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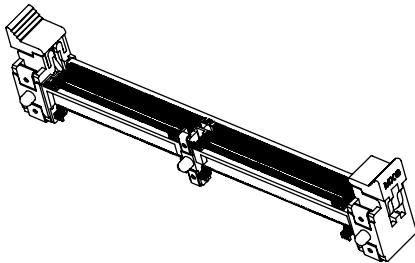
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Jameco Part Number 1977569

# 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

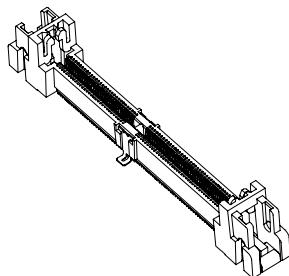
Housing: Black LCP, UL 94V-0  
 Latches: Off-white high-temperature nylon, UL 94V-0  
 Contact: Copper Alloy  
 Plating: Contact Area—0.76µm (30µ") Gold  
 Solder Tail Area—Tin  
 Underplating: Nickel  
 Operating Temperature: -10 to +85°C

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

[www.molex.com/product/minidimm.html](http://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	<a href="#">87838-0002</a>	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

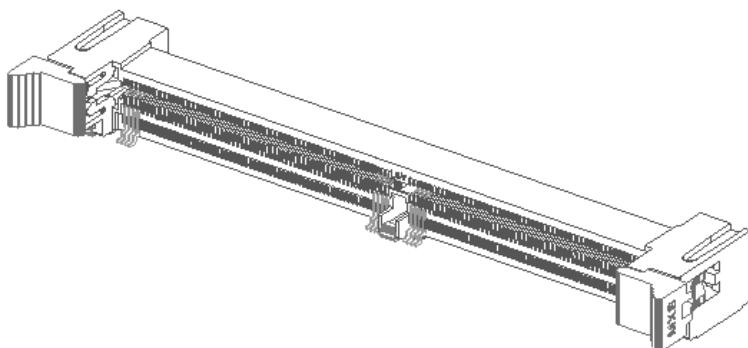
Product Descriptions  
200/244 Ckt Reverse Right Angle Mini DIMM

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

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 mater 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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DOCUMENT NUMBER: <b>PS-78001-001</b>	CREATED / REVISED BY: <b>CM TEO 2007/05/17</b>	CHECKED BY: <b>YT YANG 2007/05/25</b>	APPROVED BY: <b>SH LENI 2007/05/25</b>
TEMPLATE FILENAME: PRODUCT_SPEC{SIZE_A4}(V.1).DOC			



# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	<b>Vibration</b>	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	<b>Shock (Mechanical)</b>	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	<b>Durability</b>	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	<b>Module Insertion Force (w/ Latches)</b>	Insert a 1.00 mm thick Module(0.10x0.10 mm chamfer) at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ 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	<b>Module Rip Out Force</b>	Apply a pulling force on module card at a rate of $25 \pm 6$ mm/min. ( $1 \pm \frac{1}{4}$ 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	<b>Latch Actuation Force</b>	Apply an actuation force on each latch at a rate of $25 \pm 6$ mm/ min ( $1 \pm \frac{1}{4}$ 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	<b>Latch Overstress Force</b>	Apply an actuation force on each latch at a rate of $25 \pm 6$ mm / min ( $1 \pm \frac{1}{4}$ inch) in the fully open position.	35 N (7.85 lbs) min force with no damage.
12	<b>Terminal Retention Force</b>	Axial pullout force on the terminal in the housing at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	3 N minimum

REVISION: <b>B</b>	ECR/ECN INFORMATION: EC No: <b>S2007-1019</b> DATE: <b>2007/05/17</b>	TITLE: <b>Reverse Right Angle Mini DIMM, SMT Connector 200/244Ckt, 0.60mm Pitch</b>	SHEET No. <b>3 of 6</b>
DOCUMENT NUMBER: <b>PS-78001-001</b>	CREATED / REVISED BY: <b>CM TEO 2007/05/17</b>	CHECKED BY: <b>YT YANG 2007/05/25</b>	APPROVED BY: <b>SH LENI 2007/05/25</b>
TEMPLATE FILENAME: PRODUCT_SPEC[SIZE_A4](V.1).DOC			



