

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
PLASTIC VERY VERY THIN, ULTRA THIN AND
EXTREMELY THIN, FINE PITCH DUAL SMALL
OUTLINE, NON-LEADED PACKAGE FAMILY

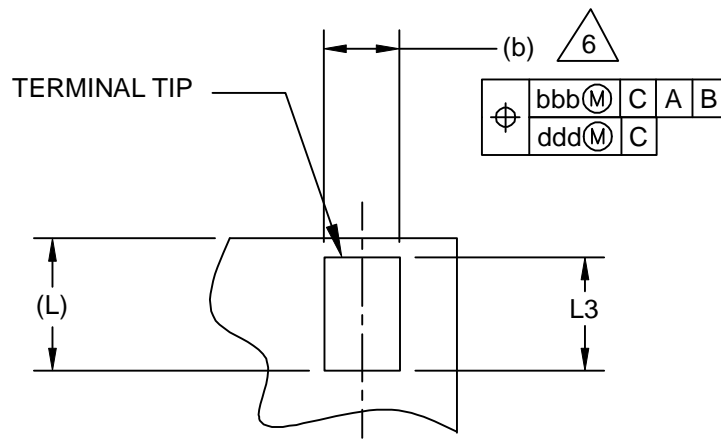
PACKAGE DESIGNATOR
(W,U,X)F-PSON

ISSUE
D

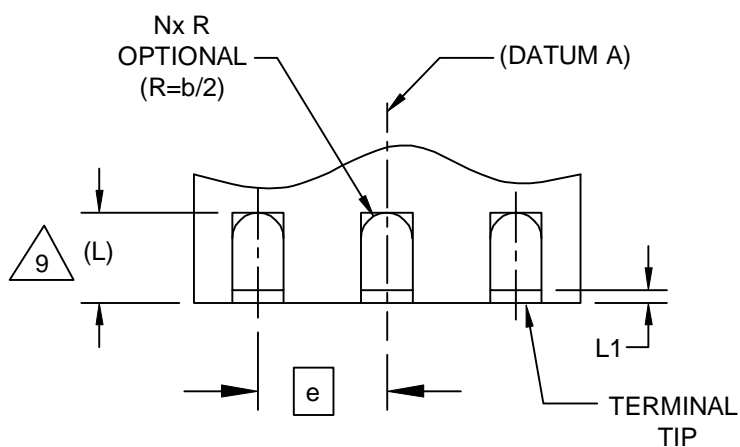
DATE
MAR
2010

MO-252

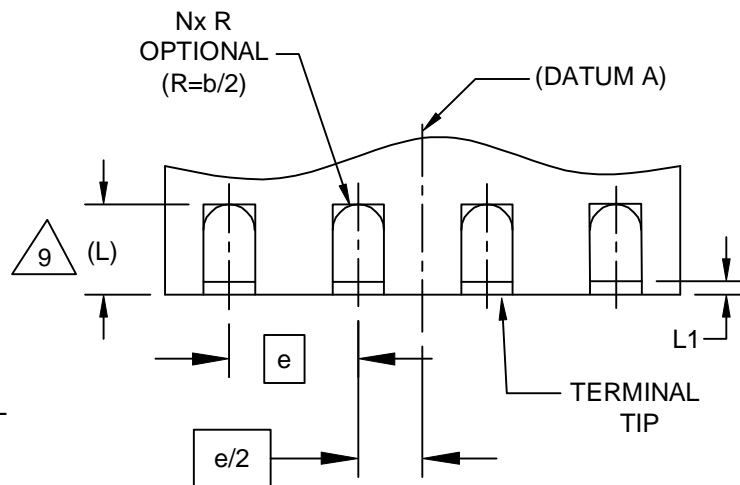
SHEET
1 of 9



DETAIL Y



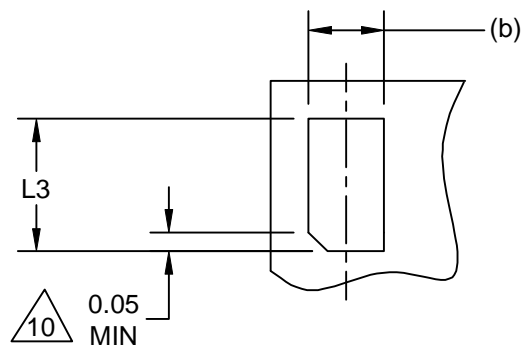
ODD TERMINALS
PER SIDE



EVEN TERMINALS
PER SIDE

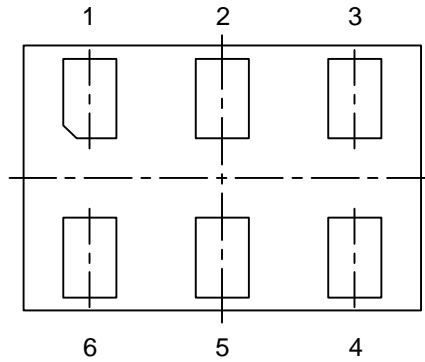
DETAIL Z

ELONGATION AND CHAMFER

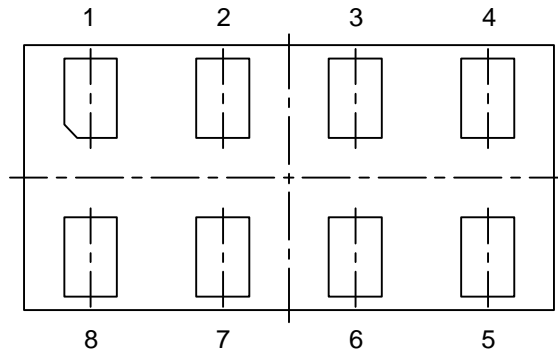


PIN 1 ID BOTTOM

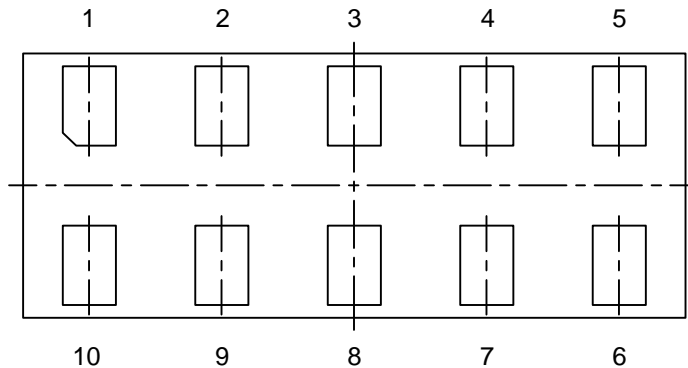
FIGURE 2
TERMINAL PATTERN
BOTTOM VIEWS



PATTERN A 



PATTERN B 



PATTERN C 

TABLE 1

VARIATION DESIGNATORS							
1ST DIGIT CODE		2ND/3RD DIGIT CODE		4TH/5TH DIGIT CODE		6TH DIGIT CODE	
OVERALL HEIGHT		BODY LENGTH		BODY WIDTH		TERMINAL PITCH	
(A)	CODE	(D)	CODE	(E)	CODE	(e)	CODE
0.80 MAX	W	Nominal dimensional value to 1 decimal place. For example: A value of 0.9mm would use code 09. A value of 2.1mm would use code 21.	Nominal dimensional value to 1 decimal place. For example: A value of 1.0mm would use code 10. A value of 1.5mm would use code 15.			0.50	D
0.65 MAX	U					0.40	E
0.50 MAX	X					0.35	F
						0.30	G

EXAMPLE: A 1.5x1.0mm PACKAGE WITH A 0.5mm PITCH AND 0.65mm MAX THICKNESS WOULD BE REPRESENTED BY VARIATION U1510D.

NOTE: ALL NEW PACKAGES CONFORMING TO MO-252 WILL USE THE NEW VARIATION DESIGNATOR SCHEME AS IN TABLE 1.

