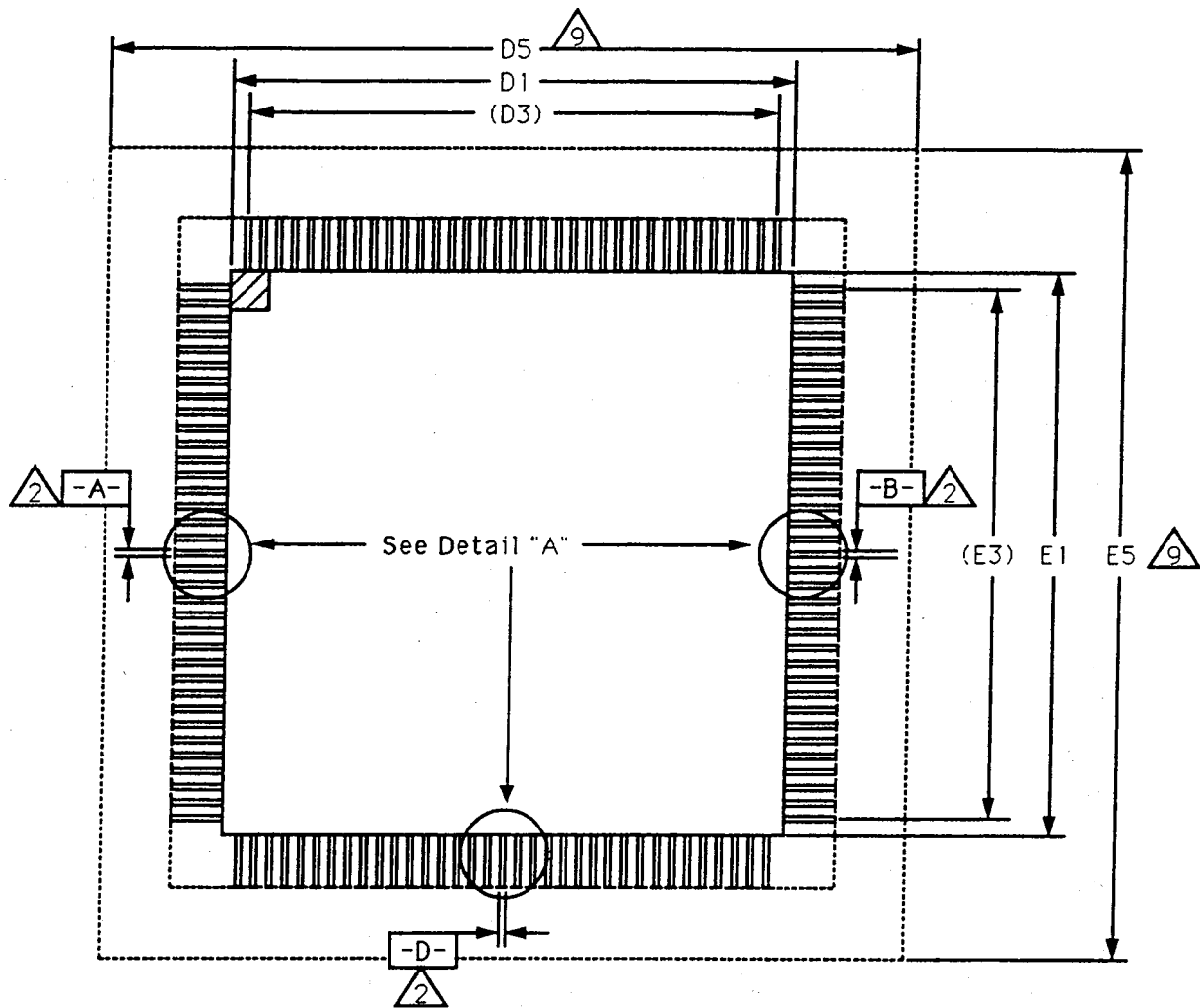
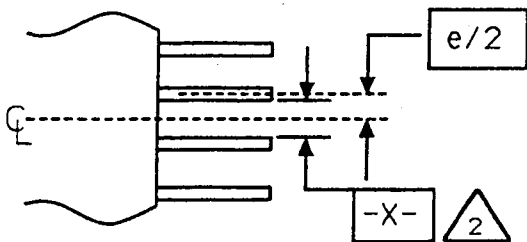


Lot 7.

