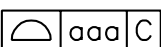



TERMINAL 1
INDEX AREA
(D/2 X E/2)

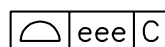
4

2X 

2X 

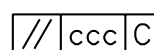
TOP VIEW

9



A1
(A3)

SIDE VIEW



A

SEATING
PLANE

C

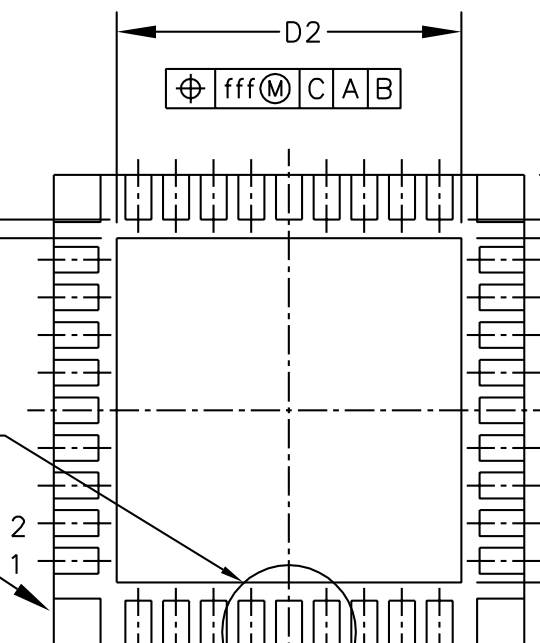


Nx L

Nx k

SEE
DETAIL A

4X
METALLIZED
CORNER FEATURE
OPTIONAL



E2



N N-1

Nx b

5

e

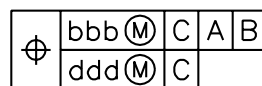
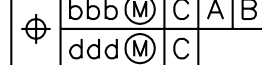



FIGURE 1

BOTTOM VIEW

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.

