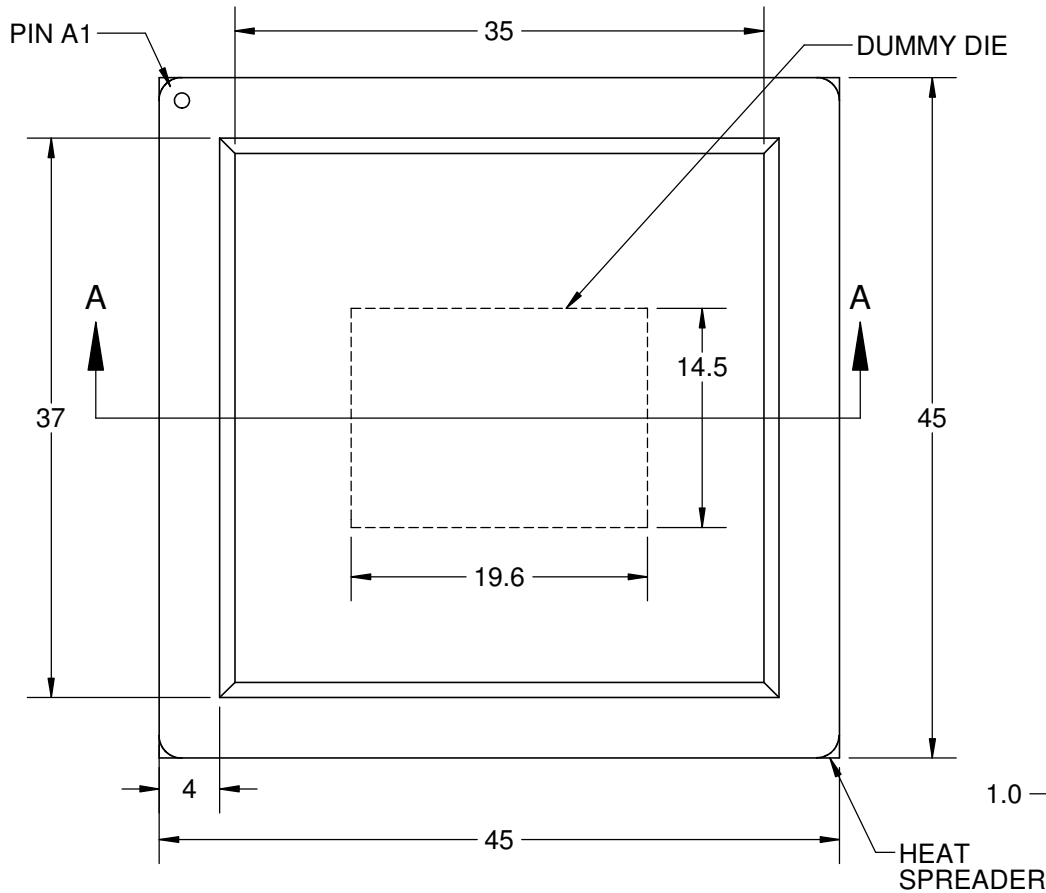
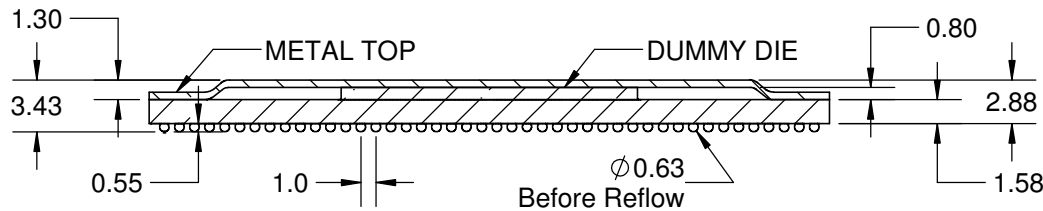
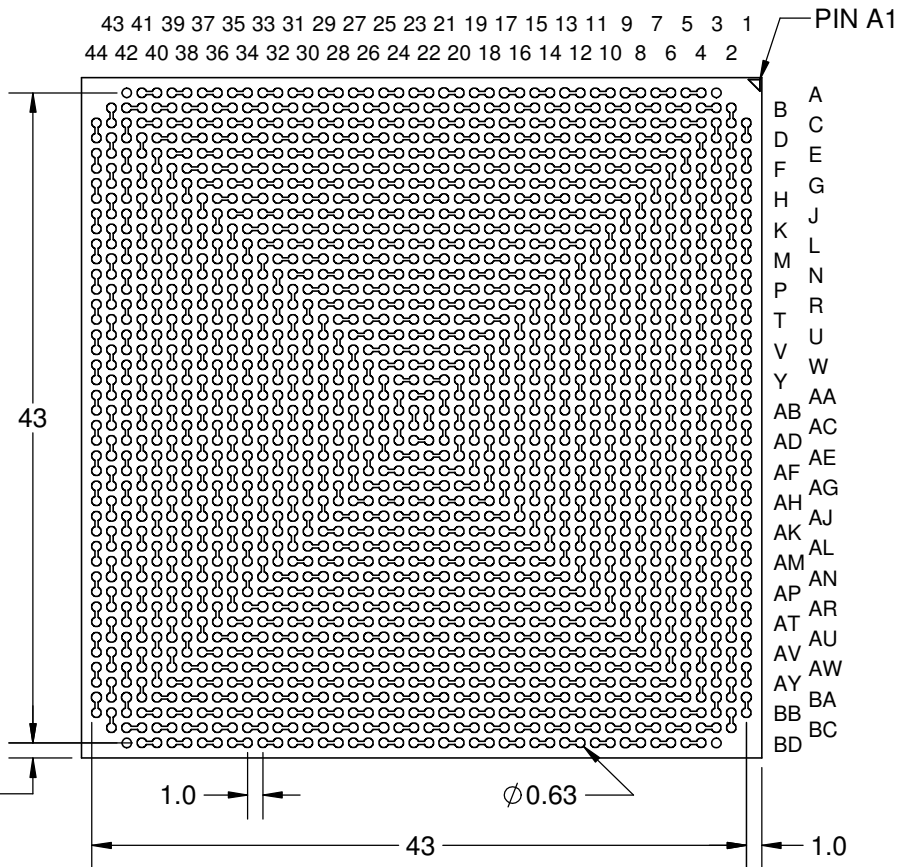


TOP VIEW



BALL VIEW



SECTION A-A

Notes: (Unless Otherwise Specified).

- 1) ALL DIMENSIONS ARE IN MM.
- 2) SOLDER BALL ALLOY: SEE PART NUMBER TABLE.
- 3) BALL DIAMETER (BEFORE REFLOW): 0.635mm (25 MIL).
- 4) SOLDER MASK DEFINED PAD OPENING: 0.508mm (20 MIL).
- 5) PAD Cu DIAMETER: 0.635mm (25 MIL).
- 6) SUBSTRATE MATERIAL: FR4 (ALTERNATE BT or Polyimide).
- 7) DUMMY DIE IS OPTIONAL.
- 8) DAISY CHAIN PATTERN (SEE PAGE 2).
- 9) MSL-3 RECOMMENDED BAKING 24 HOURS @ 125 °C TO REMOVE MOISTURE PRIOR SOLDERING TO PC BOARD.

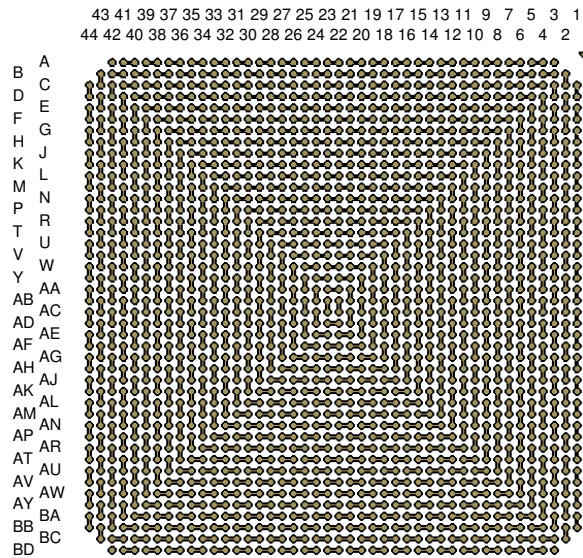
NOTE: FF/FFG1924 to FF/FFG1930 ACTUALLY HAVE 1924 BALLS.

