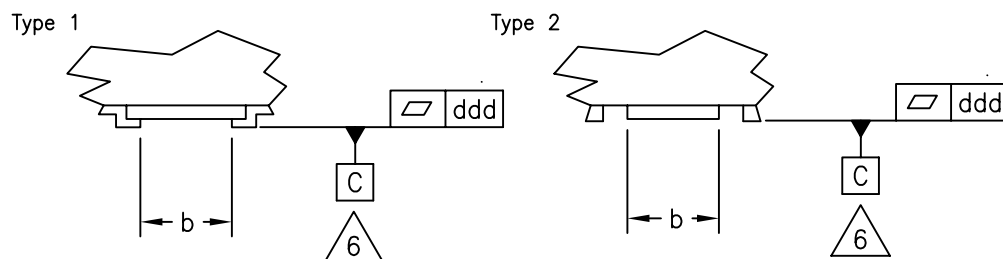
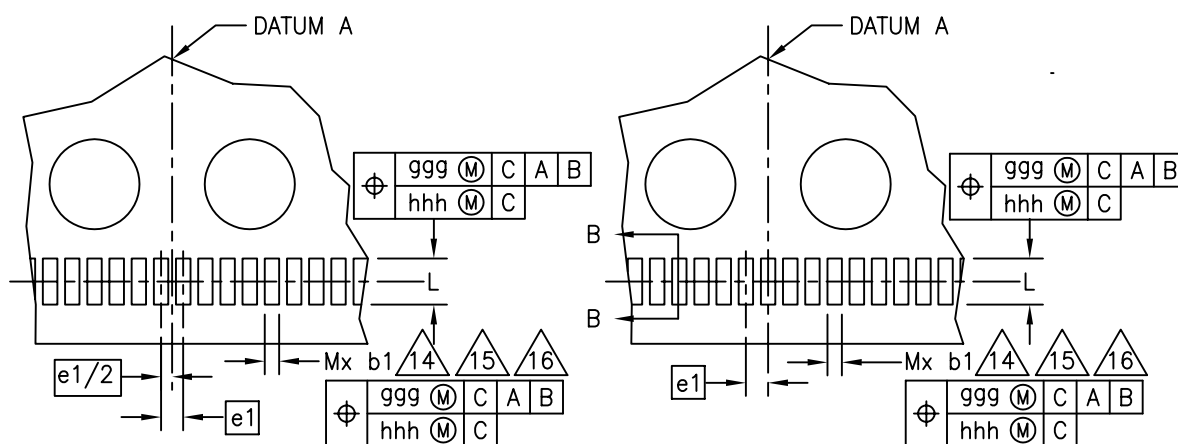


TITLE EXTRA THIN PROFILE, FINE PITCH, INTERNAL STACKING MODULE (ISM) WITH SINGLE INTERCONNECT ARRAY 0.75/0.80 mm PITCH, SQ/RECT	PACKAGE DESIGNATOR  X1F-XLGA	ISSUE  B	DATE  JUN 08	MO-270	SHEET  1 OF 8
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DETAIL A

SHEET 1  
ROTATED 90° CW

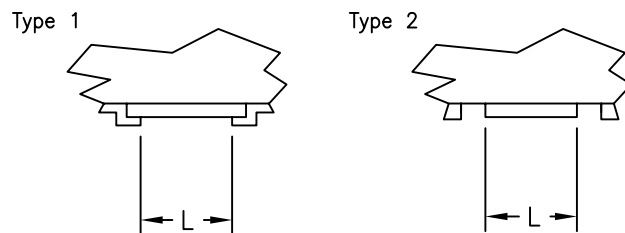


*EVEN TERMINAL/SIDE*

*ODD TERMINAL/SIDE*

DETAIL B

SHEET 1  
ROTATED 90° CCW



SECTION B-B

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE EXTRA THIN PROFILE, FINE PITCH, INTERNAL STACKING MODULE (ISM) WITH SINGLE INTERCONNECT ARRAY 0.75/0.80 mm PITCH, SQ/RECT	ISSUE B	DATE JUN 08	MO-270	SHEET 2 OF 8
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TABLE 1: VARIATION SUMMARY

