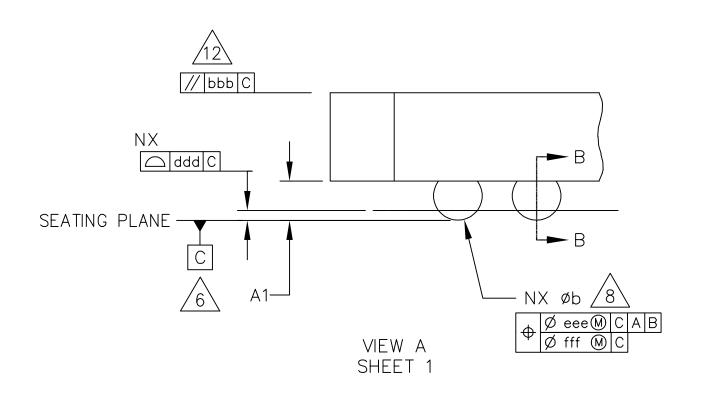
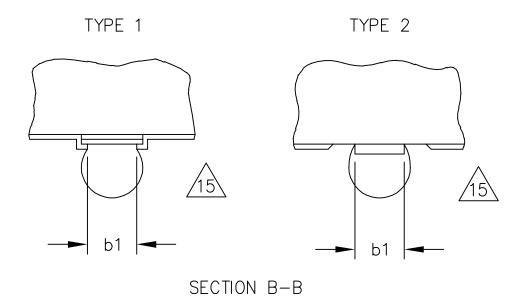


PRODUCT OUTLINE

THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR.

TITLE LOW PROFILE, FINE PITCH	PACKAGE DESIGNATOR	ISSUE	DATE		SHEET
BALL GRID ARRAY FAMILY, 0.80 MM PITCH (RECT.)	LFR-XBGA	G	July 06	MO-205	1 OF 7





JEDEC SOLID	TITLE	LOW PROFILE, FINE PITCH,	ISSUE	DATE		SHEET
STATE PRODUCT OUTLINE		BALL GRID ARRAY FAMILY 0.80MM PITCH (RECT.)	G	July 06	MO-205	2 OF 7

TABLE 1

S	CON	MMON DIMENSI	ONS	N	S Y		N
S Y M B O L	MINIMUM	NOMINAL	MAXIMUM	O T E S	M B O L	TOLERANCES OF FORM AND POSITION	O T E S
Α	_	_	1.70	7	aaa	0.15	
A1	0.25	_	_	7	bbb	0.20	
A2	0.65	_	_		ddd	0.20	12
р	0.45	0.50	0.55	8	eee	0.15	
b1	0.35	_	_	15	fff	0.08	
е		0.80 BSC				•	
NOTES	1,2, 14						
REF	11-653 11	-752					
ISSUE	G				·		

TABLE 2

	SQUARE VARIATIONS							
VARIATION	D/E BSC	N						
AA	8.00	81						
AB	9.00	100						
AC	10.00	144						
AD	11.00	169						
AE	12.00	196	THESE SQUARE VARIATIONS HAVE BEEN					
AF	13.00	225	REMOVED FROM THIS OUTLINE					
AG	15.00	324	SEE SHEET 5 FOR CROSS REFERENCE TABLE					
AH	16.00	361	CITOSS NEI ENEIVOE TABLE					
AJ	18.00	484						
AK	20.00	576						
AL	22.00	729						
AM	17.00	400						
AN	7.00	64						
NOTES								
REF	11-651 11-75	2						
ISSUE	G							

IEDEC SOLID	TITLE LOW PROFILE, FINE PITCH,	ISSUE	DATE		SHEET
JEDEC SOLID STATE PRODUCT OUTLINE	BALL GRID ARRAY FAMILY 0.80MM PITCH (RECT.)	G	July 06	MO-205	3 OF 7

TABLE 3

SQUARE VARIATIONS

VARIATION	D/E BSC	N	
ВА	8.00	64	
BB	9.00	81	
BC	10.00	121	
BD	11.00	144	
BE	12.00	169	THESE SQUARE VARIATIONS HAVE BEEN
BF	13.00	196	REMOVED FROM THIS OUTLINE
BG	15.00	289	SEE SHEET 5 FOR CROSS REFERENCE TABLE
BH	16.00	324	SKOOS KEI EKENOE IMBEE
BJ	18.00	441	
BK	20.00	529	
BL	22.00	676	
ВМ	17.00	361	
BN	7.00	49	
NOTES			
REF	11-651 11-752	2	
ISSUE	G		

TABLE 4

	RECTANGULAR VARIATIONS (SD=SE)								
VARIATION	D BSC	E BSC	D1 BSC	E1 BSC	MD	ME	SD BSC	SE BSC	N
CA	13.00	9.00	10.40	7.20	14	10	0.40	0.40	140
CB	13.00	9.00	11.20	6.40	15	9	0	0	135
CC	13.50	5.50	12.00	4.00	16	6	0.40	0.40	96
NOTES					4	4	10	10	5

TABLE 5

	RECTANGULAR VARIATIONS (SD≠SE)								
VARIATION	D BSC	E BSC	D1 BSC	E1 BSC	MD	ME	SD BSC	SE BSC	N
DA	13.00	9.00	11.20	7.20	15	10	0	0.40	150
DB	13.00	9.00	10.40	6.40	14	9	0.40	0	126
DC	16.00	5.50	14.40	4.00	19	6	0	0.40	114
DD	8.00	5.50	6.40	4.00	9	6	0	0.40	54
NOTES					4	4	10	10	5

JEDEC SOLID	TITLE LOW PROFILE, FINE PITCH,	ISSUE	DATE		SHEET
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VARIATION SUMMARY TABLE

