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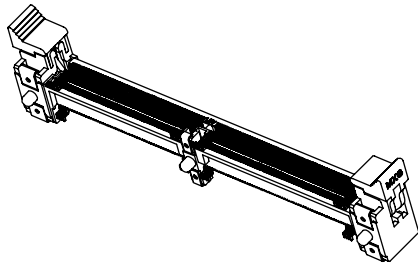
www.Jameco.com ♦ 1-800-831-4242

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Jameco Part Number 1977569

0.60mm (.0236") Pitch DDR2 miniDIMM Socket

78001/87782/87783/87918
SMT



Features and Benefits

- Small pitch permits maximum utilization of space available on the PCB
- Small form factor allows miniDIMM to fit into slim enclosures
- Surface Mount Technology for easy processing and ability to utilize both sides of PCB
- Solder pads at both ends and center of housing provide additional mechanical strength after soldering
- Robust dual latches provide excellent module retention and easy ejection of module
- Accepts JEDEC MO-244 and MO-258 insures 100% industry compatibility
- Polarization keys assure correct module orientation
- Designated pick-and-place area allows for automated placement on PCB

Reference Information

Product Specification: PS-78001-001, PS-87782-027,
PS-87783-001 and PS-87918-001

Packaging: Tray
UL File No.: E29179
CSA File No.: LR19980
Mates With: See table
Designed In: Millimeters

Electrical

Voltage: 30 VRMS at 60 Hz
Current: 1.0A at 30°C temperature rise
Contact Resistance: 87782—30 milliohms max.
87783—40 milliohms max.
78001 and 87918—50 milliohms max.
Dielectric Withstanding Voltage: 500V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Contact Retention to Housing: 3N min.
Mating Force: 200 circuits—195N
244 circuits—238N
Latch Actuation Force: 45N max. per latch
Durability: 25 cycles

Physical

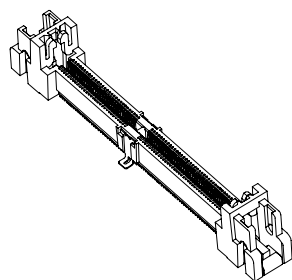
Housing: Black LCP, UL 94V-0
Latches: Off-white high-temperature nylon, UL 94V-0
Contact: Copper Alloy
Plating: Contact Area—0.76µm (30µ") Gold
Solder Tail Area—Tin
Underplating: Nickel
Operating Temperature: -10 to + 85°C

Circuits	Voltage Key	Order No.				Mates With	Lead-free
		Reverse Right Angle	Vertical	22.5° Angle Surface Mount	Right Angle		
244	1.8V	78001-1244	87782-2001	87783-0001	87918-0001	JEDEC MO-244 Modules	Yes
	2.5V	78001-2244	87782-2002	87783-0002	87918-0002		
200	1.8V	78001-1200	87782-2201	87783-0201	87918-0201	JEDEC MO-258 Modules	
	2.5V	78001-2200	87782-2202	87783-0202	87918-0202		

www.molex.com/product/minidimm.html

0.60mm (.0236") Pitch DDR2 miniDIMM Socket

87838
Vertical, SMT



Features and Benefits

- Small pitch permits maximum utilization of space available on the PCB
- Small form factor allows miniDIMM to fit into slim enclosures
- Surface Mount Technology for easy processing and ability to utilize both sides of PCB
- Solder pads at both ends and center of housing provide additional mechanical strength after soldering
- Robust dual latches provide excellent module retention and easy ejection of module
- Polarization keys assure correct module orientation
- Pick-and-place cap allows for automated placement on PCB

Reference Information

Product Specification: PS-87838-002
Packaging: Embossed tape on reel
UL File No.: E29179
CSA File No.: LR19980
Mates With: 1.0mm thick memory module
Designed In: Millimeters

Electrical

Voltage: 30 VRMS at 60 Hz
Current: 1.0A at 30°C temperature rise
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 500V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 136.5N
Durability: 25 cycles

Physical

Housing: Black LCP, UL 94V-0
Contact: Copper Alloy
Plating: Contact Area—0.76µm (30µ") Gold
Solder Tail Area—Tin
Underplating: Nickel
Operating Temperature: -10 to +85°C

