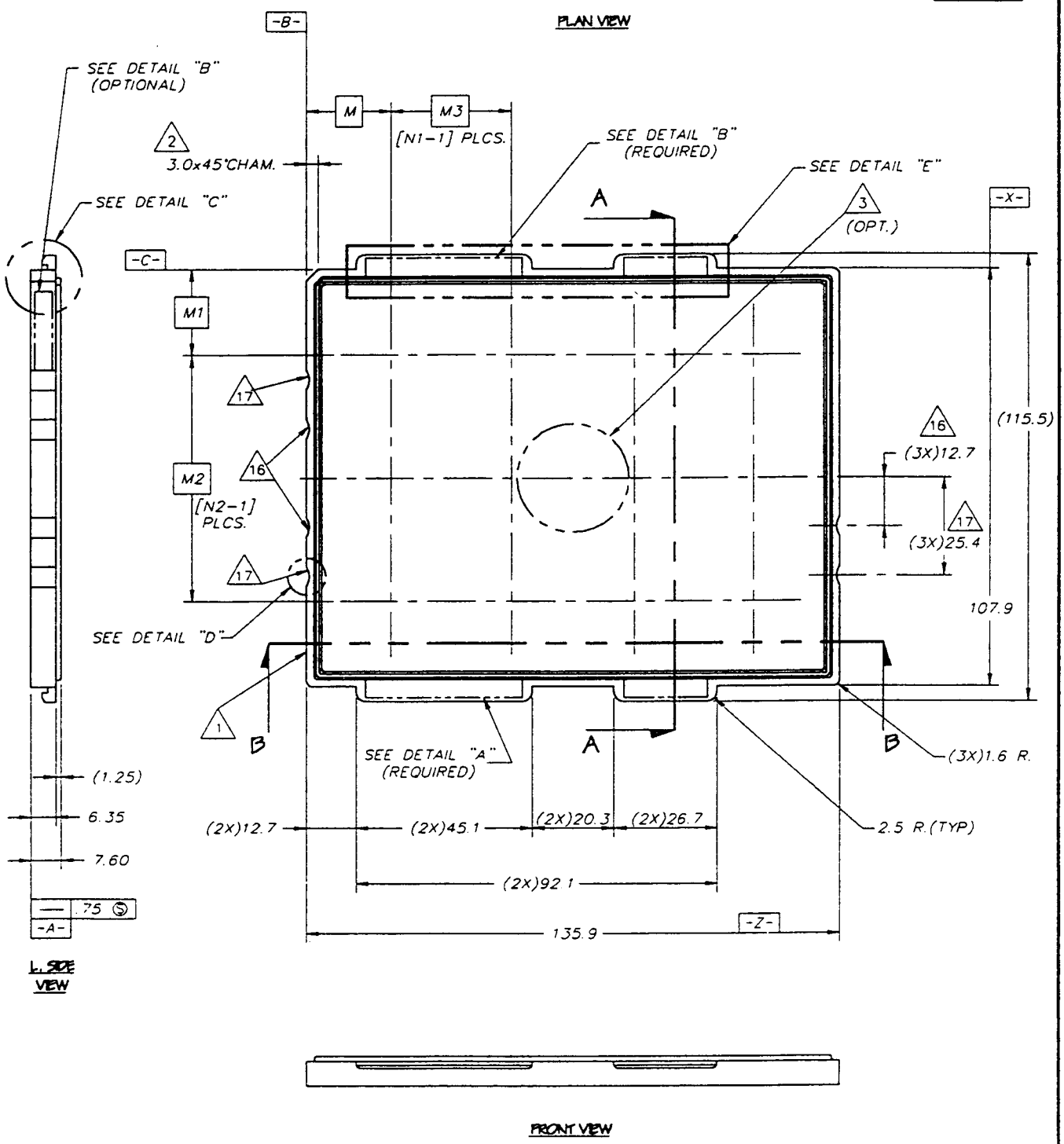
mm



JEDEC Solid State Product Outline	THIS REGISTERED OUTLINE HAS BEEN PREPARED BY THE JC-11 COMMITTEE AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR				
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mm

XXX°C MAX (10)

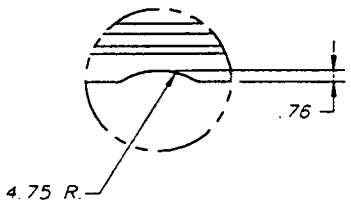
TEMP. RATING

DETAIL "A"

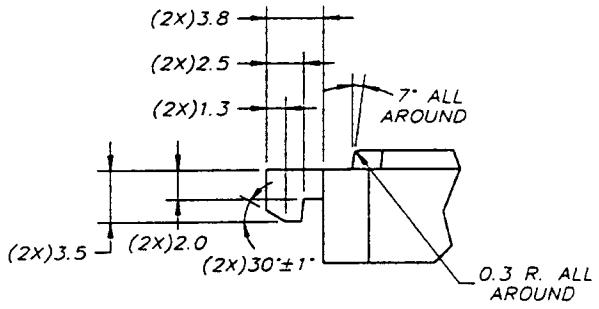
XXXX (N4) (11)

TRAY DESIGNATOR

DETAIL "B"

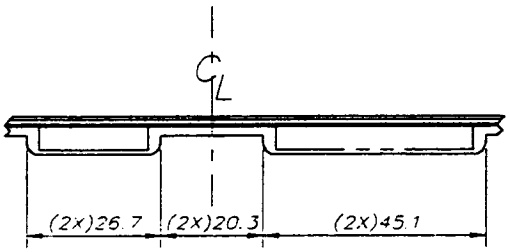


DETAIL "D"
ROTATED 90° CCW



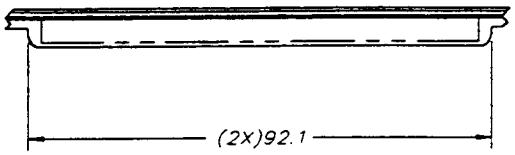
DETAIL "C"

DETAIL "E"
END TAB OPTIONS



(NOTCHED END TAB)

(OR)



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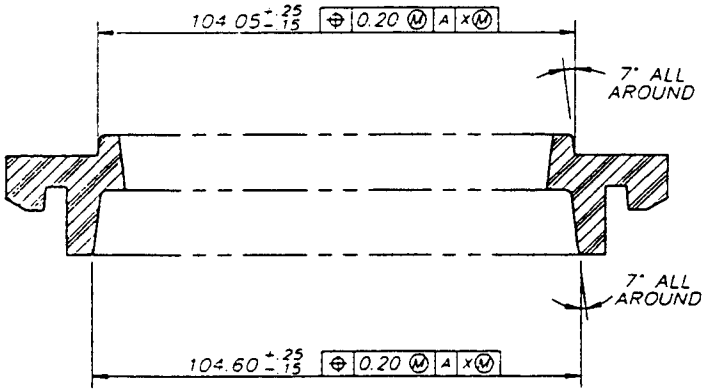
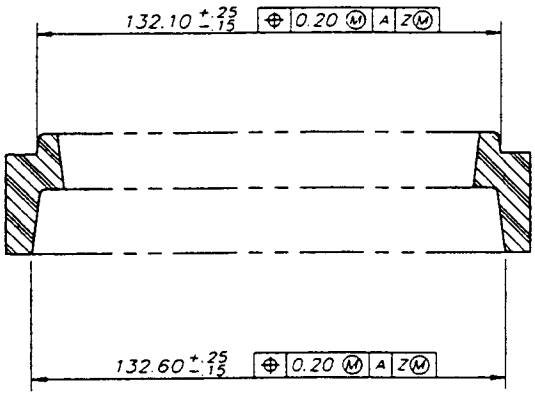


SECTION A-A
(ROTATED 90° CCW)



SECTION B-B

TRAY STACKING DETAIL

JEDEC Solid State Product Outline	THIS REGISTERED OUTLINE HAS BEEN PREPARED BY THE JC-11 COMMITTEE AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR				
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NOTES:

1. THESE SURFACES TO BE FREE OF SEAMS.

2. CHAMFER DENOTES PACKAGE PIN 1 ORIENTATION.

3. TRAY VACUUM PICKUP METHOD REQUIRES A 28mm SQUARE (MINIMUM) WALLED PICKUP AREA, LOCATED IN THE CENTER OF THE TRAY.

4 N REFERS TO PACKAGE LEAD COUNTS SUPPORTED, FULLY POPULATED ARRAY

5 TOTAL USABLE CELLS N3 = N1 x N2.

6 PACKAGE INTERFACE CONTROLLED BY PACKAGE DESIGN AND LEAD FORM.

7 NON-TABULATED DIMENSIONS HAVE A TOLERANCE OF .X=±0.25 .XX=±0.15, ANGLES ±0.5°

8 ALL DIMENSIONS ARE IN MILLIMETERS.

9 INTERPRET DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982.

10. XXX IS THE MAXIMUM OPERATING TEMPERATURE THE EMPTY TRAY CAN BE SUBJECTED TO FOR 48 CONTINUOUS HOURS WITHOUT VIOLATING THE DIMENSIONAL TOLERANCE OF THE TRAY.

11. N4 INDICATES PACKAGE SIZE/LEAD COUNT ACCOMMODATED.

12 DIMENSIONS M, M1, M2, AND M3 DEFINE THE CENTER LINES FOR THE CELL SITES.

13 ALL EXTERNAL TRAY SURFACES WHICH MAY COME IN CONTACT WITH THE DRY PACK BAGS SHALL BE FREE OF SHARP EDGES.

14 ALL TRAY MEASUREMENTS ARE TO BE MADE WITH THE TRAY UN-RESTRICTED.

15 AN ADDITIONAL ROW CAN BE ADDED TO VARIATION AA. THIS ADDITIONAL ROW WOULD CHANGE N2 TO 3, N3 TO 12 MAX, AND M2 TO 30.80. THIS MIDDLE ROW CAN BE DEPOPULATED IN ANY MANNER.

16 THESE SCALLOPS PRESENT ON 2 X 2 MATRIX ONLY.

17 THESE SCALLOPS PRESENT ON 4 X 2 MATRIX ONLY.

BALL GRID ARRAY(XBGA)

VARIATION DIMENSIONS ARE IN MILLIMETERS

VARIATION	N4 PACKAGE BODY SIZE	N (LEAD COUNT)	N1 x N2 TRAY MATRIX
AA	7MM X 7MM	16-25-36	4 X 2
AA	9MM X 9MM	36-49-64	4 X 2
AA	11MM X 11MM	49-64-100	4 X 2
AA	13MM X 13MM	64-100-144	4 X 2
AA	15MM X 15MM	100-121-196	4 X 2
AA	17MM X 17MM	121-169-256	4 X 2
AA	19MM X 19MM,18.5MM X 18.5MM	144-196-225-289-324	4 X 2
AA	21MM X 21MM	196-256-400	4 X 2
AA	23MM X 23MM	225-324-484	4 X 2
AA	25MM X 25MM	256-361-576	4 X 2
AA	27MM X 27MM	324-441-676	4 X 2
AA	29MM X 29MM	361-484-784	4 X 2
AB	31MM X 31MM	400-576-900	2 X 2
AB	33MM X 33MM,32.5MM X 32.5MM	441-484-625-676-1024	2 X 2
AB	35MM X 35MM	529-729-1156	2 X 2
AB	37.5MM X 37.5MM	625-841-1369	2 X 2
AB	40MM X 40MM	676-961-1521	2 X 2
AB	42.5MM X 42.5MM	784-1089-1764	2 X 2
AA	22MM X 14MM	119-153	4 X 2
AA	21MM X 18.5MM	168-224-340	4 X 2
AA	25MM X 21MM	224-304-480	4 X 2
AB	32.5MM X 25MM	336-475-744	2 X 2

METRIC QUAD FLAT PACK(MQFP)

VARIATION DIMENSIONS ARE IN MILLIMETERS

VARIATION	N4 PACKAGE BODY SIZE	N (LEAD COUNT)	N1 x N2 TRAY MATRIX
AA	5MM X 5MM	32–40	4 X 2
AA	7MM X 7MM	32–40–48–64	4 X 2
AA	10MM X 10MM	36–44–52–64–80	4 X 2
AA	12MM X 12MM	48–64–80–100	4 X 2
AA	14MM X 14MM	52–64–80–100–120	4 X 2
AA	14MM X 20MM	64–80–100–128	4 X 2
AA	20MM X 20MM	128–144–176	4 X 2
AB	24MM X 24MM	160–176–216	2 X 2
AB	28MM X 28MM	120–128–144–160–208–256	2 X 2
AB	32MM X 32MM	184–240–296	2 X 2
AB	40MM X 40MM	232–304–376	2 X 2