FIGURE 1: PRINCIPAL DIMENSIONS

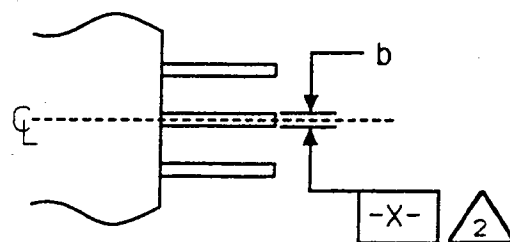


DETAIL A: EVEN LEAD SIDES



-X- = -A-, -B- or -D-

DETAIL A: ODD LEAD SIDES



-X- = -A-, -B- or -D-

FIGURE 2: BODY DETAILS

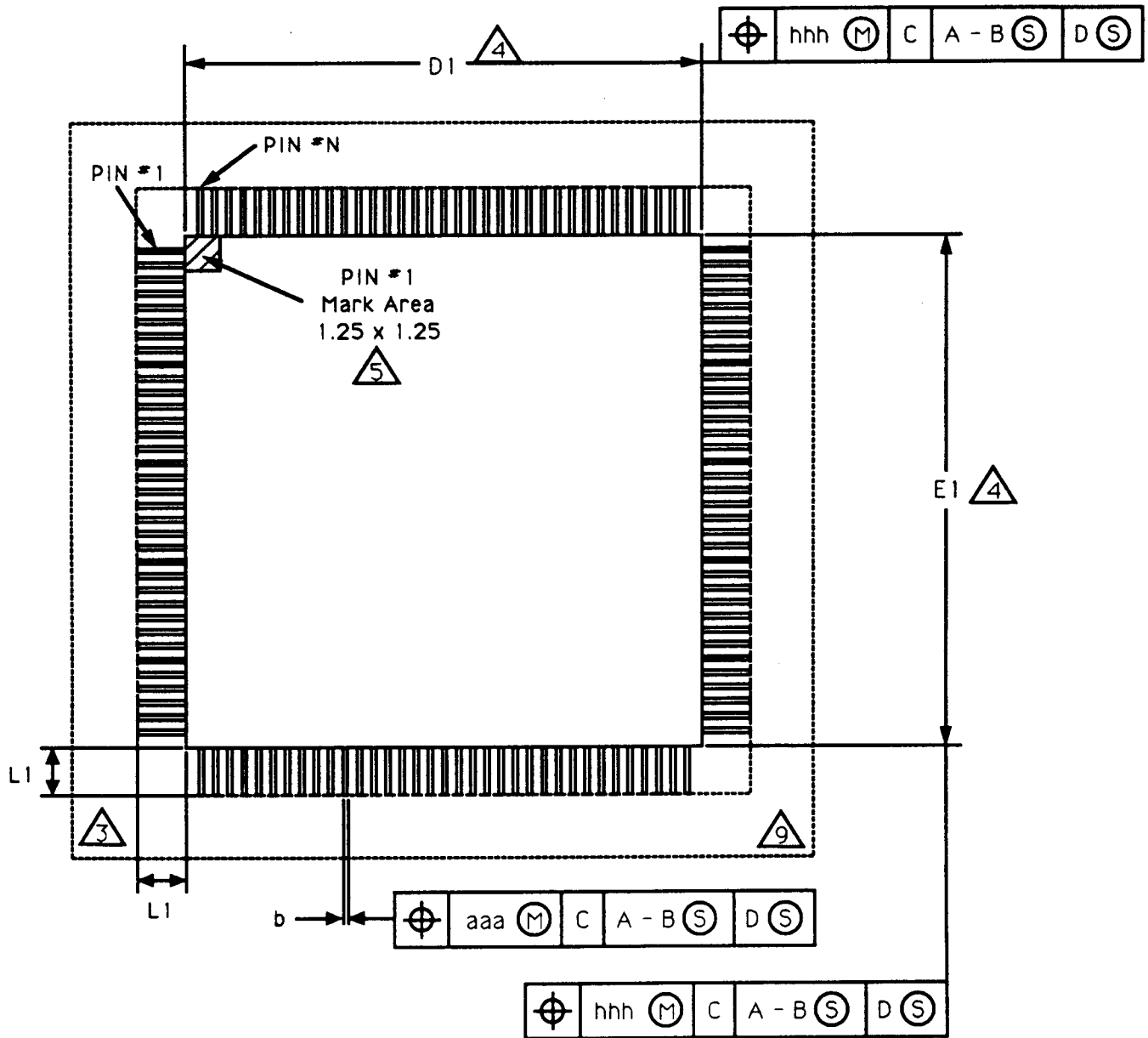
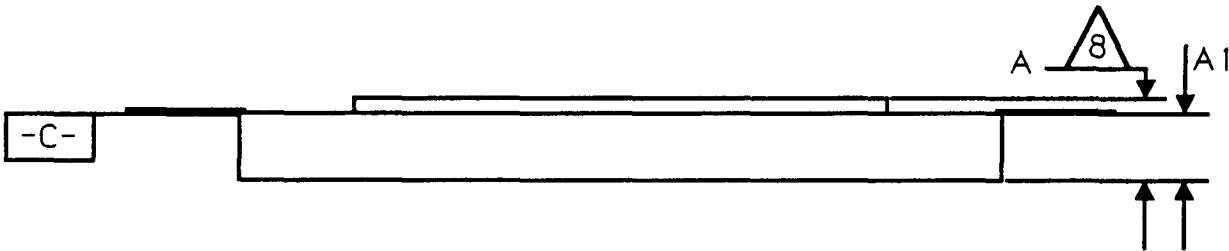


