

FIGURE 1

ALL DIMENSIONS IN MILLIMETERS

JEDEC  
SOLID STATE PRODUCT  
OUTLINES

THIS STANDARD OUTLINE HAS BEEN PREPARED BY THE JEDEC JC-11 COMMITTEE AND APPROVED BY THE JEDEC COUNCIL AND REFLECTS A PRODUCT WITH WIDE ACCEPTANCE IN THE ELECTRONICS INDUSTRY; CHANGES ARE NOT LIKELY TO OCCUR.

TITLE:  
FINE PITCH PLASTIC QUAD  
FLAT PACKAGE OUTLINE  
2.6 mm FOOTPRINT

JESD-30 DESIGNATOR  
S-R-PQFP(FQFP)

ISSUE  
A

DATE  
AUG  
1997

MS-029

PAGE  
1 OF 10

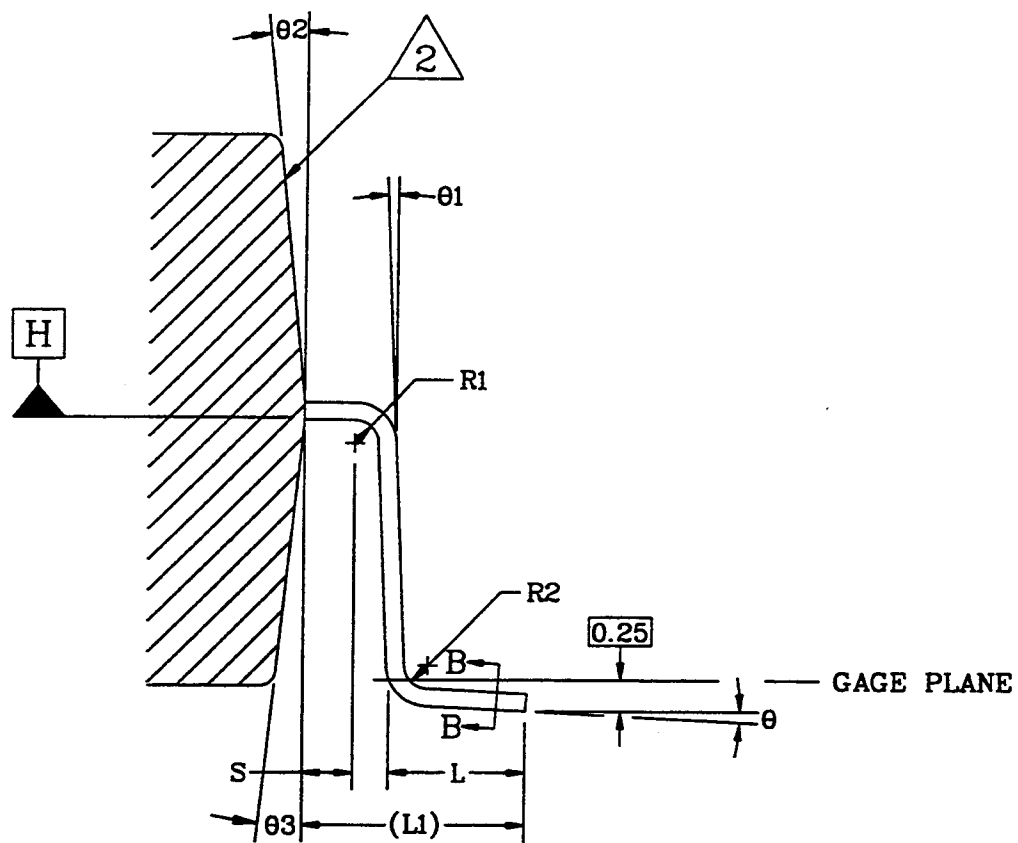


FIG 2 SECTION A-A

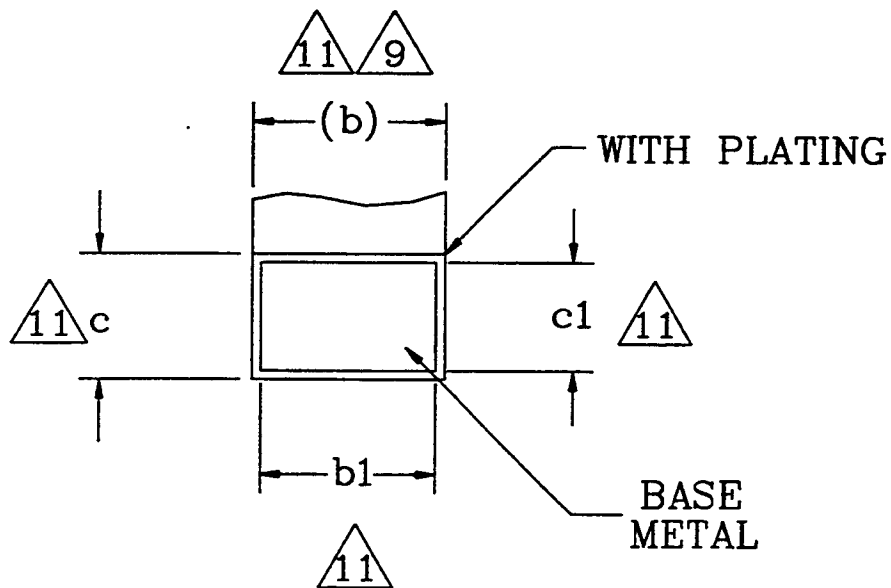
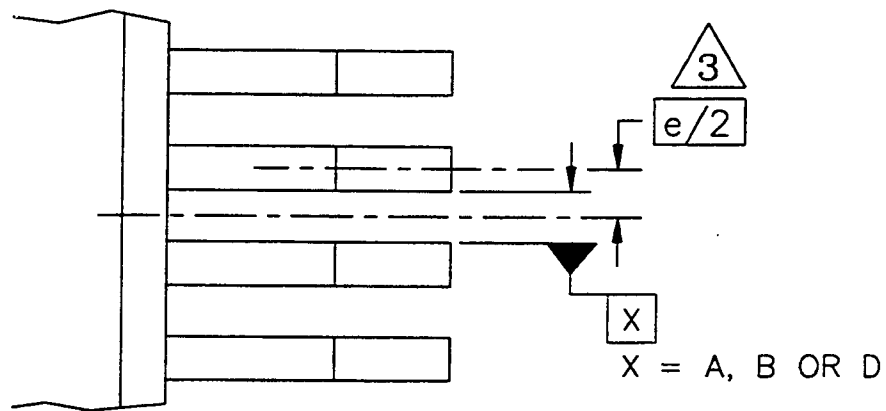
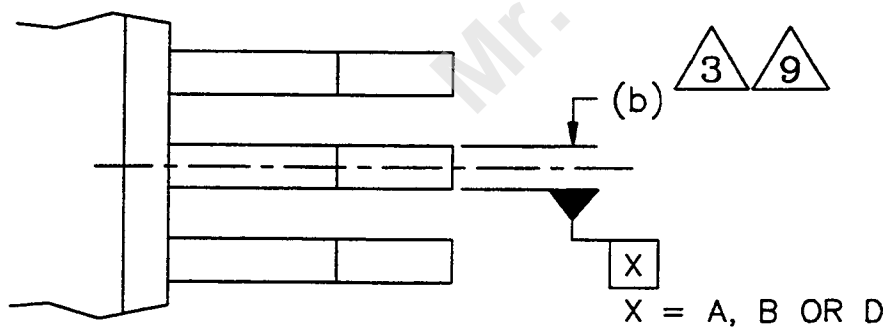


FIGURE 3 SECTION B-B

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 2 OF 10
--	--	------------	-------------	--------	-----------------



EVEN LEAD SIDES  
TOPVIEW



ODD LEAD SIDES  
TOPVIEW

FIGURE 4

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 3 OF 10
--	---	------------	-------------	--------	-----------------