PLASTIC QUAD FLAT PACK(PQFP)

VARIATION DIMENSIONS ARE IN MILLIMETERS

VARIATION	N4 PACKAGE BODY SIZE	N (LEAD COUNT)	N1 x N2 TRAY MATRIX
AA	52 Lead	52	4 X 2
AA	68 Lead	68	4 X 2
AA	84 Lead	84	4 X 2
AA	100 Lead	100	4 X 2
AB	132 Lead	132	2 X 2
AB	164 Lead	164	2 X 2
AB	196 Lead	196	2 X 2

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THIN QUAD FLAT PACK(TQFP)

VARIATION DIMENSIONS ARE IN MILLIMETERS

VARIATION	N4 PACKAGE BODY SIZE	N (LEAD COUNT)	N1 x N2 TRAY MATRIX
AA	5MM X 5MM	32-40	4 X 2
AA	7MM X 7MM	32-40-48-64	4 X 2
AA	10MM X 10MM	36-44-52-64-80	4 X 2
AA	12MM X 12MM	44-52-64-80-100	4 X 2
AA	14MM X 14MM	52-64-80-100-120	4 X 2
AA	14MM X 20MM	100-128	4 X 2
AA	20MM X 20MM	144-176	4 X 2
AB	24MM X 24MM	176-216	2 X 2
AB	28MM X 28MM	160-208-256	2 X 2

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THIN SMALL OUTLINE PACKAGE(TSOP TYPE I)

VARIATION DIMENSIONS ARE IN MILLIMETERS

VARIATION	N4 PACKAGE BODY SIZE	N (LEAD COUNT)	N1 x N2 TRAY MATRIX
AA	6MM X 14MM	24	4 X 2
AA	6MM X 16MM	24	4 X 2
AA	6MM X 18MM	24	4 X 2
AA	6MM X 20MM	24	4 X 2
AA	8MM X 14MM	32	4 X 2
AA	8MM X 16MM	32	4 X 2
AA	8MM X 18MM	32	4 X 2
AA	8MM X 20MM	32	4 X 2
AA	10MM X 14MM	40	4 X 2
AA	10MM X 16MM	40	4 X 2
AA	10MM X 18MM	40	4 X 2
AA	10MM X 20MM	40	4 X 2
AA	12MM X 14MM	48	4 X 2
AA	12MM X 16MM	48	4 X 2
AA	12MM X 18MM	48	4 X 2
AA	12MM X 20MM	48	4 X 2

THIN SMALL OUTLINE PACKAGE(TSOP TYPE II)

VARIATION DIMENSIONS ARE IN MILLIMETERS

VARIATION	N4 PACKAGE BODY SIZE	N (LEAD COUNT)	N1 x N2 TRAY MATRIX
AA	.300"	20-24-26	4 X 2
AA	.400"	28-40-44/40	4 X 2
AA	.400"	32-50/44	4 X 2
AA	12.70MM	32-34-50-54-62	4 X 2

JEDEC Solid State Product Outline	THIS REGISTERED OUTLINE HAS BEEN PREPARED BY THE JC-11 COMMITTEE AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR

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VARIATION DIMENSIONS ARE IN MILLIMETERS

SYMBOL	DIMENSIONS ARE IN MILLIMETERS AA			NOTE	DIMENSIONS ARE IN MILLIMETERS AB			NOTE
	MIN	NOM	MAX		MIN	NOM	MAX	
M		21.75 BSC		12		29.20 BSC		12
M1		22.15 BSC		12		31.15 BSC		12
M2		63.60 BSC		12		45.60 BSC		12
M3		30.80 BSC		12		77.50 BSC		12
N1		4 COLUMNS				2 COLUMNS		
N2		2 ROWS		15		2 ROWS		
N3		8		5		4		5
NOTES	7, 8, 9, 12				7, 8, 9, 12			
REF	05-927				05-927			
ISSUE	A				A			

JEDEC Solid State Product Outline	THIS REGISTERED OUTLINE HAS BEEN PREPARED BY THE JC-11 COMMITTEE AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR					
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