Circuits	Order No.	Lead-free
140	87838-0002	Yes



PRODUCT SPECIFICATION

Reverse Right Angle Mini DIMM, 200 / 244 Ckt 0.60mm pitch SMT

1.0 SCOPE

This Product Specification covers the performance requirements of the 0.60 mm centerline edge card socket for board to board interconnect of 1.00 mm thick memory modules.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Series Number
78001

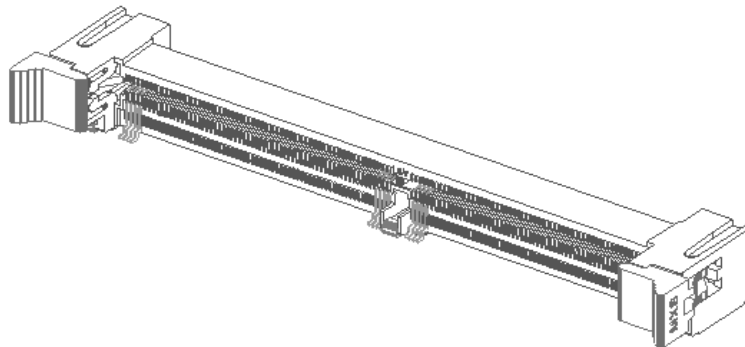
Product Descriptions
200/244 Ckt Reverse Right Angle Mini DIMM

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 : E29179
CSA File : 1699020 (LR 19980)



REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.	
B	EC No: S2007-1019 DATE: 2007/05/17	Reverse Right Angle Mini DIMM, SMT Connector 200/244Ckt, 0.60mm Pitch	1 of 6	
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:	
PS-78001-001	CM TEO 2007/05/17	YT YANG 2007/05/25	SH LENI 2007/05/25	



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

30 VRMS at 60 Hz

4.2 CURRENT

1.0 Amps at 30°C Temperature Rise

4.3 TEMPERATURE

Operating Temperature: -55°C to +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 current of 100 mA. EIA-364-23	50 mΩ maximum at initial 10 mΩ maximum change from initial
2	Temperature Rise at rated current	Temperature of mated connector at rated current for 96 hours (6 consecutive ckts link in series)	1.0 Amps per contact at a maximum of 30°C temperature rise
3	Insulation Resistance	Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. EIA-364-21	1000 Mega Ω minimum
4	Dielectric Withstanding Voltage	Apply 500 VAC for 1 minute between adjacent terminals of an unmated connector. EIA-364-20	No breakdown or flashover

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PRODUCT SPECIFICATION

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Vibration	Amplitude : 1.52mm peak to peak Sweep : 10-55-10 Hz in one min. Duration : 2 hrs each on XYZ axis Module weight: 15g for 244Ckt and 13g for 200Ckt. EIA 364-28	No change in LLCR greater than 10mΩ from initial. Discontinuity : No greater than 1.0 micro sec.
6	Shock (Mechanical)	Mate connectors and shock at 30 g's with half-sine waveform for 11 milliseconds, 3 shocks in each perpendicular axis (18 shocks total). Module weighted : 15g for 244Ckt and 13g for 200Ckt.	No change in LLCR greater than 10mΩ from initial. Discontinuity : No greater than 1.0 micro sec.
7	Durability	Mate and unmated connectors up to 25 cycles at a maximum rate of 10 cycles per minute. Reseating to be done for 3 cycles.	No change in LLCR greater than 10 mΩ from initial.
8	Module Insertion Force (w/ Latches)	Insert a 1.00 mm thick Module(0.10x0.10 mm chamfer) at a rate of 25 ± 6mm (1 ± ¼ inch) per minute. See Sales drawing for PCB/ Module details.	Total insertion force not to exceed : 195.0 N (43.73lbs) for 200 ckt 238.0 N (53.37lbs) for 244 ckt
9	Module Rip Out Force	Apply a pulling force on module card at a rate of 25 ± 6 mm/min. (1 ± ¼ inch) with recommended test module as per sales drawing, inserted into connector with latches closed.	35.0 N (7.85lbs) min. retention force of the module in connector with no damage
10	Latch Actuation Force	Apply an actuation force on each latch at a rate of 25 ± 6 mm/ min (1 ± ¼ inch) with recommended test module as per sales drawing inserted into connector.	The force to fully actuate the latch open shall be 35 N (7.85 lbs) max. per latch.
11	Latch Overstress Force	Apply an actuation force on each latch at a rate of 25 ± 6 mm / min (1 ± ¼ inch) in the fully open position.	35 N (7.85 lbs) min force with no damage.
12	Terminal Retention Force	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	3 N minimum

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PRODUCT SPECIFICATION

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT										
13	Shock (Thermal)	Mate connectors; expose to 5 cycles of: <table><tr><th>Temperature °C</th><th>Duration (Minutes)</th></tr><tr><td>-55 +0/-3</td><td>30</td></tr><tr><td>+25 +10/-5</td><td>5 MAXIMUM</td></tr><tr><td>+85 +3/-0</td><td>30</td></tr><tr><td>+25 +10/-5</td><td>5 MAXIMUM</td></tr></table> EIA-364-32-Test condition I	Temperature °C	Duration (Minutes)	-55 +0/-3	30	+25 +10/-5	5 MAXIMUM	+85 +3/-0	30	+25 +10/-5	5 MAXIMUM	No change in LLCR greater than 10 mΩ from initial.
Temperature °C	Duration (Minutes)												
-55 +0/-3	30												
+25 +10/-5	5 MAXIMUM												
+85 +3/-0	30												
+25 +10/-5	5 MAXIMUM												
14	Thermal Aging	Mate connectors and expose to 500 hours at 105 ± 2°C. Per EIA-364-17 Preconditioning to be done at 105°C for 72 hrs	No change in LLCR greater than 10 mΩ from initial.										
15	Cyclic Temperature & Humidity	Mate connectors and expose for 10 days at 25°C to 65°C at 90-98% RH. Per EIA-364-31, Method III.	No change in LLCR greater than 10 mΩ from initial.										
16	Solderability	Solder time: 5±0.5 seconds. Solder temperature: 260±5°C Subject to steam aging for 8 hours ± 5 mins.	Solder coverage: 95% minimum										
17	Porosity	Nitric Acid Test, 10 contacts per contact type selected at random. Per EIA 364-53	Maximum number of pores : 30uin-1 pore per 10 contacts										
18	Solvent Resistance	42 parts DI water by volume, 1 part of propylene glycol monomethyl ether (Glycolether PM, 1 methoxy-2-propanol). 1 part by volume of monoethanolamine. MIL – STD – 202F Method 215J.	No Damage or discoloration of connector materials or marking.										
19	Resistance to Soldering Heat Test	Unmated, exposed to reflow profile as defined in Section 8.1.	No Damage or blistering.										

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PRODUCT SPECIFICATION

6.0 TEST SEQUENCE

Test Description Sequence	Test Group											
	1	2	3	4	5	6	7	8	9	10	11	12
Contact Resistance	1 3 5 7	9 1 3 5	1 4 6 8									
Temperature Rise											1	
Insulation Resistance				1 5								
Dielectric Withstand Voltage				2 6								
Vibration	6											
Mechanical Shock	8											
Durability (5X) pre-cond.	2											
Durability (25X)			2									
Module Insertion Force					1							
Module Ripout Force					2							
Latch Actuation Force												1
Latch Overstress Force												2
Thermal Shock			3	3								
Thermal Aging 105°C – 500hrs		2										
Cyclic Temp & Humidity			5	4								
Plating thickness						1						
Solderability								1				
Porosity									1			
Solvent Resistance							1					
Terminal Retention Force										1 3		
Resistance to Soldering Heat										2		
Temp life (pre-conditioning) 105°C – 72hrs	4											
Reseating (3X)		4	7									
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.