# PRODUCT SPECIFICATION

## 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT										
13	<b>Shock (Thermal)</b>	Mate connectors; expose to 5 cycles of: <table><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/-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></tbody></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	<b>Thermal Aging</b>	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	<b>Cyclic Temperature &amp; Humidity</b>	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	<b>Solderability</b>	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	<b>Porosity</b>	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	<b>Solvent Resistance</b>	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	<b>Resistance to Soldering Heat Test</b>	Unmated, exposed to reflow profile as defined in Section 8.1.	No Damage or blistering.										

REVISION:	ECR/ECN INFORMATION:	TITLE: <b>Reverse Right Angle Mini DIMM, SMT Connector 200/244Ckt, 0.60mm Pitch</b>		SHEET No.
<b>B</b>	EC No: <b>S2007-1019</b>			<b>4 of 6</b>
DATE:	2007/05/17			
DOCUMENT NUMBER:		CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
<b>PS-78001-001</b>		<b>CM TEO 2007/05/17</b>	<b>YT YANG 2007/05/25</b>	<b>SH LENI 2007/05/25</b>
TEMPLATE FILENAME: PRODUCT_SPEC{SIZE_A4}(V.1).DOC				



# 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.

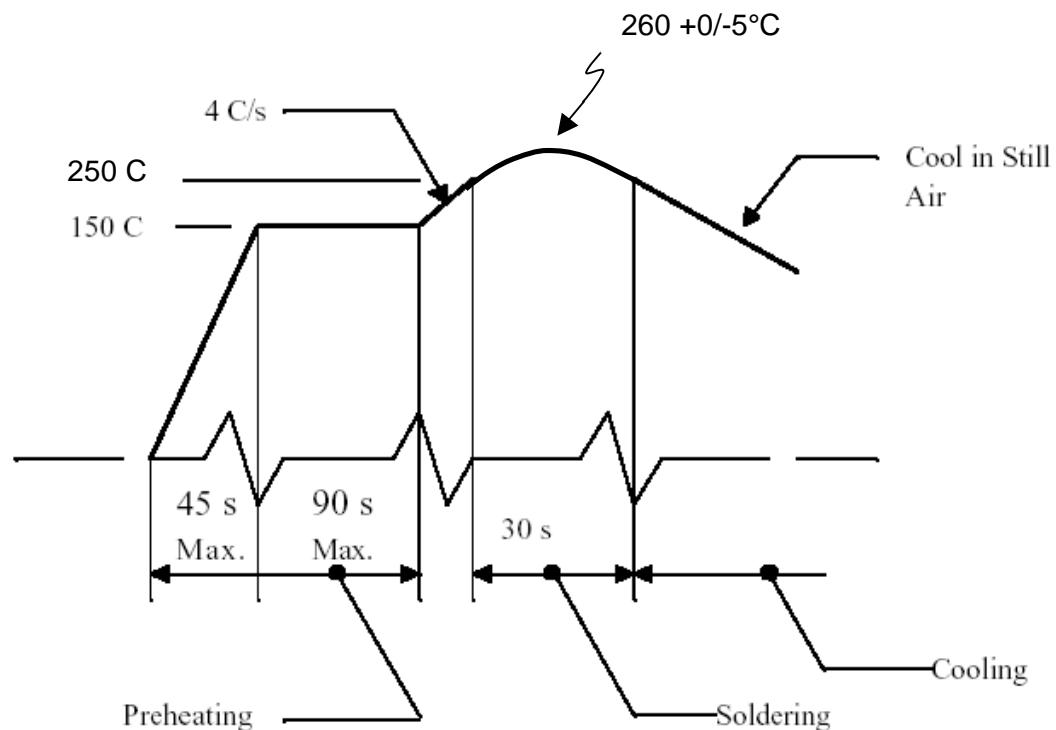
REVISION: <b>B</b>	ECR/ECN INFORMATION: EC No: <b>S2007-1019</b> DATE: <b>2007/05/17</b>	TITLE: <b>Reverse Right Angle Mini DIMM, SMT Connector 200/244Ckt, 0.60mm Pitch</b>	SHEET No. <b>5 of 6</b>
DOCUMENT NUMBER: <b>PS-78001-001</b>	CREATED / REVISED BY: <b>CM TEO 2007/05/17</b>	CHECKED BY: <b>YT YANG 2007/05/25</b>	APPROVED BY: <b>SH LENI 2007/05/25</b>