PART NUMBER TABLE

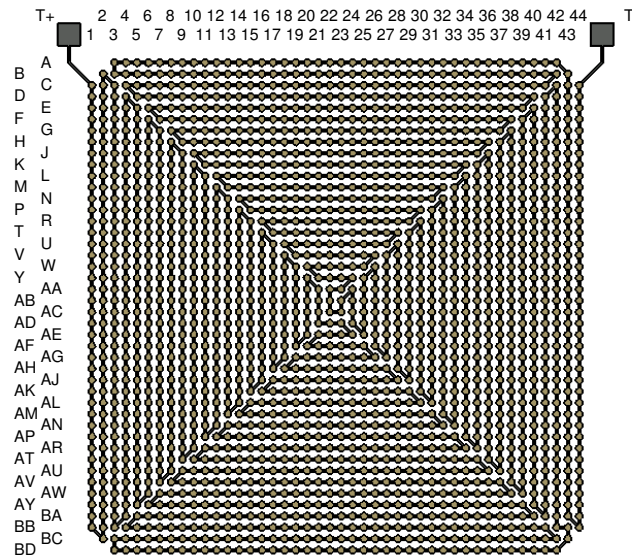
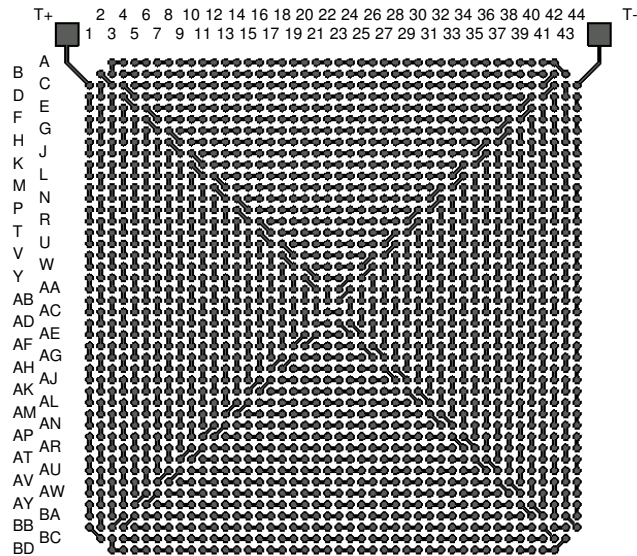
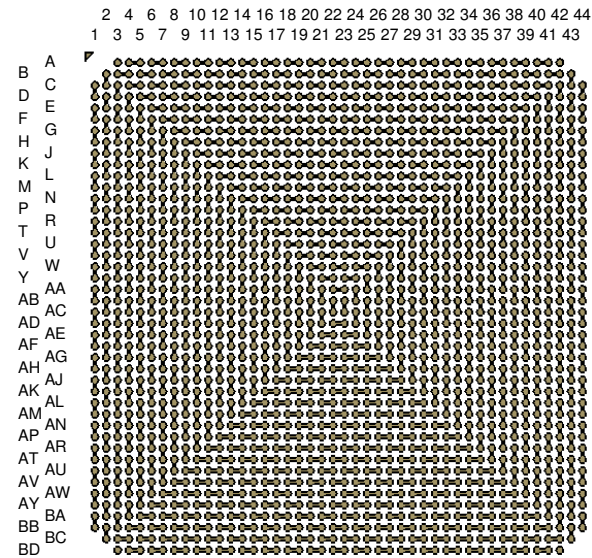
PART NUMBER	BALL ALLOY	BALL ALLOY	RoHS	Si DIE
SBGA1924T1.0C-DC443D	Sn96.5/Ag3.0/Cu0.5	SAC305	YES	YES
SBGA1924T1.0-DC443D	Sn63/Pb37	Sn63	NO	YES

APPROVALS	DATE	TopLine®			
DRAWN T. Au	1/26/2017				
ENG M. Hart	1/26/2017	TITLE SBGA1924T1.0-DC443D DAISY CHAIN DUMMY			
MFG		SCALE	SIZE	DRAWING NO.	REV
QA		2:1	A	514435	A
CUST		DO NOT SCALE DRAWING			SHEET 1 OF 14
REVISED					

BALL VIEW



BOTTOM SIDE (TOP X-RAY VIEW)



TEST VEHICLE BOARD

AFTER MOUNTING

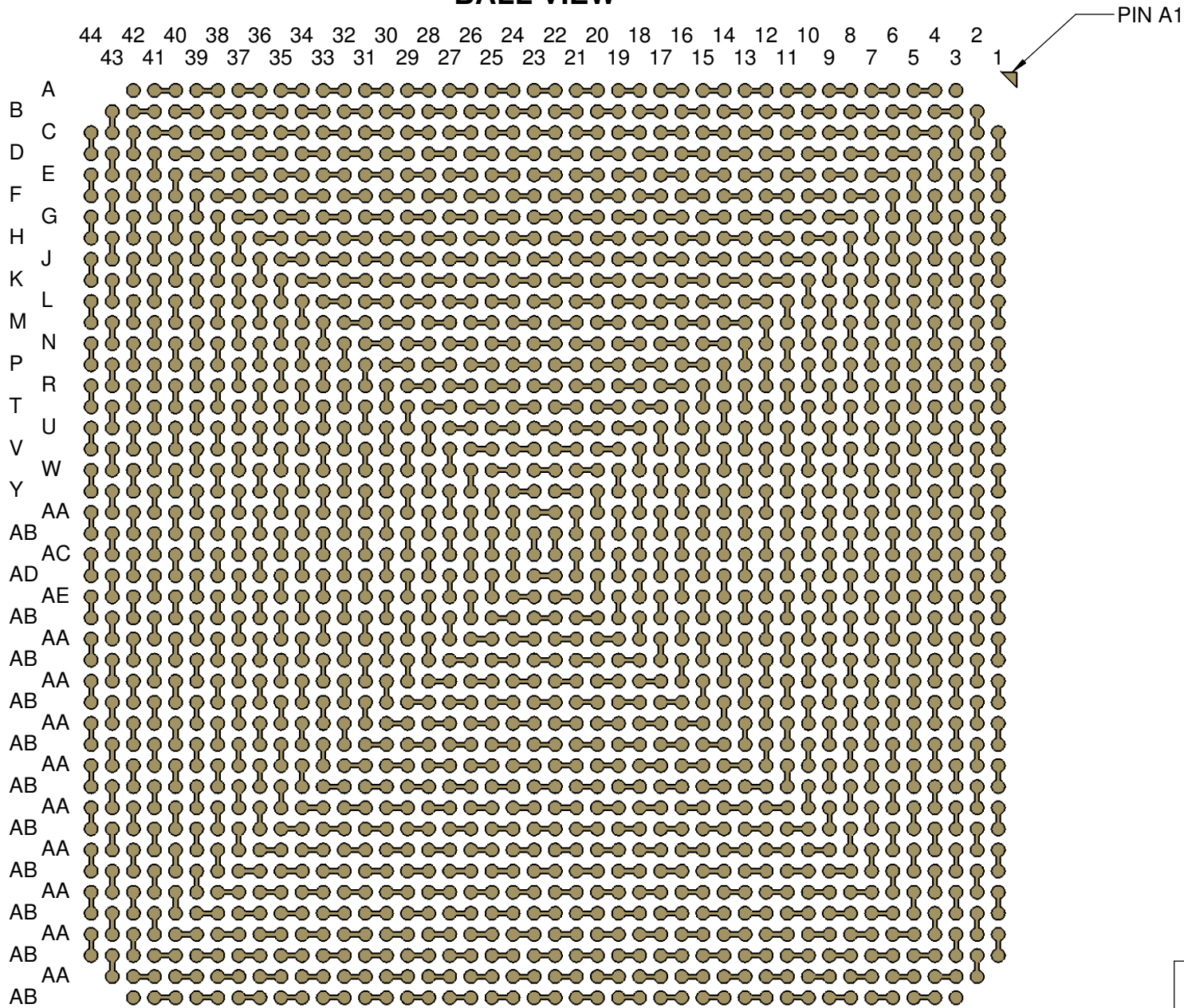
Notes:

- 1) PCB BOARD DIMENSIONS ARE PRESENTD ONLY AS A GUIDELINE. DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.
- 2) PCB Cu BALL PAD DIAMETER 0.635mm [25 MIL].
- 3) PCB DAISY CHAIN TRACING LINE WIDTH 0.204mm [8 MIL].
- 4) SMD (SOLDER MASK DEFINED) PAD OPENING 0.508mm [20 MIL].

