MO-109

TapePak® MOLDED CARRIER RING FAMILY

PATENTED
PRODUCT

TABLE 1

SUMMARY OF VARIATIONS

TEST PITCH	SIZE	N	VARIATION
0.65	16×16	64	AA
	26×26	128	AB
0.5	16×16	88	BA
	26×26	168	BB

TABLE 2

APPLICATION NOTES

PACKAGE / RING SIZE	QFP EIAJ ED-7404		F-QFP EIAJ ED-7404-1	
16×16	5×5	7×7	5×5 7×7	6×6
26×26	5×5 7×7 10×10	5×7 7×10	5×5 6×6 7×10	5×7 7×7 10×10

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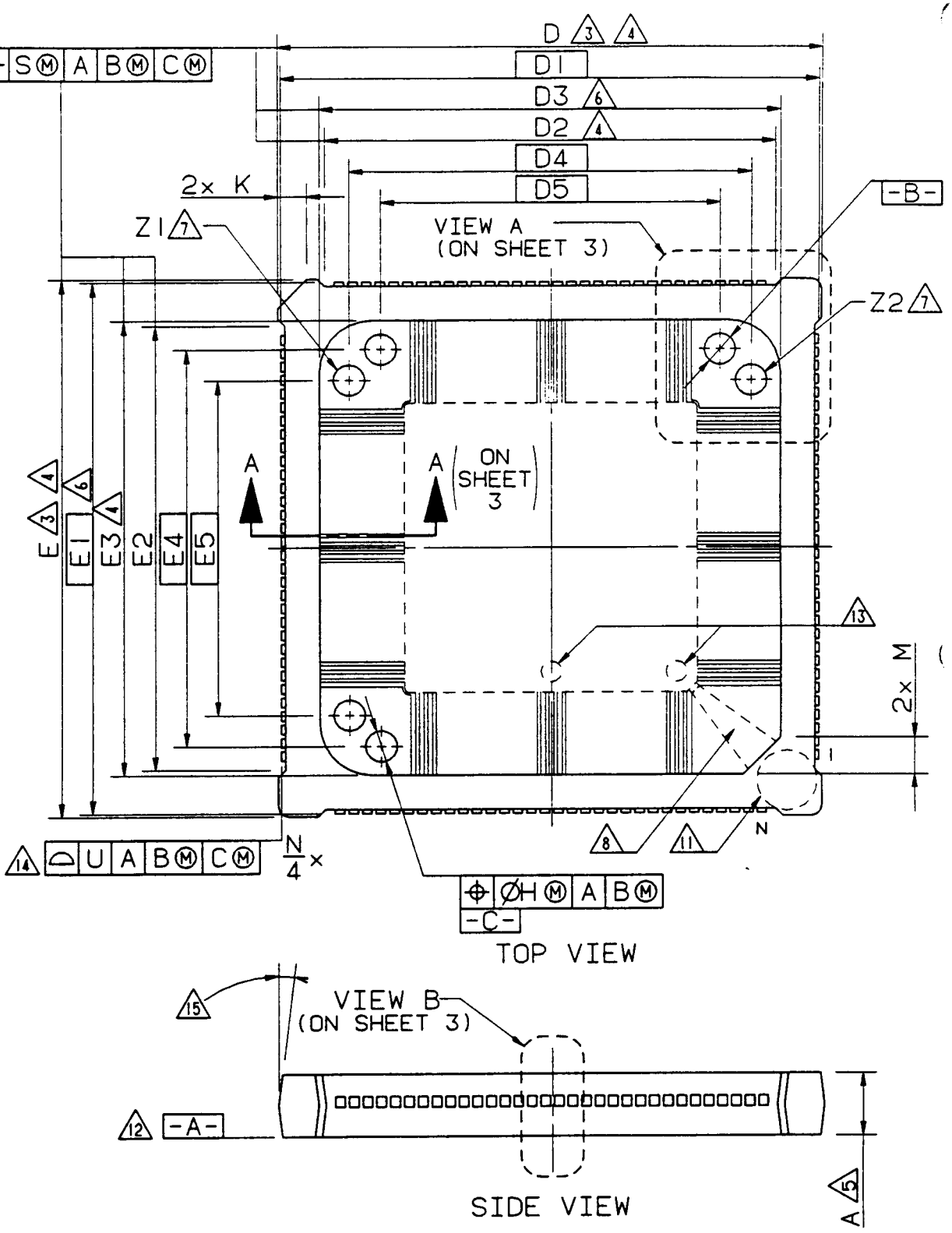