# PRODUCT SPECIFICATION

## 8.0 OTHER INFORMATIONS

### 8.1 Reflow Profile.

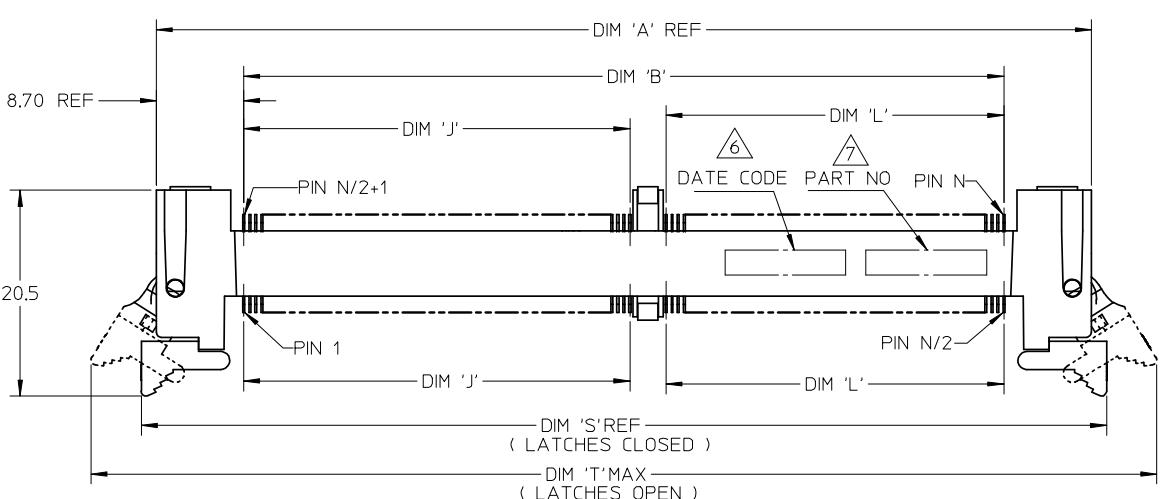


#### Notes :

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.

REVISION: <b>B</b>	ECR/ECN INFORMATION: EC No: <b>S2007-1019</b> DATE: <b>2007/05/17</b>	TITLE: <b>Reverse Right Angle Mini DIMM, SMT Connector 200/244Ckt, 0.60mm Pitch</b>	SHEET No. <b>6 of 6</b>
DOCUMENT NUMBER: <b>PS-78001-001</b>	CREATED / REVISED BY: <b>CM TEO 2007/05/17</b>	CHECKED BY: <b>YT YANG 2007/05/25</b>	APPROVED BY: <b>SH LENI 2007/05/25</b>
TEMPLATE FILENAME: PRODUCT_SPEC(SIZE_A4)(V.1).DOC			