FIGURE 3: EDGE VIEWS

leads attached to the same side of the package as the lid



leads attached to the opposite side of the package compared to the lid

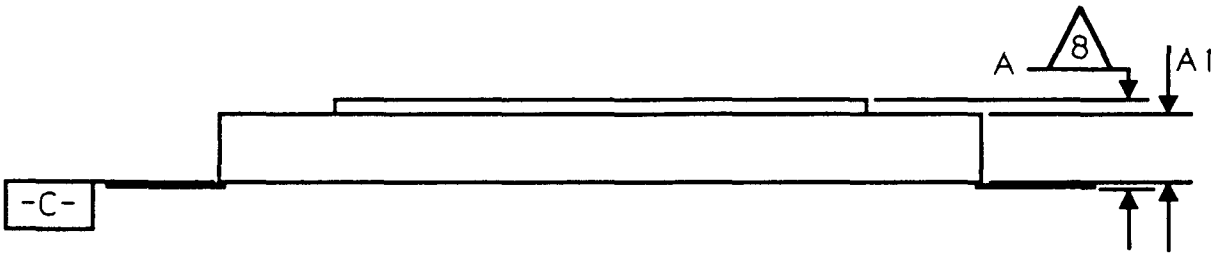
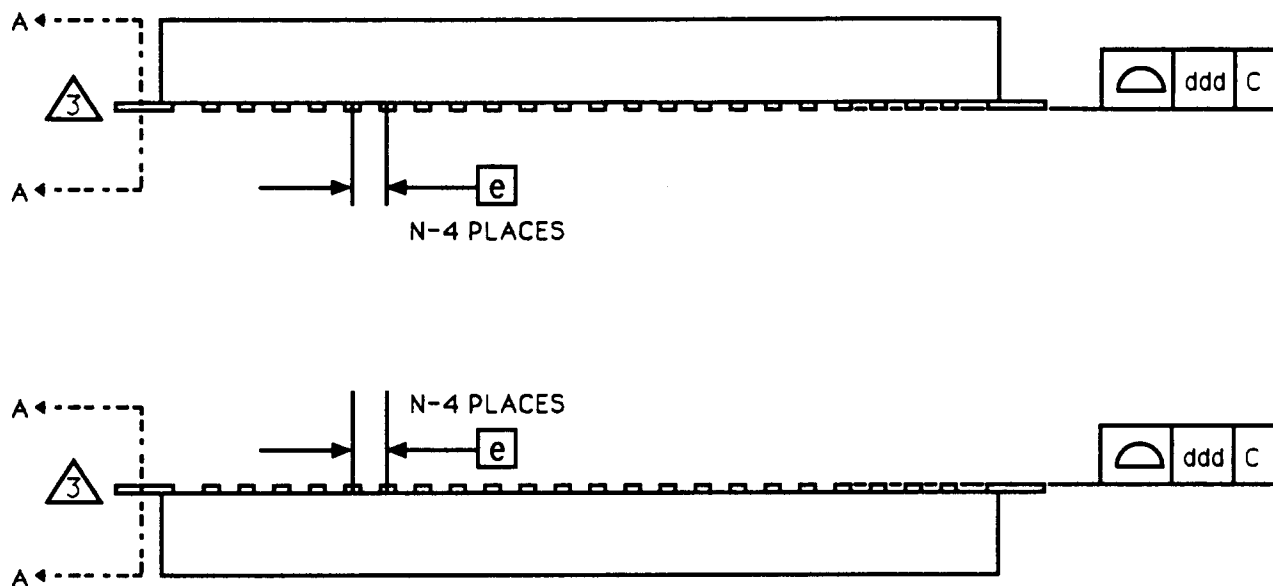
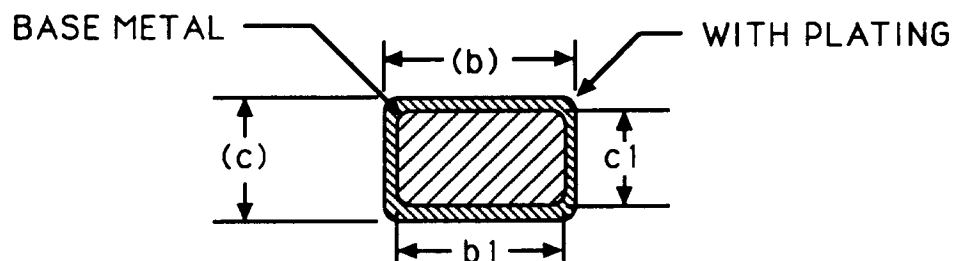


