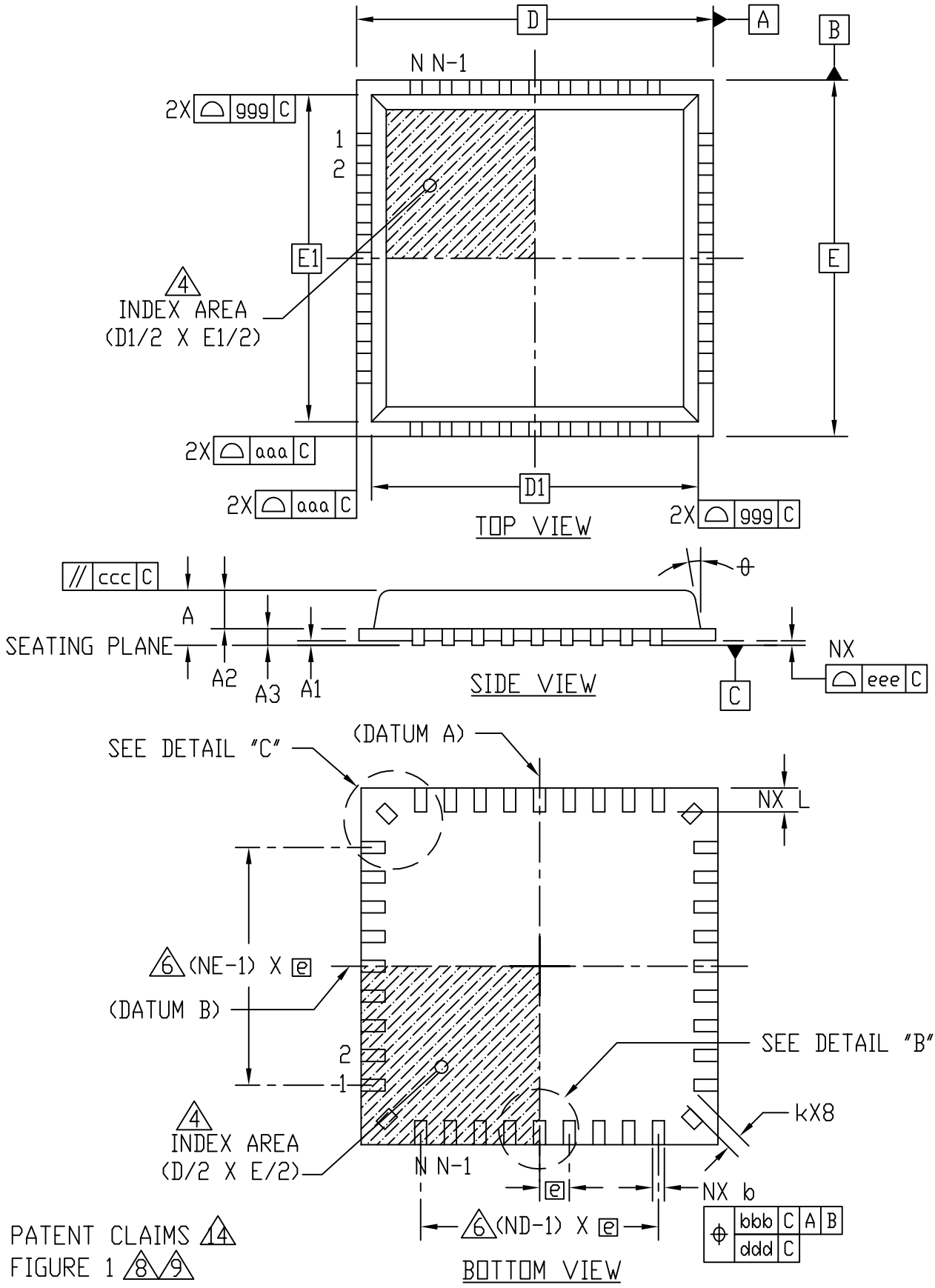
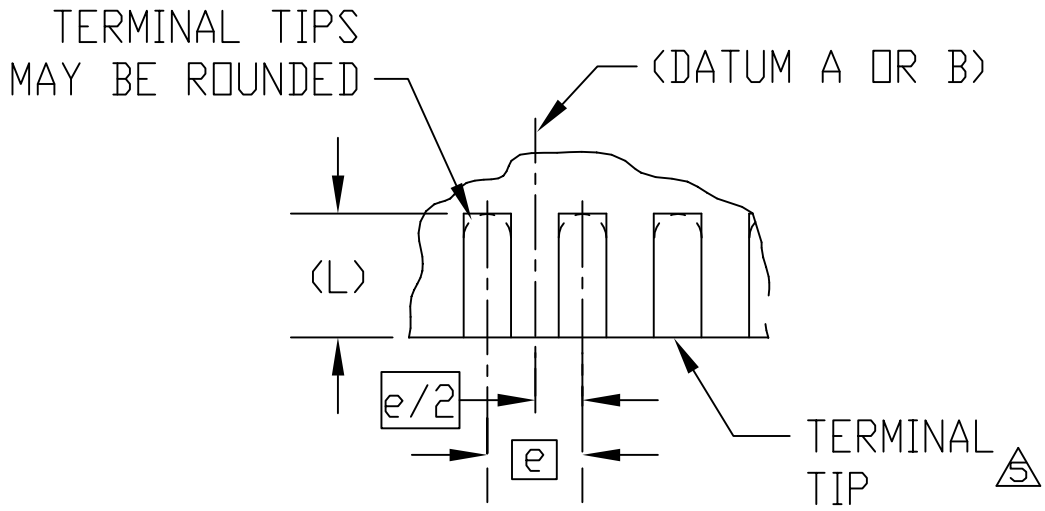


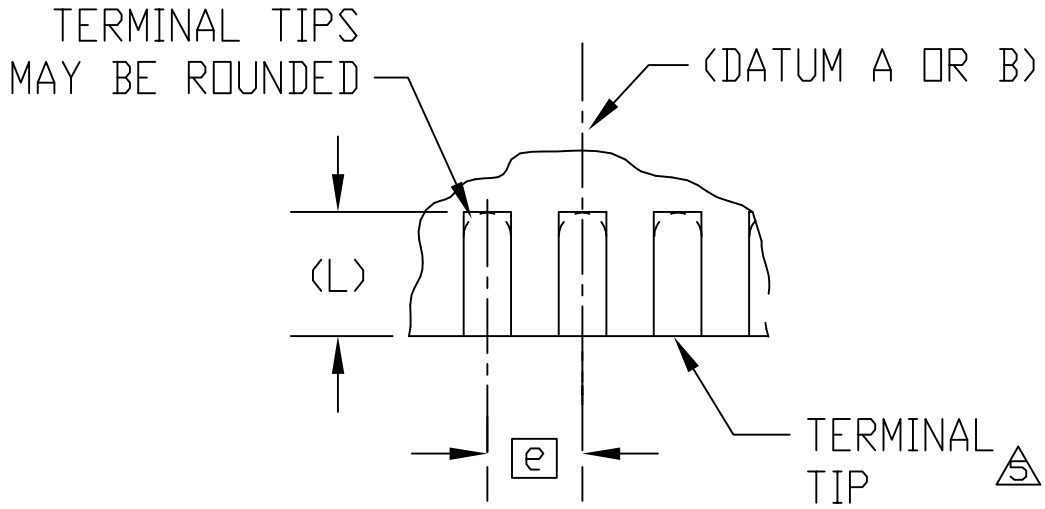
PATENT CLAIMS 14
FIGURE 1 8 9

JEDEC SOLID STATE PRODUCT OUTLINE	*THIS REGISTERED OUTLINE HAS BEEN PREPARED BY THE JEDEC JC-II COMMITT AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY, CHANGES ARE LIKELY TO OCCUR*

PLASTIC VERY THIN AND VERY VERY THIN FINE PITCH QUAD FLAT NO LEAD PACKAGE	JESD-30 DESIGNATOR VF-PQFN & WF-PQFN	ISSUE A	DATE SEP 2005	MO-263	PAGE 1 OF 7

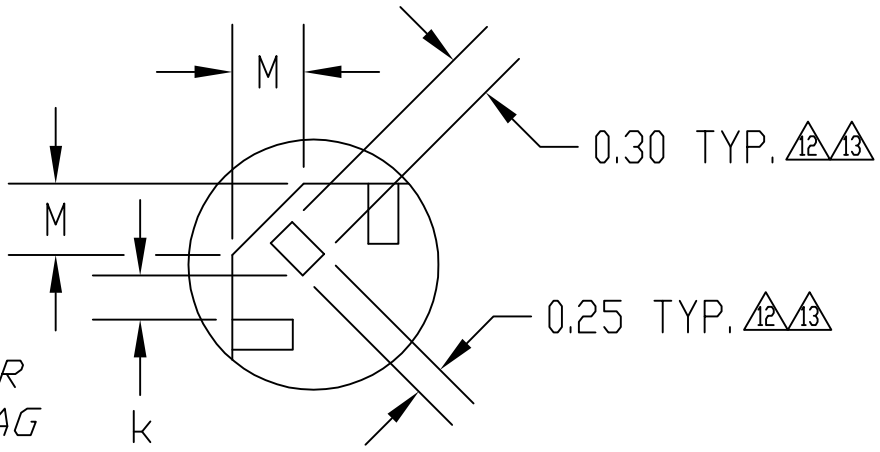


EVEN TERMINAL/SIDE



ODD TERMINAL/SIDE

DETAIL B



CHAMFERED CORNER & DIE ATTACH FLAG OPTIONAL 4X

DETAIL C

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE: PLASTIC VERY THIN AND VERY VERY THIN FINE PITCH QUAD FLAT NO LEAD PACKAGE	ISSUE A	DATE SEP 2005	MO-263	PAGE 2 OF 7

TABLE 1

VARIATION DESIGNATORS							
FIRST DIGIT CODE		SECOND DIGIT CODE		THIRD DIGIT CODE		FOURTH DIGIT CODE	
OVERALL HEIGHT		*BODY LENGTH*		*BODY WIDTH*		*TERMINAL PITCH*	
A	LETTER CODE	D	LETTER CODE	E	LETTER CODE	e	LETTER CODE
1.00 MAX	V	3.0	A	3.0	A	1.00	A
0.80 MAX	W	4.0	B	4.0	B	0.80	B
--	--	5.0	C	5.0	C	0.65	C
--	--	6.0	D	6.0	D	0.50	D
--	--	7.0	E	7.0	E	0.40	E
--	--	8.0	F	8.0	F	--	--
--	--	9.0	G	9.0	G	--	--
--	--	10.0	H	10.0	H	--	--

10
11

TABLE 2

COMMON DIMENSIONS							
	V: VERY THIN			W: VERY VERY THIN			NOTE
SYMBOL	*MIN*	*NOM*	*MAX*	*MIN*	*NOM*	*MAX*	
A	0.80	0.85	1.00	0.70	0.75	0.80	
A1	0.00	0.01	0.05	0.00	0.01	0.05	
A2	0.60	0.65	0.70	0.50	0.55	0.60	
A3	0.20 REF			0.20 REF			
θ	-	-	12°	-	-	12°	
M	-	-	0.60	-	-	0.60	
k	0.20	-	-	0.20	-	-	
R	b MIN/2	-	-	b MIN/2	-	-	
NOTES	1,2						
REF	11.11-734						
ISSUE	A						

TABLE 3

LEADWIDTH			
b			
PITCH	*MIN*	*NOM*	*MAX*
1.00	0.30	0.40	0.45
0.80	0.25	0.30	0.35
0.65	0.25	0.30	0.35
0.50	0.18	0.25	0.30
0.40	0.15	0.20	0.25
NOTES	1,2		
REF	11.11-734		
ISSUE	A		

TABLE 4

TOLERANCE OF FORM & POSITION	
ccc	0.10
ddd	0.05
eee	0.08
fff	0.10
999	0.20
NOTES	1,2
REF	11.11-734
ISSUE	A

TABLE 5

SUMMARY TABLE					
BODY SIZE	LEAD PITCH	LEAD COUNT	VERY THIN VF-PQFN	VERY VERY THIN WF-PQFN	10
4.00 X 4.00	0.50	24	VBBD	WBBD	
6.00 X 6.00	0.50	36	VDDD	WDDD	
	0.50	36	VDDD-1	WDDD-1	
8.00 X 8.00	0.40	64	VFFE	WFFE	
9.00 X 9.00	0.50	60	VGGD	WGGD	

TABLE 6

[e] =0.50 PITCH											
VARIATION / SYMBOL		VBBD / WBBD	VDDD / WDDD	VDDD-1 / WDDD-1	VGGD / WGGD						NOTE
D BSC		4.00	6.00	6.00	9.00						
E BSC		4.00	6.00	6.00	9.00						
D1 BSC		3.75	5.75	5.75	8.75						
E1 BSC		3.75	5.75	5.75	8.75						
L	MIN	0.35	0.35	0.50	0.35						
	NOM	0.40	0.40	0.55	0.40						
	MAX	0.45	0.45	0.60	0.45						
N		24	36	36	60						3
ND		6	9	9	15						6
NE		6	9	9	15						6
TOLERANCE OF FORM & POSITION											
aaa		0.15									
bbb		0.10									
NOTES		1,2,10									
REF		11.11-734									
ISSUE		A									

TABLE 7

[e] =0.40 PITCH											
VARIATION / SYMBOL		VFFE / WFFE									NOTE
D BSC		8.00									
E BSC		8.00									
D1 BSC		7.75									
E1 BSC		7.75									
L	MIN	0.35									
	NOM	0.40									
	MAX	0.45									
N		64									3
ND		16									6
NE		16									6
TOLERANCE OF FORM & POSITION											
aaa		0.10									
bbb		0.07									
NOTES		1,2,10									
REF		11.11-734									
ISSUE		A									

NOTES :