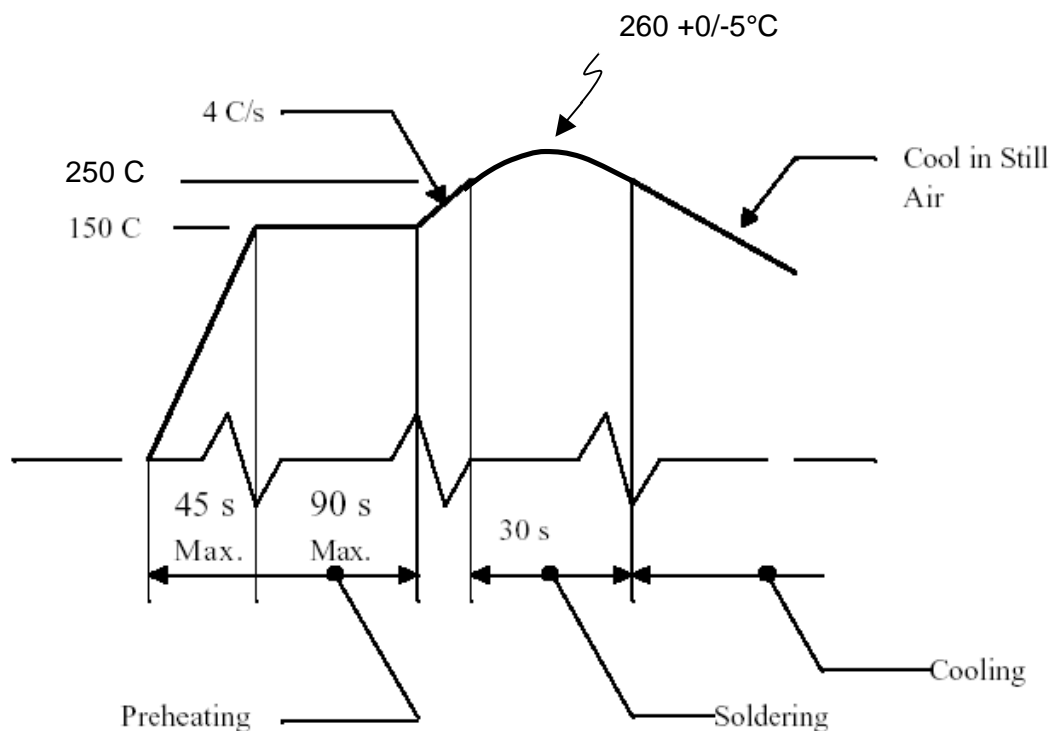
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PRODUCT SPECIFICATION

8.0 OTHER INFORMATION

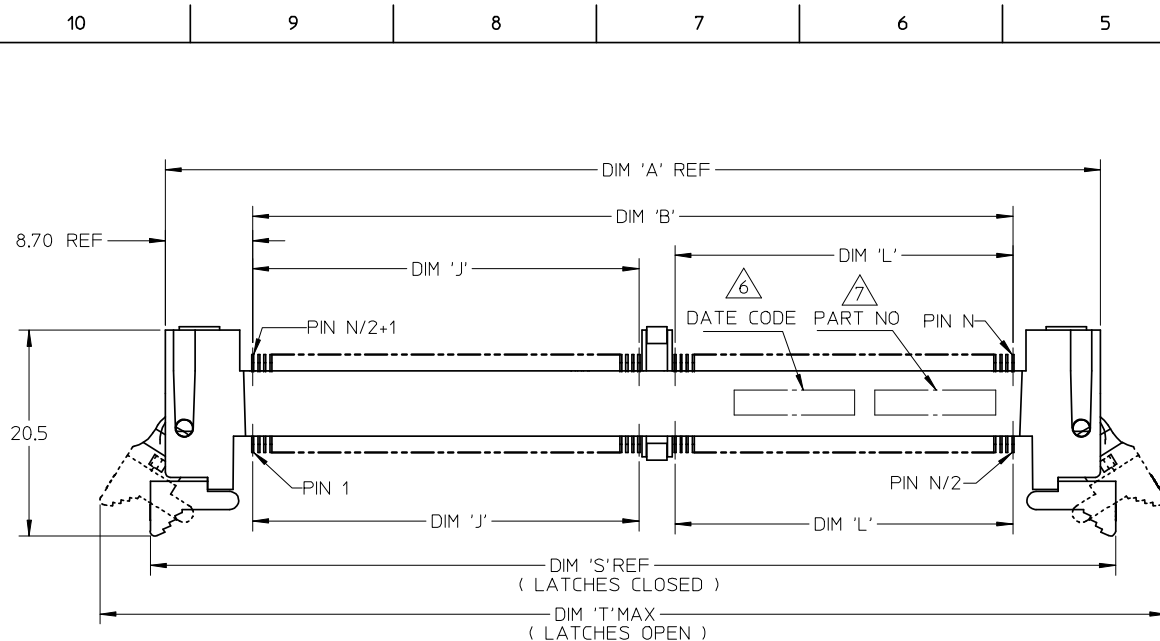
8.1 Reflow Profile.