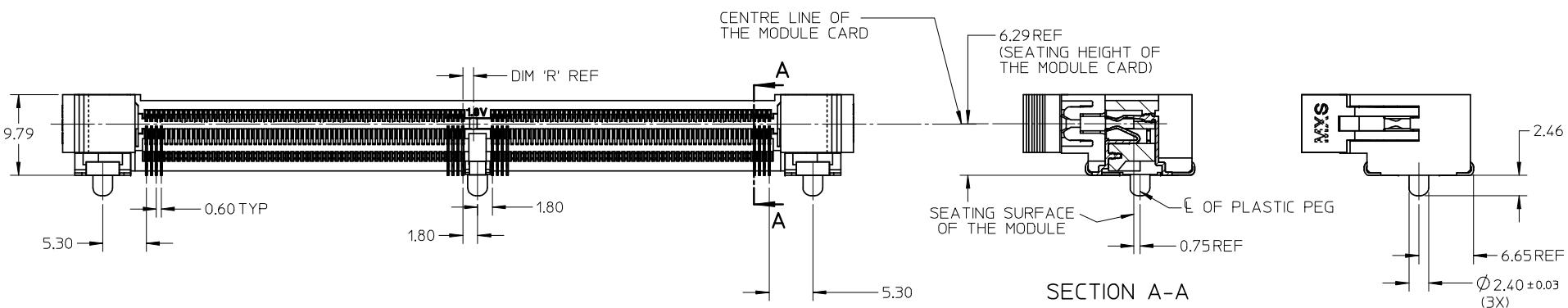
10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



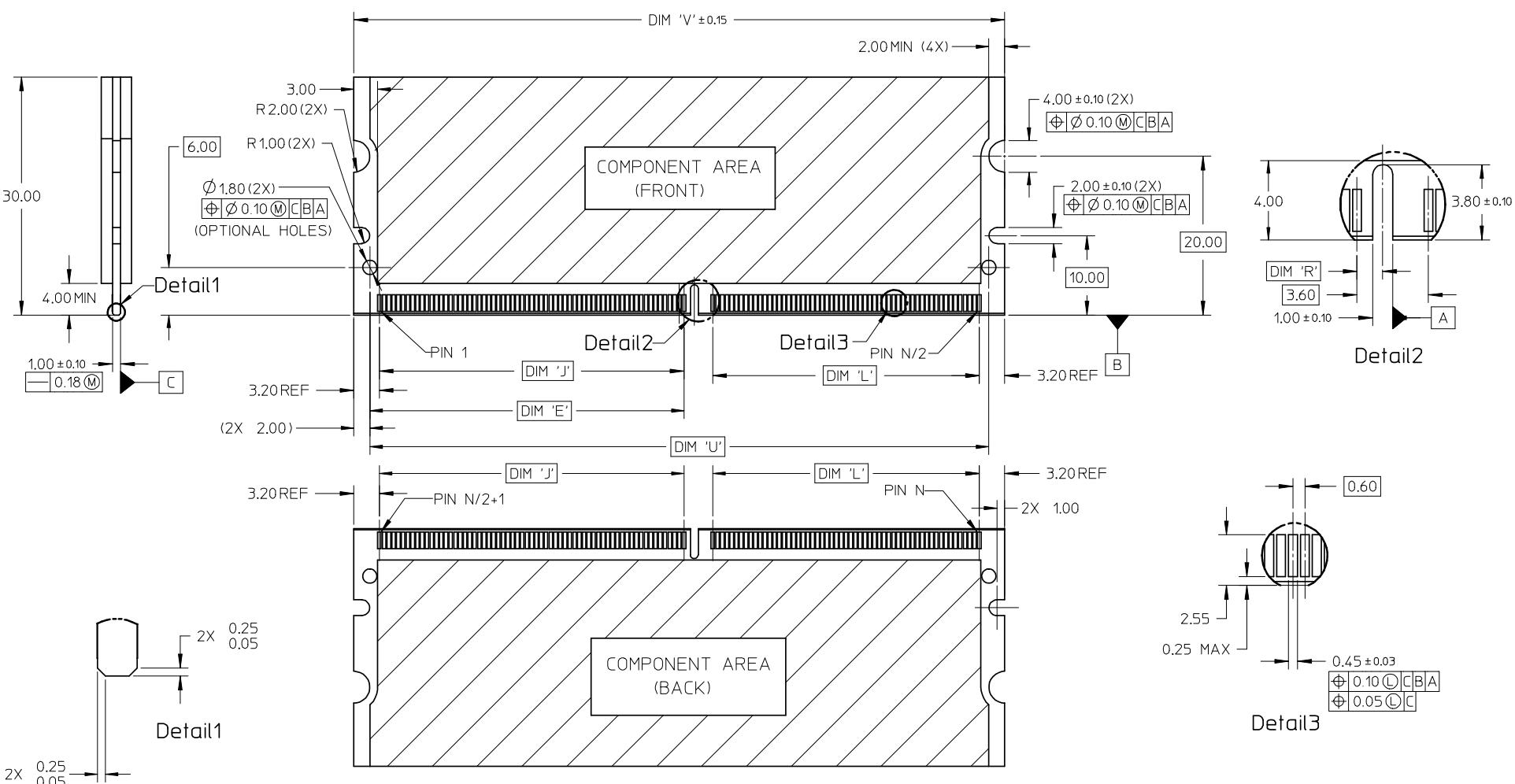
NOTES :