FIGURE 4: TERMINAL DETAILS



SECTION A-A: LEAD CROSS-SECTION



JEDEC SOLID STATE PRODUCT OUTLINES	TITLE MULTICHIP MODULE CERAMIC QUAD FLATPACK (S-CQFP)	ISSUE A	DATE JUNE 1993	MO-148	SHEET 4 OF 9
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REFERENCE MATRIX FOR
BODY SIZE, PITCH, AND LEADCOUNT

<u>BODY SIZE</u>	<u>PITCH</u>	<u>LEADCOUNT</u>	<u>VARIATION</u>
56 mm	0.80 mm	260	BA
56 mm	0.65 mm	320	BB
56 mm	0.50 mm	416	BC
56 mm	0.40 mm	520	BD
60 mm	0.80 mm	280	CA
60 mm	0.65 mm	344	CB
60 mm	0.50 mm	448	CC
60 mm	0.40 mm	560	CD
64 mm	0.80 mm	300	DA
64 mm	0.65 mm	368	DB
64 mm	0.50 mm	480	DC
64 mm	0.40 mm	600	DD
80 mm	0.80 mm	380	HA
80 mm	0.65 mm	464	HB
80 mm	0.50 mm	608	HC
80 mm	0.40 mm	760	HD
96 mm	0.80 mm	460	LA
96 mm	0.65 mm	560	LB
96 mm	0.50 mm	736	LC
96 mm	0.40 mm	920	LD
112 mm	0.80 mm	540	PA
112 mm	0.65 mm	656	PB
112 mm	0.50 mm	864	PC
112 mm	0.40 mm	1080	PD

VARIATIONS													N O T E
ALL DIMENSIONS IN MILLIMETERS													
BA			BB			BC			BD				
MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX		
A		8.00			8.00			8.00			8.00	8	
A1	2.00		6.00	2.00		6.00	2.00		6.00	2.00		6.00	
b	0.26		0.38	0.21		0.33	0.19		0.25	0.14		0.20	
b1	0.25	0.30	0.35	0.20	0.25	0.30	0.18	0.20	0.22	0.13	0.15	0.17	
c	0.18		0.26	0.13		0.21	0.12		0.18	0.07		0.13	
c1	0.17	0.20	0.23	0.12	0.15	0.18	0.11	0.13	0.15	0.06	0.08	0.10	
D1	55.44	56.00	56.56	55.44	56.00	56.56	55.44	56.00	56.56	55.44	56.00	56.56	4
D3	51.20 REF			51.35 REF			51.50 REF			51.60 REF			
D5	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	9
E1	55.44	56.00	56.56	55.44	56.00	56.56	55.44	56.00	56.56	55.44	56.00	56.56	4
E3	51.20 REF			51.35 REF			51.50 REF			51.60 REF			
E5	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	9
L1	7.00			7.00			7.00			7.00			3
aaa		0.20			0.13			0.08			0.07		
ddd		0.11			0.11			0.11			0.11		
hhh		0.20			0.20			0.20			0.20		
e		0.80 BSC			0.65 BSC			0.50 BSC			0.40 BSC		
N		260			320			416			520		

