

PATENT CLAIMS 11

FIGURE 1 7

JEDEC
SOLID STATE
PRODUCT OUTLINE

THIS **REGISTERED OUTLINE** HAS BEEN PREPARED BY THE JEDEC JC-11 COMMITTEE AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR.

TITLE
SMALL SCALE,
PLASTIC, ULTRA, EXTRA, AND SUPER THIN,
FINE PITCH, DUAL SMALL OUTLINE,
NO LEAD PACKAGE

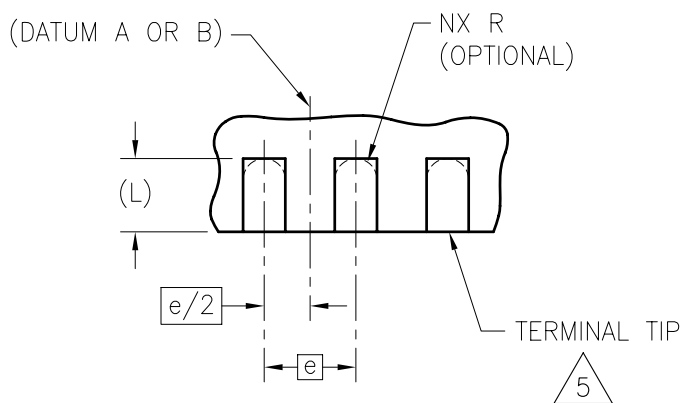
JESD-30 DESIGNATOR
(U,X1,X2)F-PSON

ISSUE
A

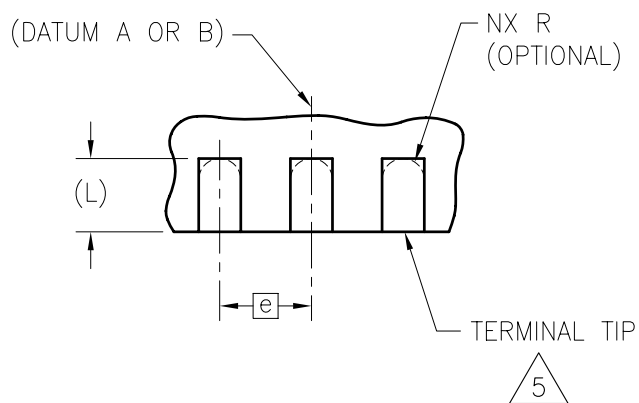
DATE
Sept
2007

MO-287

SHEET
1 OF 7

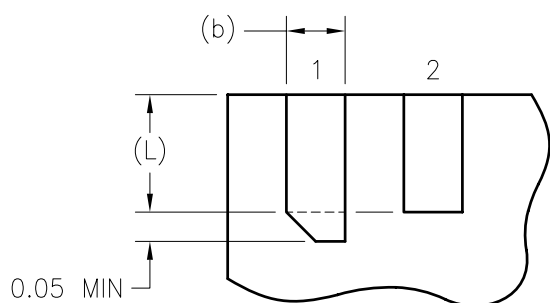


EVEN TERMINALS PER SIDE

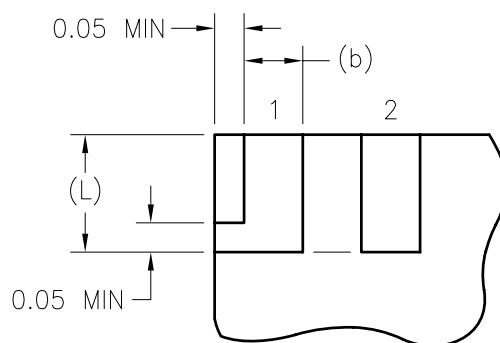


ODD TERMINALS PER SIDE

DETAIL A

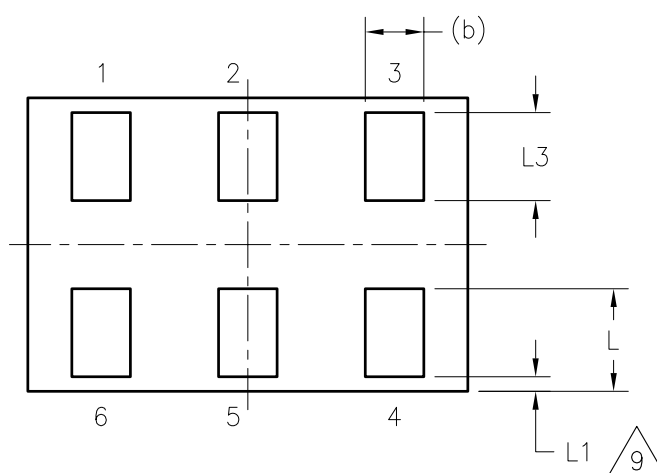


ELONGATION AND CHAMFER



PROTRUSION

OPTIONAL PIN 1 IDENTIFIERS



VARIATIONS UFAD, X1FAD, X2FAD

TERMINAL PATTERN WITH PULL BACK



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
0.65 MAX	U	1.00	A	1.00	A	0.50	D
0.50 MAX	X1	1.10	B	1.10	B	0.40	E
0.40 MAX	X2	1.20	C	1.20	C	0.35	F
		1.30	D	1.30	D		
		1.40	E	1.40	E		
		1.50	F	1.50	F		
		1.60	G	1.60	G		

