
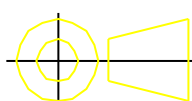


DETAIL A

FDR REVISION UPDATE PLEASE REFER TO HISTORY OF CHANGES.

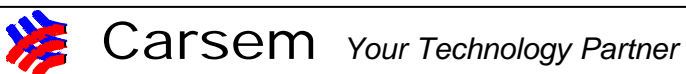
 **Carsem** Your Technology Partner

REV A	DWG NO: PKGSB1002			FILE: \PKGSB1002
	APP'D			SMALL SCALE BALL GRID ARRAY
	CHECKED	ARAVEN		PACKAGE OUTLINE
	DESIGNED	ARAVEN		0.80 PITCH
	DRAWN	KHALIM		SHEET 2 OF 4

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
2. DIMENSIONS ARE IN MILLIMETERS.
3. CONTACT BALL DESIGNATION PER JEDEC 95-1,SPP-010.
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.
6. PRIMARY DATUM C AND SEATING PLANE ARE DEFINED BY THE SPHERICAL CROWNS OF THE CONTACT BALLS.
7. 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.
8. DIMENSION 'b' IS MEASURED AT THE MAXIMUM BALL DIAMETER, PARALLEL TO PRIMARY DATUM C.
9. THE A1 CORNER MUST BE IDENTIFIED ON THE TOP SURFACE OF THE PACKAGE BY USING INK OR METALIZED MARKINGS, INDENTATION, OR OTHER FEATURE OF PACKAGE BODY LID, OR INTEGRAL HEAT SLUG.
10. 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 THE VALUE SD/SE=e/2.
11. SOLDER BALL ARRAY MAY BE DEPOPULATED IN ANY PATTERN. DEPOPULATED IS THE OMISSION OF BALLS FROM A FULL MATRIX.
12. FOR GLOB TOP AND FLIP CHIP CONFIGURATIONS, PARALLELISM [bbb] MUST BE ENSURED ONLY ON THE SURFACE DIRECTLY ABOVE THE DIE AREA. THE PARALLELISM SPECIFICATION WILL NOT APPLY TO THE FILLET OR SLOPED REGION OF THE ENCAPSULANT.
13. NJR DENOTES "NON JEDEC REGISTERED".

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SYMBOL	COMMON DIMENSIONS			NOTES	SYMBOL	TOLERANCES OF FORM AND POSITION	NOTES
	MIN	NOM	MAX				
A	---	---	1.70	7	aaa	0.10	
A1	0.35	---	0.45	7	bbb	0.10	12
A2	0.85	---	---		ddd	0.12	
b	0.45	0.55	0.55	8	eee	0.15	
e	---	1.81 BSC	---		fff	0.0B	

NOTES	1, 2
REF	11-505
ISSUE	A

SQUARE VARIATIONS

VARIATION	D/E BSC	D1/E1 BSC	MD/ME	N	SD/SE BSC
NJR 1	4.00	2.40	4	16	0.40
NJR 2	5.00	3.20	5	25	0.00
NJR 3	6.00	4.80	7	49	0.00
NJR 4	7.00	5.60	8	64	0.40
AA	8.00	6.40	9	81	0.00
AB	9.00	7.20	11	110	0.40
AC	10.00	8.80	12	144	0.40
AD	11.00	9.60	13	169	0.00
AE	12.00	10.40	14	196	0.40
AF	13.00	11.20	15	225	0.00
NJR 5	14.00	12.80	17	289	0.00
AG	15.00	13.60	18	324	0.40
AH	16.00	14.40	19	361	0.00
NOTES			4	5	10

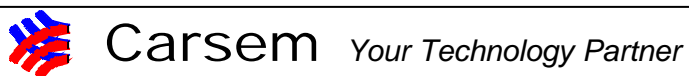
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ISSUE	A

SQUARE VARIATIONS

VARIATION	D/E BSC	D1/E1 BSC	MD-1/ME-1	N	SD/SE BSC
NJR 6	4.00	1.60	3	9	0.00
NJR 7	5.00	2.40	4	16	0.40
NJR 8	6.00	4.00	6	36	0.40
NJR 9	7.00	4.80	7	49	0.00
BA	8.00	5.60	8	64	0.40
BB	9.00	6.40	9	81	0.00
BC	10.00	8.00	11	121	0.00
BD	11.00	8.80	12	144	0.40
BE	12.00	9.60	13	169	0.00
BF	13.00	10.40	14	196	0.40
NJR 10	14.00	12.10	16	256	0.40
BG	15.00	12.80	17	289	0.00
BH	16.00	13.60	18	324	0.40
NOTES			4	5	10

REF	11-505
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	DESIGNED	ARAVEN		SHEET 4 OF 4
	DRAWN	KHALIM		