VARIATION	REF	ISSUE
AAA	11 – 724	A
AAB	11 – 724	A
AAC	11 – 724	A
AAD	11 – 724	A
AAE	11 – 724	A
AAF	11 – 724	A
AAG	11 – 724	A
AAH	11 – 724	A
BAA	11 – 724	A
BAB	11 – 724	A
BAC	11 – 724	A
BAD	11 – 724	A
BAE	11 – 724	A
CAA	11 – 724	A
CAB	11 – 724	A
CAC	11 – 724	A
CAD	11 – 724	A
CAE	11 – 724	A
CAF	11 – 724	A
CAG	11 – 724	A
CAH	11 – 724	A
DAA	11 – 724	A
DAB	11 – 724	A
DAC	11 – 724	A
DAD	11 – 724	A
DAE	11 – 724	A

TABLE 2: COMMON DIMENSIONS

VARIATION SYMBOL	Axx AND Bxx			Cxx AND Dxx			NOTES
	MINIMUM	NOMINAL	MAXIMUM	MINIMUM	NOMINAL	MAXIMUM	
A	—	—	0.50	—	—	0.50	7
b	0.25	0.35	0.45	0.25	0.35	0.40	8
e	0.80 BSC			0.75 BSC			
NOTES	1, 2, 11, 14						
REF	11 – 724						
ISSUE	A						

TABLE 3: LEAD DIMENSIONS

VARIATION SYMBOL	xAx			NOTES
	MINIMUM	NOMINAL	MAXIMUM	
L	0.20	0.30	0.40	
b1	0.045	—	0.07	8
e1	0.12 BSC			
NOTES	1, 2, 11, 14			
REF	11–790			
ISSUE	B			

TABLE 4: TOLERANCES OF FORM &amp; POSITION

aaa	0.10
bbb	0.10
ddd	0.10
eee	0.10
fff	0.05
ggg	0.125
hhh	0.005
NOTES	1, 2, 11, 14, 15
REF	11 – 724
ISSUE	A

x (3RD DIGIT) = BODY SIZE VARIATION: A, B, C, ETC. (SEE TABLES 5 THROUGH 8)

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE EXTRA THIN PROFILE, FINE PITCH, INTERNAL STACKING MODULE (ISM) WITH SINGLE INTERCONNECT ARRAY 0.75/0.80 mm PITCH, SQ/RECT	ISSUE B	DATE JUN 08	MO–270	SHEET 4 OF 8
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TABLE 5: SQUARE VARIATIONS

[e] = 0.80 BSC, [e1] = 0.12 BSC									
VARIATION SYMBOL	AAA	AAB	AAC	AAD	AAE	AAF	AAG	AAH	NOTES
D BSC	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	
E BSC	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	
D1 BSC	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	
E1 BSC	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	
MD	8	9	11	12	13	14	16	17	4
ME	7	8	9	11	12	13	14	16	4
SD BSC	0.40	0	0	0.40	0	0.40	0.40	0	10
SE BSC	0	0.40	0	0	0.40	0	0.40	0.40	10
N	56	72	99	132	156	182	224	272	5
E2 BSC	3.125	3.625	4.125	4.625	5.125	5.625	6.125	6.625	
M	51	59	67	76	84	92	101	109	17
NOTES	1, 2, 11, 14, 15, 16								
REF	11-790								
ISSUE	B								

TABLE 6: RECTANGULAR VARIATIONS

[e] = 0.80 BSC, [e1] = 0.12 BSC									
VARIATION SYMBOL	BAA	BAB	BAC	BAD	BAE				NOTES
D BSC	10.00	11.00	12.00	12.00	14.00				
E BSC	8.00	8.00	8.00	10.00	12.00				
D1 BSC	9.00	10.00	11.00	11.00	13.00				
E1 BSC	6.00	6.00	6.00	8.00	10.00				
MD	12	13	14	14	17				4
ME	8	8	8	11	13				4
SD BSC	0.40	0	0.40	0.40	0				10
SE BSC	0.40	0.40	0.40	0	0				10
N	96	104	112	154	221				5
E2 BSC	3.625	3.625	3.625	4.625	5.625				
M	76	84	92	92	109				17
NOTES	1, 2, 11, 14, 15, 16								
REF	11-790								
ISSUE	B								

TABLE 7: SQUARE VARIATIONS

$e = 0.75 \text{ BSC}$ , $e1 = 0.12 \text{ BSC}$									
VARIATION SYMBOL	CAA	CAB	CAC	CAD	CAE	CAF	CAG	CAH	NOTES
D BSC	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	
E BSC	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	
D1 BSC	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	
E1 BSC	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	
MD	9	10	11	13	14	15	17	18	4
ME	7	9	10	11	13	14	15	17	4
SD BSC	0	0.375	0	0	0.375	0	0	0.375	10
SE BSC	0	0	0.375	0	0	0.375	0	0	10
N	63	90	110	143	182	210	255	272	5
E2 BSC	3.125	3.625	4.125	4.625	5.125	5.625	6.125	6.625	
M	51	59	67	76	84	92	101	109	17
NOTES	1, 2, 11, 14, 15, 16								
REF	11-790								
ISSUE	B								