THERMALLY ENHANCED PLASTIC
VERY THICK, QUAD FLAT
NO LEAD PACKAGE

PACKAGE DESIGNATOR

HE-PQFP-N

ISSUE

A

DATE

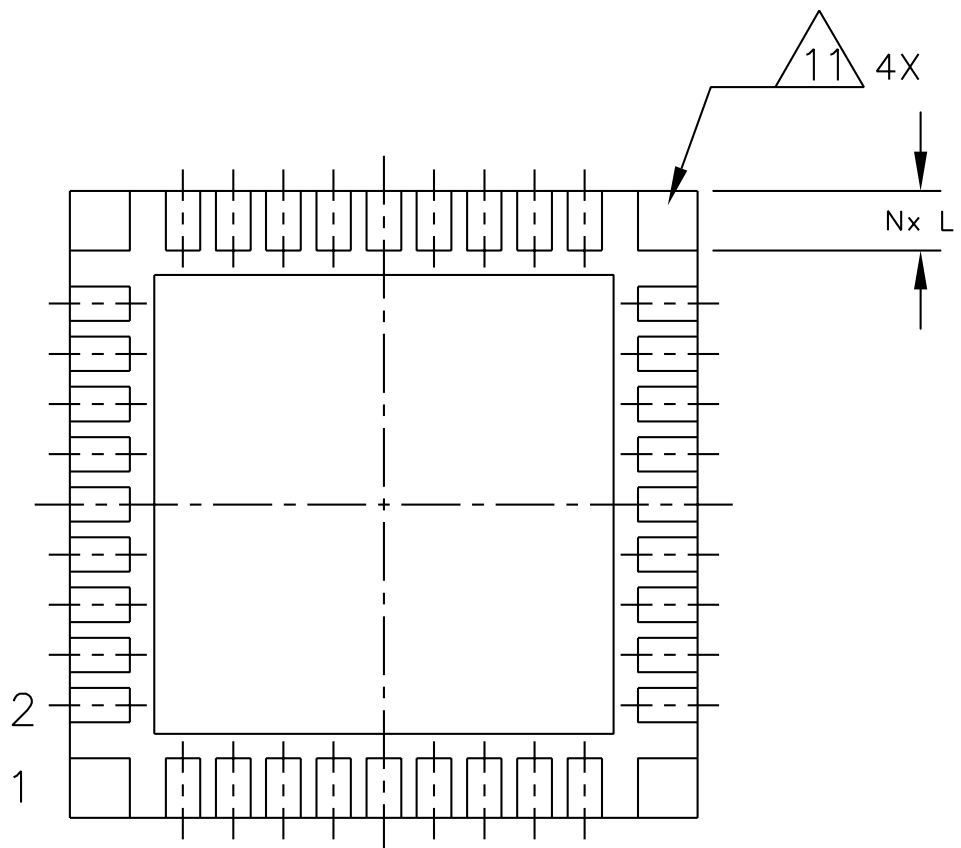
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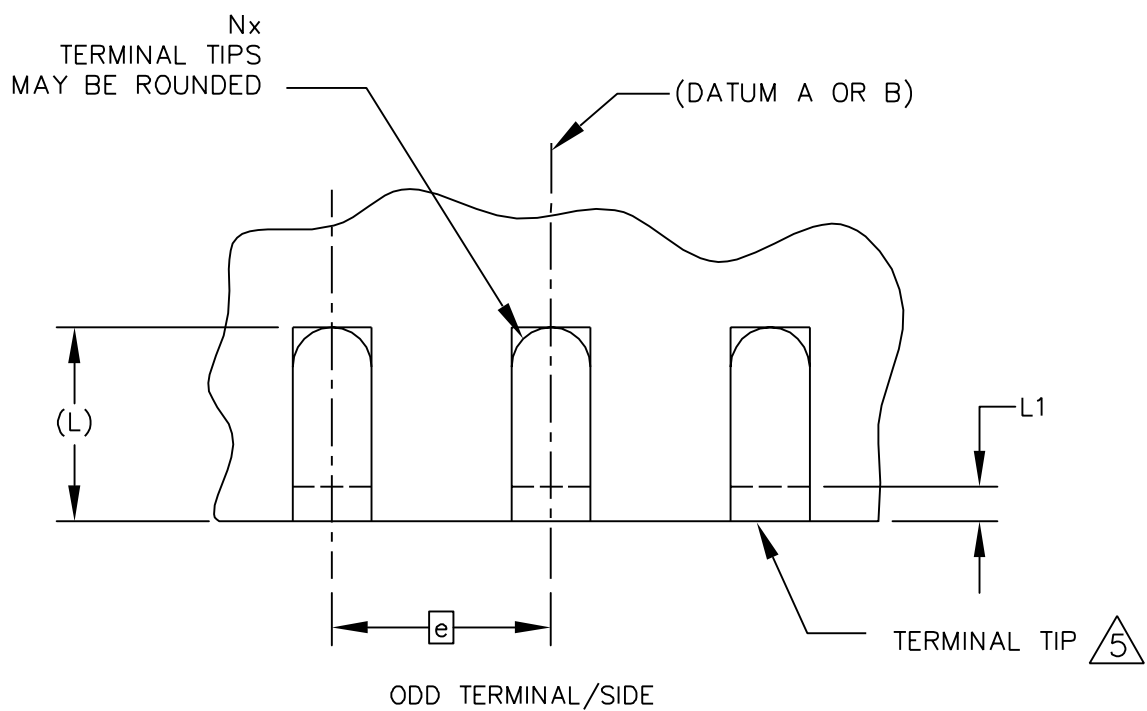
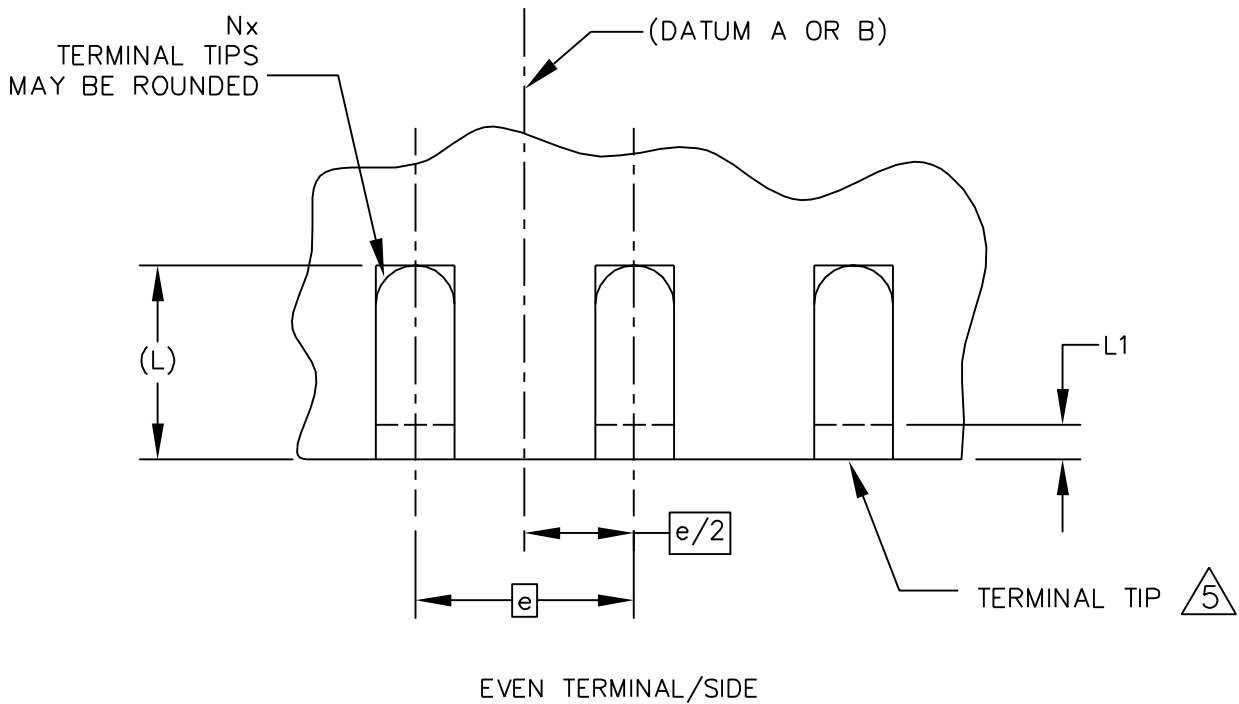
1 OF 7