NOTE 1, 6, 7, 10, 11, 12, 13

REF. ITEM 10-334

ISSUE A

VARIATIONS													NOTE
ALL DIMENSIONS IN MILLIMETERS													
CA			CB			CC			CD				
MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX		
A		8.00			8.00			8.00			8.00	8	
A1	2.00		6.00	2.00		6.00	2.00		6.00	2.00			6.00
b	0.26		0.38	0.21		0.33	0.19		0.25	0.14			0.20
b1	0.25	0.30	0.35	0.20	0.25	0.30	0.18	0.20	0.22	0.13	0.15	0.17	4
c	0.18		0.26	0.13		0.21	0.12		0.18	0.07		0.13	
c1	0.17	0.20	0.23	0.12	0.15	0.18	0.11	0.13	0.15	0.06	0.08	0.10	
D1	59.40	60.00	60.60	59.40	60.00	60.60	59.40	60.00	60.60	59.40	60.00	60.60	9
D3	55.20 REF			55.25 REF			55.50 REF			55.60 REF			
D5	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	
E1	59.40	60.00	60.60	59.40	60.00	60.60	59.40	60.00	60.60	59.40	60.00	60.60	4
E3	55.20 REF			55.25 REF			55.50 REF			55.60 REF			
D5	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	
L1	7.00			7.00			7.00			7.00			3
aaa		0.20			0.13			0.08			0.07		
ddd		0.12			0.12			0.12			0.12		
hhh		0.20			0.20			0.20			0.20		9
e		0.80 BSC			0.65 BSC			0.50 BSC			0.40 BSC		
N		280			344			448			560		

NOTE 1, 6, 7, 10, 11, 12, 13

REF. ITEM 10-334

ISSUE A

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE MULTICHIP MODULE CERAMIC QUAD FLATPACK (S-CQFP)	ISSUE A	DATE JUNE 1993	MO-148	SHEET 6 OF 9
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	VARIATIONS												N O T E
	ALL DIMENSIONS IN MILLIMETERS												
	DA			DB			DC			DD			
	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	
A			8.00			8.00			8.00			8.00	8
A1	2.00		6.00	2.00		6.00	2.00		6.00	2.00		6.00	
b	0.26		0.38	0.21		0.33	0.19		0.25	0.14		0.20	
b1	0.25	0.30	0.35	0.20	0.25	0.30	0.18	0.20	0.22	0.13	0.15	0.17	
c	0.18		0.26	0.13		0.21	0.12		0.18	0.07		0.13	
c1	0.17	0.20	0.23	0.12	0.15	0.18	0.11	0.13	0.15	0.06	0.08	0.10	
D1	63.36	64.00	64.64	63.36	64.00	64.64	63.36	64.00	64.64	63.36	64.00	64.64	4
D3	59.20 REF			59.15 REF			59.50 REF			59.60 REF			
D5	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	9
E1	63.36	64.00	64.64	63.36	64.00	64.64	63.36	64.00	64.64	63.36	64.00	64.64	4
E3	59.20 REF			59.15 REF			59.50 REF			59.60 REF			
E5	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	99.00	100.00	101.00	9
L1	7.00			7.00			7.00			7.00			3
aaa		0.20			0.13			0.08			0.07		
ddd		0.13			0.13			0.13			0.13		
hhh		0.20			0.20			0.20			0.20		
e		0.80 BSC			0.65 BSC			0.50 BSC			0.40 BSC		
N		300			368			480			600		

