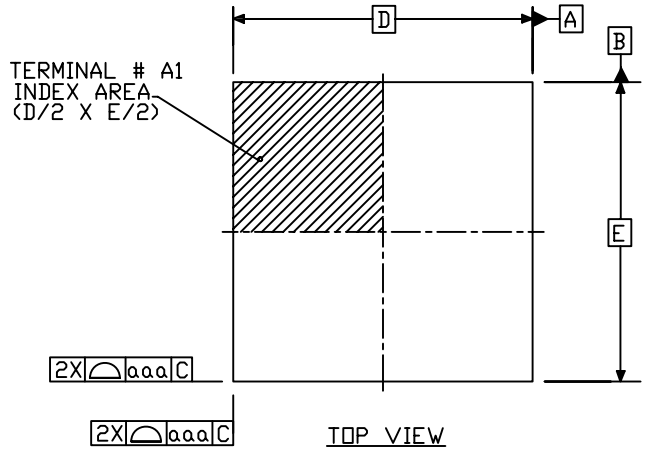
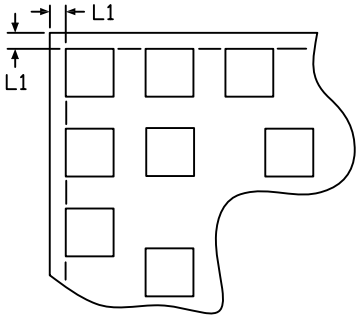
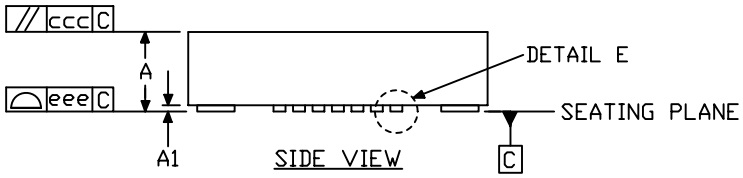


