



# PRODUCT SPECIFICATION

## 240 Ckt Vertical Through-Hole DDR3 1.1mm Seating Plane

### 1.0 SCOPE

This Product Specification covers the 1.00 mm centerline gold plated DDR3, 1.1MM SEATING PLANE, VLP edge card connector for 1.27 +/- 0.10 thick memory modules.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

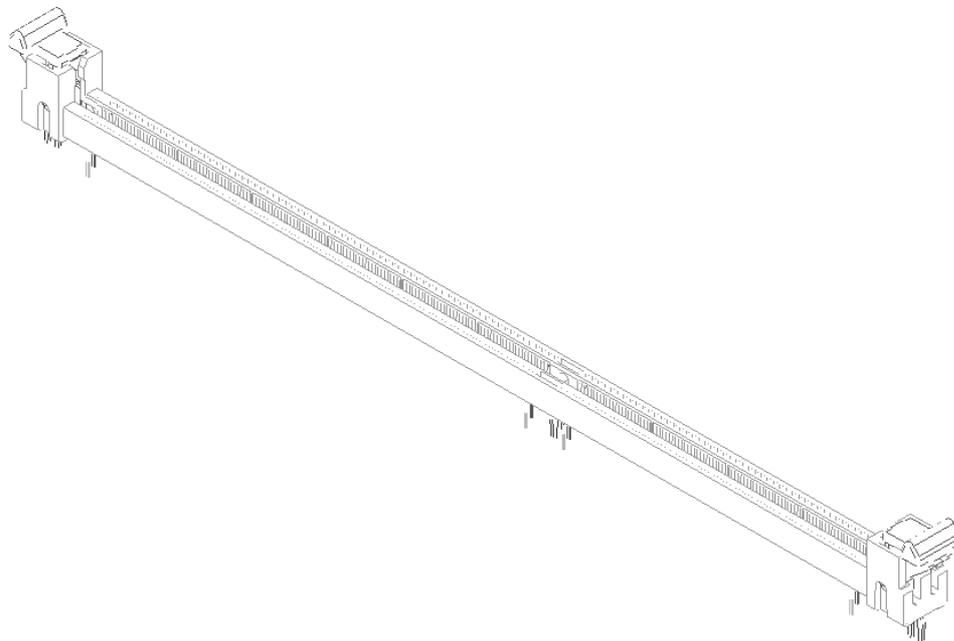
<u>Series Number</u>	<u>Product Descriptions</u>
78588	240 Ckt Vertical Through-Hole DDR3, 1.1mm Seating Plane

#### 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)



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

REVISION: <b>2</b>	ECR/ECN INFORMATION: EC No: <b>S2012-0639</b> DATE: <b>2012/02/17</b>	TITLE: <b>DDR3, 240 CKT, VERT, THROUGH HOLE 110 SEATING PLANE, LOW LLCR (15 Au)</b>	SHEET No. <b>1 of 7</b>
DOCUMENT NUMBER: <b>PS-78588-001</b>	CREATED / REVISED BY: <b>VMANICKAM 2012/02/17</b>	CHECKED BY: <b>CCTEH 2012/02/27</b>	APPROVED BY: <b>SHLENI 2012/02/27</b>



# PRODUCT SPECIFICATION

## 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

29 Volts AC (RMS) / DC

### 4.2 CURRENT

1.0 Amps/ pin

### 4.3 FIELD LIFE AND TEMPERATURE

Field Life: 5 years

Field Temperature: 65°C

### 4.4 OPERATING TEMPERATURE

-55°C ~ +85°C

### 4.5 NON-OPERATING TEMPERATURE

-55°C ~ +85°C

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Contact Resistance (Low Level)</b>	Mate connectors: apply a maximum voltage of 20 mV and a maximum current of 100 mA. (EIA-364-23)	10 mΩ Max. Initial ΔR: 10 milliohms Max.
2	<b>Insulation Resistance</b>	Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. (EIA-364-21)	1 MΩ Min.
3	<b>Dielectric Withstanding Voltage</b>	Apply 500 VAC for 1 minute between adjacent terminals of an unmated connector. (EIA-364-20)	No breakdown

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
<b>2</b>	EC No: <b>S2012-0639</b> DATE: <b>2012/02/17</b>	<b>DDR3, 240 CKT, VERT, THROUGH HOLE 110 SEATING PLANE, LOW LLCR (15 Au)</b>	<b>2 of 7</b>
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
<b>PS-78588-001</b>	<b>VMANICKAM 2012/02/17</b>	<b>CCTEH 2012/02/27</b>	<b>SHLENI 2012/02/27</b>



# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
4	<b>Module Insertion Force (w/ Latches)</b>	EIA-364-13 Insert a 1.37+ 0.015 mm thick steel gauge at a rate of 5 ± 1mm per minute.	10.8 kgf max.
5	<b>Terminal Retention Force</b>	Axial pullout force on the terminal in the housing at a rate of 25.4 ± 6 mm per minute.	Contact: 0.25kgf Min. Fork lock: 1.36kgf Min.
6	<b>Durability (Preconditioning)</b>	Mate and unmated connectors up to 5 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	Contact Resistance: ΔR: 10 mΩ Max.
7	<b>Durability</b>	Mate and unmated connectors up to 25 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	Contact Resistance: ΔR: 10 mΩ Max.
8	<b>Vibration</b>	EIA-364-28. (Condition VII, Letter D).  Module card, weighted 35 ± 5g with 18.4 mm card height;  Frequency range: 5 Hz to 500 Hz 5 to 20 Hz (slope): (0.01 g <sup>2</sup> / Hz)@5Hz, (0.02g <sup>2</sup> / Hz)@20Hz; 20 to 500 Hz (flat): (0.02g <sup>2</sup> / Hz)@20Hz Input acceleration is 3.13 g RMS;  Random control limit tolerance: + 3 dB; Duration: 10 mins in each X, Y, Z axis ( Ref JEDEC PS-001)	No Physical Damage  Contact Resistance: ΔR: 10 mΩ Max.  No discontinuities of 1 microsecond or longer duration.
9	<b>Shock (Mechanical)</b>	Module card, weighted 35 ± 5g with 18.4 mm card height;  Profile: Trapezoidal shock of 50 g. ± 10% Duration: 11ms  Minimum Velocity change: 67cm/sec, ± 10%.  Quantity: Three drops in each of six directions. Total 18 drops per connector.	No Physical Damage  Contact Resistance: ΔR: 10 mΩ Max.  No discontinuities of 1 microsecond or longer duration.
10	<b>Reseating</b>	Manually mate and unmate the connector with PCB for 3 cycles.	No damage.

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
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DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
<b>PS-78588-001</b>	<b>VMANICKAM 2012/02/17</b>	<b>CCTEH 2012/02/27</b>	<b>SHLENI 2012/02/27</b>



# PRODUCT SPECIFICATION

11	<b>Latch Overstress Force</b>	Apply an actuation force on the latch at a rate of $25 \pm 6$ mm / min in the fully open position.	3.5kgf (7.7lbs) min force held for 10 sec. with no damage.
12	<b>Latch Actuation Force</b>	Apply an actuation force on the latch at a rate of $25 \pm 6$ 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	<b>Module Rip Out Force</b>	Pull up from the center of the module with the latches closed at a rate of $25.0 \pm 6$ mm/min.	9.1kgf (20lbs) min. retention force of the module in connector with no damage
14	<b>Retention of Connector to PCB</b>	Pull or push connector with a force of 0.45kgf on connector mounted on the PCB prior at the rate of $12.7 \pm 3$ mm fork lock PCB hole size: $2.45 \pm 0.05$ mm.	No lifting of connector from applicable PCB.
15	<b>Insertion Force of Connector into PCB</b>	Push connector into applicable PCB at a rate of $12.7 \pm 3$ mm. Fork lock PCB hole size: $2.45 \pm 0.05$ mm.	Total insertion force to be 6.8kgf (15lbs) max.
16	<b>Module Unmate Force</b>	Pull out 1.17 thick test blade from connector with latches removed at a rate of $12.7 \pm 3$ mm/min	1.68kgf min per connector or 14gf per pin pair.
17	<b>Retention of Latch insert to Latch</b>	Latch metal Insert to be pushed out at the rate of $25.4 \pm 6$ mm per minute.	1.0 Kgf min

### 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT										
18	<b>Shock (Thermal)</b>	Mate connectors; expose to 10 cycles of: <table border="1"> <thead> <tr> <th>Temperature °C</th> <th>Duration (Minutes)</th> </tr> </thead> <tbody> <tr> <td>-55 +0/-3</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>5 MAXIMUM</td> </tr> <tr> <td>+85 +3/-0</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>5 MAXIMUM</td> </tr> </tbody> </table> EIA-364-32	Temperature °C	Duration (Minutes)	-55 +0/-3	30	+25 ±10	5 MAXIMUM	+85 +3/-0	30	+25 ±10	5 MAXIMUM	Contact Resistance: $\Delta R$ : 10 m $\Omega$ Max. Appearance: No Damage
Temperature °C	Duration (Minutes)												
-55 +0/-3	30												
+25 ±10	5 MAXIMUM												
+85 +3/-0	30												
+25 ±10	5 MAXIMUM												
19	<b>Temperature Life (Preconditioning)</b>	Mate connectors; expose to: 72 hours at $105 \pm 3^\circ\text{C}$ Per EIA-364-17	Contact Resistance: $\Delta R$ : 10 m $\Omega$ Max. Appearance: No Damage										
20	<b>Temperature Life</b>	Mate connectors; expose to: 120 hours at $105 \pm 3^\circ\text{C}$ Per EIA-364-17	Contact Resistance: $\Delta R$ : 10 m $\Omega$ Max. Appearance: No Damage										
21	<b>Solderability</b>	Steam age for 8 hour +/- 15 min. Dip solder tails into solder pot at a temperature of $255 \pm 5^\circ\text{C}$ for $5 \pm 0.5$ seconds. Non-activated flux. As per IPC/ECA J-STD-002C	Solder coverage: 95% MINIMUM										