1. MATERIAL :  
HOUSING : HIGH TEMPERATURE LIQUID CRYSTAL POLYMER, UL94V-0  
COLOUR : BLACK  
CONTACTS : COPPER ALLOY  
LATCHES : HIGH TEMPERATURE NYLON, UL94V-0,  
COLOUR : NATURAL (OFF-WHITE)
2. 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
3. ACCEPTS 1.0 mm THICK MEMORY MODULE PER JEDEC MO-244  
FOR 244 CKTS AND MO-258 FOR 200 CKTS.
4. PRODUCT SPECIFICATION : PS-78001-001
5. PRODUCT SHALL BE PACKED IN TRAY. PLS REFER TO SHEET 4.

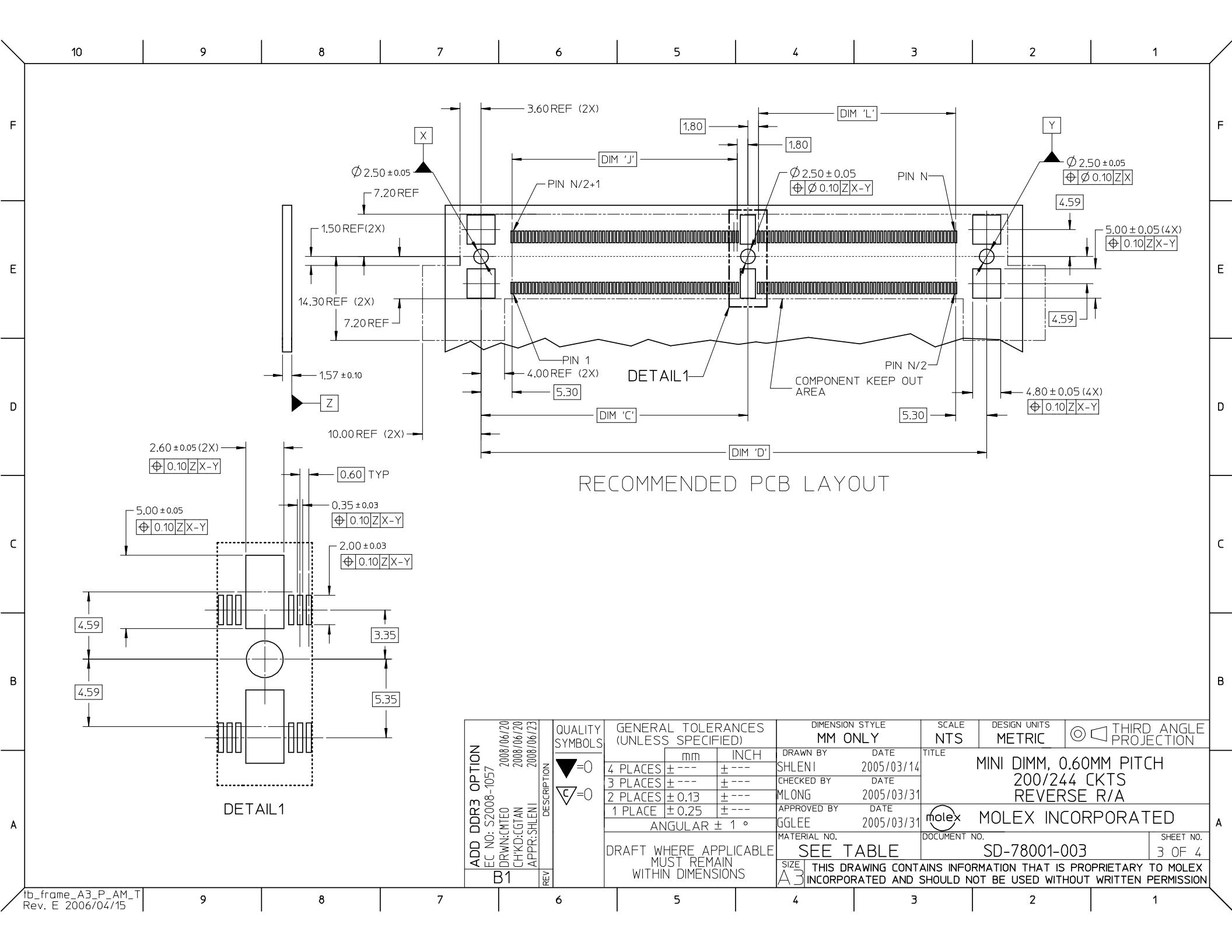
6. DATE CODE SHALL BE MARKED LEGIBLY AS SHOWN :YYDDD  
7. PART NUMBER SHALL BE MARKED LEGIBLY AS SHOWN.  
78001-XXXX (REFER TO TABLE)