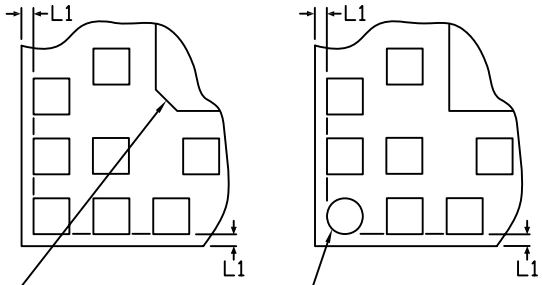
TOP VIEW



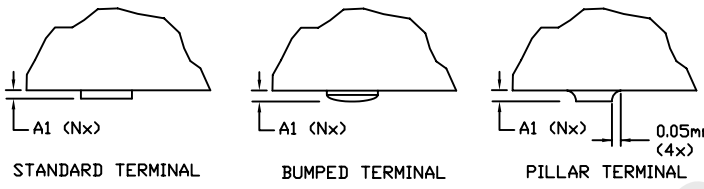
DETAIL C



SIDE VIEW



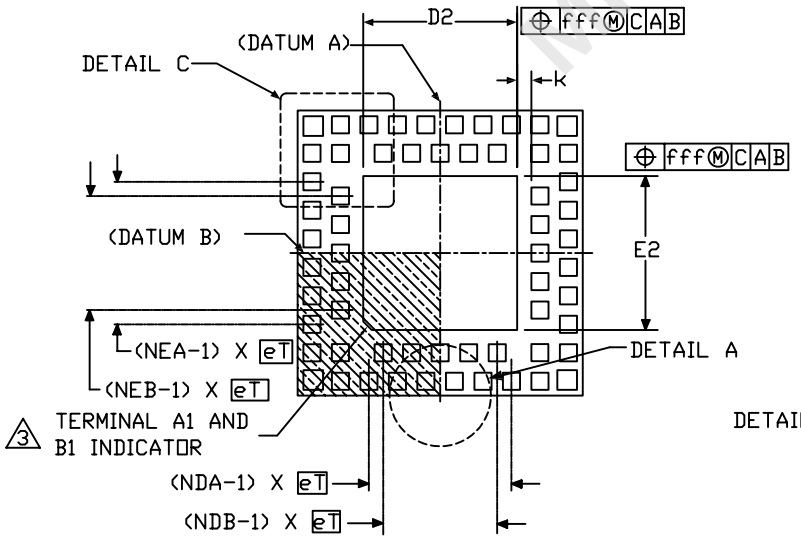
DETAIL D

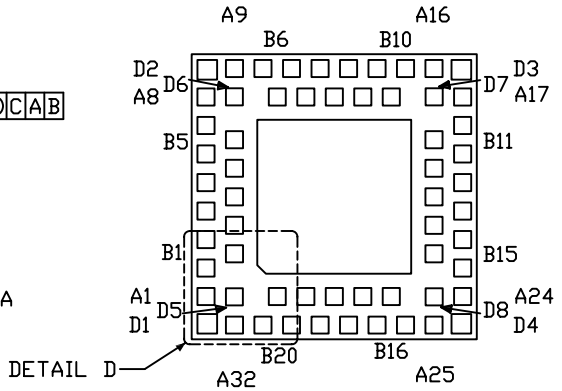


STANDARD TERMINAL BUMPED TERMINAL PILLAR TERMINAL

DETAIL E

ALSO APPLIES TO FEATURE
DEFINED BY D2 & E2

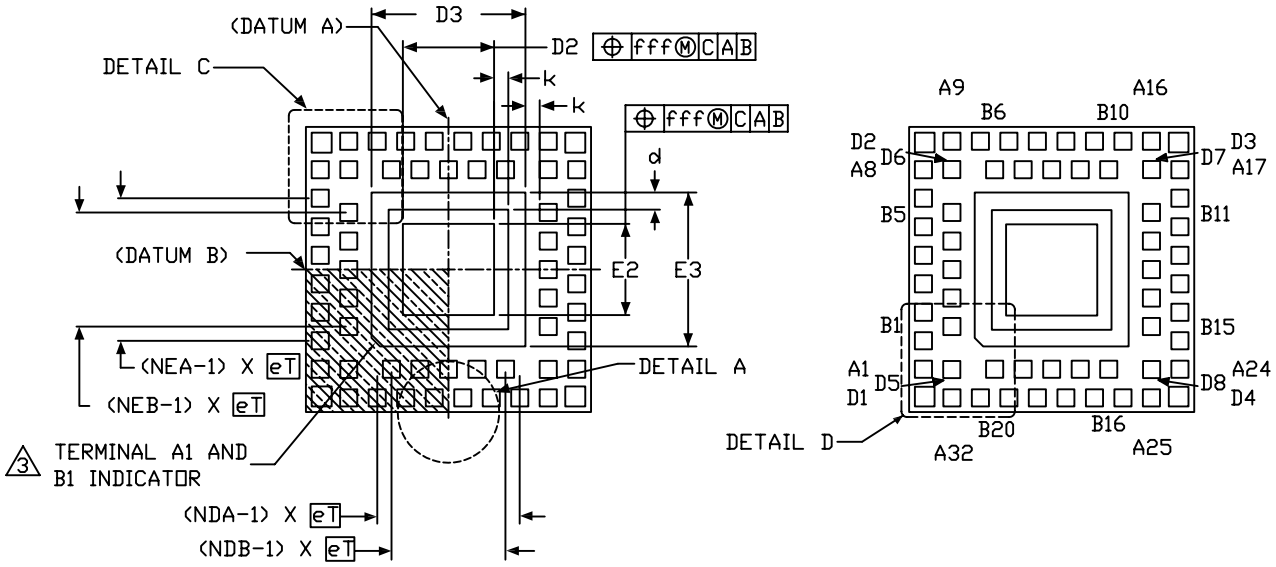




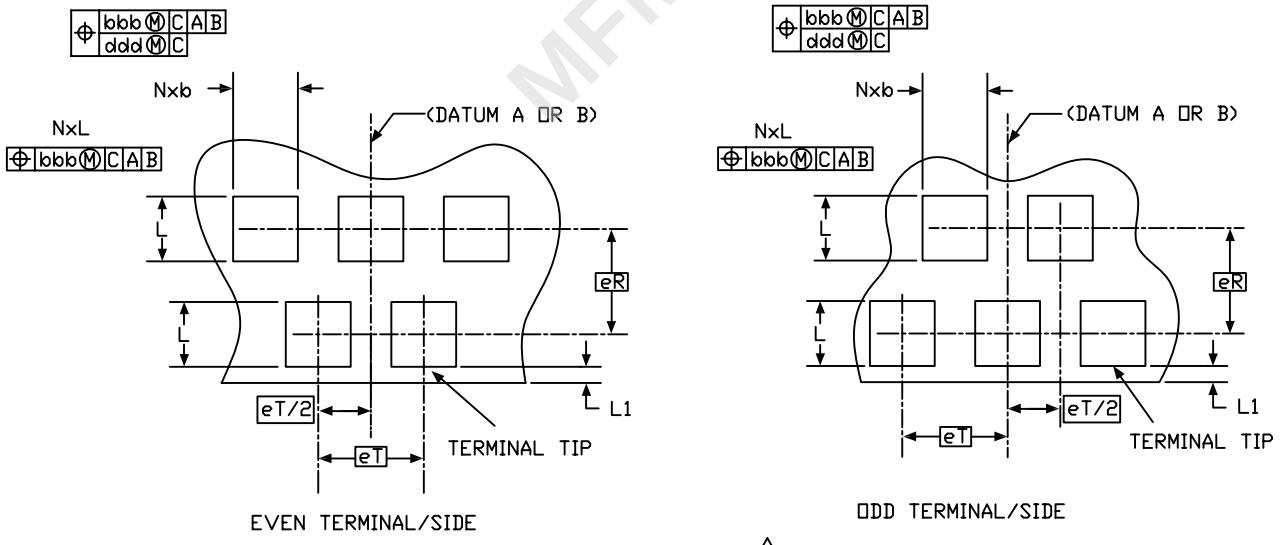
2-ROW WITHOUT RING
BOTTOM VIEW

PATENT CLAIMS 8

JEDEC SOLID STATE PRODUCT OUTLINE	*THIS REGISTERED OUTLINE HAS BEEN PREPARED BY THE JEDEC JC-II COMMITEE AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY; CHANGES ARE LIKELY TO OCCUR*				
PLASTIC QUAD NO-LEAD STAGGERED MULTI-ROW PACKAGES	JESD-30 DESIGNATOR H(V,W,U)F-PQFN	ISSUE D	DATE MAY 2007	MO-247	SHEET 1 OF 12