NOTE 1, 6, 7, 10, 11, 12, 13

REF. ITEM 10-334

ISSUE A

VARIATIONS													N O T E
ALL DIMENSIONS IN MILLIMETERS													
HA			HB			HC			HD				
	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	
A			8.00			8.00			8.00			8.00	8
A1	3.00		6.00	3.00		6.00	3.00		6.00	3.00		6.00	
b	0.26		0.38	0.21		0.33	0.19		0.25	0.14		0.20	
b1	0.25	0.30	0.35	0.20	0.25	0.30	0.18	0.20	0.22	0.13	0.15	0.17	
c	0.18		0.26	0.13		0.21	0.12		0.18	0.07		0.13	
c1	0.17	0.20	0.23	0.12	0.15	0.18	0.11	0.13	0.15	0.06	0.08	0.10	
D1	79.20	80.00	80.80	79.20	80.00	80.80	79.20	80.00	80.80	79.20	80.00	80.80	4
D3	75.20 REF			74.75 REF			75.50 REF			75.60 REF			
D5	124.00	125.00	126.00	124.00	125.00	126.00	124.00	125.00	126.00	124.00	125.00	126.00	9
E1	79.20	80.00	80.80	79.20	80.00	80.80	79.20	80.00	80.80	79.20	80.00	80.80	4
E3	75.20 REF			74.75 REF			75.50 REF			75.60 REF			
E5	124.00	125.00	126.00	124.00	125.00	126.00	124.00	125.00	126.00	124.00	125.00	126.00	9
L1	7.00			7.00			7.00			7.00			3
aaa		0.20			0.13			0.08			0.07		
ddd		0.16			0.16			0.16			0.16		
hhh		0.50			0.50			0.50			0.50		
e		0.80 BSC			0.65 BSC			0.50 BSC			0.40 BSC		
N		380			464			608			760		

NOTE 1, 6, 7, 10, 11, 12, 13

REF. ITEM 10-334

ISSUE A

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE MULTICHIP MODULE CERAMIC QUAD FLATPACK (S-CQFP)	ISSUE A	DATE JUNE 1993	MO-148	SHEET 7 OF 9
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VARIATIONS													NOTE			
ALL DIMENSIONS IN MILLIMETERS																
	LA				LB				LC					LD		
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX			MIN	NOM	MAX
A			8.00			8.00			8.00			8.00	8			
A1	4.00		6.00	4.00		6.00	4.00		6.00	4.00		6.00				
b	0.26		0.38	0.21		0.33	0.19		0.25	0.14		0.20				
b1	0.25	0.30	0.35	0.20	0.25	0.30	0.18	0.20	0.22	0.13	0.15	0.17				
c	0.18		0.26	0.13		0.21	0.12		0.18	0.07		0.13				
c1	0.17	0.20	0.23	0.12	0.15	0.18	0.11	0.13	0.15	0.06	0.08	0.10				
D1	95.04	96.00	96.96	95.04	96.00	96.96	95.04	96.00	96.96	95.04	96.00	96.96		4		
D3	91.20 REF			90.35 REF			91.50 REF			91.60 REF						
D5	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00		9		
E1	95.04	96.00	96.96	95.04	96.00	96.96	95.04	96.00	96.96	95.04	96.00	96.96			4	
E3	91.20 REF			90.35 REF			91.50 REF			91.60 REF						
E5	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00	9			
L1	7.00			7.00			7.00			7.00				3		
aaa		0.20			0.13			0.08			0.07					
ddd		0.19			0.19			0.19			0.19					
hhh		0.50			0.50			0.50			0.50					
e		0.80 BSC			0.65 BSC			0.50 BSC			0.40 BSC					
N		460			560			736			920					
NOTE	1, 6, 7, 10, 11, 12, 13															
REF.	ITEM 10-334															
ISSUE	A															

VARIATIONS													NOTE			
ALL DIMENSIONS IN MILLIMETERS																
	PA				PB				PC					PD		
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX			MIN	NOM	MAX
A			8.00			8.00			8.00			8.00	8			
A1	4.00		6.00	4.00		6.00	4.00		6.00	4.00		6.00				
b	0.26		0.38	0.21		0.33	0.19		0.25	0.14		0.20				
b1	0.25	0.30	0.35	0.20	0.25	0.30	0.18	0.20	0.22	0.13	0.15	0.17				
c	0.18		0.26	0.13		0.21	0.12		0.18	0.07		0.13				
c1	0.17	0.20	0.23	0.12	0.15	0.18	0.11	0.13	0.15	0.06	0.08	0.10				
D1	110.88	112.00	113.12	110.88	112.00	113.12	110.88	112.00	113.12	110.88	112.00	113.12		4		
D3	107.20 REF			105.95 REF			107.50 REF			107.60 REF						
D5	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00		9		
E1	110.88	112.00	113.12	110.88	112.00	113.12	110.88	112.00	113.12	110.88	112.00	113.12			4	
E3	107.20 REF			105.95 REF			107.50 REF			107.60 REF						
E5	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00	149.00	150.00	151.00	9			
L1	7.00			7.00			7.00			7.00				3		
aaa		0.20			0.13			0.08			0.07					
ddd		0.22			0.22			0.22			0.22					
hhh		0.50			0.50			0.50			0.50					
e		0.80 BSC			0.65 BSC			0.50 BSC			0.40 BSC					
N		540			656			864			1080					
NOTE	1, 6, 7, 10, 11, 12, 13															
REF.	ITEM 10-334															
ISSUE	A															

JEDEC		TITLE		ISSUE		DATE		MO-148		SHEET	
SOLID STATE PRODUCT		MULTICHIP MODULE CERAMIC		A		JUNE 1993				8 OF 9	
OUTLINES		QUAD FLATPACK (S-CQFP)									

NOTES:

1. ALL DIMENSIONING AND TOLERANCING CONFORM TO ANSI Y14.5M-1982.
2. DATUMS A-B AND -D- TO BE DETERMINED WHERE CENTER LEADS EXIT PACKAGE BODY.
3. THE MINIMUM LEAD LENGTH BEFORE TRIM AND FORM IS 7 MM.
4. DIMENSIONS D1 AND E1 DEFINE MAXIMUM CERAMIC BODY DIMENSIONS INCLUDING MISMATCH OF CERAMIC LAYERS.
5. DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL, BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
6. ALL DIMENSIONS ARE IN MILLIMETERS.
7. GENERIC LEAD ATTACH SHOWN. MAY BE DOGLEG OR FLAT CONFIGURATION.
8. DIMENSION A INCLUDES INTEGRAL HEATSINK IF ANY, LID, LEAD THICKNESS, AND DOGLEG IF ANY.
9. DETAILS OF THE LEAD PROTECTION MECHANISM ARE OPTIONAL, BUT ITS OUTER DIMENSION MUST CONFORM TO THE DEFINITION OF DIMENSION E5, AND ITS INNER DIMENSION MUST ALLOW THE MINIMUM LEAD LENGTH (DIMENSION L1) TO BE 7 MM.
10. LEAD FORM DIMENSIONS ARE NOT DEFINED.
11. ADDITIONS TO FAMILY MUST FOLLOW THE ALGORITHM BELOW:
 BODY SIZES IN MULTIPLES OF 4 MM
 LEADCOUNTS IN 40 LEAD INCREMENTS FOR 0.40 MM LEAD PITCH
 LEADCOUNTS IN 32 LEAD INCREMENTS FOR 0.50 MM LEAD PITCH
 LEADCOUNTS IN 24 LEAD INCREMENTS FOR 0.65 MM LEAD PITCH
 LEADCOUNTS IN 20 LEAD INCREMENTS FOR 0.80 MM LEAD PITCH
12. RECOMMENDED OUTER DIMENSIONS (DIMENSION E5) FOR ADDITIONS TO FAMILY ARE:
 100 MM FOR 52 MM AND 68 MM BODY SIZES
 125 MM FOR 72 MM, 76 MM, 84 MM, 88 MM, AND 92 MM BODY SIZES
 150 MM FOR 100 MM, 104 MM, 108 MM, 116 MM, AND 120 MM BODY SIZES
13. LEAD DIMENSIONS ARE DEFINED SUCH THAT THE RATIO OF LEAD WIDTH TO LEAD THICKNESS (minimum b / maximum c) IS NEVER LESS THAN 1.

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE MULTICHIP MODULE CERAMIC QUAD FLATPACK (S-CQFP)	ISSUE A	DATE JUNE 1993	MO-148	SHEET 9 OF 9
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