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



QUALITY SYMBOLS		GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE NTS	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION
		mm	INCH	DRAWN BY SHLEN1	DATE 2005/03/14			
	▼=0	4 PLACES	± ---	± ---			MINI DIMM, 0.60MM PITCH	
	△=0	3 PLACES	± ---	± ---	CHECKED BY MLONG	DATE 2005/03/31	200/244 CKTS	
DESCRIPTION		2 PLACES	± 0.13	± ---	APPROVED BY GGLEE	DATE 2005/03/31	REVERSE R/A	
		1 PLACE	± 0.25	± ---			molex	MOLEX INCORPORATED
		ANGULAR ± 1 °		MATERIAL NO.		DOCUMENT NO.	SD-78001-003	SHEET NO.
		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		SEE TABLE				2 OF 4
				SIZE A3	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION			



10 9 8 7 6 5 4 3 2 1

F

E

D

C

B

A

F

E

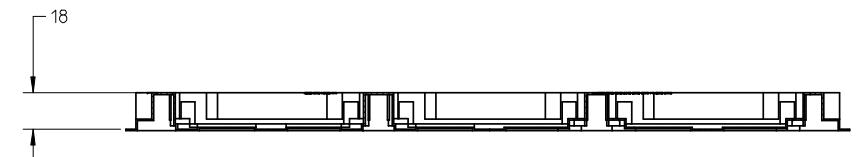
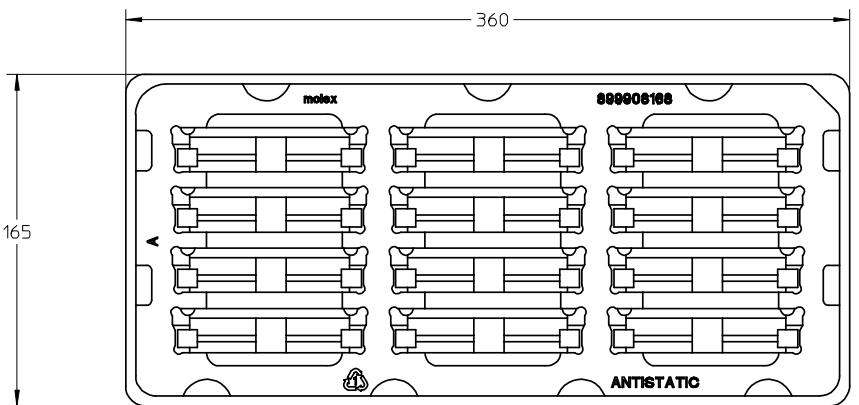
D

