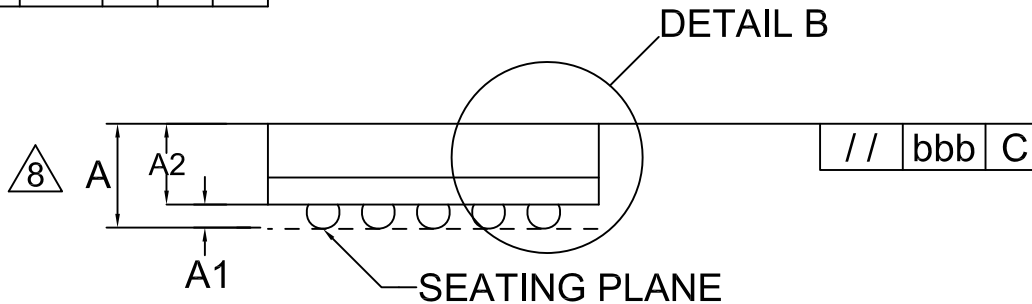
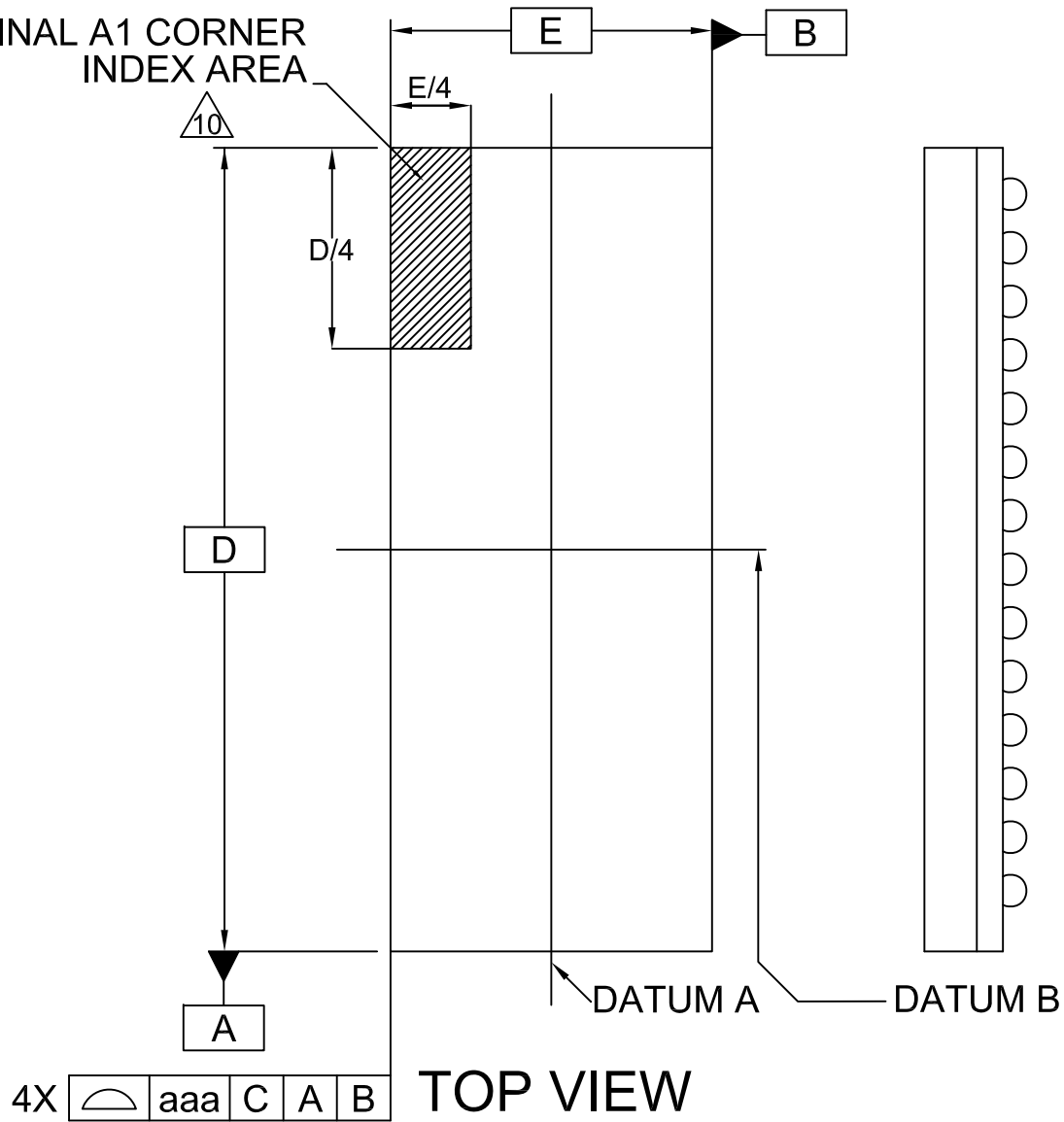


FIGURE 1

TERMINAL A1 CORNER INDEX AREA



REVISIONS

REV	DESCRIPTION	DATE	APPROVED
00	INITIAL RELEASE	01/17/12	CK LEE
01	COMBINE POD and LAND PATTERN	4/1/13	RC
02	CHANGED PACKAGE HEIGHT TO 1.074 ± 0.080 mm	09/09/13	CM YEW
03	ADD NOMINAL AND MAXIMUM VALUE FOR b1	10/31/13	CK LEE

TOLERANCES
UNLESS SPECIFIED
DECIMAL ANGULAR
XX±.1 ±
XXX±.05
XXXX±.030



6024 Silver Creek Valley Rd
San Jose, CA 95138
PHONE: (408) 284-8200
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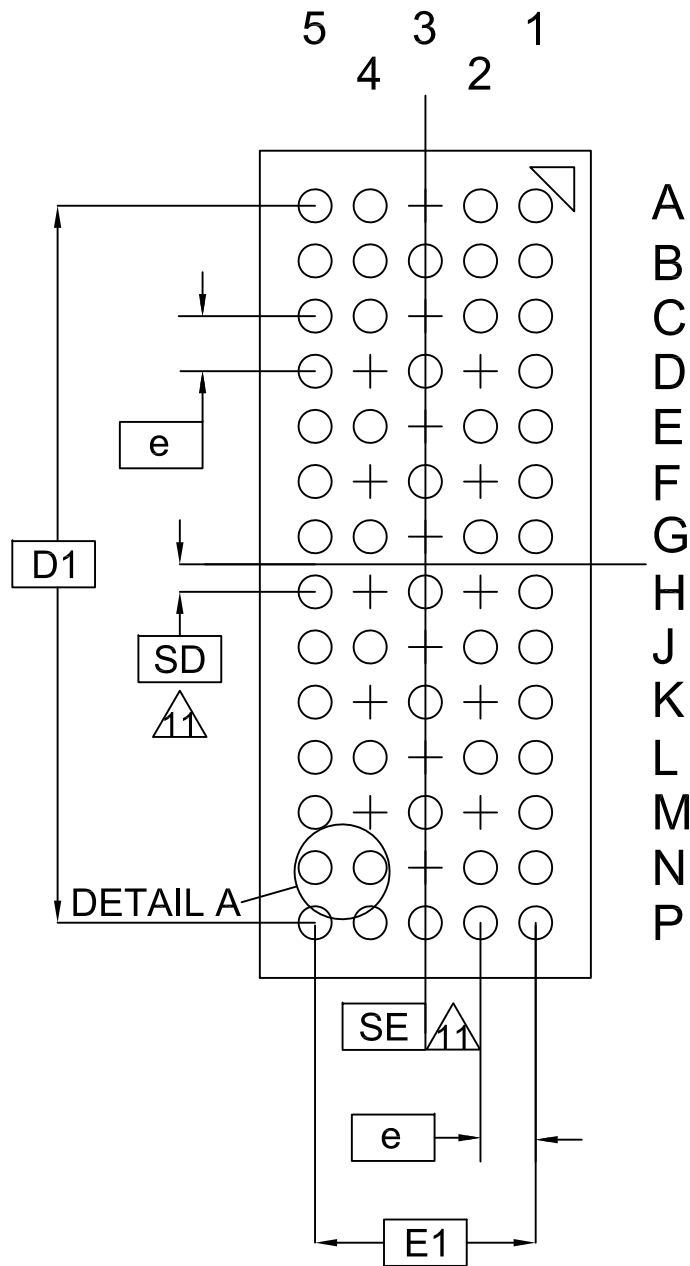
APPROVALS DATE
DRAWN *CS* 01/17/12
CHECKED

TITLE
AVG53 3.00 X 7.50 mm BODY
0.5MM PITCH CVBGA

SIZE
C

DRAWING No. PSC-4403
REV 03
DO NOT SCALE DRAWING SHEET 1 OF 6

FIGURE 2



BOTTOM VIEW
(BALL SIDE VIEW)

+ = DEPOPULATED BALL POSITION

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
00	INITIAL RELEASE	01/17/12	CK LEE
01	COMBINE POD and LAND PATTERN	4/1/13	RC
02	CHANGED PACKAGE HEIGHT TO 1.074 ± 0.080 mm	09/09/13	CM YEW
03	ADD NOMINAL AND MAXIMUM VALUE FOR b1	10/31/13	CK LEE


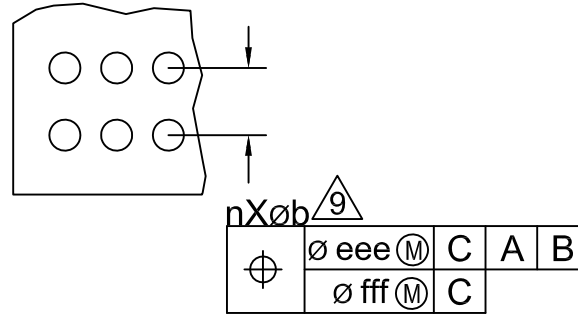
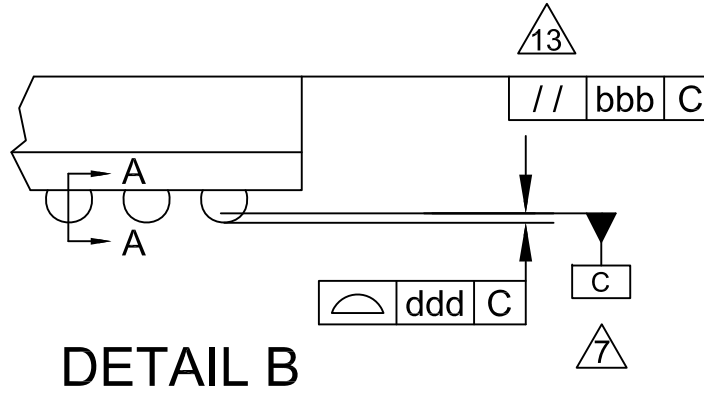
TOLERANCES UNLESS SPECIFIED		 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 284-8200 FAX: (408) 284-2775 www.IDT.com
DECIMAL	ANGULAR	
XX±.1	±	
XXX±.05		
CHECKED	DATE	TITLE
	01/17/12	AVG53 3.00 X 7.50 mm BODY 0.5MM PITCH CVBGA
APPROVALS	DATE	SIZE
DRAWN <i>CS</i>		C
		DRAWING No.
		PSC-4403
		REV
		03
DO NOT SCALE DRAWING		SHEET 2 OF 6

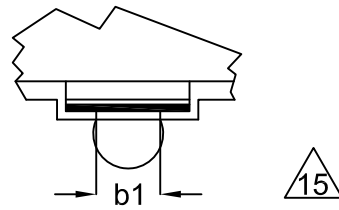
FIGURE 3



DETAIL A




DETAIL B



SECTION A-A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
00	INITIAL RELEASE	01/17/12	CK LEE
01	COMBINE POD and LAND PATTERN	4/1/13	RC
02	CHANGED PACKAGE HEIGHT TO 1.074 ± 0.080 mm	09/09/13	CM YEW
03	ADD NOMINAL AND MAXIMUM VALUE FOR b1	10/31/13	CK LEE

TOLERANCES UNLESS SPECIFIED		 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 284-8200 FAX: (408) 284-2775 www.IDT.com
DECIMAL	ANGULAR	
XX±.1	±	
XXX±.05		
CHECKED	DATE	TITLE
	01/17/12	AVG53 3.00 X 7.50 mm BODY 0.5MM PITCH CVBGA
APPROVALS	DATE	SIZE
DRAWN <i>CS</i>		C
CHECKED		DRAWING No.
		PSC-4403
		REV
		03
DO NOT SCALE DRAWING		SHEET 3 OF 6

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
00	INITIAL RELEASE	01/17/12	CK LEE
01	COMBINE POD and LAND PATTERN	4/1/13	RC
02	CHANGED PACKAGE HEIGHT TO 1.074 ± 0.080 mm	09/09/13	CM YEW
03	ADD NOMINAL AND MAXIMUM VALUE FOR b1	10/31/13	CK LEE

TABLE 1


COMMON DIMENSIONS				
SYMBOLS †	MIN	NOM	MAX	NOTE
b	0.25	0.30	0.35	9
b1	0.225	0.275	0.325	15
e	0.50 BSC			
NOTES	1, 2			
REF	11.11-756			
ISSUE	A			

TABLE 2

TOLERANCES OF FORM AND POSITION	
SYMBOLS	TOLERANCE
aaa	0.15
bbb	0.20
ddd	0.08
eee	0.15
fff	0.05
NOTES	1, 2
REF	11.11-756
ISSUE	A

TABLE 3

VARIATION TABLE			
VARIATION SYMBOLS		AN	NOTES
A	MIN	0.994	8
	NOM	1.074	
	MAX	1.154	
A1	MIN	0.19	8
	NOM	0.24	
	MAX	0.29	
A2	MIN	0.82	8
	NOM	0.88	
	MAX	1.00	
D BSC		7.50	
D1 BSC		6.50	
E BSC		3.00	
E1 BSC		2.00	
MD		14	4, 12
ME		5	4, 12
n		53	5, 12
SD		0.25	11
SE		0.00	11
			14
NOTE		1, 2	
ITEM		11-XXX	
ISSUE		-	

TOLERANCES UNLESS SPECIFIED		 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 284-8200 FAX: (408) 284-2775
DECIMAL	ANGULAR	
XX±.1	±	
XXX±.05		
XXXX±.030		
APPROVALS	DATE	TITLE
DRAWN <i>CS</i>	01/17/12	AVG53 3.00 X 7.50 mm BODY
CHECKED		0.5MM PITCH CVBGA
		SIZE DRAWING No.
		C PSC-4403
		REV
		03
DO NOT SCALE DRAWING		SHEET 4 OF 6

NOTES

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994. THIS OUTLINE CONFORMS TO JEP95, SECTION 4.6.



2. DIMENSIONS ARE IN MILLIMETERS.



3. BALL DESIGNATIONS PER JEP95, SECTION 3, SPP-020.

4. MD AND ME REPRESENT THE MAXIMUM MATRIX SIZE CORRESPONDING TO THE D AND E DIRECTIONS, RESPECTIVELY.

5. n REPRESENTS THE NUMBER OF BALLS POPULATED ON THE BOTTOM SIDE FOR EACH VARIATION.



6. A 14X14 PERIPHERAL MATRIX IS SHOWN FOR ILLUSTRATION ONLY.



7. DATUM C (SEATING PLANE) IS DEFINED BY THE CROWNS OF THE BALLS.



8. PACKAGE PROFILE HEIGHT (A) INCLUDES STAND-OFF HEIGHT (A1) AND BODY THICKNESS (A2).



9. DIMENSION b IS MEASURED AT THE MAXIMUM BALL DIAMETER IN A PLANE PARALLEL TO DATUM C.



10. THE CORNER A1 MUST BE IDENTIFIED ON BOTH THE BOTTOM AND TOP SIDES OF THE PACKAGE. THE IDENTIFICATION FEATURE CAN BE MADE USING INK OR METALIZED MARKINGS, INDENTATIONS, OR OTHER FEATURES. THE EXACT SHAPE OF EACH CORNER IS OPTIONAL.



11. DIMENSIONS SD AND SE ARE MEASURED WITH RESPECT TO DATUMS A AND B AND DEFINE THE POSITION OF THE CENTERMOST BALLS IN THE OUTER ROW FOR A FULLY POPULATED MD X ME. WHEN THERE IS AN ODD NUMBER OF BALLS IN THE OUTER ROW, SD AND SE = 0. WHEN THERE IS AN EVEN NUMBER OF BALLS IN THE OUTER ROW, SD AND SE = e/2.



12. THE BALL ARRAY MAY BE DEPOPULATED IN ANY PATTERN. DEPOPULATION IS THE OMISSION OF BALLS FROM A FULL MD X ME MATRIX.



13. PARALLELISM (bbb) APPLIES ONLY TO THE SURFACE DIRECTLY ABOVE THE DIE AREA FOR GLOB TOP, OVER MOLDED AND / OR FLIP CHIP CONFIGURATIONS. THE PARALLELISM SPECIFICATION WILL NOT APPLY TO ANY FILLET OR SLOPED REGION OF THE ENCAPSULANT.




14. SEE FIGURES 3, 4, and 5 FOR ALL BALL DEPOPULATIONS.

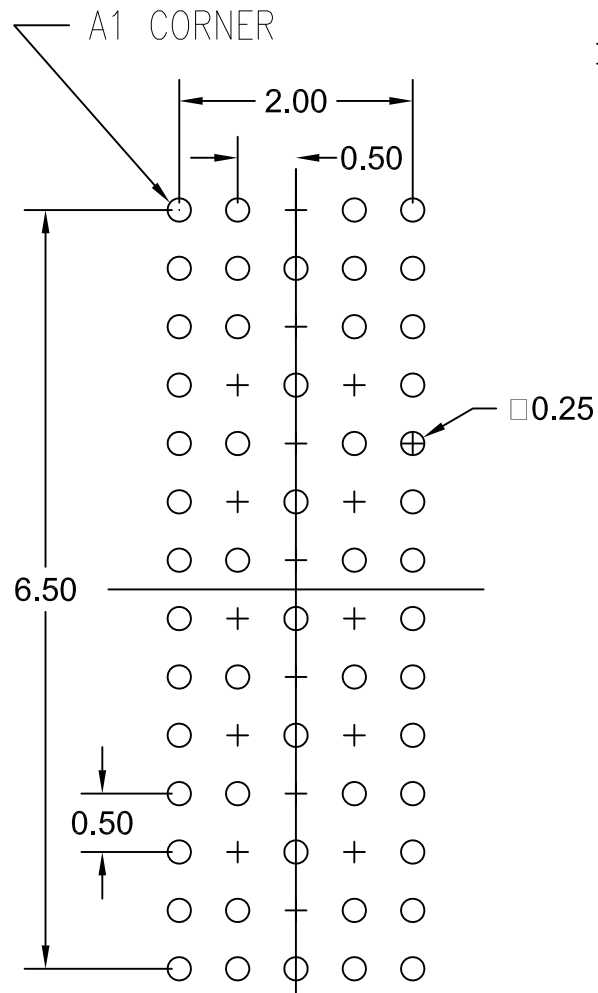


15. THE SOLDERABLE SURFACE MAY BE DEFINED BY AN OPENING IN THE SOLDER RESIST LAYER. IT MAY BE ELLIPTICAL, PROVIDED THE RATIO OF MAJOR TO MINOR AXIS IS NO GREATER THAN 2/1, AND THE SURFACE AREA IS NO LESS THAN THE MINIMUM FOR A CIRCULAR PAD.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
00	INITIAL RELEASE	01/17/12	CK LEE
01	COMBINE POD and LAND PATTERN	4/1/13	RC
02	CHANGED PACKAGE HEIGHT TO 1.074 ± 0.080 mm	09/09/13	CM YEW
03	ADD NOMINAL AND MAXIMUM VALUE FOR b1	10/31/13	CK LEE

TOLERANCES UNLESS SPECIFIED		 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 284-8200 FAX: (408) 284-2775	
DECIMAL	ANGULAR		
XX±.1	±		
XXX±.05		www.IDT.com	
XXXX±.030		TITLE	
APPROVALS	DATE	AVG53 3.00 X 7.50 mm BODY	
DRAWN <i>CC</i>	01/17/12	0.5MM PITCH CVBGA	
CHECKED		SIZE	DRAWING No.
		C	PSC-4403
		REV	03
DO NOT SCALE DRAWING			SHEET 5 OF 6


REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
00	INITIAL RELEASE	01/17/12	CK LEE
01	COMBINE POD and LAND PATTERN	4/1/13	RC
02	CHANGED PACKAGE HEIGHT TO 1.074 ± 0.080 mm	09/09/13	CM YEW
03	ADD NOMINAL AND MAXIMUM VALUE FOR b1	10/31/13	CK LEE



NOTE:

- 1) ALL dimensions are in mm, Angles in degrees.
- 2) Top down view, as view on PCB.
- 3) NSMD Land Pattern Assumed
- 4) Land Pattern Recommendation as per IPC-7351B generic requirement for surface mount design and Land Pattern.

RECOMMENDED LAND PATTERN

TOLERANCES UNLESS SPECIFIED		 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 284-8200 FAX: (408) 284-2775 www.IDT.com	
DECIMAL	ANGULAR	TITLE	
XX±.1	±	AVG53 3.00 X 7.50 mm BODY	
XXX±.05		0.5MM PITCH CVBGA	
XXXX±.030			
APPROVALS	DATE	SIZE	
DRAWN CXC	01/17/12	C	DRAWING No. PSC-4403
CHECKED			REV 03
DO NOT SCALE DRAWING			SHEET 6 OF 6