TopLine®

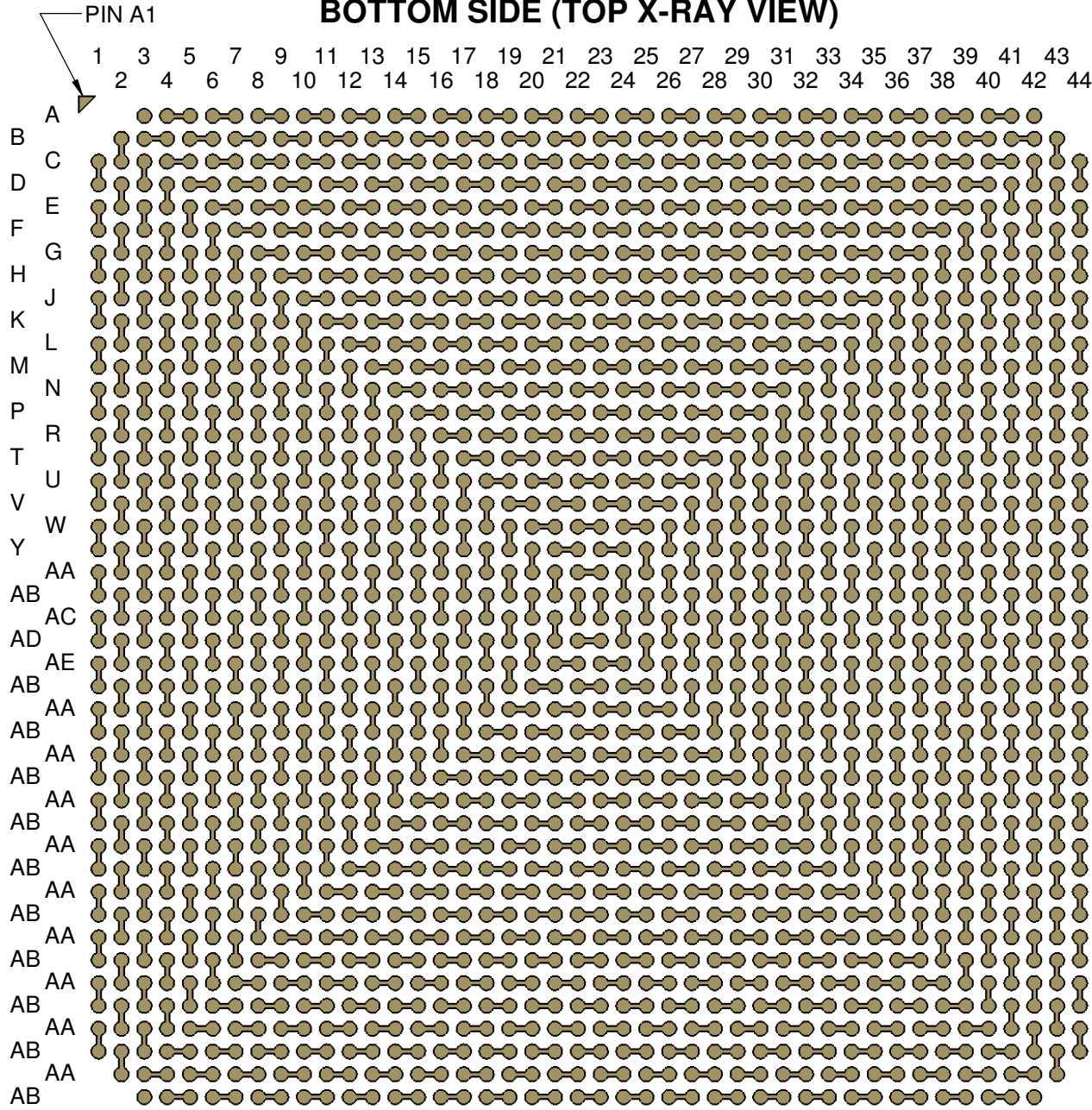
TITLE SBGA1924T1.0-DC443D DAISY CHAIN DUMMY			
SCALE 3:2	SIZE A	DRAWING NO. 514435	REV A
DO NOT SCALE DRAWING		SHEET 2 OF 14	

BALL VIEW



TopLine®			
TITLE SBGA1924T1.0-DC443D DAISY CHAIN DUMMY			
SCALE 3.5:1	SIZE A	DRAWING NO. 514435	REV A
DO NOT SCALE DRAWING			SHEET 3 OF 14

BOTTOM SIDE (TOP X-RAY VIEW)

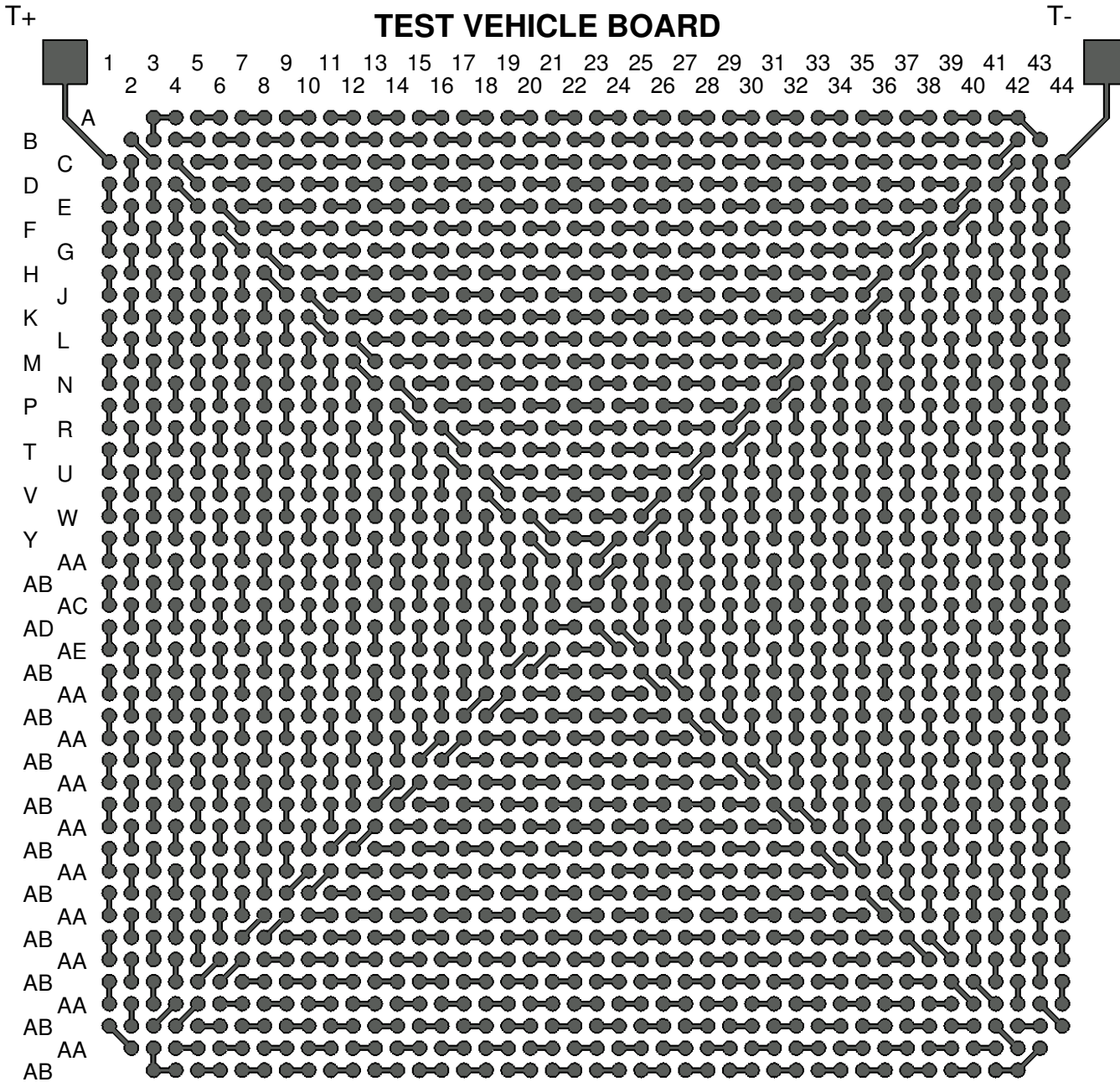


TopLine®

TITLE SBGA1924T1.0-DC443D
 DAISY CHAIN DUMMY

SCALE 3.5:1	SIZE A	DRAWING NO. 514435	REV A
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TEST VEHICLE BOARD



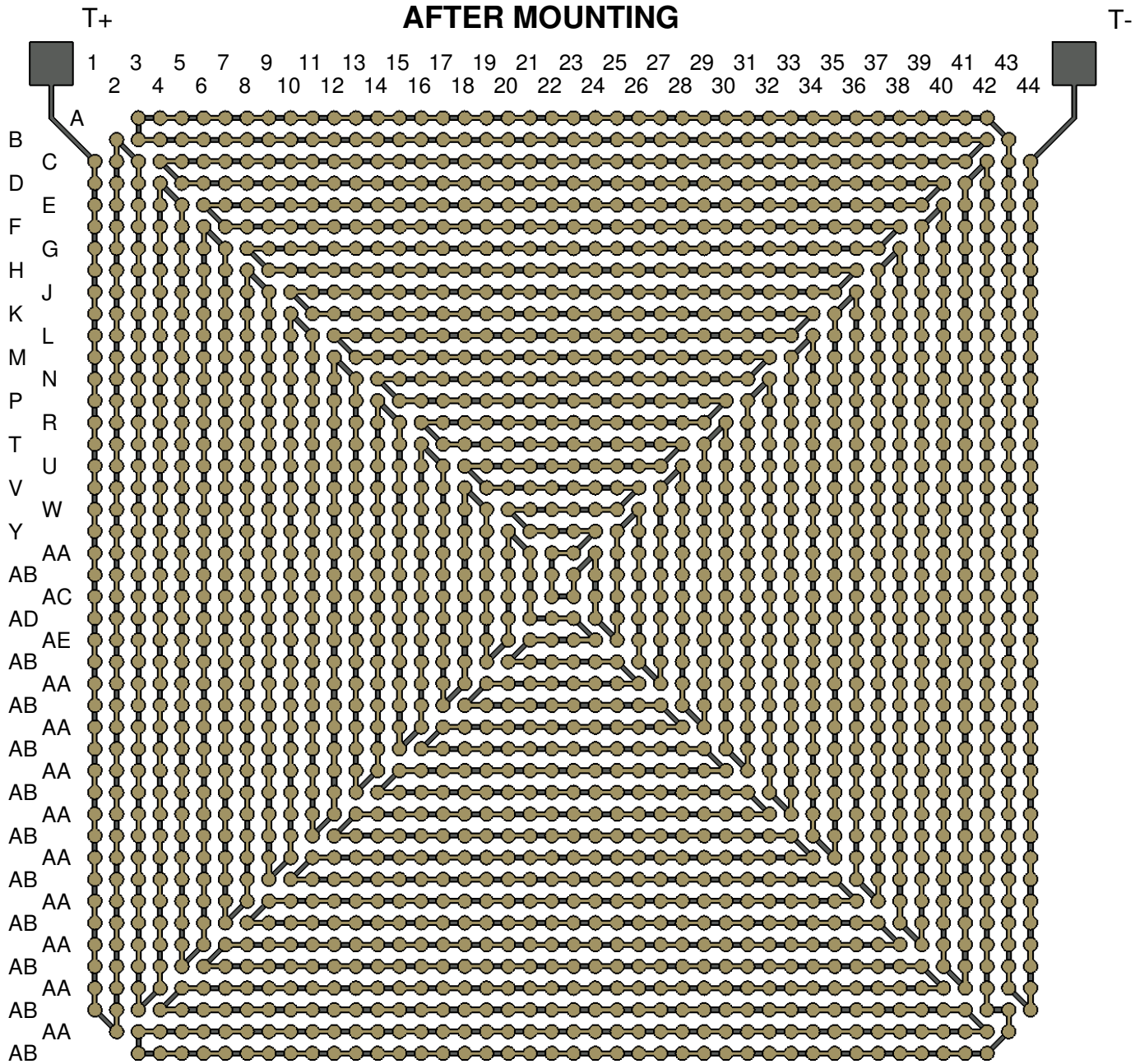
Notes:

- 1) PCB BOARD DIMENSIONS ARE PRESENTD ONLY AS A GUIDELINE. DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.
- 2) PCB Cu BALL PAD DIAMETER 0.635mm [25 MIL].
- 3) PCB DAISY CHAIN TRACING LINE WIDTH 0.204mm [8 MIL].
- 4) SMD (SOLDER MASK DEFINED) PAD OPENING 0.508mm [20 MIL].



TopLine®			
TITLE		SBGA1924T1.0-DC443D DAISY CHAIN DUMMY	
SCALE	SIZE	DRAWING NO.	REV
3.5:1	A	514435	A
DO NOT SCALE DRAWING			SHEET 5 OF 14

AFTER MOUNTING



TopLine[®]

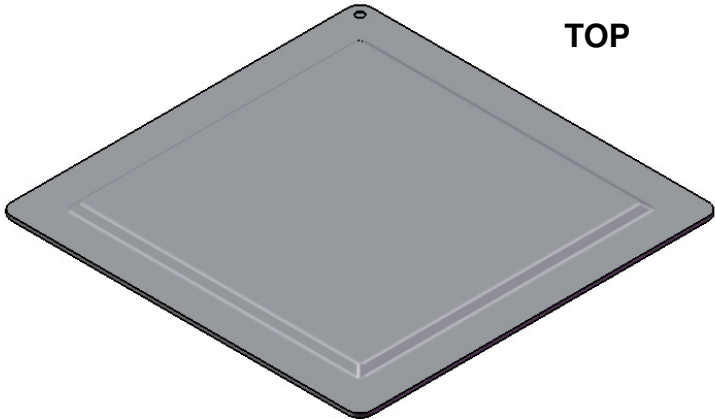
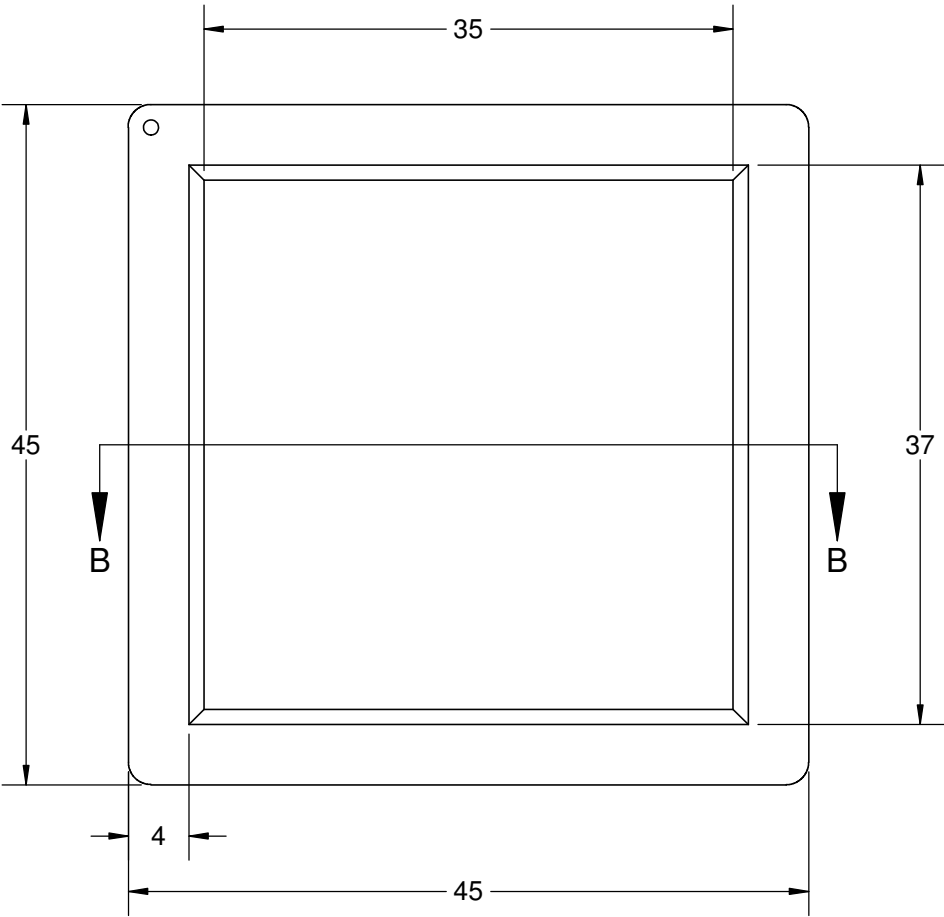
TITLE SBGA1924T1.0-DC443D
DAISY CHAIN DUMMY

SCALE 3.5:1	SIZE A	DRAWING NO. 514435	REV A
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DO NOT SCALE DRAWING

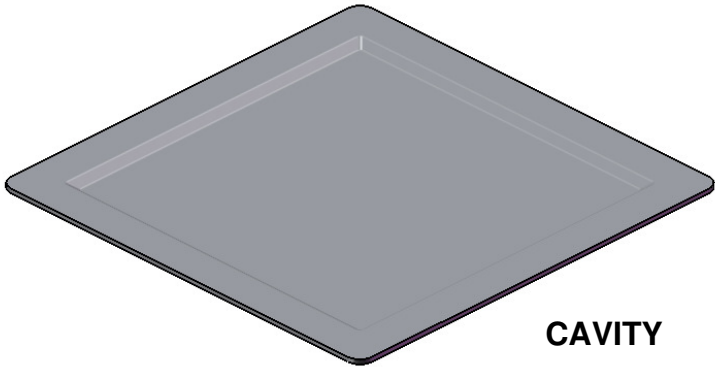
SHEET 6 OF 14

HEAT SPREADER

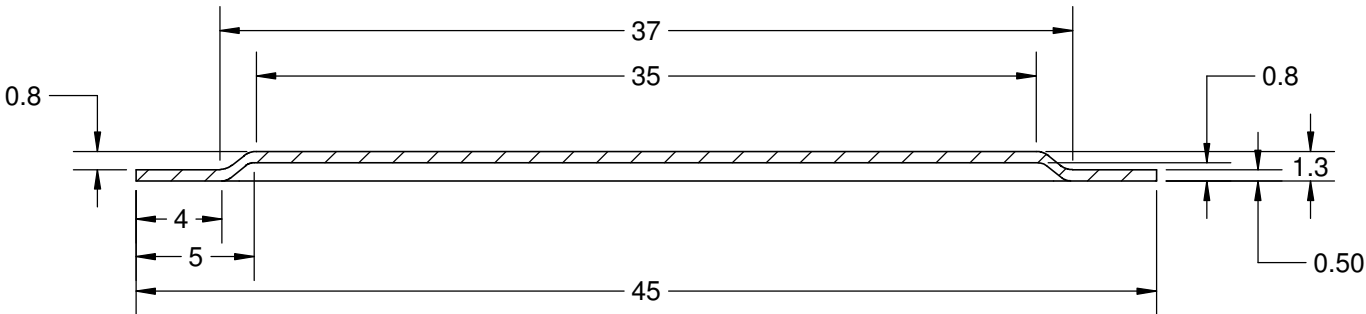


TOP

MODEL



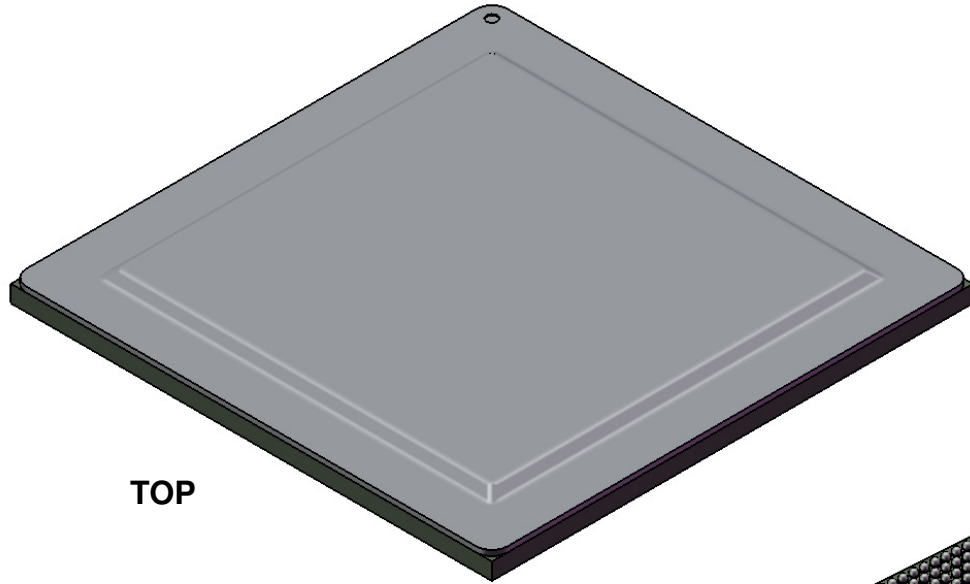
CAVITY



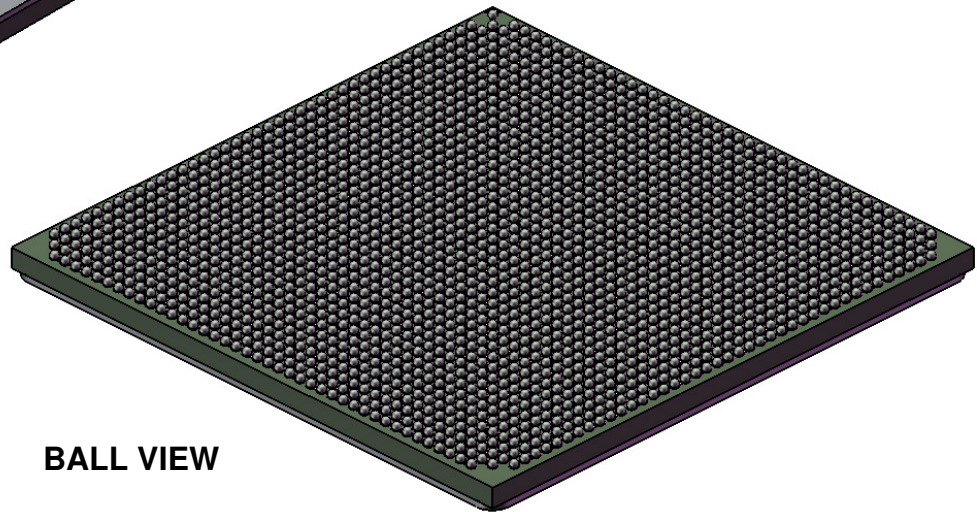
SECTION B-B
SCALE 3 : 1

TopLine®			
TITLE SBGA1924T1.0-DC443D DAISY CHAIN DUMMY			
SCALE 2:1	SIZE A	DRAWING NO. 514435	REV A
DO NOT SCALE DRAWING			SHEET 7 OF 14

MODEL



TOP



BALL VIEW

TopLine[®]

TITLE SBGA1924T1.0-DC443D
DAISY CHAIN DUMMY

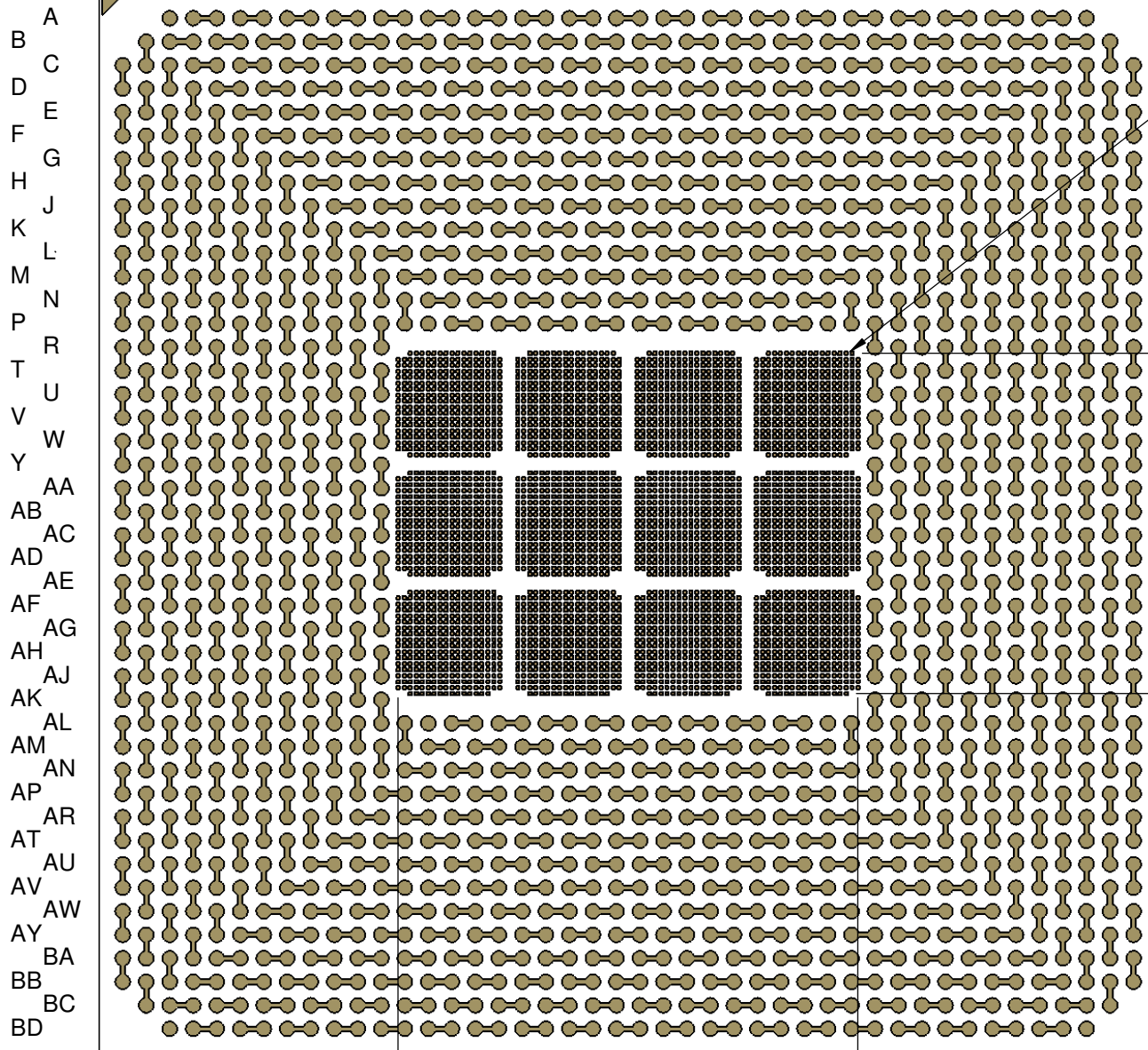
SCALE 2:1	SIZE A	DRAWING NO. 514435	REV A
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DO NOT SCALE DRAWING

SHEET 8 OF 14

TOP LAYER - LAYER 1

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43
 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44



SEE DETAIL B

15.42

19.56

45

TopLine[®]

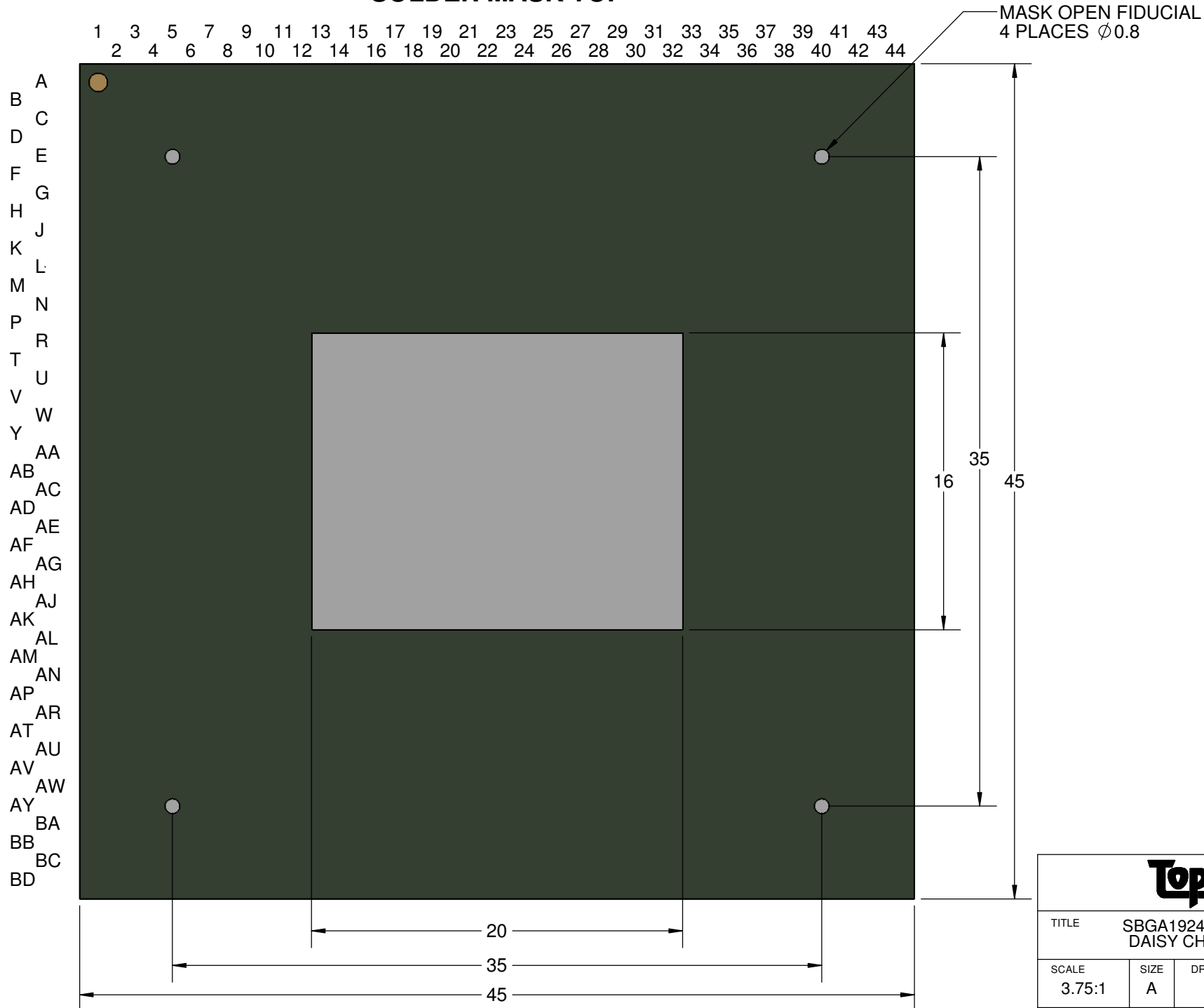
TITLE SBGA1924T1.0-DC443D
 DAISY CHAIN DUMMY

SCALE 3.75:1	SIZE A	DRAWING NO. 514435	REV A
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DO NOT SCALE DRAWING

SHEET 9 OF 14

SOLDER MASK TOP

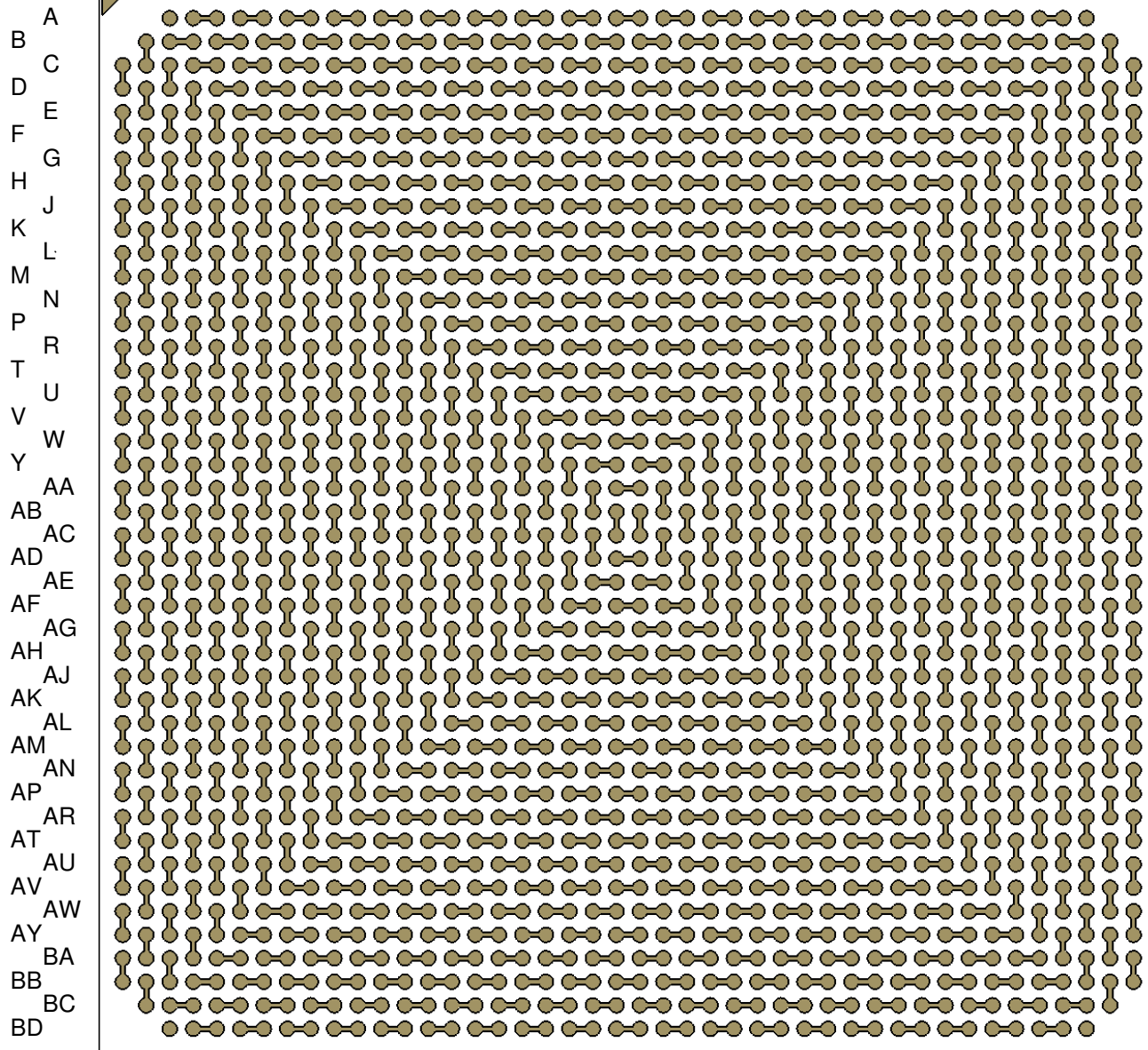


MASK OPEN FIDUCIAL
4 PLACES $\phi 0.8$

TopLine[®]			
TITLE SBGA1924T1.0-DC443D DAISY CHAIN DUMMY			
SCALE 3.75:1	SIZE A	DRAWING NO. 514435	REV A
DO NOT SCALE DRAWING		SHEET 10 OF 14	

GROUND PLANE - LAYER 2

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44



TopLine®

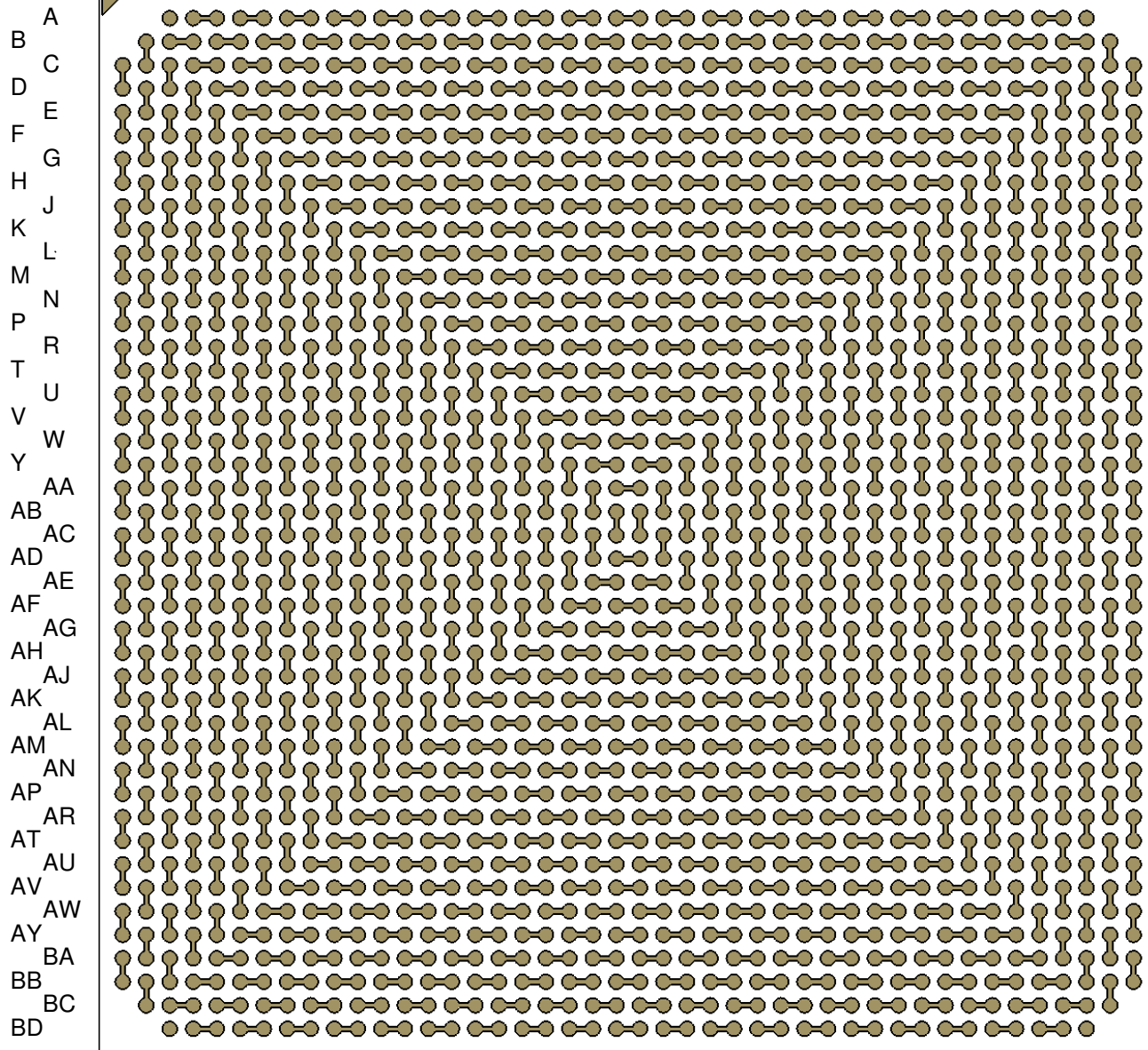
TITLE SBGA1924T1.0-DC443D
DAISY CHAIN DUMMY

SCALE 3.75:1	SIZE A	DRAWING NO. 514435	REV A
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DO NOT SCALE DRAWING SHEET 11 OF 14

GROUND PLANE - LAYER 3

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43
 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44



TopLine®

TITLE SBGA1924T1.0-DC443D
 DAISY CHAIN DUMMY

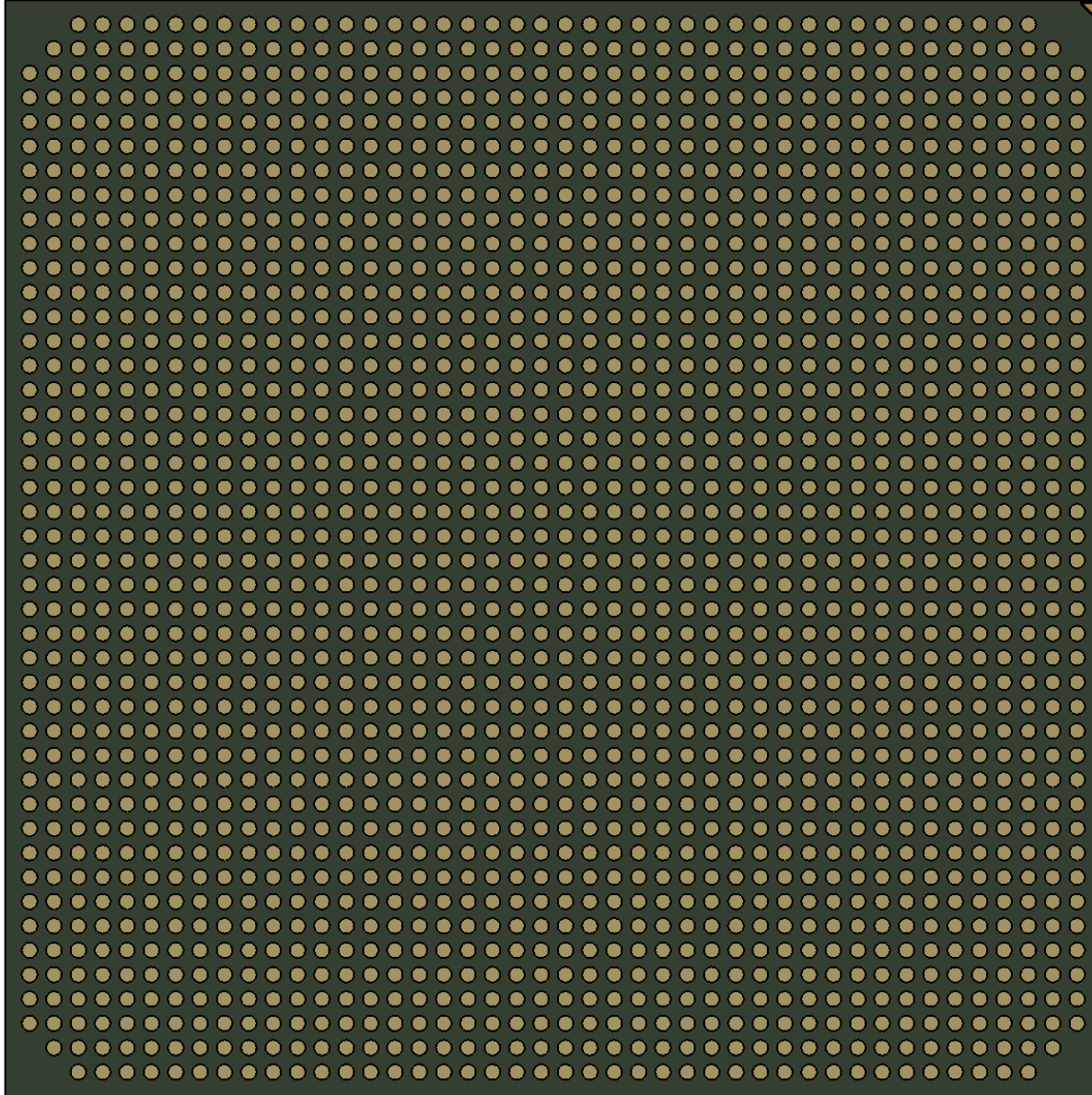
SCALE 3.75:1	SIZE A	DRAWING NO. 514435	REV A
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DO NOT SCALE DRAWING SHEET 12 OF 14

BOTTOM SOLDER MASK (RIGHT READING)

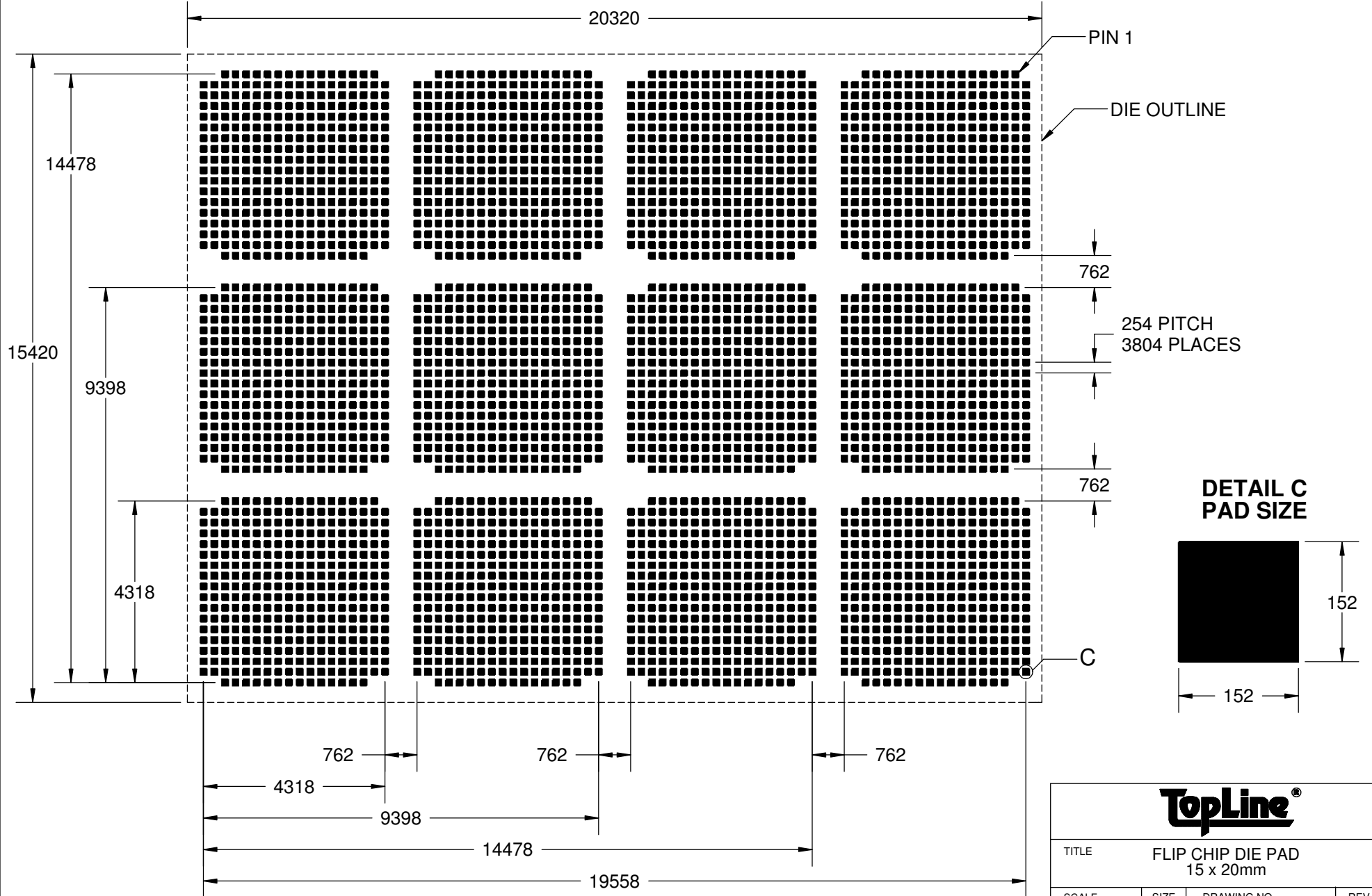
44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2
43 41 39 37 35 33 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1

A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
T
U
V
W
Y
AA
AB
AC
AD
AE
AF
AG
AH
AJ
AK
AL
AM
AN
AP
AR
AT
AU
AV
AW
AY
BA
BB
BC
BD



TopLine[®]			
TITLE SBGA1924T1.0-DC443D DAISY CHAIN DUMMY			
SCALE 3.75:1	SIZE A	DRAWING NO. 514435	REV A
DO NOT SCALE DRAWING			SHEET 13 OF 14

DETAIL B PCB DIE PADS (TOP) Micron (μm)



TopLine®			
TITLE FLIP CHIP DIE PAD 15 x 20mm			
SCALE 8:1	SIZE A	DRAWING NO. 514435	REV A
DO NOT SCALE DRAWING			SHEET 14 OF 14