FIGURE 1 PRINCIPAL DIMENSIONS AND DATUMS

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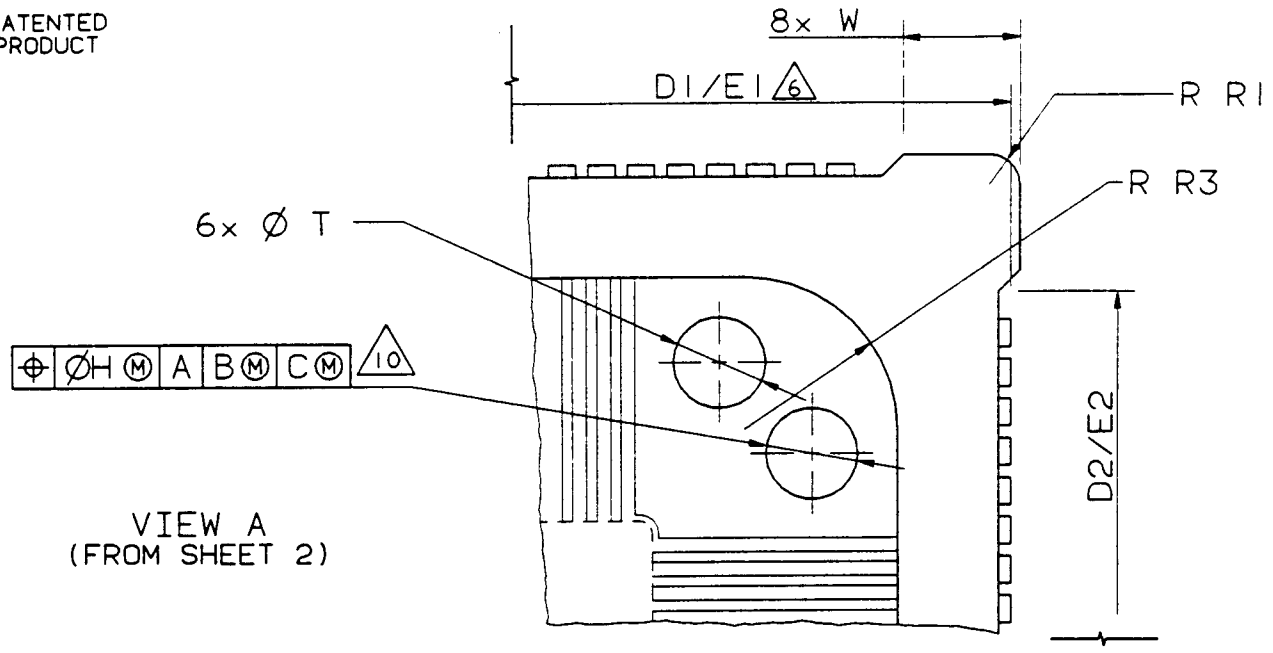

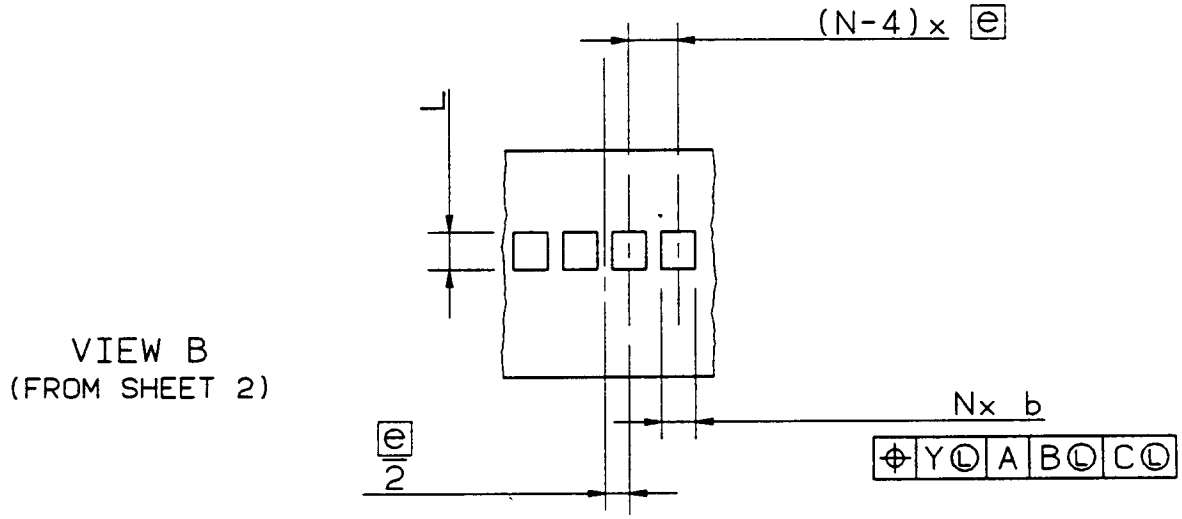

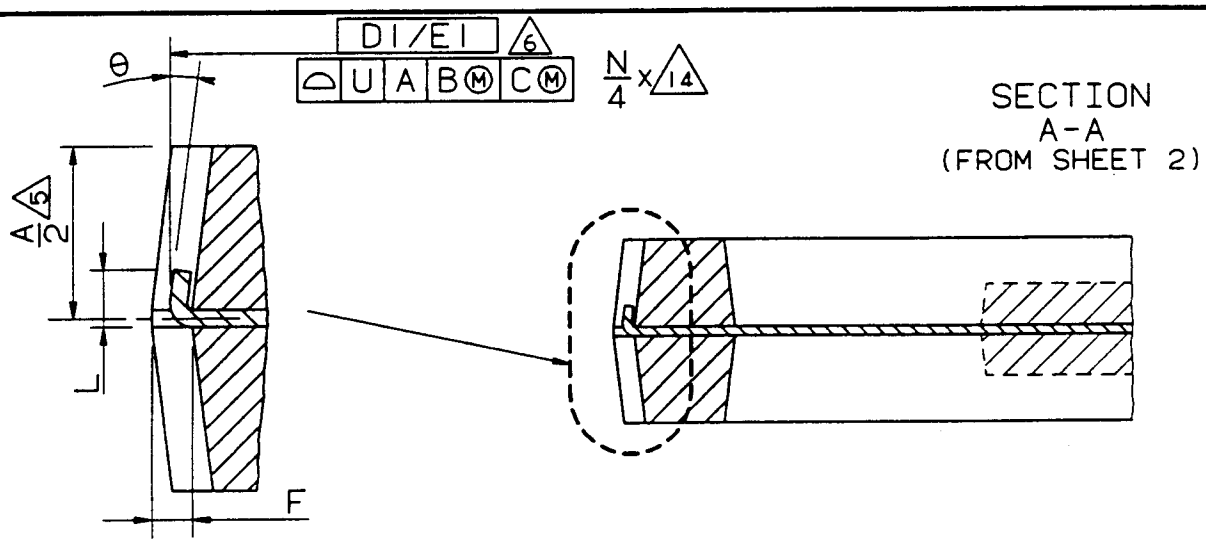

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NOTES:

1. ALL DIMENSIONS AND TOLERANCES CONFORM TO ANSI Y14.5M-1982.

2. CONTROLLING DIMENSION: MILLIMETER.

3. D AND E DIMENSIONS DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE MOLD PROTRUSION IS 0.2 mm PER SIDE.

4. D, D3, E AND E3 DIMENSIONS INCLUDE MOLD MISMATCH, AND ARE MEASURED AT THE PARTING LINE.

5. A1 DIMENSION CENTERED ABOUT CENTERLINE OF LEAD MATERIAL.

6. DIMENSIONS D1 AND E1 ARE FROM OUTSIDE EDGE TO OUTSIDE EDGE OF THE TEST POINTS.

7. THERE ARE SIX LOCATING HOLES IN THE RING. B AND C DATUM HOLES ARE TO BE USED FOR TRIM, FORM AND EXCISE OF THE MOLDED PACKAGE ONLY. HOLES Z1 AND Z2 ARE TO BE USED FOR ELECTRICAL TESTING ONLY.

8. LOCATION OF THE SECONDARY GATE(GATE FOR THE MOLDED PACKAGE INSIDE THE CARRIER RING) IS 180° WITH RESPECT TO THE CHAMFERED CORNER OF THE CARRIER RING. THERE ARE NO HOLES ON THIS CORNER OF THE CARRIER RING. THE GATE, IF PRESENT, MAY BE ON THE TOP, BOTTOM OR BOTH SIDES OF THE LEADFRAME AS REQUIRED FOR GATING THE PARTICULAR PACKAGE.

9. IN THE INTEREST OF MORE COMPLETE STANDARDIZATION, THE RINGS SHOULD NOT BE DEPOPULATED.

10. NON-DATUM HOLES ONLY.

11. THIS AREA RESERVED FOR VACUUM PICKUP ON EACH OF THE FOUR CORNERS OF THE RING AND MUST BE FLAT WITHIN .025 mm. NO EJECTOR PINS IN THIS AREA.

12. DATUM A SURFACE FOR SEATING IN SOCKET APPLICATIONS.

13. PIN 1 ORIENTATION WITH RESPECT TO CARRIER RING AS INDICATED.

14. COPLANARITY APPLIES TO ALL FOUR TEST POINT ROWS.

15. DRAFT ANGLE 7±1° ON ALL RING FEATURES ON ALL VARIATIONS.

16. FOR RING-PACKAGE COMBINATIONS SEE TABLE 2, APPLICATION NOTES.

17. THIS TECHNOLOGY WAS DEVELOPED IN THE U.S.A. BY NATIONAL SEMICONDUCTOR CORPORATION AND MOTOROLA INC., WHO HAVE PATENTS IN THE U.S.A. PRODUCTS EMPLOYING THIS TECHNOLOGY ARE PRESENTLY MANUFACTURED BY NATIONAL SEMICONDUCTOR AND MOTOROLA INC., THROUGH WHOM LICENSING IS AVAILABLE IN COMPLIANCE WITH PARAGRAPH 3.4(B) OF E.I.A. ENGINEERING PUBLICATION 7-A.