C

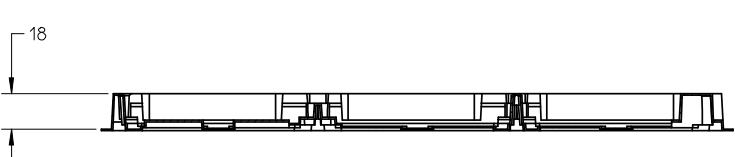
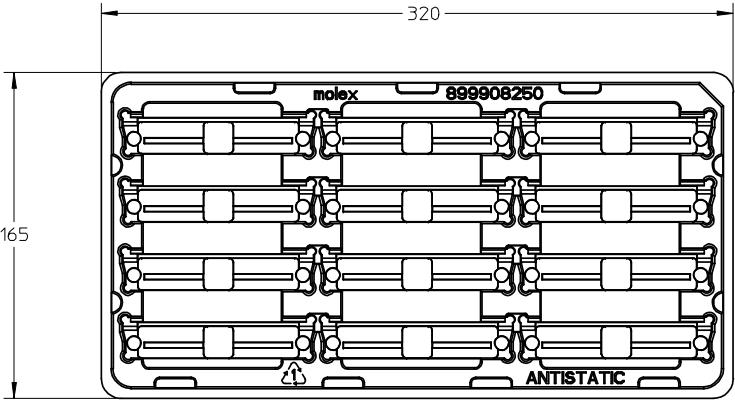
B

A

ASSEMBLY P/N	CKT SIZE "N"	MODULE CARD	VOLTAGE KEY	DIM 'R'	DIM 'E'	DIM 'J'	DIM 'L'	DIM 'A'	DIM 'S'	DIM 'T'	DIM 'U'	DIM 'V'	DIM 'C'	DIM 'D'	DIM 'B'	PACKAGING TYPE
78001-1200	200	DDR2	1.8 V	1.30	24.60	23.40	35.40	79.8	82.8	93.0	64.80	68.80	30.50	73.00	62.40	A
78001-2200		DDR	2.5 V	2.30												
78001-1244	244	DDR2	1.8 V	1.30	39.60	38.40	33.60	93.0	96.0	106.2	78.00	82.00	45.50	86.20	75.60	B
78001-1344		DDR3	1.5 V	2.30												
78001-3244		DDR2	1.8 V	1.30												
78001-3344		DDR3	1.5 V	2.30												



VIEW OF TYPE A PACKAGING TRAY



VIEW OF TYPE B PACKAGING TRAY

## NOTES:

1. QTY OF CAVITY: 3 X 4 = 12 PCS

ADD DDR3 OPTION EC NO: S2008-1057 DRAWN:CMTE0 CHKD:CGTAN APPR:SHLEN REV: B1	2008/06/20 2008/06/20 2008/06/20 2008/06/20	QUALITY SYMBOLS ▼=0 ▽=0	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE NTS	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION
			mm	INCH	DRAWN BY SHLEN	DATE 2005/03/14			
4 PLACES	± ---	± ---	CHECKED BY MLONG	DATE 2005/03/31					
3 PLACES	± ---	± ---	APPROVED BY GGLEE	DATE 2005/03/31					
2 PLACES	± 0.13	± ---	MATERIAL NO. SEE TABLE						
1 PLACE	± 0.25	± ---	SIZE A3	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION					
ANGULAR ± 1 °									
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS									