIMUM 85^{+3}_{-0} / **30** Specimen transfer from cold to hot / **5** MAXIMUM	None
20	**Temperature Life (Preconditioning)**	EIA 365-17 – Method A (without electrical load) Mate connector: expose **72** hours at **105° ± 2**°C. Exposure time as per EIA-364-1000, Table 9	None
21	**Temperature Life**	EIA 365-17 – Method A (without electrical load) Mate connector: expose **120** hours at **105° ± 2**°C. Exposure time as per EIA-364-1000, Table 8	None
22	**Solderability**	JESD22-B102 – Condition C Unmated connector: Steam age for **8** hours **± 15** minute. Dip solder tails into solder pot at a temperature of **245 ± 5**°C for **5 ± 0.5** seconds.	**95**% MINIMUM Solder coverage

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
		Rate: **25.4 ± 6**mm per second Flux type: ROL0	
23	**Resistance to Solder Heat**	E-364-56 Dip solder tails into solder pot at **260 ± 5**°C for **5 ± 1** seconds. Immerse leads to a depth of **1.00 ± 0.20** mm from connector body.	Visual: No damage or discoloration of connector materials.
24	**Temperature Rise**	EIA-364-70 Ten pair contacts in consecutive positions on the same side of the connector are connected in a series circuit (mated condition). A thermocouple is inserted through holes in the socket housing, as close to the contact interface as possible. Supply the rated current.	Maximum Temperature Rise shall not exceed **30**°C above ambient
25	**Cyclic Temperature & Humidity**	EIA-364-1000 – Test Group 2, Cyclic temperature and humidity Cycle the connector between Cycle between temperature and RH Temperature (°C) / RH (%) **25 ± 3** / **80 ± 3** **65 ± 3** / **50 ± 3** 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	None
26	**Mixed Flowing Gas**	EIA-364-65 – Class IIA, Exposure time: EIA-364-1000 – Table 4.1. Expose unmated connector for **112** hours in MFG chamber. Expose mated (to same test module mated during temp life preconditioning) connector for **56** hours in MFG chamber.	None
27	**Thermal Disturbance**	EIA-364-1000 – Table 4. Mated connector. Cycle the connector between **15 ± 3**°C and **85 ± 3**°C, as measured on the part. Ramps should be a minimum of **2**°C per minute. Dwell times should ensure that contacts reach temperature extreme (for a minimum of **5** minutes). No humidity control. Perform **10** cycles.	None

6.0 TEST SEQUENCE

TEST DESCRIPTION / SEQUENCE	1	2	3	4	5	6	7	8	9	10	11	12
Low level contact resistance (Initial)	1	1	1		1							1
Durability (Preconditioning)	2	2	2									2
Durability					2							
Low level contact resistance (Change from initial)	4,6	4,6,8	3,5,7		3							4,6,8,10,12
Insulation resistance				1, 5								
Dielectric withstanding voltage				2,6								
Temperature life (Preconditioning)												3
Temperature life	3											
Shock (Thermal)		3		3								
Thermal disturbance												9
Cyclic temperature & humidity		5		4								
Mixed flowing gas (Unmated)												5
Mixed flowing gas (Mated)												7
Shock (Mechanical)			6									
Vibration			4									
Reseating	5	7										11
Temperature rise						1						
Solderability							1					
Resistance to solder heat								3				
Insertion Force (Module to connector with latches)									1			
Latch Actuation Force										1		
Latch Overstress Force										2		
Module Rip-out Force									2			
Insertion force – Connector to board											1	
Retention force – Connector to Board											2	
Retention Force - Terminal								1,4				
Retention Force – Fork lock								2,5				
Unmating Force (per pin pair)											3	
Sample Size per Test Group	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**6**	**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

Connector should be soldered onto PCB using either the wave soldering technique or the reflow soldering technique according to the table shown below.

Process	Peak Temperature	Duration
Wave	**265**°C MAXIMUM (Solder Batch) **220**°C MAXIMUM Connector housing	**5 ± 2** second (wave contact)
Reflow	**220**°C MAXIMUM Peak **220**°C MAXIMUM Connector housing	**20** to **40** seconds Time within **5**°C of peak