THE OLD 2nd AND 3rd VARIATION DESIGNATORS ARE SHOWN BELOW THEIR REPRESENTATIVE VARIATIONS IN TABLE 6. ONLY PACKAGES WITH 0.5MM PITCH HAVE THE OLD VARIATION DESIGNATORS (0.4MM, 0.35MM, AND 0.30MM PITCH ARE ALL NEW VARIATIONS THAT USE THE NEW SCHEME).

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE	ISSUE D	DATE MAR 2010	MO-252	SHEET 4 of 9
	PLASTIC VERY VERY THIN, ULTRA THIN AND EXTREMELY THIN, FINE PITCH DUAL SMALL OUTLINE, NON-LEADED PACKAGE FAMILY				

TABLE 2

COMMON DIMENSIONS										
SYMBOL	W: VERY VERY THIN			U: ULTRA THIN			X: EXTREMELY THIN			NOTES
	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	
A	> 0.65	---	0.80	> 0.50	---	0.65	---	---	0.50	
A1	0.00	---	0.05	0.00	---	0.05	0.00	---	0.05	
L	0.25	0.30	0.45	0.25	0.30	0.45	0.25	0.30	0.45	
L1	0.00	---	0.10	0.00	---	0.10	0.00	---	0.10	9
L3	0.25	---	---	0.25	---	---	0.25	---	---	
k	0.15	---	---	0.15	---	---	0.15	---	---	
NOTES	1,2									
REF	11-693, 11-770, 11-830									
ISSUE	D									

TABLE 3

LEAD WIDTH			
PITCH	b		
	MIN	NOM	MAX
0.50	0.15	0.20	0.25
0.40	0.15	0.20	0.25
0.35	0.10	0.15	0.20
0.30	0.10	0.15	0.20
NOTES	1, 2, 6		
REF	11-693, 11-830		
ISSUE	D		

TABLE 4

TOLERANCES OF FORM & POSITION				
SYMBOL	PITCH			
	0.50	0.40	0.35	0.30
aaa	0.10	0.10	0.10	0.10
bbb	0.10	0.10	0.10	0.10
ccc	0.05	0.05	0.05	0.05
ddd	0.05	0.05	0.05	0.05
eee	0.05	0.05	0.05	0.05
NOTES	1,2			
REF	11-693, 11-830			
ISSUE	D			

TABLE 5

VARIATION SUMMARY					
BODY SIZE	LEAD PITCH	LEAD COUNT	W: VERY VERY THIN	U: ULTRA THIN	X: EXTREMELY THIN
1.5 x 1.0	0.50	6	W1510D	U1510D	X1510D
2.0 x 1.0	0.50	8	---	---	X2010D
2.0 x 2.0	0.50	8	---	U2020D	---
2.0 x 3.0	0.50	8	---	---	X2030D
2.5 x 1.0	0.50	10	---	---	X2510D
1.0 x 1.0	0.35	6	---	U1010F	X1010F
1.4 x 1.0	0.35	8	---	U1410F	X1410F
1.7 x 1.0	0.35	10	---	---	X1710F

TABLE 6

VARIATIONS e = 0.50								
VAR SYMBOL	W1510D	---	---	---	---			NOTES
	U1510D	---	U2020D	---	---			
	X1510D	X2010D	---	X2030D	X2510D			
D BSC	1.50	2.00	2.00	2.00	2.50			
E BSC	1.00	1.00	2.00	3.00	1.00			
N	6	8	8	8	10			8
ND	3	4	4	4	5			7
NE	0	0	0	0	0			7
NOTES	1, 2							
REF	11-693, 11-770, 11-830							
ISSUE	D							
OLD VARIATION DESIGNATORS	WAAD UAAD	XBAD	UBBD	---	XCAD			

NOTE: IF OLD VARIATION IS NOT LISTED, ONE DOES NOT EXIST (i.e. VARIATION WAS ADDED AFTER THE NEW NAMING SCHEME WAS IMPLEMENTED).