1. DIMENSIONING AND TOLERANCE IS IN CONFORMANCE TO ASME Y14.5M-1994. THIS REGISTRATION IS IN COMPLIANCE WITH PUB 95, DESIGN GUIDE 4.8, ISSUE B, PLASTIC QUAD AND DUAL INLINE, SQUARE AND RECTANGULAR, NO-LEAD PACKAGES (WITH OPTIONAL THERMAL ENHANCEMENTS). QFP-N/SO-N.
2. ALL DIMENSIONS ARE IN MILLIMETERS, ⊕ IN DEGREES
3. N IS THE TOTAL NUMBER OF TERMINALS.
4. THE TERMINAL # 1 IDENTIFIER AND TERMINAL NUMBERING CONVENTION SHALL CONFORM TO JEDEC PUBLICATION 95 SPP-002. DETAILS OF TERMINAL # 1 IDENTIFIER ARE OPTIONAL, BUT MUST BE LOCATED WITHIN THE ZONE INDICATED. THE TERMINAL # 1 IDENTIFIER MAY BE EITHER A MOLD OR MARKED FEATURE.
5. DIMENSION b APPLIES TO METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.15 mm AND 0.30 mm FROM THE TERMINAL TIP. IF THE TERMINAL HAS OPTIONAL RADIUS ON THE OUTHER END OF THE TERMINAL, THE DIMESNION b SHOULD NOT BE MEASURED IN THAT RADIUS AREA.
6. ND AND NE REFER TO THE NUMBER OF TERMINALS ON EACH D AND E SIDE RESPECTIVELY.
7. DEPOPULATION IS POSSIBLE IN A SYMMETRICAL FASHION.
8. A 36 TERMINAL 0.50 mm PITCH 6.00 X 6.00 mm PACKAGE IS SHOWN FOR ILLUSTRATION ONLY.
9. ALL VARIATIONS MAY BE CONSTRUCTED PER FIGURE 1.
10. FOR A COMPLETE SET OF DIMENSIONS FOR EACH VARIATION, SEE THE INDIVIDUAL VARIATION TABLES AND THE COMMON DIMENSIONS (TABLE 2), LEAD WIDTH (TABLE 3) AND TOLERANCE OF FORM & POSITION (TABLE 4).
11. WHEN MORE THAN ONE VARIATION (OPTION) EXISTS FOR THE SAME PROFILE HEIGHT, BODY SIZE (D x E), AND PITCH, THEN THOSE VARIATIONS WILL BE DENOTED BY AN ADDITIONAL DASH NUMBER (ie:-1, -2, etc.) DESIGNATOR TO IDENTIFY THEM. THE NEW VARIATIONS WOULD BE CREATED FROM ALL OR ANY OF THE FOLLOWING REASONS: LEAD COUNTS, TERMINAL LENGTHS, AND OR THERMAL PAD SIZES.
12. DIE ATTACH FLAG SUPPORT OPTIONAL. THESE ARE MECHANICAL FEATURES AND ARE NOT ACTIVE TERMINALS.
13. ANY MOLD FLASH ON THE DIE ATTACH FLAG SUPPORT AREAS SHALL BE ALLOWED.

NOTES :

14. VARIOUS COMPANIES HAVE ISSUED PATENTS AND RELATED PATENT APPLICATIONS THAT MAY APPLY TO THIS REGISTRATION. IF THE CURRENT ISSUE PATENTS OR LATER PATENTS RESULTING FROM RELATED APPLICATIONS DO APPLY, THESE COMPANIES INTEND TO COMPLY WITH THE JEDEC PATENT POLICY AND LICENCE UNDER REASONABLE TERMS AND CONDITIONS THAT ARE DEMONSTRABLY FREE OF ANY UNFAIR DISCRIMINATION. REFERENCED PATENTS ARE AS FOLLOWS.

AMKOR TECHNOLOGY	U.S. PATENT #s: 5,866,939; 6,143,981; 6,281,568; 6,331,451;
	6,433,277; 6,448,633; 6,455,356; 6,469,369; 6,475,827;
	6,476,478; 6,501,161; 6,521,987; 6,525,406; 6,545,345;
	6,555,899; 6,580,159; 6,597,059; 6,605,865; 6,605,866;
	6,608,366; 6,611,047; 6,616,436; 6,627,976; 6,630,728;
	6,639,308; 6,646,339; 6,677,662; 6,677,663; 6,684,496
	6,794,740; 6,798,047; 6,825,062; 6,700,178; 6,713,322;
	6,730,544; 6,750,545; 6,753,597; 6,756,658; 6,759,737;
	6,770,961; 6,777,789; 6,803,645; 6,833,609; 6,841,414;
	6,847,099; 6,847,103; 6,853,059; 6,858,919; 6,867,071;
	6,873,032; 6,885,086; 6,893,900;
ASAT	U.S. PATENT #'S: 6,229,200B1; 6,242,281B1; 6,294,100B1;
	6,545,347B2; 6,585,905B1
NATIONAL SEMICONDUCTOR	U.S. PATENT No. 6,130,473; 6,589,814; 6,483,180; 6,452,255;
	6,399,415; 6,372,539; 6,551,048; 6,576,989; 6,488,107;
	6,564,447; 6,629,880;