TABLE 6

VARIATION	REF	ISSUE
CA	11-505	A
CB	11-505/11-520	A/B
CC	11-520	B
DA	11-505/11-520	A/B
DB	11-505/11-520	A/B
DC	11-520	B
DD	11-601	E

TABLE 7

	CROSS REFE
MO-205 VARIATION DESIGNATOR	MO-275 VARIATION DESIGNATOR
AA	CCAA-1
AB	DDAA-1
AC	EEAA-1
AD	FFAA-1
AE	GGAA-1
AF	HHAA-1
AG	KKAA-1
AH	LLAA-1
AJ	NNAA-1
AK	RRAA-1
AL	TTAA-1
AM	MMAA-1
AN	BBAA-1

ERENCE TABLE						
	MO-205 VARIATION DESIGNATOR	MO-275 VARIATION DESIGNATOR				
	ВА	CCAA-2				
	BB	DDAA-2				
	BC	EEAA-2				
	BD	FFAA-2				
	BE	GGAA-2				
	BF	HHAA-2				
	BG	KKAA-2				
	ВН	LLAA-2				
	BJ	NNAA-2				
	BK	RRAA-2				
	BL	TTAA-2				
	ВМ	MMAA-2				
	BN	BBAA-2				

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NOTES

- 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
- 2. DIMENSIONS ARE IN MILLIMETERS.
- 3. CONTACT BALL DESIGNATION PER JEDEC PUBLICATION 95, SECTION 3, SPP-020.
 - 4. 'MD' AND 'ME' ARE THE MAXIMUM BALL MATRIX SIZE FOR THE 'D' AND 'E' DIMENSIONS RESPECTIVELY.
 - 5. 'N' IS THE MAXIMUM NUMBER OF BALLS FOR A SPECIFIED MATRIX SIZE.
- PRIMARY DATUM C (SEATING PLANE) IS DEFINED BY THE SPHERICAL CROWNS OF THE CONTACT BALLS.
- DIMENSION 'A' INCLUDES STANDOFF HEIGHT 'A1', 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.
- DIMENSION 'b' IS MEASURED AT THE MAXIMUM BALL DIAMETER IN A PLANE PARALLEL TO PRIMARY DATUM C.
- 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 SOLDER BALLS 'N' MAY BE REDUCED. EXACT SHAPE OF EACH CORNER IS OPTIONAL, BUT PIN 1 CORNER MUST BE UNIQUE. SOME ORIENTATION FEATURE ON THE BALL ATTACH SIDE IS RECOMMENDED.
- DIMENSION 'SD/SE' IS MEASURED WITH RESPECT TO DATUMS A AND B AND DEFINES THE POSITION OF THE CENTER CONTACT BALL IN THE OUTER ROW. WHEN THERE IS AN ODD NUMBER OF CONTACT BALLS IN THE OUTER ROW OF A FULL MATRIX, SD/SE=0; WHEN THERE IS AN EVEN NUMBER OF CONTACT BALLS IN THE OUTER ROW, SD/SE=e/2.
- SOLDER BALL ARRAY MAY BE DEPOPULATED IN ANY PATTERN. DEPOPULATION IS THE OMISSION OF BALLS FROM A FULL MATRIX.
- FOR GLOB TOP AND FLIP CHIP CONFIGURATIONS, PARALLELISM (bbb) MUST BE ENSURED ON THE TOP SURFACE IN A CENTERED MINIMUM AREA OF 2.50 X 2.50 mm. THE PARALLELISM SPECIFICATION WILL NOT APPLY TO THE FILLET OR SLOPED REGION OF THE ENCAPSULANT.
- 3. 10 X 14 MATRIX PATTERN (VARIATION CA) IS SHOWN FOR ILLUSTRATION ONLY.
- 14. SEE JEDEC PUBLICATION 95, SECTION 4.6 FOR DETAILED DEFINITION OF SYMBOLS.

APPLICATION NOTES:

THE SOLDERABLE SURFACE MAY BE DEFINED BY AN OPENING IN THE SOLDER RESIST LAYER (TYPE 1) OR BY THE SIZE OF A METALLIZED PAD (TYPE 2). IT MAY BE ELLIPTICAL PROVIDED THE RATIO OF MAJOR TO MINOR AXES IS NO GREATER THAN 2/1, AND THE SURFACE AREA IS NO LESS THAN THE MINIMUM FOR A CIRCULAR PAD. FOR TYPE 2 DESIGNS, EXPOSED COPPER TRACES ARE PERMITTED OUTSIDE THE 61 PAD AREA.

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Change Record

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

Initial Issue:	itial Issue: Date:			Item:			
			Revision History:				
Issue: G	Date: Ju	ıly 06		Item: 11-752			
Location		Change from:		Change to:			
ALL SHEETS		TITLE: (SQ. & RECT.)		(RECT.)			
SHEET 3		aaa 0. bbb 0. ddd (d eee (d		ADDED NOTE SEE SEE CROSS-REF aaa 0.15 ccc 0.20 ddd 0.20 eee 0.15 fff 0.08			
SHEET 4		DELETED VARATIONS: BA - BN		ADDED NOTE SEE CROSS-REF			
SHEET 5		DELETED VARATIONS: AA - AN & BA - BN		ADDED CROSS REFERENCE TABLE			
SHEET 6 NOTE 3 SHEET 6 NOTE 6 SHEET 6 NOTE 14		SECTION 4.3, SPP-010 DATUM C AND SEATING PLANE ARE SYMBOLS SHOWN IN		SECTION 3, SPP-020 DATUM C (SEATING PLANE) IS SEE JEDEC PUBLICATION			
Issue:	Date:			Item:			
Locat	tion		Change from:	Change to:			
Issue: Date:				Item:			
Locat	tion		Change from:	Change to:			

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