Notes :

1. Reflow solder Preheat at 3°C/s to 150°C.
2. Reflow at 250°C for 30s per figure.
3. Peak to be at 260 +0/-5°C.
4. Component must withstand (2) reflow solder cycles with a cool down between.

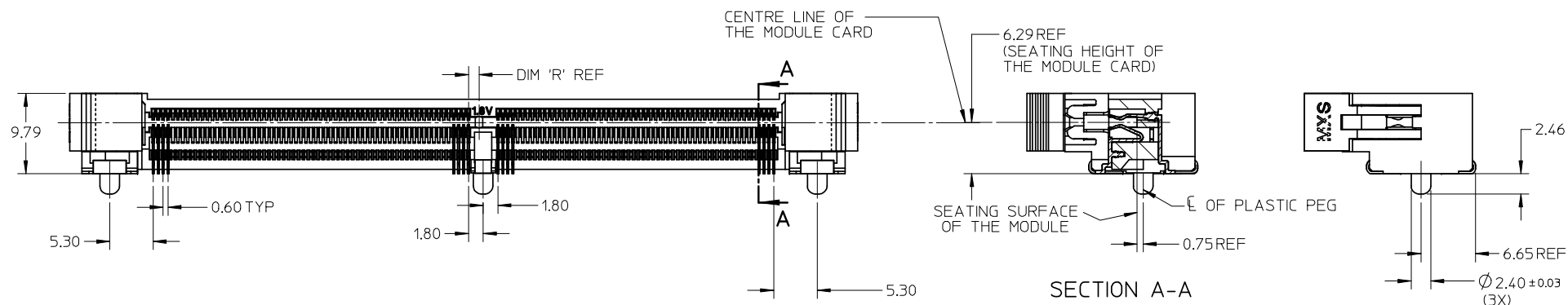
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B	EC No: S2007-1019 DATE: 2007/05/17	Reverse Right Angle Mini DIMM, SMT Connector 200/244Ckt, 0.60mm Pitch	6 of 6
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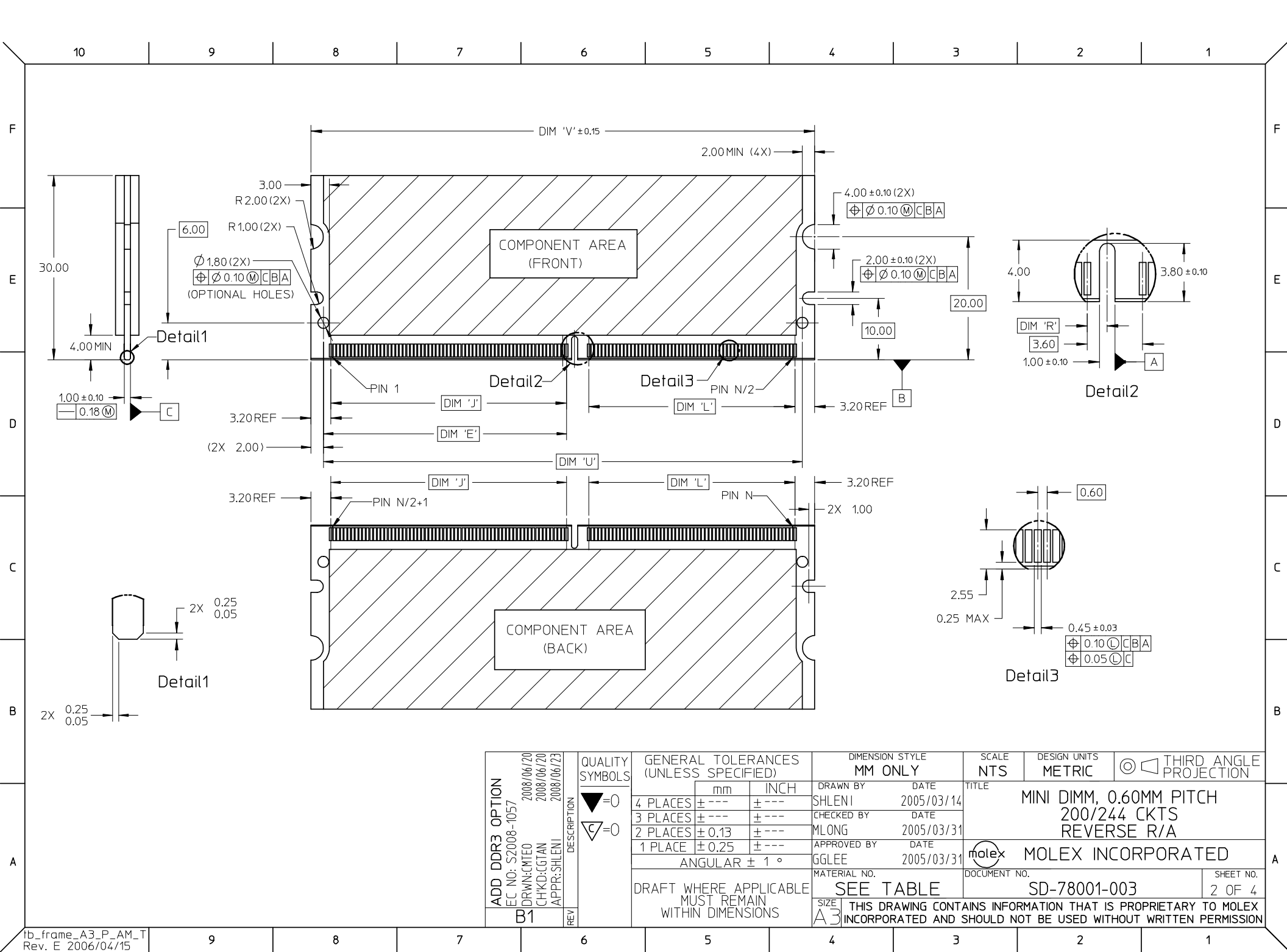
NOTES :

- MATERIAL :**
HOUSING : HIGH TEMPERATURE LIQUID CRYSTAL POLYMER, UL94V-0
COLOUR : BLACK
CONTACTS : COPPER ALLOY
LATCHES : HIGH TEMPERATURE NYLON, UL94V-0,
COLOUR : NATURAL (OFF-WHITE)
- FINISH :**
CONTACT AREA : 0.76 MICROMETER (30 MICROINCH) MIN GOLD OVER
1.25 MICROMETER (50 MICROINCH) MIN NICKEL
SOLDER LEADS : 2.54 MICROMETER (100 MICROINCH) MIN TIN OVER
1.25MICROMETER (50 MICROINCH) MIN NICKEL
- ACCEPTS 1.0 mm THICK MEMORY MODULE PER JEDEC MO-244
FOR 244 CKTS AND MO-258 FOR 200 CKTS.
- PRODUCT SPECIFICATION : PS-78001-001
- PRODUCT SHALL BE PACKED IN TRAY. PLS REFER TO SHEET 4.

- 6** . DATE CODE SHALL BE MARKED LEGIBLY AS SHOWN :YYDDD
- 7** . PART NUMBER SHALL BE MARKED LEGIBLY AS SHOWN.
78001-XXXX (REFER TO TABLE)



ADD DDR3 OPTION		QUALITY SYMBOLS		GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE NTS	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION	
EC NO: S2008-1057	2008/06/20	DRW:CMTEO	2008/06/20	CHKD:CGTAN	2008/06/20	APPR:SHLENI	2008/06/23				
DESCRIPTION		REV		4 PLACES ± --- ± ---		DRAWN BY SHLENI		DATE 2005/03/14		TITLE	
				3 PLACES ± --- ± ---				CHECKED BY		DATE	
				2 PLACES ± 0.13 ± ---				MLONG		2005/03/31	
				1 PLACE ± 0.25 ± ---				APPROVED BY		DATE	
				ANGULAR ± 1 °				GGLEE		2005/03/31	
				DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS				MATERIAL NO.		SEE TABLE	
								SIZE A3		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION	
										MOLEX MOLEX INCORPORATED	
										DOCUMENT NO. SD-78001-003	
										SHEET NO. 1 OF 4	



10 9 8 7 6 5 4 3 2 1

F

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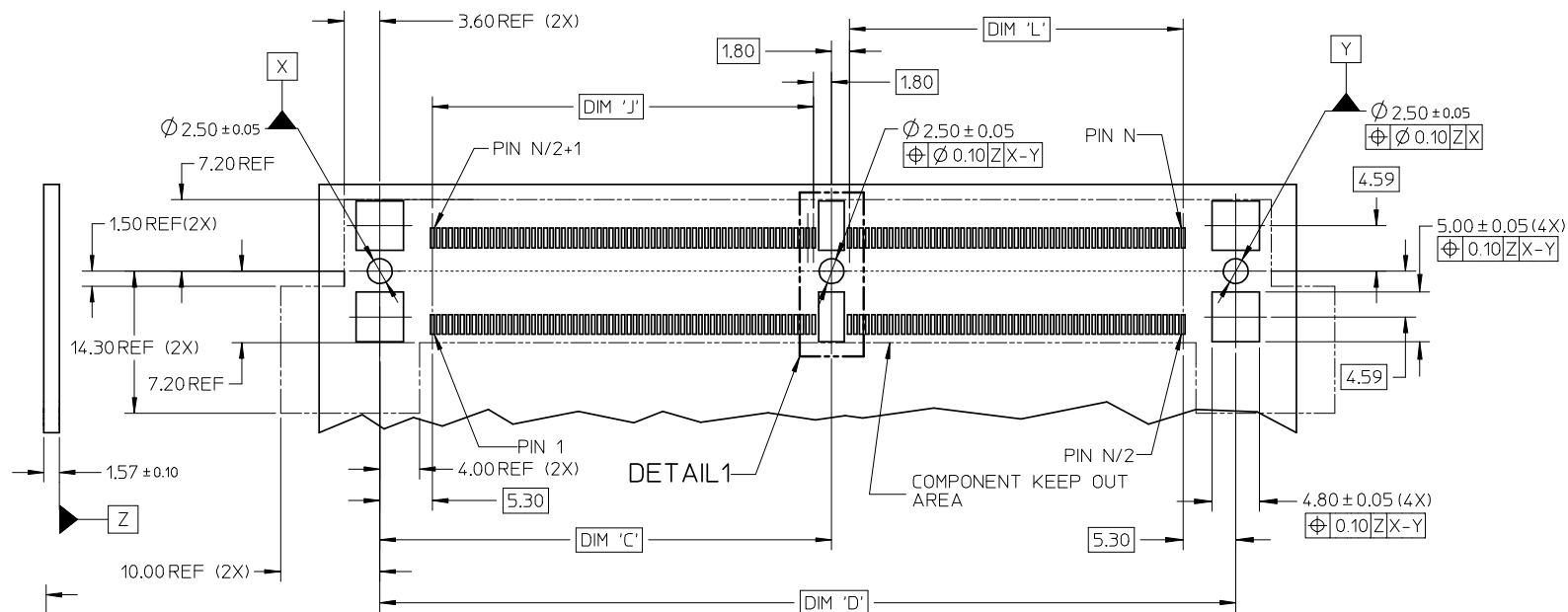
E

D

C

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A



RECOMMENDED PCB LAYOUT

DETAIL1

ADD DDR3 OPTION				QUALITY SYMBOLS		GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE NTS	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION	
EC NO: S2008-1057				▽=0		mm INCH		DRAWN BY DATE		TITLE			
DRWN:CMTEO				▽=0		4 PLACES ± --- ± ---		SHLENI 2005/03/14		MINI DIMM, 0.60MM PITCH			
CHKD:CGTAN						3 PLACES ± --- ± ---		CHECKED BY DATE		200/244 CKTS			
2008/06/20						2 PLACES ± 0.13 ± ---		MLONG 2005/03/31		REVERSE R/A			
2008/06/23						1 PLACE ± 0.25 ± ---		APPROVED BY DATE					
						ANGULAR ± 1 °		GGLEE 2005/03/31		MOLEX MOLEX INCORPORATED			
						DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		MATERIAL NO.		DOCUMENT NO.		SHEET NO.	
				SEE TABLE				SD-78001-003		3 OF 4			
B1				REV				SIZE A3		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION			

9 8 7 6 5 4 3 2 1