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE PLASTIC VERY VERY THIN, ULTRA THIN AND EXTREMELY THIN, FINE PITCH DUAL SMALL OUTLINE, NON-LEADED PACKAGE FAMILY	ISSUE D	DATE MAR 2010	MO-252	SHEET 6 of 9
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TABLE 7

VARIATIONS								
[e] = 0.35								
VAR SYMBOL	---	---	---					NOTES
	U1010F	U1410F	---					
	X1010F	X1410F	X1710F					
D BSC	1.00	1.40	1.70					
E BSC	1.00	1.00	1.00					
N	6	8	10					8
ND	3	4	5					7
NE	0	0	0					7
NOTES	1, 2							
REF	11-830							
ISSUE	D							

NOTES:

1 DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.

2 DIMENSIONS ARE IN MILLIMETERS.

3 OUTLINE APPLICABLE TO SUBSTRATE-BASED PACKAGE CONSTRUCTION ONLY, (NOT APPLICABLE TO LEADFRAME BASED PACKAGE CONSTRUCTION)

4 TERMINAL PATTERNS A, B AND C ARE SHOWN FOR ILLUSTRATION ONLY.

5 A VISUAL INDEX FEATURE MUST BE LOCATED WITHIN THE HATCHED AREA.

6 DIMENSION b APPLIES TO METALIZED TERMINAL AND IS MEASURED BETWEEN 0.15mm AND 0.25mm FROM TERMINAL TIP. IF THE TERMINAL HAS THE OPTIONAL RADIUS, DIMENSION b SHALL NOT BE MEASURED IN THE RADIUS AREA.

7 ND AND NE REFER TO THE NUMBER OF TERMINALS ON EACH D AND E SIDE. FOR THIS OUTLINE, NE SHALL ALWAYS BE "0" ZERO.

8 'N' IS THE MAXIMUM NUMBER OF TERMINALS.

9 DEPENDING ON THE METHOD OF TERMINATION AT THE EDGE OF THE PACKAGE, PULL BACK (L1) MAY BE PRESENT. L MINUS L1 TO BE EQUAL TO OR GREATER THAN 0.25mm.

10 OPTIONAL PIN 1 ID PROTRUSION IS OUTSIDE OF THE PIN DIMENSIONS b AND L BY A MINIMUM OF 0.05 MM.

11 THIS OUTLINE CONFORMS TO JEP95, SECTION 4.20, AND JESD30.

JEDEC SOLID STATE PRODUCT OUTLINE	TITLE	ISSUE	DATE	MO-252	SHEET
	PLASTIC VERY VERY THIN, ULTRA THIN AND EXTREMELY THIN, FINE PITCH DUAL SMALL OUTLINE, NON-LEADED PACKAGE FAMILY	D	MAR 2010		8 of 9

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: JUNE 2004	Item: 11-677
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Revision History:

Issue: B	Date: OCT. 2004	Item: 11-693
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Issue: C	Date: July 07	Item: 11-770
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Location	Change from:	Change to:
Sht 4, table 1		Added symbols b, L & L3
Sht 4, table 1	SYMBOL A MIN 0.65 & 0.50	>0.65 & >0.50
Sht 4, table 3		Deleted symbols b, L & L3
Sht 4, table 3		Added variation UBBD

Issue: D	Date: March 2010	Item: 11-830
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Location	Change Description
All	Added 0.40mm, 0.35mm, and 0.30mm pitch options.
Page 1	Updated coplanarity dimension location (offset from package).
Page 4	Changed body size variation naming convention.
Page 5	Removed lead width dimension "b" from Common Dimensions table, and created a new pitch dependent table.
	Updated Tolerances of Form and Position table to be pitch dependent values.
	Changed dimension "k" to 0.15mm from 0.20mm.
Page 6	Added new variation summary table.
	Added new 0.5mm pitch variations X1510D and X2030D.
	Added "old" variation label to 0.5mm pitch variations.
Page 7	Added variation tables for 0.35mm pitch.
	Added new variations for 0.35mm pitch.
Page 8	Added clarification to Note 6.
	Note 8 - changed "TOTAL" to "MAXIMUM".
	Note 11 - Replaced reference to SPP-017 with JESD30.

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