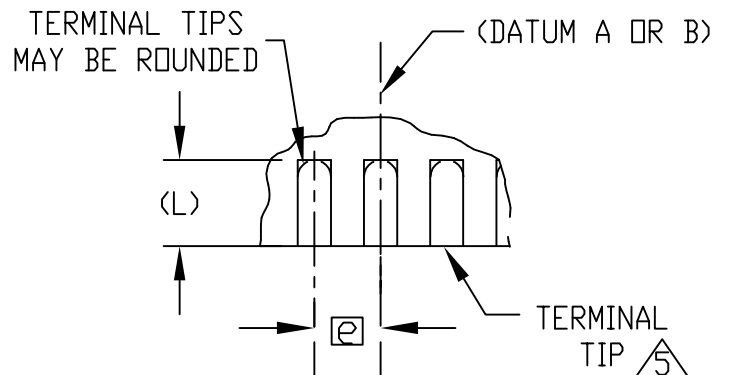


EVEN TERMINAL/SIDE



ODD TERMINAL/SIDE

DETAIL D

TABLE 1

VARIATION DESIGNATORS							
FIRST DIGIT CODE		SECOND DIGIT CODE		THIRD DIGIT CODE		FOURTH DIGIT CODE	
<i>OVERALL HEIGHT</i>		<i>BODY LENGTH</i>		<i>BODY WIDTH</i>		<i>TERMINAL PITCH</i>	
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	--	--



TABLE 2

COMMON DIMENSIONS							
	V: VERY THIN			W: VERY VERY THIN			NOTE
<i>SYMBOL</i>	<i>MIN</i>	<i>NOM</i>	<i>MAX</i>	<i>MIN</i>	<i>NOM</i>	<i>MAX</i>	
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			
$\theta$	—	—	12°	—	—	12°	
M	—	—	0.60	—	—	0.60	
k	0.20	—	—	0.20	—	—	
R	b MIN/2	—	—	b MIN/2	—	—	
NOTES	1,2						
REF	11.11-733						
ISSUE	A						

TABLE 3

LEADWIDTH			
b			
<i>PITCH</i>	<i>MIN</i>	<i>NOM</i>	<i>MAX</i>
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	11.11-733		
ISSUE	A		

TABLE 4

TOLERANCE OF FORM & POSITION	
aaa	0.15
bbb	0.10
ccc	0.10
ddd	0.05
eee	0.08
fff	0.10
ggg	0.20
NOTES	1,2
REF	11.11-733
ISSUE	A



TABLE 5

SUMMARY TABLE				
BODY SIZE	LEAD PITCH	LEAD COUNT	VERY THIN HVF-PQFN	VERY VERY THIN HWF-PQFN
5.00 X 5.00	0.50	28	VCCD	WCCD
	0.50	32	VCCD-1	WCCD-1
5.00 X 6.00	0.50	32	VCDD	WCDD



TABLE 6

[e] =0.50 PITCH

VARIATION SYMBOL	VCCD	VCCD-1	VCDD							NOTE
	WCCD	WCCD-1	WCDD							
D BSC	5.00	5.00	5.00							
E BSC	5.00	5.00	6.00							
D1 BSC	4.75	4.75	4.75							
E1 BSC	4.75	4.75	5.75							
D2	MIN	2.55	2.55	2.35						
	NOM	2.70	2.70	2.50						
	MAX	2.85	2.85	2.65						
E2	MIN	2.55	2.55	3.35						
	NOM	2.70	2.70	3.50						
	MAX	2.85	2.85	3.65						
L	MIN	0.30	0.30	0.45						
	NOM	0.40	0.35	0.50						
	MAX	0.50	0.45	0.60						
N	28	32	32							3
ND	7	8	7							
NE	7	8	9							
NOTES	1,2,10	1,2,10	1,2,10							
REF	11.11-733									
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/SQ-N.
2. ALL DIMENSIONS ARE IN MILLIMETERS,  $\pm$  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 OUTER END OF THE TERMINAL, THE DIMENSION 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 32 TERMINAL 0.50 mm PITCH 5.00 X 5.00 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 EXPOSED TIEBAR AND OR 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;