BOTTOM VIEW
 APPLIES TO VARIATIONS XXXX-1
 DIMESNIONS NOT SHOW ARE THE SAME
 AS FIGURE 1

FIGURE 2 

DETAIL A



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
2.20 MAX	A	5.00	A	5.00	A	0.65	A
		6.00	B	6.00	B	0.80	B
		7.00	C	7.00	C		
		8.00	D	8.00	D		
		9.00	E	9.00	E		
		10.00	F	10.00	F		
		12.00	G	12.00	G		

EXAMPLE : A 16 TERMINAL P-HPQFN WHICH IS 6mm LONG (DIMENSION D) BY 6mm WIDE (DIMENSION E) AND A 0.80mm PITCH WILL BE VARIATION AB BB.

COMMON DIMENSIONS				
SYMBOL	MIN	NOM	MAX	NOTE
A	2.00	2.10	2.20	
A1	0	0.02	0.05	
A3	—	0.50 REF	—	
L	0.95	1.05	1.15	12
L1	—	—	0.15	
R	b MIN/2	—	—	
b	0.40	0.50	0.60	5, 12
e		0.80 BSC		
k	0.25	—	—	
NOTES	1, 2			
REF	11-657			
ISSUE	A			

JEDEC SOLID STATE PRODUCT OUTLINE	THERMALLY ENHANCED PLASTIC VERY THICK, QUAD FLAT NO LEAD PACKAGE	ISSUE A	DATE FEB 04	ITEM # MO-251	PAGE 4 OF 7
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TOLERANCE OF FORM & POSITION	
aaa	0.15
bbb	0.10
ccc	0.10
ddd	0.05
eee	0.08
fff	0.10
NOTES	1, 2
REF	11-657
ISSUE	A

SUMMARY TABLE					
BODY SIZE	LEAD PITCH	LEAD COUNT	VARIATION	NOTES	TERMINAL OPTION
5.00 x 5.00	0.80	12	AAAB		FIG 1
5.00 x 5.00	0.80	16	AAAB-1	10 & 11	FIG 2
6.00 x 6.00	0.80	16	ABBB		FIG 1
6.00 x 6.00	0.80	20	ABBB-1	10 & 11	FIG 2
7.00 x 7.00	0.80	20	ACCB		FIG 1
7.00 x 7.00	0.80	24	ACCB-1	10 & 11	FIG 2
8.00 x 8.00	0.80	28	ADDB		FIG 1
8.00 x 8.00	0.80	32	ADDB-1	10 & 11	FIG 2
9.00 x 9.00	0.80	32	AEEB		FIG 1
9.00 x 9.00	0.80	36	AEEB-1	10 & 11	FIG 2
10.00 x 10.00	0.80	36	AFFB		FIG 1
10.00 x 10.00	0.80	40	AFFB-1	10 & 11	FIG 2
12.00 x 10.00	0.80	42	AGFB		FIG 1
12.00 x 10.00	0.80	46	AGFB-1	10 & 11	FIG 2
12.00 x 12.00	0.80	48	AGGB		FIG 1
12.00 x 12.00	0.80	52	AGGB-1	10 & 11	FIG 2