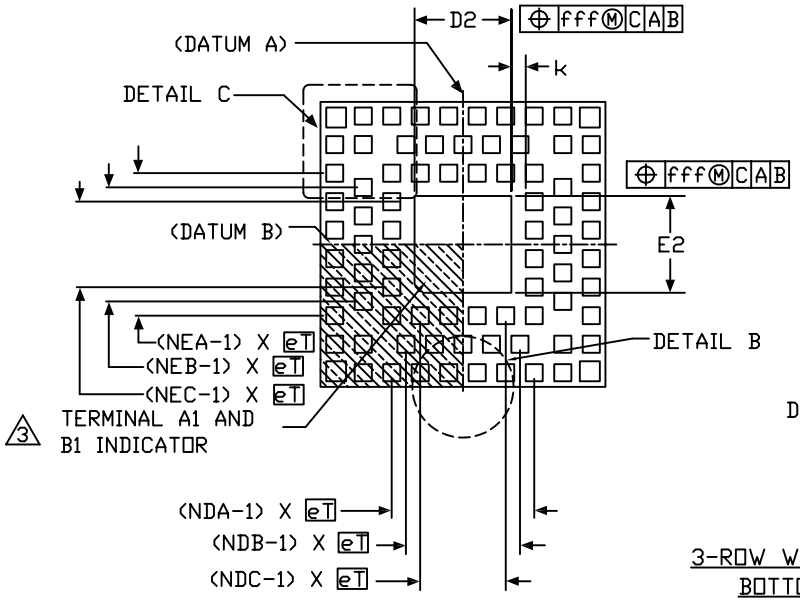


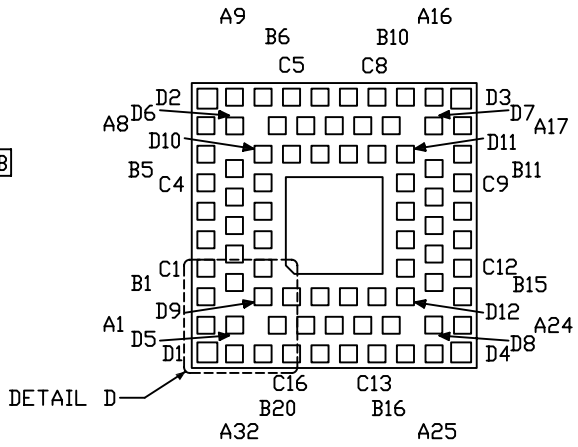
2-ROW WITH RING
BOTTOM VIEW



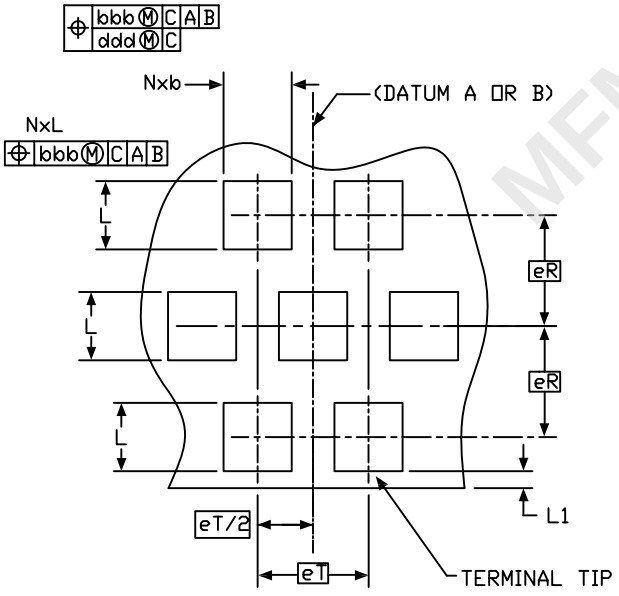
DETAIL A 10

JEDEC SOLID STATE PRODUCT OUTLINE	PLASTIC QUAD NO-LEAD STAGGERED MULTI-ROW PACKAGES	ISSUE D	DATE MAY 2007	MO-247	SHEET 2 OF 12

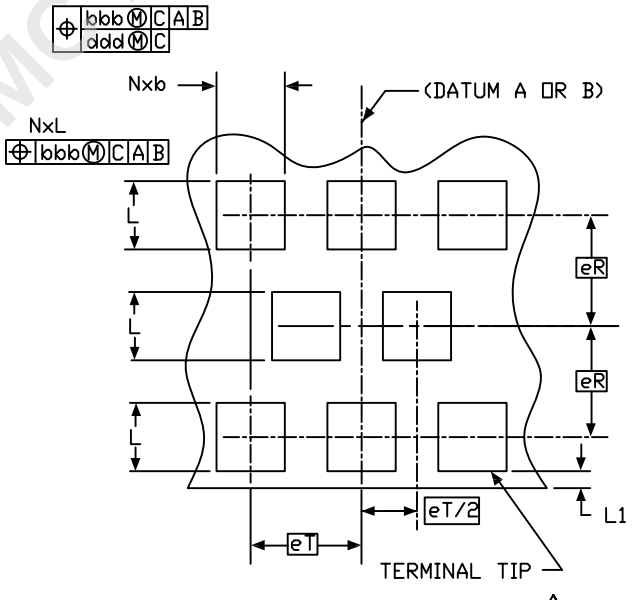




3-ROW WITHOUT RING
BOTTOM VIEW



EVEN TERMINAL/SIDE



ODD TERMINAL/SIDE

DETAIL B 10

JEDEC SOLID STATE PRODUCT OUTLINE	PLASTIC QUAD NO-LEAD STAGGERED MULTI-ROW PACKAGES	ISSUE D	DATE MAY 2007	MO-247	SHEET 3 OF 12

TABLE 1

VARIATION DESIGNATORS									
FIRST DIGIT CODE		SECOND DIGIT CODE		THIRD DIGIT CODE		FOURTH DIGIT CODE		FIFTH DIGIT CODE	
TERMINAL CONFIGURATION		*OVERALL HEIGHT*		*BODY LENGTH*		*BODY WIDTH*		*TERMINAL PITCH*	
–	LETTER CODE	A	LETTER CODE	D	LETTER CODE	E	LETTER CODE	eT	LETTER CODE
2-ROW	A	1.00 MAX.	V	1.0	A	1.0	A	0.65	A
2-ROW + RING	B	0.80 MAX.	W	1.5	B	1.5	B	0.50	B
3-ROW	C	0.65 MAX.	U	2.0	C	2.0	C	0.40	C
–	–	–	–	2.5	D	2.5	D	–	–
–	–	–	–	3.0	E	3.0	E	–	–
–	–	–	–	3.5	F	3.5	F	–	–
–	–	–	–	4.0	G	4.0	G	–	–
–	–	–	–	4.5	H	4.5	H	–	–
–	–	–	–	5.0	J	5.0	J	–	–
–	–	–	–	6.0	K	6.0	K	–	–
–	–	–	–	7.0	L	7.0	L	–	–
–	–	–	–	8.0	M	8.0	M	–	–
–	–	–	–	9.0	N	9.0	N	–	–
–	–	–	–	10.0	P	10.0	P	–	–
–	–	–	–	11.0	Q	11.0	Q	–	–
–	–	–	–	12.0	R	12.0	R	–	–
–	–	–	–	13.0	S	13.0	S	–	–
–	–	–	–	14.0	T	14.0	T	–	–
–	–	–	–	15.0	U	15.0	U	–	–
–	–	–	–	16.0	V	16.0	V	–	–
–	–	–	–	17.0	W	17.0	W	–	–
–	–	–	–	18.0	Y	18.0	Y	–	–
–	–	–	–	19.0	Z	19.0	Z	–	–

TABLE 2

TERMINAL PITCH [eT]									
SYMBOL	0.65 BSC			0.50 BSC			0.40 BSC		
	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX
b	0.35	–	0.45	0.25	–	0.35	0.15	–	0.25
L	0.35	–	0.45	0.25	–	0.35	0.20	–	0.30
[eR]	0.65 BSC			0.50 BSC			0.50 BSC		
NOTES	1,2,10								
REF	11–767								
ISSUE	D								

TABLE 3

COMMON DIMENSIONS

SYMBOL	V: VERY THIN			W: VERY VERY THIN			U: ULTRA THIN		
	MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.70	0.75	0.80	0.55	0.60	0.65
A1	0.00	–	0.13	0.00	–	0.13	0.00	–	0.13
d	0.25	–	0.35	0.25	–	0.35	0.25	–	0.35
k	0.20	–	–	0.20	–	–	0.20	–	–
L1	0.05	–	0.15	0.05	–	0.15	0.05	–	0.15
TOLERANCE OF FORM & POSITION									
aaa	0.15								
bbb	0.10 (0.07 for eT =0.40 mm)								
ccc	0.10								
ddd	0.05								
eee	0.08								
fff	0.10								
NOTES	1,2								
REF	11–639, 11–721, 11–767								
ISSUE	D								

TABLE 4

SUMMARY TABLE FOR TWO ROW

7

BODY SIZE	LEAD PITCH	LEAD COUNT	VERY THIN PROFILE	VERY VERY THIN PROFILE	ULTRA THIN PROFILE
7.00 X 7.00	0.40	116	AVLLC	AWLLC	AULLC
	0.50	92	AVLLB	AWLLB	AULLB
	0.65	68	AVLLA	AWLLA	AULLA
8.00 X 8.00	0.40	132	AVMMC	AWMMC	AUMMC
	0.50	108	AVMMB	AWMMB	AUMMB
	0.65	76	AVMMA	AWMMA	AUMMA
9.00 X 9.00	0.40	156	AVNNC	AWNNC	AUNNC
	0.50	124	AVNNB	AWNNB	AUNNB
	0.65	92	AVNNA	AWNNA	AUNNA
10.00 X 10.00	0.40	172	AVPPC	AWPPC	AUPPC
	0.50	140	AVPPB	AWPPB	AUPPB
	0.65	100	AVPPA	AWPPA	AUPPA
11.00 X 11.00	0.40	196	AVQQC	AWQQC	AUQQC
	0.50	156	AVQQB	AWQQB	AUQQB
	0.65	116	AVQQA	AWQQA	AUQQA
12.00 X 12.00	0.40	212	AVRRC	AWRRC	AURRC
	0.50	172	AVRRB	AWRRB	AURRB
	0.65	124	AVRRA	AWRRA	AURRA
13.00 X 13.00	0.40	236	AVSSC	AWSSC	AUSSC
	0.50	188	AVSSB	AWSSB	AUSSB
	0.65	140	AVSSA	AWSSA	AUSSA
14.00 X 14.00	0.40	252	AVTTC	AWTTC	AUTTC
	0.50	204	AVTTB	AWTTB	AUTTB
	0.65	148	AVTTA	AWTTA	AUTTA
15.00 X 15.00	0.40	276	AVUUC	AWUUC	AUUUC
	0.50	220	AVUUB	AWUUB	AUUUB
	0.65	164	AVUUA	AWUUA	AUUUA

TABLE 5

SUMMARY TABLE FOR TWO ROW + RING					
BODY SIZE	LEAD PITCH	LEAD COUNT	VERY THIN PROFILE	VERY VERY THIN PROFILE	ULTRA THIN PROFILE
7.00 X 7.00	0.40	116	BVLLC	BWLLC	BULLC
	0.50	92	BVLLB	BWLLB	BULLB
	0.65	68	BVLLA	BWLLA	BULLA
8.00 X 8.00	0.40	132	BVMMC	BWMMC	BUMMC
	0.50	108	BVMMB	BWMMB	BUMMB
	0.65	76	BVMMA	BWMMA	BUMMA
9.00 X 9.00	0.40	156	BVNNC	BWNNC	BUNNC
	0.50	124	BVNNB	BWNNB	BUNNB
	0.65	92	BVNNA	BWNNA	BUNNA
10.00 X 10.00	0.40	172	BVPPC	BWPPC	BUPPC
	0.50	140	BVPPB	BWPPB	BUPPB
	0.65	100	BVPPA	BWPPA	BUPPA
11.00 X 11.00	0.40	196	BVQQC	BWQQC	BUQQC
	0.50	156	BVQQB	BWQQB	BUQQB
	0.65	116	BVQQA	BWQQA	BUQQA
12.00 X 12.00	0.40	212	BVRRC	BWRRC	BURRC
	0.50	172	BVRRB	BWRRB	BURRB
	0.65	124	BVRRA	BWRRA	BURRA
13.00 X 13.00	0.40	236	BVSSC	BWSSC	BUSSC
	0.50	188	BVSSB	BWSSB	BUSSB
	0.65	140	BVSSA	BWSSA	BUSSA
14.00 X 14.00	0.40	252	BVTTC	BWTTC	BUTTC
	0.50	204	BVTTB	BWTTB	BUTTB
	0.65	148	BVTTA	BWTTA	BUTTA
15.00 X 15.00	0.40	276	BVUUC	BWUUC	BUUUC
	0.50	220	BVUUB	BWUUB	BUUUB
	0.65	164	BVUUA	BWUUA	BUUUA

TABLE 6

SUMMARY TABLE FOR THREE ROW					
BODY SIZE	LEAD PITCH	LEAD COUNT	VERY THIN PROFILE	VERY VERY THIN PROFILE	ULTRA THIN PROFILE
7.00 X 7.00	0.40	156	CVLLC	CWLLC	CULLC
	0.50	128	CVLLB	CWLLB	CULLB
8.00 X 8.00	0.40	180	CVMMC	CWMMC	CUMMC
	0.50	152	CVMMB	CWMMB	CUMMB
9.00 X 9.00	0.40	216	CVNNC	CWNNC	CUNNC
	0.50	176	CVNNB	CWNNB	CUNNB
10.00 X 10.00	0.40	240	CVPPC	CWPPC	CUPPC
	0.50	200	CVPPB	CWPPB	CUPPB
11.00 X 11.00	0.40	276	CVQQC	CWQQC	CUQQC
	0.50	224	CVQQB	CWQQB	CUQQB
12.00 X 12.00	0.40	300	CVRRC	CWRRC	CURRC
	0.50	248	CVRRB	CWRRB	CURRB
13.00 X 13.00	0.40	336	CVSSC	CWSSC	CUSSC
	0.50	272	CVSSB	CWSSB	CUSSB
14.00 X 14.00	0.40	360	CVTTC	CWTTC	CUTTC
	0.50	296	CVTTB	CWTTB	CUTTB
15.00 X 15.00	0.40	396	CVUUC	CWUUC	CUUUC
	0.50	320	CVUUB	CWUUB	CUUUB

TABLE 7

eT = 0.40mm PITCH, (2 ROW)											
VARIATION / SYMBOL		AVLLC AWLLC AULLC	AVMMC AWMMC AUMMC	AVNNC AWNNC AUNNC	AVPPC AWPPC AUPPC	AVQQC AWQQC AUQQC	AVRRC AWRRC AURRC	AVSSC AWSSC AUSSC	AVTTC AWTTC AUTTC	AVUUC AWUUC AUUUC	NOTE
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
	NOM	4.80	5.80	6.80	7.80	8.80	9.80	10.80	11.80	12.80	
	MAX	4.85	5.85	6.85	7.85	8.85	9.85	10.85	11.85	12.85	
E2	MIN	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
	NOM	4.80	5.80	6.80	7.80	8.80	9.80	10.80	11.80	12.80	
	MAX	4.85	5.85	6.85	7.85	8.85	9.85	10.85	11.85	12.85	
D3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
E3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
N		116	132	156	172	196	212	236	252	276	
NDA		15	17	20	22	25	27	30	32	35	
NDB		12	14	17	19	22	24	27	29	32	
NEA		15	17	20	22	25	27	30	32	35	
NEB		12	14	17	19	22	24	27	29	32	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

TABLE 8

eT = 0.40mm PITCH, (2 ROW + RING)											
VARIATION / SYMBOL		BVLLC BWLLC BULLC	BVMMC BWMMC BUMMC	BVNNC BWNNC BUNNC	BVPPC BWPPC BUPPC	BVQQC BWQQC BUQQC	BVRRC BWRRC BURRC	BVSSC BWSSC BUSSC	BVTTC BWTTC BUTTC	BVQQC BWQQC BUQQC	NOTE
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	3.65	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	
	NOM	3.70	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	
	MAX	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	
E2	MIN	3.65	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	
	NOM	3.70	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	
	MAX	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	
D3	MIN	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
	NOM	4.80	5.80	6.80	7.80	8.80	9.80	10.80	11.80	12.80	
	MAX	4.85	5.85	6.85	7.85	8.85	9.85	10.85	11.85	12.85	
E3	MIN	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
	NOM	4.80	5.80	6.80	7.80	8.80	9.80	10.80	11.80	12.80	
	MAX	4.85	5.85	6.85	7.85	8.85	9.85	10.85	11.85	12.85	
N		116	132	156	172	196	212	236	252	276	
NDA		15	17	20	22	25	27	30	32	35	
NDB		12	14	17	19	22	24	27	29	32	
NEA		15	17	20	22	25	27	30	32	35	
NEB		12	14	17	19	22	24	27	29	32	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

TABLE 9

eT = 0.50mm PITCH, (2 ROW)											
VARIATION / SYMBOL		AVLLB AWLLB AULLB	AVMMB AWMMB AUMMB	AVNNB AWNNB AUNNB	AVPPB AWPPB AUPPB	AVQQB AWQQB AUQQB	AVRRB AWRRB AURRB	AVSSB AWSSB AUSSB	AVTTB AWTTB AUTTB	AVUUB AWUUB AUUUB	NOTE
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	12.65	
	NOM	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	12.70	
	MAX	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
E2	MIN	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	12.65	
	NOM	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	12.70	
	MAX	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
D3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
E3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
N		92	108	124	140	156	172	188	204	220	
NDA		12	14	16	18	20	22	24	26	28	
NDB		9	11	13	15	17	19	21	23	25	
NEA		12	14	16	18	20	22	24	26	28	
NEB		9	11	13	15	17	19	21	23	25	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

TABLE 10

eT = 0.50mm PITCH, (2 ROW + RING)											
VARIATION / SYMBOL		BVLLB BWLLB BULLB	BVMMB BWMMB BUMMB	BVNNB BWNNB BUNNB	BVPPB BWPPB BUPPB	BVQQB BWQQB BUQQB	BVRRB BWRRB BURRB	BVSSB BWSSB BUSSB	BVTTB BWTTB BUTTB	BVUUB BWUUB BUUUB	NOTE
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	3.55	4.55	5.55	6.55	7.55	8.55	9.55	10.55	11.55	
	NOM	3.60	4.60	5.60	6.60	7.60	8.60	9.60	10.60	11.60	
	MAX	3.65	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	
E2	MIN	3.55	4.55	5.55	6.55	7.55	8.55	9.55	10.55	11.55	
	NOM	3.60	4.60	5.60	6.60	7.60	8.60	9.60	10.60	11.60	
	MAX	3.65	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	
D3	MIN	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	12.65	
	NOM	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	12.70	
	MAX	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
E3	MIN	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	12.65	
	NOM	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	12.70	
	MAX	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	12.75	
N		92	108	124	140	156	172	188	204	220	
NDA		12	14	16	18	20	22	24	26	28	
NDB		9	11	13	15	17	19	21	23	25	
NEA		12	14	16	18	20	22	24	26	28	
NEB		9	11	13	15	17	19	21	23	25	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

TABLE 11

eT = 0.65mm PITCH, (2 ROW)											
VARIATION / SYMBOL		AVLLA AWLLA AULLA	AVMMA AWMMA AUMMA	AVNNA AWNNA AUNNA	AVPPA AWPPA AUPPA	AVQQA AWQQA AUQQA	AVRRA AWRRA AURRA	AVSSA AWSSA AUSSA	AVTTA AWTTA AUTTA	AVUUA AWUUA AUUUA	NOTE
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	4.15	5.15	6.15	7.15	8.15	9.15	10.15	11.15	12.15	
	NOM	4.20	5.20	6.20	7.20	8.20	9.20	10.20	11.20	12.20	
	MAX	4.25	5.25	6.25	7.25	8.25	9.25	10.25	11.25	12.25	
E2	MIN	4.15	5.15	6.15	7.15	8.15	9.15	10.15	11.15	12.15	
	NOM	4.20	5.20	6.20	7.20	8.20	9.20	10.20	11.20	12.20	
	MAX	4.25	5.25	6.25	7.25	8.25	9.25	10.25	11.25	12.25	
D3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
E3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
N		68	76	92	100	116	124	140	148	164	
NDA		9	10	12	13	15	16	18	19	21	
NDB		6	7	9	10	12	13	15	16	18	
NEA		9	10	12	13	15	16	18	19	21	
NEB		6	7	9	10	12	13	15	16	18	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

TABLE 12

eT = 0.65mm PITCH, (2 ROW + RING)											
VARIATION / SYMBOL		BVLLA BWLLA BULLA	BVMMA BWMMA BUMMA	BVNNA BWNNA BUNNA	BVPPA BWPPA BWPPA	BVQQA BWQQA BWQQA	BVRRA BWRRA BWRRA	BVSSA BWSSA BWSSA	BVTTA BWTTA BWTTA	BVUUA BWUUA BWUUA	NOTE
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	3.05	4.05	5.05	6.05	7.05	8.05	9.05	10.05	11.05	
	NOM	3.10	4.10	5.10	6.10	7.10	8.10	9.10	10.10	11.10	
	MAX	3.15	4.15	5.15	6.15	7.15	8.15	9.15	10.15	11.15	
E2	MIN	3.05	4.05	5.05	6.05	7.05	8.05	9.05	10.05	11.05	
	NOM	3.10	4.10	5.10	6.10	7.10	8.10	9.10	10.10	11.10	
	MAX	3.15	4.15	5.15	6.15	7.15	8.15	9.15	10.15	11.15	
D3	MIN	4.15	5.15	6.15	7.15	8.15	9.15	10.15	11.15	12.15	
	NOM	4.20	5.20	6.20	7.20	8.20	9.20	10.20	11.20	12.20	
	MAX	4.25	5.25	6.25	7.25	8.25	9.25	10.25	11.25	12.25	
E3	MIN	4.15	5.15	6.15	7.15	8.15	9.15	10.15	11.15	12.15	
	NOM	4.20	5.20	6.20	7.20	8.20	9.20	10.20	11.20	12.20	
	MAX	4.25	5.25	6.25	7.25	8.25	9.25	10.25	11.25	12.25	
N		68	76	92	100	116	124	140	148	164	
NDA		9	10	12	13	15	16	18	19	21	
NDB		6	7	9	10	12	13	15	16	18	
NEA		9	10	12	13	15	16	18	19	21	
NEB		6	7	9	10	12	13	15	16	18	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

TABLE 13

eT = 0.40mm PITCH, (3 ROW)											
VARIATION / SYMBOL		CVLLC	CVMMC	CVNNC	CVPPC	CVQQC	CVRRC	CVSSC	CVTTC	CVUUC	NOTE
		CWLLC	CWMMC	CWNNC	CWPPC	CWQQC	CWRRC	CWSSC	CWTTC	CWUUC	
		CULLC	CUMMC	CUNNC	CUPPC	CUQQC	CURRC	CUSSC	CUTTC	CUUUC	
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	
	NOM	3.80	4.80	5.80	6.80	7.80	8.80	9.80	10.80	11.80	
	MAX	3.85	4.85	5.85	6.85	7.85	8.85	9.85	10.85	11.85	
E2	MIN	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	
	NOM	3.80	4.80	5.80	6.80	7.80	8.80	9.80	10.80	11.80	
	MAX	3.85	4.85	5.85	6.85	7.85	8.85	9.85	10.85	11.85	
D3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
E3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
N		156	180	216	240	276	300	336	360	396	
NDA		15	17	20	22	25	27	30	32	35	
NDB		12	14	17	19	22	24	27	29	32	
NDC		9	11	14	16	19	21	24	26	29	
NEA		15	17	20	22	25	27	30	32	35	
NEB		12	14	17	19	22	24	27	29	32	
NEC		9	11	14	16	19	21	24	26	29	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

TABLE 14

eT = 0.50mm PITCH, (3 ROW)											
VARIATION / SYMBOL		CVLLB	CVMMB	CVNNB	CVPPB	CVQQB	CVRRB	CVSSB	CVTTB	CVUUB	NOTE
		CWLLB	CWMMB	CWNNB	CWPPB	CWQQB	CWRRB	CWSSB	CWTTB	CWUUB	
		CULLB	CUMMB	CUNNB	CUPPB	CUQQB	CURRB	CUSSB	CUTTB	CUUUB	
D BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
E BSC.		7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	
D2	MIN	3.65	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	
	NOM	3.70	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	
	MAX	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	
E2	MIN	3.65	4.65	5.65	6.65	7.65	8.65	9.65	10.65	11.65	
	NOM	3.70	4.70	5.70	6.70	7.70	8.70	9.70	10.70	11.70	
	MAX	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75	
D3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
E3	MIN	–	–	–	–	–	–	–	–	–	
	NOM	–	–	–	–	–	–	–	–	–	
	MAX	–	–	–	–	–	–	–	–	–	
N		128	152	176	200	224	248	272	296	320	
NDA		12	14	16	18	20	22	24	26	28	
NDB		9	11	13	15	17	19	21	23	25	
NDC		8	10	12	14	16	18	20	22	24	
NEA		12	14	16	18	20	22	24	26	28	
NEB		9	11	13	15	17	19	21	23	25	
NEC		8	10	12	14	16	18	20	22	24	
NOTES		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	
REF		11–746									
ISSUE		C									

NOTES:

1. Dimensioning and tolerancing schemes conform to ASME Y14.5M–1994.
2. All dimensions are in millimeters.
3. Terminal A1 identifier and terminal numbering convention shall conform to JEP95 SPP–002. Terminal A1 identifier must be located within the zone indicated on the outline drawing. Topside terminal A1 indicator may be a molded, marked, or metallized feature. Optional indicator on bottom surface may be a molded, marked or metallized feature. See Detail D for examples of pin 1 indicators.
4. "N" is the maximum number of terminal positions for the specified body size. Depopulation is allowed, but only under the following conditions.

   a– Depopulation scheme must be consistent in each quadrant of the package.

   b– Non–symmetric variations should be broken out as separate mechanical outline variations, including depopulation graphics.

5. Outlines with "D" and "E" increments less than 0.5 mm should be registered as "stand alone" outlines. These outlines should use as many of the algorithms and dimensions stated in the design standard as possible to insure predictability in manufacturing.
6. Inner edge of corner terminals may be chamfered or rounded in order to achieve minimum gap "k". This feature should not affect the terminal width "b", which is measured L/2 from the edge of the package body.
7. For a complete set of dimensions for each variation, see the individual variation tables and the common dimensions and tolerance on pages 4 & 5.
8. Various companies have patents and related patent applications that may apply to this registration. If the current patents or later patents resulting from related applications do apply, these companies intend to comply with the JEDEC patent policy and license under reasonable terms and conditions that are demonstrably free of any unfair discrimination. Reference patents are as follows:

ASAT	US PATENT #'s 6,498,099; 6,635,957; 6,872,661; 6,933,594; 6,946,324; 6,964,918; 6,989,294; 6,995,460 7,009,286; 7,033,517; 7,049,177; 7,081,403
AIT	US PATENT #'s 6,812,552; 7,129,116

9. Diameter not greater than "b" maximum.
10. Dimensions "b" and "L" are measured at package surface.

Change Record

If the changes involves any words added or deleted (excluding deletion of accidentally repeated words), the change is included. Punctuation changes may or may not be included.

Initial Issue: A	Date: October 2003	Item Number: 11.11-639

Revision History:

Issue: B	Date: May 2005	Item Number: 11.11-721

Location	Change from:	Change to:
Table 1	W and U thickness profiles	V, W and U thickness profiles
Pages 1-3	Datums A and B shown	Switched datums A and B
Page 11	1 ASAT patent shown	Added 6,635,957 & 6,872,661

Issue: C	Date: March 2006	Item Number: 11.11-746

Location	Change from:	Change to:
Page 1	Corner terminal dimension = LC	Corner terminal dimension = L
Table 2	Values of LC shown	Delete LC from the table
Tables 4-14	N, NDA, NDB, NDC, NEA, NEB and NEC per DGuide 4.19B	N, NDA, NDB, NDC, NEA, NEB and NEC per DGuide 4.19C
	Non-existent	Added 11x11, 14x14 and 15x15mm body sizes
Pages 1-3	Non-existent	Corner terminals added to 2nd and 3rd rows
Page 11, Note 3	...conform to JESD30.	...conform to JEP95 SPP-002.
Page 11, Note 7	Any...variation tables.	(Delete Note 7 and renumber)
Page 11, Note 8	3 ASAT patents shown	Added 5 more patent numbers

Issue: D	Date: May 2007	Item Number: 11.11-767

Location	Change from:	Change to:
Page 1		Added Detail D, Detail E and Note 3 and 9 reference
Page 2-3		Added Detail D callout and Note 3 and 10 reference
Page 4	Table 2, NOTES: 1,2	Table 2, NOTES: 1,2, 10
Page 5	A1 max. dimension = 0.10	A1 max. dimension = 0.13
Page 11, Note 3		Added reference to Detail D
Page 11	8 ASAT patents shown	Added Notes 9 and 10. Added 2 AIT and 4 ASAT patent numbers.