## NOTES:

1. ALL DIMENSIONING AND TOLERANCING CONFORMS TO ASME Y14.5M-1994.
- ② THE TOP PACKAGE BODY SIZE MAY BE SMALLER THAN THE BOTTOM PACKAGE BODY SIZE.
- ③ DATUMS A, B AND D TO BE DETERMINED AT DATUM PLANE H.
- ④ TO BE DETERMINED AT SEATING PLANE C.
- ⑤ DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25 mm PER SIDE. D1 AND E1 ARE MAXIMUM PLASTIC BODY SIZE DIMENSIONS INCLUDING MOLD MISMATCH. DIMENSIONS D1 AND E1 SHALL BE DETERMINED AT DATUM PLANE H.
- ⑥ DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
- ⑦ RECTANGULAR VARIATION KA HAS 38 AND 26 LEADS ON SIDES D AND E RESPECTIVELY.
8. ALL DIMENSIONS ARE IN MILLIMETERS.
- ⑨ DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED THE MAXIMUM b DIMENSION BY MORE THAN 0.08 mm. DAMBAR CAN NOT BE LOCATED ON THE LOWER RADIUS OR THE FOOT. THE MINIMUM SPACE BETWEEN PROTRUSION AND AN ADJACENT LEAD SHALL NOT BE LESS THAN 0.07 mm.
- ⑩ EXACT SHAPE OF EACH CORNER IS OPTIONAL.
- ⑪ THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10 mm AND 0.25 mm FROM THE LEAD TIP.
- ⑫ A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 4 OF 10
--	---	------------	-------------	--------	-----------------

SYMBOL	COMMON DIMENSIONS			NOTE
	MIN.	NOM.	MAX.	
R2	0.08	----	0.25	
R1	0.08	----	----	
$\theta$	0°	3.5°	8°	
$\theta 1$	0°	----	----	
$\theta 2$	5°	----	16°	
$\theta 3$	5°	----	16°	
c	0.09	----	0.20	
c1	0.09	----	0.16	
L	0.45	0.60	0.75	
L1	1.30 REF			
S	0.20	----	----	
TOLERANCES OF FORM AND POSITION				
aaa	0.25			
bbb	0.20			
ccc	0.08			

SUMMARY TABLE					
BODY SIZE	PITCH	LEAD COUNT	BODY THICKNESS	STAND-OFF	VARIATION
10 X 10	0.50	64	2.0	LOW	AA
10 X 10	0.40	80	2.0	LOW	AB
12 X 12	0.50	80	2.0	LOW	BA
12 X 12	0.50	80	2.7	LOW	BB
12 X 12	0.40	100	2.0	LOW	BC
14 X 14	0.50	100	2.0	LOW	CA
14 X 14	0.50	100	2.7	LOW	CB
14 X 14	0.40	120	2.0	LOW	CC
14 X 14	0.40	120	2.7	LOW	CD
20 X 20	0.50	144	2.0	HIGH	DA-1
20 X 20	0.50	144	2.7	HIGH	DB-1
20 X 20	0.40	176	2.0	HIGH	DC-1
20 X 20	0.40	176	2.7	HIGH	DD-1
20 X 20	0.50	144	2.0	LOW	DA-2
20 X 20	0.50	144	2.7	LOW	DB-2
20 X 20	0.40	176	2.0	LOW	DC-2
20 X 20	0.40	176	2.7	LOW	DD-2
24 X 24	0.50	176	3.40	HIGH	EA
24 X 24	0.40	216	3.40	HIGH	EB
28 X 28	0.50	208	3.40	HIGH	FA-1
28 X 28	0.40	256	3.40	HIGH	FB-1
28 X 28	0.50	208	3.40	LOW	FA-2
28 X 28	0.40	256	3.40	LOW	FB-2
32 X 32	0.50	240	3.40	HIGH	GA
32 X 32	0.40	296	3.40	HIGH	GB
36 X 36	0.50	272	3.80	HIGH	HA
36 X 36	0.40	336	3.80	HIGH	HB
40 X 40	0.50	304	3.80	HIGH	JA
40 X 40	0.40	376	3.80	HIGH	JB
14 X 20	0.50	128	2.70	LOW	KA

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 5 OF 10
--	---	------------	-------------	--------	-----------------

VARIATIONS												
SYMBOL	AA			NOTE	AB			NOTE	BA			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	---	---	2.45		---	---	2.45		---	---	2.45	
A1	0.05	---	0.25		0.05	---	0.25		0.05	---	0.25	
A2	1.80	2.00	2.20		1.80	2.00	2.20		1.80	2.00	2.20	
D	12.60 BSC.			4	12.60 BSC.			4	14.60 BSC.			4
D1	10.00 BSC.			5,2	10.00 BSC.			5,2	12.00 BSC.			5,2
E	12.60 BSC.			4	12.60 BSC.			4	14.60 BSC.			4
E1	10.00 BSC.			5,2	10.00 BSC.			5,2	12.00 BSC.			5,2
N	64				80				80			
e	0.50 BSC.				0.40 BSC.				0.50 BSC.			
b	0.17	---	0.27	9	0.13	---	0.23	9	0.17	---	0.27	9
b1	0.17	0.20	0.23		0.13	0.16	0.19		0.17	0.20	0.23	
TOLERANCES OF FORM AND POSITION												
ddd	0.08				0.07				0.08			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

VARIATIONS												
SYMBOL	BB			NOTE	BC			NOTE	CA			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	---	---	3.15		---	---	2.45		---	---	2.45	
A1	0.05	---	0.25		0.05	---	0.25		0.05	---	0.25	
A2	2.50	2.70	2.90		1.80	2.00	2.20		1.80	2.00	2.20	
D	14.60 BSC.			4	14.60 BSC.			4	16.60 BSC.			4
D1	12.00 BSC.			5,2	12.00 BSC.			5,2	14.00 BSC.			5,2
E	14.60 BSC.			4	14.60 BSC.			4	16.60 BSC.			4
E1	12.00 BSC.			5,2	12.00 BSC.			5,2	14.00 BSC.			5,2
N	80				100				100			
e	0.50 BSC.				0.40 BSC.				0.50 BSC.			
b	0.17	---	0.27	9	0.13	---	0.23	9	0.17	---	0.27	9
b1	0.17	0.20	0.23		0.13	0.16	0.19		0.17	0.20	0.23	
TOLERANCES OF FORM AND POSITION												
ddd	0.08				0.07				0.08			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

VARIATIONS												
SYMBOL	CB			NOTE	CC			NOTE	CD			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	---	---	3.15		---	---	2.45		---	---	3.15	
A1	0.05	---	0.25		0.05	---	0.25		0.05	---	0.25	
A2	2.50	2.70	2.90		1.80	2.00	2.20		2.50	2.70	2.90	
D	16.60 BSC.			4	16.60 BSC.			4	16.60 BSC.			4
D1	14.00 BSC.			5,2	14.00 BSC.			5,2	14.00 BSC.			5,2
E	16.60 BSC.			4	16.60 BSC.			4	16.60 BSC.			4
E1	14.00 BSC.			5,2	14.00 BSC.			5,2	14.00 BSC.			5,2
N	100				120				120			
e	0.50 BSC.				0.40 BSC.				0.40 BSC.			
b	0.17	---	0.27	9	0.13	---	0.23	9	0.13	---	0.23	9
b1	0.17	0.20	0.23		0.13	0.16	0.19		0.13	0.16	0.19	
TOLERANCES OF FORM AND POSITION												
ddd	0.08				0.07				0.07			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

VARIATIONS												
SYMBOL	DA-1			NOTE	DB-1			NOTE	DC-1			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	---	---	2.70		---	---	3.40		---	---	2.70	
A1	0.25	---	0.50		0.25	---	0.50		0.25	---	0.50	
A2	1.80	2.00	2.20		2.50	2.70	2.90		1.80	2.00	2.20	
D	22.60 BSC.			4	22.60 BSC.			4	22.60 BSC.			4
D1	20.00 BSC.			5,2	20.00 BSC.			5,2	20.00 BSC.			5,2
E	22.60 BSC.			4	22.60 BSC.			4	22.60 BSC.			4
E1	20.00 BSC.			5,2	20.00 BSC.			5,2	20.00 BSC.			5,2
N	144				144				176			
e	0.50 BSC.				0.50 BSC.				0.40 BSC.			
b	0.17	---	0.27	9	0.17	---	0.27	9	0.13	---	0.23	9
b1	0.17	0.20	0.23		0.17	0.20	0.23		0.13	0.16	0.19	
TOLERANCES OF FORM AND POSITION												
ddd	0.08				0.08				0.07			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 7 OF 10
--	---	------------	-------------	--------	-----------------

SYMBOL	VARIATIONS											
	DD-1			NOTE	DA-2			NOTE	DB-2			NOTE
	SQUARE				SQUARE				SQUARE			
MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.				
A	---	---	3.40		---	---	2.45		---	---	3.15	
A1	0.25	---	0.50		0.05	---	0.25		0.05	---	0.25	
A2	2.50	2.70	2.90		1.80	2.00	2.20		2.50	2.70	2.90	
D	22.60 BSC.			4	22.60 BSC.			4	22.60 BSC.			4
D1	20.00 BSC.			5,2	20.00 BSC.			5,2	20.00 BSC.			5,2
E	22.60 BSC.			4	22.60 BSC.			4	22.60 BSC.			4
E1	20.00 BSC.			5,2	20.00 BSC.			5,2	20.00 BSC.			5,2
N	176				144				144			
e	0.40 BSC.				0.50 BSC.				0.50 BSC.			
b	0.13	---	0.23	9	0.17	---	0.27	9	0.17	---	0.27	9
b1	0.13	0.16	0.19		0.17	0.20	0.23		0.17	0.20	0.23	
TOLERANCES OF FORM AND POSITION												
ddd	0.07				0.08				0.08			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

SYMBOL	VARIATIONS											
	DC-2			NOTE	DD-2			NOTE	EA			NOTE
	SQUARE				SQUARE				SQUARE			
MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.				
A	---	---	2.45		---	---	3.15		---	---	4.10	
A1	0.05	---	0.25		0.05	---	0.25		0.25	---	0.50	
A2	1.80	2.00	2.20		2.50	2.70	2.90		3.20	3.40	3.60	
D	22.60 BSC.			4	22.60 BSC.			4	26.60 BSC.			4
D1	20.00 BSC.			5,2	20.00 BSC.			5,2	24.00 BSC.			5,2
E	22.60 BSC.			4	22.60 BSC.			4	26.60 BSC.			4
E1	20.00 BSC.			5,2	20.00 BSC.			5,2	24.00 BSC.			5,2
N	176				176				176			
e	0.40 BSC.				0.40 BSC.				0.50 BSC.			
b	0.13	---	0.23	9	0.13	---	0.23	9	0.17	---	0.27	9
b1	0.13	0.16	0.19		0.13	0.16	0.19		0.17	0.19	0.23	
TOLERANCES OF FORM AND POSITION												
ddd	0.07				0.07				0.08			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 8 OF 10
--	---	------------	-------------	--------	-----------------



SYMBOL	VARIATIONS											
	EB			NOTE	FA-1			NOTE	FB-1			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.			
A	---	---	4.10		---	---	4.10		---	---	4.10	
A1	0.25	---	0.50		0.25	---	0.50		0.25	---	0.50	
A2	3.20	3.40	3.60		3.20	3.40	3.60		3.20	3.40	3.60	
D	26.60 BSC.			4	30.60 BSC.			4	30.60 BSC.			4
D1	24.00 BSC.			5,2	28.00 BSC.			5,2	28.00 BSC.			5,2
E	26.60 BSC.			4	30.60 BSC.			4	30.60 BSC.			4
E1	24.00 BSC.			5,2	28.00 BSC.			5,2	28.00 BSC.			5,2
N	216				208				256			
e	0.40 BSC.				0.50 BSC.				0.40 BSC.			
b	0.13	---	0.23	9	0.17	---	0.27	9	0.13	---	0.23	9
b1	0.13	0.16	0.19		0.17	0.20	0.23		0.13	0.16	0.19	
TOLERANCES OF FORM AND POSITION												
ddd	0.07				0.08				0.07			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

SYMBOL	VARIATIONS											
	FA-2			NOTE	FB-2			NOTE	GA			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.			
A	---	---	3.85		---	---	3.85		---	---	4.10	
A1	0.05	---	0.25		0.05	---	0.25		0.25	---	0.50	
A2	3.20	3.40	3.60		3.20	3.40	3.60		3.20	3.40	3.60	
D	30.60 BSC.			4	30.60 BSC.			4	34.60 BSC.			4
D1	28.00 BSC.			5,2	28.00 BSC.			5,2	32.00 BSC.			5,2
E	30.60 BSC.			4	30.60 BSC.			4	34.60 BSC.			4
E1	28.00 BSC.			5,2	28.00 BSC.			5,2	32.00 BSC.			5,2
N	208				256				240			
e	0.50 BSC.				0.40 BSC.				0.50 BSC.			
b	0.17	---	0.27	9	0.13	---	0.23	9	0.17	---	0.27	9
b1	0.17	0.20	0.23		0.13	0.16	0.19		0.17	0.20	0.23	
TOLERANCES OF FORM AND POSITION												
ddd	0.08				0.07				0.08			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 9 OF 10
--	---	------------	-------------	--------	-----------------

VARIATIONS												
SYMBOL	GB			NOTE	HA			NOTE	HB			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	---	---	4.10		---	---	4.50		---	---	4.50	
A1	0.25	---	0.50		0.25	---	0.50		0.25	---	0.50	
A2	3.20	3.40	3.60		3.55	3.80	4.05		3.55	3.80	4.05	
D	34.60 BSC.			4	38.60 BSC.			4	38.60 BSC.			4
D1	32.00 BSC.			5,2	36.00 BSC.			5,2	36.00 BSC.			5,2
E	34.60 BSC.			4	38.60 BSC.			4	38.60 BSC.			4
E1	32.00 BSC.			5,2	36.00 BSC.			5,2	36.00 BSC.			5,2
N	296				272				336			
e	0.40 BSC.				0.50 BSC.				0.40 BSC.			
b	0.13	---	0.23	9	0.17	---	0.27	9	0.13	---	0.23	9
b1	0.13	0.16	0.19		0.17	0.20	0.23		0.13	0.16	0.19	
TOLERANCES OF FORM AND POSITION												
ddd	0.07				0.08				0.07			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

VARIATIONS												
SYMBOL	JA			NOTE	JB			NOTE	KA			NOTE
	SQUARE				SQUARE				RECTANGLE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
A	---	---	4.50		---	---	4.50		---	---	3.15	
A1	0.25	---	0.50		0.25	---	0.50		0.05	---	0.25	
A2	3.55	3.80	4.05		3.55	3.80	4.05		2.50	2.70	2.90	
D	42.60 BSC.			4	42.60 BSC.			4	22.60 BSC.			4
D1	40.00 BSC.			5,2	40.00 BSC.			5,2	20.00 BSC.			5,2
E	42.60 BSC.			4	42.60 BSC.			4	16.60 BSC.			4
E1	40.00 BSC.			5,2	40.00 BSC.			5,2	14.00 BSC.			5,2
N	304				376				128			
e	0.50 BSC.				0.40 BSC.				0.50 BSC.			
b	0.17	---	0.27	9	0.13	---	0.23	9	0.17	---	0.27	9
b1	0.17	0.20	0.23		0.13	0.16	0.19		0.17	0.20	0.23	
TOLERANCES OF FORM AND POSITION												
ddd	0.08				0.07				0.08			
NOTE	1, 8				1, 8				1, 8			
REF	11-484S				11-484S				11-484S			
ISSUE	A				A				A			

JEDEC SOLID STATE PRODUCT OUTLINES	TITLE: FINE PITCH PLASTIC QUAD FLAT PACKAGE OUTLINE 2.6 mm FOOTPRINT	ISSUE A	AUG 1997	MS-029	PAGE 10 OF 10
--	---	------------	-------------	--------	------------------