JEDEC SOLID STATE PRODUCT OUTLINE	THERMALLY ENHANCED PLASTIC VERY THICK, QUAD FLAT NO LEAD PACKAGE	ISSUE A	DATE FEB 04	ITEM # MO-251	PAGE 5 OF 7
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VARIATION										
SYMBOL		AAAB	AAAB-1	ABBB	ABBB-1	ACCB	ACCB-1	ADDB	ADDB-1	NOTE
D	BSC	5.00	5.00	6.00	6.00	7.00	7.00	8.00	8.00	
E	BSC	5.00	5.00	6.00	6.00	7.00	7.00	8.00	8.00	
D2	MIN	1.70	1.70	2.70	2.70	3.50	3.50	4.50	4.50	
	NOM	—	—	—	—	—	—	—	—	
	MAX	2.30	2.30	3.30	3.30	4.50	4.50	5.50	5.50	
E2	MIN	1.70	1.70	2.70	2.70	3.50	3.50	4.50	4.50	
	NOM	—	—	—	—	—	—	—	—	
	MAX	2.30	2.30	3.30	3.30	4.50	4.50	5.50	5.50	
N		12	16	16	20	20	24	28	32	3
NOTES		1, 2								
REF		11-657	11-657	11-657	11-657	11-657	11-657	11-657	11-657	
ISSUE		A	A	A	A	A	A	A	A	

VARIATION										
SYMBOL		AEEB	AEEB-1	AFFB	AFFB-1	AGFB	AGFB-1	AGGB	AGGB-1	NOTE
D	BSC	9.00	9.00	10.00	10.00	12.00	12.00	12.00	12.00	
E	BSC	9.00	9.00	10.00	10.00	10.00	10.00	12.00	12.00	
D2	MIN	5.50	5.50	6.50	6.50	8.50	8.50	8.50	8.50	
	NOM	—	—	—	—	—	—	—	—	
	MAX	6.50	6.50	7.50	7.50	9.50	9.50	9.50	9.50	
E2	MIN	5.50	5.50	6.50	6.50	6.50	6.50	8.50	8.50	
	NOM	—	—	—	—	—	—	—	—	
	MAX	6.50	6.50	7.50	7.50	7.50	7.50	9.50	9.50	
N		32	36	36	40	42	46	48	52	3
NOTES		1, 2								
REF		11-657	11-657	11-657	11-657	11-657	11-657	11-657	11-657	
ISSUE		A	A	A	A	A	A	A	A	

NOTES;

1. DIMENSIONS & TOLERANCING CONFIRM TO ASME Y14.5M-1994.
2. ALL DIMENSIONS ARE MILLIMETERS. ANGLES ARE IN DEGREES.
3. N IS THE MAXIMUM NUMBER OF TERMINALS.

△4. 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 0.70 mm FROM TERMINAL TIP. IF THE TERMINAL HAS THE OPTIONAL RADIUS ON THE OTHER END OF THE TERMINAL, THE DIMENSION b SHOULD NOT BE MEASURED IN THAT RADIUS AREA.

6. DEPOPULATION IS POSSIBLE IN A SYMMETRICAL FASHION.

△7. SAWN SINGULATION METHOD IS USED.

△8. FOR A COMPLETE SET OF DIMENSIONS FOR EACH VARIATION, SEE THE INDIVIDUAL VARIATION AND THE COMMON DIMENSIONS AND TOLERANCE ON PAGES 4, 5 AND 6.

△9. UNILATERAL COPLANARITY ZONE APPLIES TO THE EXPOSED HEAT SINK SLUG AS WELL AS THE TERMINALS.

10. FOR VARIATION WITH MORE THAN ONE LEAD COUNT FOR A GIVEN BODY SIZE AND TERMINAL PITCH, EACH LEAD COUNT FOR THAT VARIATION IS DENOTED BY A DASH NUMBER (i.e. -1).

△11. CORNER PADS IN FIGURE 2 ARE ACTIVE TERMINALS AND INCLUDED IN THE TOTAL NUMBER OF TERMINALS

△12. DIMENSION "b" AND "L" IN THIS OUTLINE DO NOT CONFORM TO JEDEC PUBLICATION 95, DESIGN GUIDE 4.8 FOR QFP-N AND SO-N BECAUSE THESE FEATURES NEED TO MEET A HIGHER THERMAL PERFORMANCE AND POWER REQUIREMENT LEVEL.

JEDEC SOLID STATE PRODUCT OUTLINE	THERMALLY ENHANCED PLASTIC VERY THICK, QUAD FLAT NO LEAD PACKAGE	ISSUE A	DATE FEB 04	ITEM # MO-251	PAGE 7 OF 7
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