SYMBOL	VARIATIONS (ALL DIMENSIONS IN MILLIMETERS)							
	AA			NOTE	AB			NOTE
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	2.90	3.00	3.10		2.90	3.00	3.10	
D	15.87	16.00	16.13	3,4	25.87	26.00	26.13	3,4
D1	--	15.7 BSC	--	6	--	25.7 BSC	--	6
D2	11.37	11.50	11.63		21.37	21.50	21.63	
D3	11.87	12.00	12.13	4	21.87	22.00	22.13	4
D4	--	9.2 BSC	--		--	19.2 BSC	--	
D5	--	6.2 BSC	--		--	16.2 BSC	--	
E	15.87	16.00	16.13	3,4	25.87	26.00	26.13	3,4
E1	--	15.7 BSC	--	6	--	25.7 BSC	--	6
E2	11.37	11.50	11.63		21.37	21.50	21.63	
E3	11.87	12.00	12.13	4	21.87	22.00	22.13	4
E4	--	9.2 BSC	--		--	19.2 BSC	--	
E5	--	6.2 BSC	--		--	16.2 BSC	--	
F	0.20	0.35	0.50		0.20	0.35	0.50	
K	1.27	1.40	1.53		1.27	1.40	1.53	
L	0.45	0.65	0.85		0.45	0.65	0.85	
M	1.30	1.80	2.30		1.30	1.80	2.30	
N		64		9		128		9
R1	0.40	0.50	0.60		0.40	0.50	0.60	
R3	2.00	2.50	3.00		2.00	2.50	3.00	
T	1.45	1.50	1.55		1.45	1.50	1.55	
W	1.77	1.90	2.03		1.77	1.90	2.03	
b	0.40	0.45	0.50		0.40	0.45	0.50	
e	--	0.65 BSC	--		--	0.65 BSC	--	
θ	0°	--	--		0°	--	--	
	TOLERANCES				TOLERANCES			
H		0.05		10		0.05		10
S		0.10				0.10		
U		0.25				0.25		
Y		0.07				0.07		

NOTE	1,2,5,7,8,11,12,13,14,15,16,17
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SYMBOL	VARIATIONS (ALL DIMENSIONS IN MILLIMETERS)							
	BA			NOTE	BB			NOTE
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	2.90	3.00	3.10		2.90	3.00	3.10	
D	15.87	16.00	16.13	3,4	25.87	26.00	26.13	3,4
D1	--	15.7 BSC	--	6	--	25.7 BSC	--	6
D2	11.37	11.50	11.63		21.37	21.50	21.63	
D3	11.87	12.00	12.13	4	21.87	22.00	22.13	4
D4	--	9.2 BSC	--		--	19.2 BSC	--	
D5	--	6.2 BSC	--		--	16.2 BSC	--	
E	15.87	16.00	16.13	3,4	25.87	26.00	26.13	3,4
E1	--	15.7 BSC	--	6	--	25.7 BSC	--	6
E2	11.37	11.50	11.63		21.37	21.50	21.63	
E3	11.87	12.00	12.13	4	21.87	22.00	22.13	4
E4	--	9.2 BSC	--		--	19.2 BSC	--	
E5	--	6.2 BSC	--		--	16.2 BSC	--	
F	0.20	0.35	0.50		0.20	0.35	0.50	
K	1.27	1.40	1.53		1.27	1.40	1.53	
L	0.45	0.65	0.85		0.45	0.65	0.85	
M	1.30	1.80	2.30		1.30	1.80	2.30	
N		88		9		168		9
R1	0.40	0.50	0.60		0.40	0.50	0.60	
R3	2.00	2.50	3.00		2.00	2.50	3.00	
T	1.45	1.50	1.55		1.45	1.50	1.55	
W	1.77	1.90	2.03		1.77	1.90	2.03	
b	0.30	0.35	0.40		0.30	0.35	0.40	
e		0.50 BSC				0.50 BSC		
θ	0°	--	--		0°	--	--	
	TOLERANCES				TOLERANCES			
H		0.05		10		0.05		10
S		0.10				0.10		
U		0.25				0.25		
Y		0.07				0.07		

NOTE	1,2,5,7,8,11,12,13,14,15,16,17
REF.	11-279
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