TABLE 2

COMMON DIMENSIONS									
	U: ULTRA THIN			X1: EXTRA THIN			X2: SUPER THIN		
SYMBOL	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX
A	>0.50	—	0.65	>0.40	—	0.50	>0.30	—	0.40
A1	0	—	0.05	0	—	0.05	0	—	0.05
K	0.15	—	—	0.15	—	—	0.15	—	—
NOTES	1,2								
REF	11-777								
ISSUE	A								

TABLE 3

LEAD WIDTH			
b			
PITCH	MIN	NOM	MAX
0.50	0.15	0.20	0.25
0.40	0.15	0.20	0.25
0.35	0.14	0.17	0.20
NOTES	1,2,5		
REF	11-777		
ISSUE	A		

TABLE 4

TOLERANCE OF FORM & POSITION			
SYMBOL	PITCH		
	0.50	0.40	0.35
aaa	0.10	0.10	0.08
bbb	0.10	0.07	0.07
NOTES	1,2		
REF	11-777		
ISSUE	A		

TABLE 5

VARIATION SUMMARY TABLE					
BODY SIZE (D X E)	LEAD PITCH (e)	LEAD COUNT (N)	ULTRA THIN (U)	EXTRA THIN (X1)	SUPER THIN (X2)
1.00 X 1.00	0.35	6	UAAF	X1AAF	X2AAF
1.40 X 1.00	0.35	8	UEAF	X1EAF	X2EAF
1.50 X 1.00	0.50	6	UFAD	X1FAD	X2FAD
1.60 X 1.20	0.40	8	UGCE	X1GCE	X2GCE

TABLE 6

VARIATIONS									
[e] = 0.50 PITCH									
SYMBOL \ VARIATION		UFAD							NOTES
		X1FAD							
		X2FAD							
D BSC		1.50							
E BSC		1.00							
L	MIN	0.25							
	NOM	0.35							
	MAX	0.45							
L1	MIN	0.00							9
	NOM	—							
	MAX	0.15							
L3	MIN	0.25							9
	NOM	—							
	MAX	—							
N		6							3
NOTES		1,2							
REF		11-777							
ISSUE		A							

TABLE 7

VARIATIONS									
\square = 0.40 PITCH									
SYMBOL \ VARIATION		UGCE							NOTES
		X1GCE							
		X2GCE							
D BSC		1.60							
E BSC		1.20							
L	MIN	0.30							
	NOM	0.40							
	MAX	0.50							
N		8							3
NOTES		1,2							
REF		11-777							
ISSUE		A							

TABLE 8

VARIATIONS									
\square = 0.35 PITCH									
SYMBOL \ VARIATION		UAAF	UEAF						NOTES
		X1AAF	X1EAF						
		X2AAF	X2EAF						
D BSC		1.00	1.40						
E BSC		1.00	1.00						
L	MIN	0.35	0.20						
	NOM	0.40	0.30						
	MAX	0.45	0.40						
N		6	8						3
NOTES		1,2							
REF		11-777							
ISSUE		A							

NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5M-1994.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. N IS THE TOTAL NUMBER OF TERMINALS.



TERMINAL #1 IDENTIFIER AND TERMINAL NUMBERING CONVENTION SHALL CONFORM TO JEP95, SECTION 3, SPP-012. PIN #1 IDENTIFIER MUST BE LOCATED WITHIN THE ZONE INDICATED. TOPSIDE TERMINAL #1 IDENTIFIER MAY BE MOLDED OR MARKED FEATURE. OPTIONAL IDENTIFIER ON BOTTOM SURFACE MAY BE MOLDED, MARKED, OR METALLIZED FEATURE.



DIMENSION b APPLIES TO THE METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.25 FROM THE TERMINAL TIP. IF THE TERMINAL HAS THE OPTIONAL RADIUS ON THE OTHER END OF THE TERMINAL, DIMENSION b SHALL NOT BE MEASURED IN THE RADIUS AREA.

6. DEPOPULATION IS POSSIBLE IN A SYMMETRICAL FASHION.



VARIATION X2GCE IS SHOWN FOR ILLUSTRATION ONLY.



OPTIONAL PIN 1 IDENTIFIER PROTRUSION AND LEAD ELONGATION IS OUTSIDE OF THE PIN DIMENSIONS b AND L BY A MINIMUM OF 0.05 MM.



TERMINAL PULL BACK (L1) IS VARIATION SPECIFIC. THIS FEATURE DOES NOT APPLY TO ALL VARIATIONS.

10. THIS OUTLINE CONFORMS TO JEP95, SECTION 4.20, AND SECTION 3.0, SPP-017.



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 LICENSE UNDER REASONABLE TERMS AND CONDITIONS THAT ARE DEMONSTRABLY FREE OF ANY UNFAIR DISCRIMINATION. REFERENCED U.S. PATENT NUMBERS ARE AS FOLLOWS.

AMKOR TECHNOLOGY	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
ASAT	6,229,200B1; 6,242,281B1; 6,294,100B1; 6,545,347B2;
	6,585,905B1; 6,734,044; 6,940,154; 7,071,545;
	7,091,581; 7,247,526
FUJITSU LIMITED	6,072,239; 6,159,770; 6,329,711; 6,376,921; 6,573,121
NATIONAL SEMICONDUCTOR	6,130,473

Change Record

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

Initial Issue: A	Date: September 2007	Item: 11-777
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Revision History:

Issue:	Date:	Item:
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Location	Changed from:	Changed to:

Issue:	Date:	Item:
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Location	Changed from:	Changed to:

Issue:	Date:	Item:
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Location	Changed from:	Changed to: