

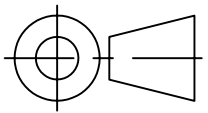
APPROVAL	SIGN	DATE
TOOLING MGR		
ENGG MGR		
OPERATIONS MGR		

Figure 1

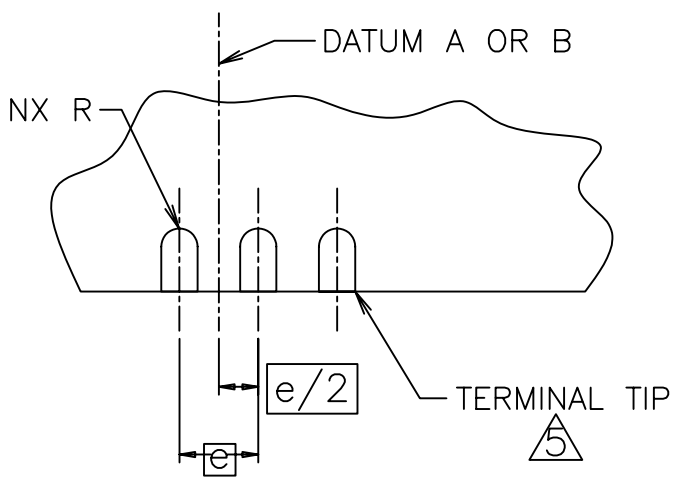
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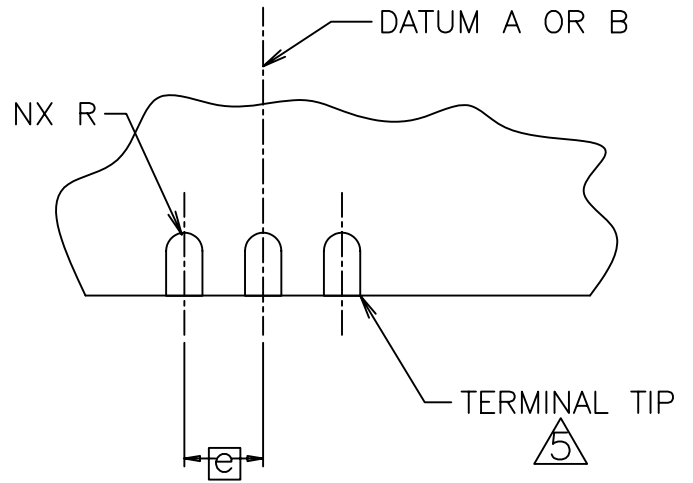
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MLP QUAD HIGH DENSITY PACKAGE OUTLINE
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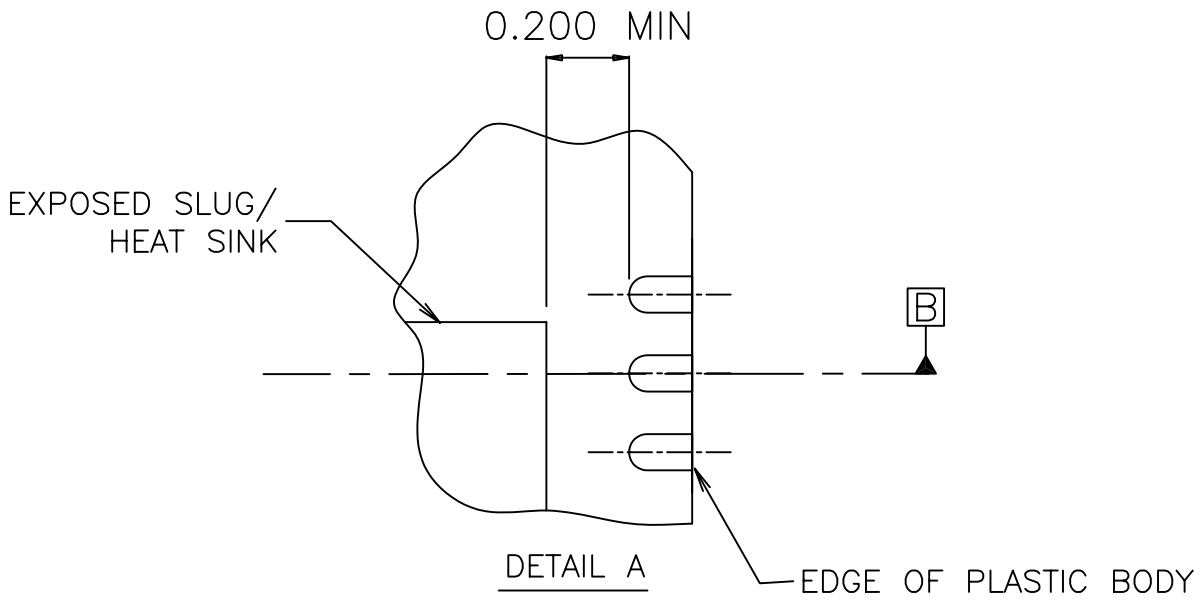


EVEN TERMINAL/SIDE



ODD TERMINAL/SIDE


DETAIL B



DETAIL A

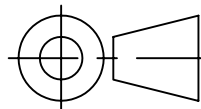
THIS FEATURE APPLIES TO ALL QUADRANTS OF THE PKG.

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TABLE 1



VARIATION DESIGNATORS

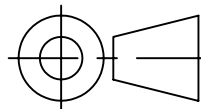
FIRST DIGIT CODE		SECOND DIGIT CODE		THIRD DIGIT CODE		FOURTH DIGIT CODE	
OVERALL HEIGHT		BODY LENGTH		BODY WIDTH		TERMINAL PITCH	
A	LETTER CODE	D	LETTER CODE	E	LETTER CODE	e	LETTER CODE
1.0 MAX	V	3	E	3	E	1.00	A
		4	G	4	G	0.80	B
		5	H	5	H	0.65	C
		6	J	6	J	0.50	D
		7	K	7	K	0.40	E
		8	L	8	L		

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TABLE 2: COMMON HEIGHT DIMENSION


V-PROFILE HEIGHT 

BODY SIZE	3 X 3 4 X 4		5 X 5 7 X 7		10 X 10		
	DIM SYMBOL	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.83	0.90	0.80	0.90	1.00	
A1	0	0.02	0.05	0	0.02	0.05	
A2	0.58	0.63	0.68	0.65	0.70	0.75	
A3 REF	0.20			0.20			
θ	8°	10°	12°	8°	10°	12°	
NOTES	1,2						
REF							
ISSUE							

TABLE 3: TOLERANCE OF FORM AND POSITION

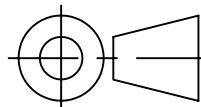
PITCH (MM) SYMBOL	
	0.50
aaa	0.15
bbb	0.10
ccc	0.10
ddd	0.05
NOTES	1,2
REF	
ISSUE	

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TABLE 4

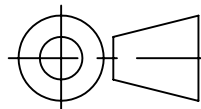
SUMMARY TABLE			
BODY SIZE	LEAD PITCH	LEAD COUNT	VERY THIN PROFILE
3X3	0.50	12	VEED-5
3X3	0.50	16	VEED-6
4X4	0.65	16	VGGC-3
4X4	0.65	16	VGGC-NJ2
4X4	0.50	20	VGGD-11
4X4	0.50	20	VGGD-1
5X5	0.50	32	VHHD-5
7X7	0.50	48	VKKD-2
10X10	0.50	72	VNND-4

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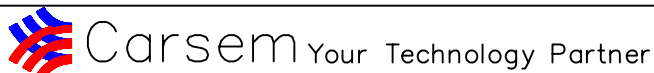
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TABLE 5

$$e = 0.50 \text{ PITCH}$$

VARIATION		VEED-5	VEED-6	VGGD-11	VHHD-5	VKGD-2	NOTE
SYMBOL							
b	MIN	0.18	0.18	0.18	0.18	0.18	
	NOM	0.23	0.23	0.23	0.23	0.20	
	MAX	0.28	0.28	0.28	0.28	0.25	
D BSC		3.00	3.00	4.00	5.00	7.00	
E BSC		3.00	3.00	4.00	5.00	7.00	
D1 BSC		2.75	2.75	3.75	4.75	6.75	
E1 BSC		2.75	2.75	3.75	4.75	6.75	
D2	MIN	1.40	1.40	2.40	3.35	5.05	
	NOM	1.50	1.50	2.50	3.45	5.15	
	MAX	1.60	1.60	2.60	3.55	5.25	
E2	MIN	1.40	1.40	2.40	3.35	5.05	
	NOM	1.50	1.50	2.50	3.45	5.15	
	MAX	1.60	1.60	2.60	3.55	5.25	
L	MIN	0.30	0.30	0.30	0.30	0.30	
	NOM	0.40	0.40	0.40	0.40	0.40	
	MAX	0.50	0.50	0.50	0.50	0.50	
R REF		0.12	0.12	0.12	0.12	0.10	
R1	MIN	0.15	0.15	0.15	0.15	0.15	
	NOM	0.20	0.20	0.20	0.20	0.20	
	MAX	0.25	0.25	0.25	0.25	0.25	
T REF		0.45	0.45	0.65	0.65	0.65	
N		12	16	20	32	48	3
ND		3	4	5	8	12	6
NE		3	4	5	8	12	6
NOTES		1,2,8	1,2,8	1,2,8	1,2,8	1,2,8	
REF							
ISSUE							

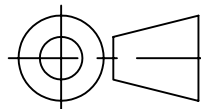
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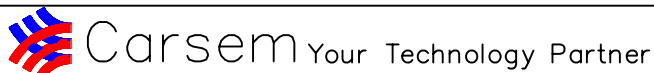
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TABLE 6

$$e = 0.50 \text{ PITCH}$$

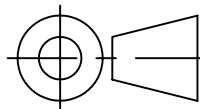
SYMBOL \ VARIATION		VGGD-1	VNND-4				NOTE
b	MIN	0.18	0.18				
	NOM	0.23	0.23				
	MAX	0.28	0.28				
D BSC		4.00	10.00				
E BSC		4.00	10.00				
D1 BSC		3.75	9.75				
E1 BSC		3.75	9.75				
D2	MIN	1.95	5.75				
	NOM	2.10	5.90				
	MAX	2.25	6.00				
E2	MIN	1.95	5.75				
	NOM	2.10	5.90				
	MAX	2.25	6.00				
L	MIN	0.50	0.35				
	NOM	0.60	0.40				
	MAX	0.70	0.45				
R REF		0.12	0.12				
R1	MIN	0.15	0.15				
	NOM	0.20	0.20				
	MAX	0.25	0.25				
T REF		0.65	0.45				
N		20	72				3
ND		5	18				6
NE		5	18				6
NOTES		1,2,8	1,2,8				
REF							
ISSUE							

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TABLE 7

$$e = 0.65 \text{ PITCH}$$

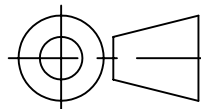
VARIATION		VGGC-3	VGGC-NJ2				NOTE
SYMBOL							
b	MIN	0.25	0.25				
	NOM	0.30	0.30				
	MAX	0.35	0.35				
D BSC		4.00	4.00				
E BSC		4.00	4.00				
D1 BSC		3.75	3.75				
E1 BSC		3.75	3.75				
D2	MIN	2.40	2.20				
	NOM	2.50	2.30				
	MAX	2.60	2.40				
E2	MIN	2.40	2.20				
	NOM	2.50	2.30				
	MAX	2.60	2.40				
L	MIN	0.30	0.50				
	NOM	0.40	0.60				
	MAX	0.50	0.70*				
R REF		0.15	0.15				
R1	MIN	0.15	0.15				
	NOM	0.20	0.20				
	MAX	0.25	0.25				
T REF		0.65	0.45				
N		16	16				3
ND		4	4				6
NE		4	4				6
NOTES		1,2,8	1,2,8				
REF							
ISSUE							

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Note:

1. Dimensioning and tolerancing conform to ASME Y14.5M-1994.
2. All dimensions are in millimeters . All angles are in degrees.
3. N is the total number of terminals.

4. The terminal #1 identifier and terminal numbering convention shall conform to JESD 95-1 SPP-012. Details of terminal #1 identifier are optional , but must be located within the zone indicated. The terminal #1 identifier may be a molded, marked, or metalized features.

5. Dimensions b apply to metallized terminal and is measured between 0.15 and 0.30mm from terminal tip.

6. ND & NE refer to the maximum number of terminals on D and E side.

7. Variation VHHD is shown for illustration only.

8. For a complete set of dimensions for each variation, see the individual variation and the common dimensions and tolerances on page 4,5,6 & 7.

9. Coplanarity applies to the exposed heat sink slug as well as the terminals.


10. 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.

11. Variation comply to JEDEC MO-220 except "NJ" variations.

12. A3 is measured at side of the package in between two adjacent leads.

13. Dimensions with "*" are the deviations from JEDEC MO-220.

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APP'D

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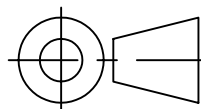
CC YIP

DESIGNED

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DRAWN

KC LAU



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