TABLE 8: RECTANGULAR VARIATIONS

$e = 0.75 \text{ BSC}$ , $e1 = 0.12 \text{ BSC}$									
VARIATION SYMBOL	DAA	DAB	DAC	DAD	DAE				NOTES
D BSC	10.00	11.00	12.00	12.00	14.00				
E BSC	8.00	8.00	8.00	10.00	12.00				
D1 BSC	9.00	10.00	11.00	11.00	13.00				
E1 BSC	6.00	6.00	6.00	8.00	10.00				
MD	13	14	15	15	18				4
ME	9	9	9	11	14				4
SD BSC	0	0.375	0	0	0.375				10
SE BSC	0	0	0	0	0.375				10
N	117	126	112	154	252				5
E2 BSC	3.625	3.625	3.625	4.625	5.625				
M	76	84	92	92	101				17
NOTES	1, 2, 11, 14, 15, 16								
REF	11-790								
ISSUE	B								

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.  
THIS REGISTRATION IS IN COMPLIANCE WITH JEP95 SECTION 4.21  
INTERNAL STACKING MODULE LAND GRID ARRAY PACKAGES WITH EXTERNAL INTERCONNECT TERMINALS (ISM).
2. DIMENSIONS ARE IN MILLIMETERS.
3. LAND DESIGNATION PER JEP95, SECTION 3.0, SPP-010 AND SPP-020.
4. 'MD' AND 'ME' ARE THE MAXIMUM LAND MATRIX SIZE FOR THE 'D' AND 'E' DIMENSIONS RESPECTIVELY.
5. 'N' IS THE MAXIMUM NUMBER OF LANDS FOR A SPECIFIED MATRIX SIZE.
6. PRIMARY DATUM C (SEATING PLANE) IS DEFINED BY THE BOTTOM TERMINAL SURFACE. METALLIZED TEST TERMINAL LANDS OR INTERCONNECT TERMINALS NEED NOT EXTEND BELOW THE PACKAGE BOTTOM SURFACE.
7. DIMENSION 'A' INCLUDES PACKAGE BODY THICKNESS AND LID HEIGHT, BUT DOES NOT INCLUDE ATTACHED FEATURES, e.g. EXTERNAL HEAT SINK OR CHIP CAPACITORS. AN INTEGRAL HEAT SLUG IS NOT CONSIDERED AN ATTACHED FEATURE.
8. DIMENSION 'b' IS MEASURED AT THE MAXIMUM LAND DIAMETER IN A PLANE PARALLEL TO PRIMARY DATUM C.
9. THE A1 CORNER MUST BE IDENTIFIED ON THE TOP SURFACE OF THE PACKAGE BY USING A CORNER CHAMFER, INK OR METALIZED MARKINGS, INDENTATION, OR OTHER FEATURE OF PACKAGE BODY, LID, OR INTEGRAL HEAT SLUG. IF THE OPTIONAL CHAMFERED CORNER IS USED, THE MAXIMUM NUMBER OF LANDS 'N' AND INTERCONNECT TERMINALS 'M' MAY BE REDUCED. EXACT SHAPE OF EACH CORNER IS OPTIONAL, BUT THE A1 CORNER MUST BE UNIQUE. SOME ORIENTATION FEATURE ON THE LAND PAD SIDE IS RECOMMENDED.
10. DIMENSIONS 'SD' AND 'SE' ARE DEFINED WITH RESPECT TO DATUMS A AND B AND DEFINE THE POSITION OF THE CENTER LAND IN THE OUTER ROW. WHEN THERE IS AN ODD NUMBER OF LANDS IN THE OUTER ROW PARALLEL TO DIMENSION 'D' OR 'E' RESPECTIVELY, 'SD' OR 'SE' = 0. WHEN THERE IS AN EVEN NUMBER OF LANDS IN THE OUTER ROW, 'SD' OR 'SE' =  $e/2$  BASIC.
11. LAND ARRAY MAY BE DEPOPULATED IN ANY PATTERN. DEPOPULATION IS THE OMISSION OF LANDS FROM A FULL MATRIX.
12. PARALLELISM (bbb) ON THE TOP SURFACE APPLIES ONLY TO THE 2.50 X 2.50 mm MINIMUM FLAT AREA SHOWN ON THE TOP VIEW (SHEET 1). THIS AREA MAY BE USED FOR MARKING OR VACUUM PICKUP.
13. 8 X 10 MATRIX (VARIATION BAA) IS SHOWN FOR ILLUSTRATION ONLY.
14. INTERCONNECT (BOND FINGER) TERMINALS MAY BE DEPOPULATED AND/OR ADJACENT TERMINALS BRIDGED.
15. DIMENSION 'b1' IS DEFINED AT THE MAXIMUM TERMINAL WIDTH.
16. DIMENSION 'e1/2' IS DEFINED WITH RESPECT TO DATUMS A AND B AND DEFINES THE POSITION OF THE CENTER TERMINAL AT EDGE OF PACKAGE. WHEN THERE IS AN ODD NUMBER OF TERMINALS AT THE PACKAGE EDGE THEN OFFSET OF TERMINAL IS 0. WHEN THERE IS AN EVEN NUMBER OF TERMINALS AT THE PACKAGE EDGE THEN OFFSET IS  $e1/2$ .
17. 'M' IS THE MAXIMUM NUMBER OF INTERCONNECT (BOND FINGER) TERMINALS FOR A SPECIFIED PACKAGE VARIATION.
18. VARIATION CODING FORM IS ZYX, WHERE  
Z = A (SQUARE) OR B (RECT.) FOR 0.8 mm LAND PITCH,  
C (SQUARE) OR D (RECT.) FOR 0.75 mm LAND PITCH.  
Y = A FOR 0.120 mm INTERCONNECT TERMINAL PITCH  
X = A, B, C, ETC. FOR BODY SIZE VARIATIONS LISTED IN TABLES.
19. ISSUED PATENTS AND RELATED PATENT APPLICATIONS MAY APPLY TO THIS REGISTRATION. IF THE CURRENT ISSUED PATENTS OR LATER PATENTS RESULTING FROM RELATED APPLICATIONS DO APPLY, THESE COMPANIES INTEND TO COMPLY WITH THE JEDEC PATENT POLICY AND LICENSE UNDER REASONABLE TERMS AND CONDITIONS. REFERENCED PATENTS ARE AS FOLLOWS:

STATS CHIPPAC	U.S. PATENT #'S: 7,056,476; 7,057,269; 6,933,598; 7,045,887; 6,906,416; 7,049,691;
	7,053,477; 7,034,387; 6,838,761; 6,972,481; 7,061,088; 7,064,426; 7,101,731; 7,253,511.
	U.S. PATENT APPLICATIONS #'S: 20060226536; 20070278658.

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE EXTRA THIN PROFILE, FINE PITCH, INTERNAL STACKING MODULE (ISM) WITH SINGLE INTERCONNECT ARRAY 0.75/0.80 mm PITCH, SQ/RECT	ISSUE  B	DATE  JUN 08	MO-270	SHEET  7 OF 8
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### Change Record

If the change involves any words added or deleted (excluding deletion of accidentally repeated words), the change is to be included below. Punctuation changes may or may not be included.

Initial Issue: A	Date: May 2006	JC11 Item Number: 11-724
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#### Change Record History

Issue: B	Date: Jun 2008	Item Number: 11-790
Description of changes		
Sheet 1 - TOP and BOTTOM views: changed figure to match variation BAA		
Sheet 2 - DETAIL A: reference Datum C to solder mask as lowest surface		
Sheet 4 - TABLE 2: merge 'e' cells		
Sheet 4 - TABLE 3: from L = 0.25/0.35/0.50 to L = 0.20/0.30/0.40		
Sheet 4 - TABLE 3: merge 'e1' cells		
Sheet 5, 6 – TABLE 5,6,7,8: for 'M' change note reference from 5 to 17		
Sheet 7: change Note 1 from "PUB 95...." to "JEP95, SECTION 4.21....."		
Sheet 7: change Note 13 from "6x10...." to "8x10..." (reference actual variation)		
Sheet 7: fix typo on Note 16 end of last sentence, and Note 18		
Sheet 7: update Note 19 to latest referenced patents and change format and wording to latest recommendation (consistent with MO220K)		

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE EXTRA THIN PROFILE, FINE PITCH, INTERNAL STACKING MODULE (ISM) WITH SINGLE INTERCONNECT ARRAY 0.75/0.80 mm PITCH, SQ/RECT	ISSUE  B	DATE  JUN 08	MO-270	SHEET  8 OF 8
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