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<b>2</b>	EC No: <b>S2012-0639</b> DATE: <b>2012/02/17</b>	<b>DDR3, 240 CKT, VERT, THROUGH HOLE 110 SEATING PLANE, LOW LCCR (15 Au)</b>	<b>4 of 7</b>
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
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# PRODUCT SPECIFICATION

22	<b>Resistance to Solder Heat</b>	Dip solder tails into solder pot $260 \pm 5^{\circ}\text{C}$ for $10 \pm 1$ seconds; Solder Temperature: $260 \pm 5^{\circ}\text{C}$ Immerse leads to a depth of 1.00 +/-0.2 mm from connector body. EIA 364-56A	Visual: No Damage or discoloration of connector materials.
23	<b>Temperature Rise</b>	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.
24	<b>Cyclic Temperature &amp; Humidity</b>	Cycle the connector between $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ at $80\% \pm 3\%$ RH and $65^{\circ}\text{C} \pm 3^{\circ}\text{C}$ at $50\% \pm 3\%$ 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: $\Delta R$ : 10 m $\Omega$ Max. Appearance: No Damage
25	<b>Mixed Flowing Gas</b>	EIA-364-65, class IIA, expose unmated connector for 5 days in MFG chamber. Expose mated (to same test module mated during temp life preconditioning) connector for 2 days in MFG chamber.	Contact Resistance: $\Delta R$ : 10 m $\Omega$ Max.
26	<b>Thermal Disturbance</b>	Cycle the connector between $15^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and $85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , as measured on the part. Ramps should be a minimum of $2^{\circ}\text{C}$ 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: $\Delta R$ : 10 m $\Omega$ Max

REVISION: <b>2</b>	ECR/ECN INFORMATION: EC No: <b>S2012-0639</b> DATE: <b>2012/02/17</b>	TITLE: <b>DDR3, 240 CKT, VERT, THROUGH HOLE 110 SEATING PLANE, LOW LLCR (15 Au)</b>	SHEET No. <b>5 of 7</b>
DOCUMENT NUMBER: <b>PS-78588-001</b>	CREATED / REVISED BY: <b>VMANICKAM 2012/02/17</b>	CHECKED BY: <b>CCTEH 2012/02/27</b>	APPROVED BY: <b>SHLENI 2012/02/27</b>



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## 6.0 TEST SEQUENCE

TEST DESCRIPTION SEQUENCE	TEST GROUP												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Contact Resistance	1,4,6	1,4,5,7	1,3,5,7		1,3							1,4,6,8,10,12	
Durability (preconditioning)	2	2	2									2	
Durability					2								
Insulation Resistance				1, 5									
Dielectric Withstand Voltage				2,6									
Temperature Life (Preconditioning)												3	
Temperature Life	3												
Thermal Shock		3		3									
Thermal Disturbance												9	
Cyclic Temp & Humidity		5		4									
Mixed Flowing Gas (Unmated)												5	
Mixed Flowing Gas (mated)												7	
Mechanical Shock			6										
Vibration			4										
Reseating	5	6										11	
Temperature Rise						1							
Solderability							1						
Resistance to Soldering								3					2
Module Insertion Force									1				
Latch Actuation Force										1			
Latch Overstress Force											2		
Module Ripout Force										2			
Connector Insertion and Retention to PCB											1		
Terminal Retention								1,4					
Forklock Retention								2,5					
Module Unmate Forces											2		
Latch insert Retention													1,3
Sample Size per Test Group	5	5	5	5	5	5	5	5	5	5	5	5	5

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## 7.0 PACKAGING

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

## 8.0 RECOMMENDED Pb-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 Max (Solder Bath) 220° Max Connector Housing	5 +/-2 sec (wave contact)
Reflow	220°C Max Peak 220° Max Connector Housing	20 to 40 sec Time within 5°C of peak

REVISION: <b>2</b>	ECR/ECN INFORMATION: EC No: <b>S2012-0639</b> DATE: <b>2012/02/17</b>	TITLE: <b>DDR3, 240 CKT, VERT, THROUGH HOLE 110 SEATING PLANE, LOW LLCR (15 Au)</b>	SHEET No. <b>7 of 7</b>
DOCUMENT NUMBER: <b>PS-78588-001</b>	CREATED / REVISED BY: <b>VMANICKAM 2012/02/17</b>	CHECKED BY: <b>CCTEH 2012/02/27</b>	APPROVED BY: <b>SHLENI 2012/02/27</b>