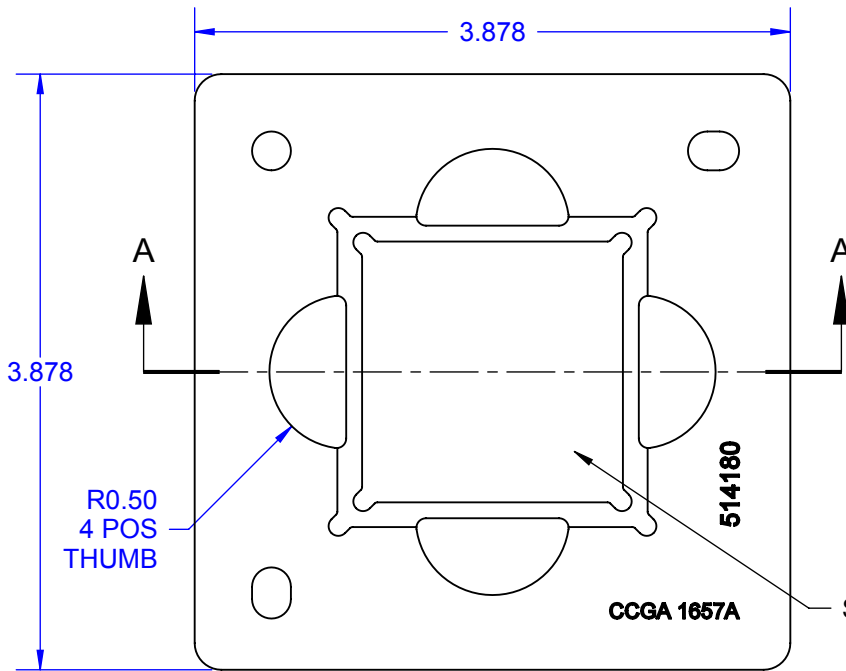
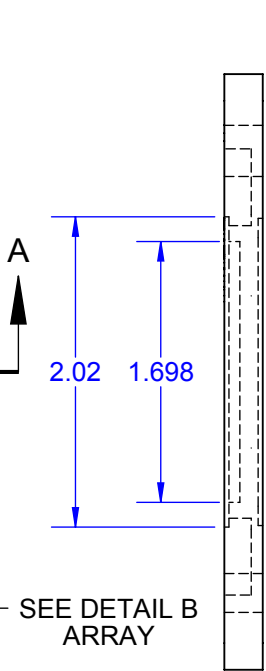


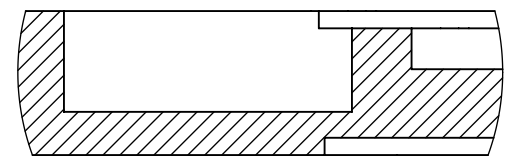
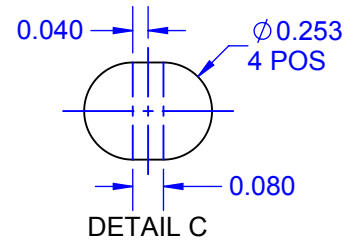
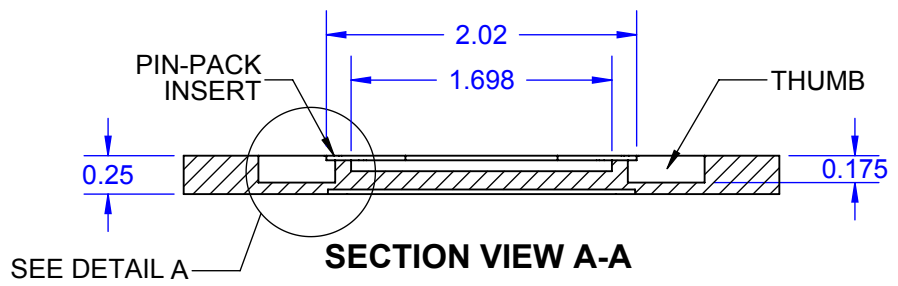
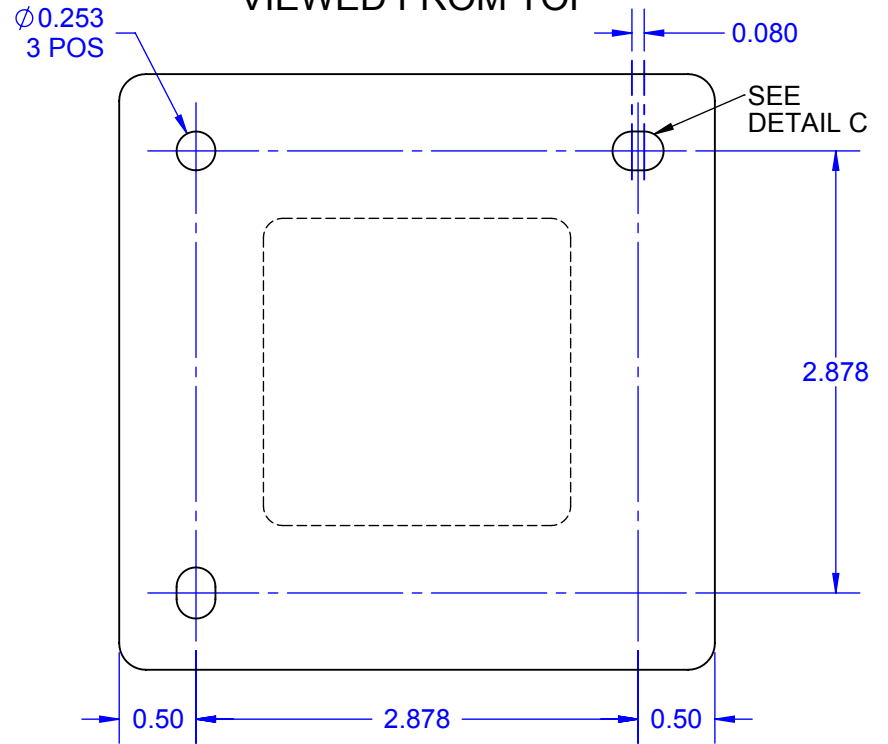
**UPPER GRAPHITE
TOP SIDE**



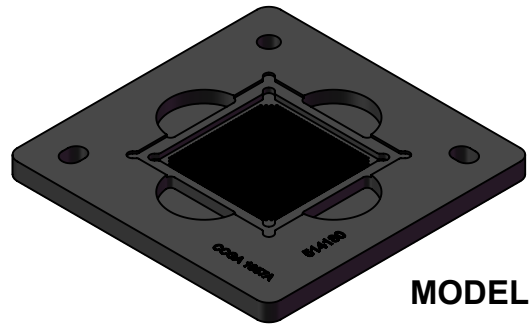
EDGE



**UPPER GRAPHITE
BOTTOM SIDE
VIEWED FROM TOP**



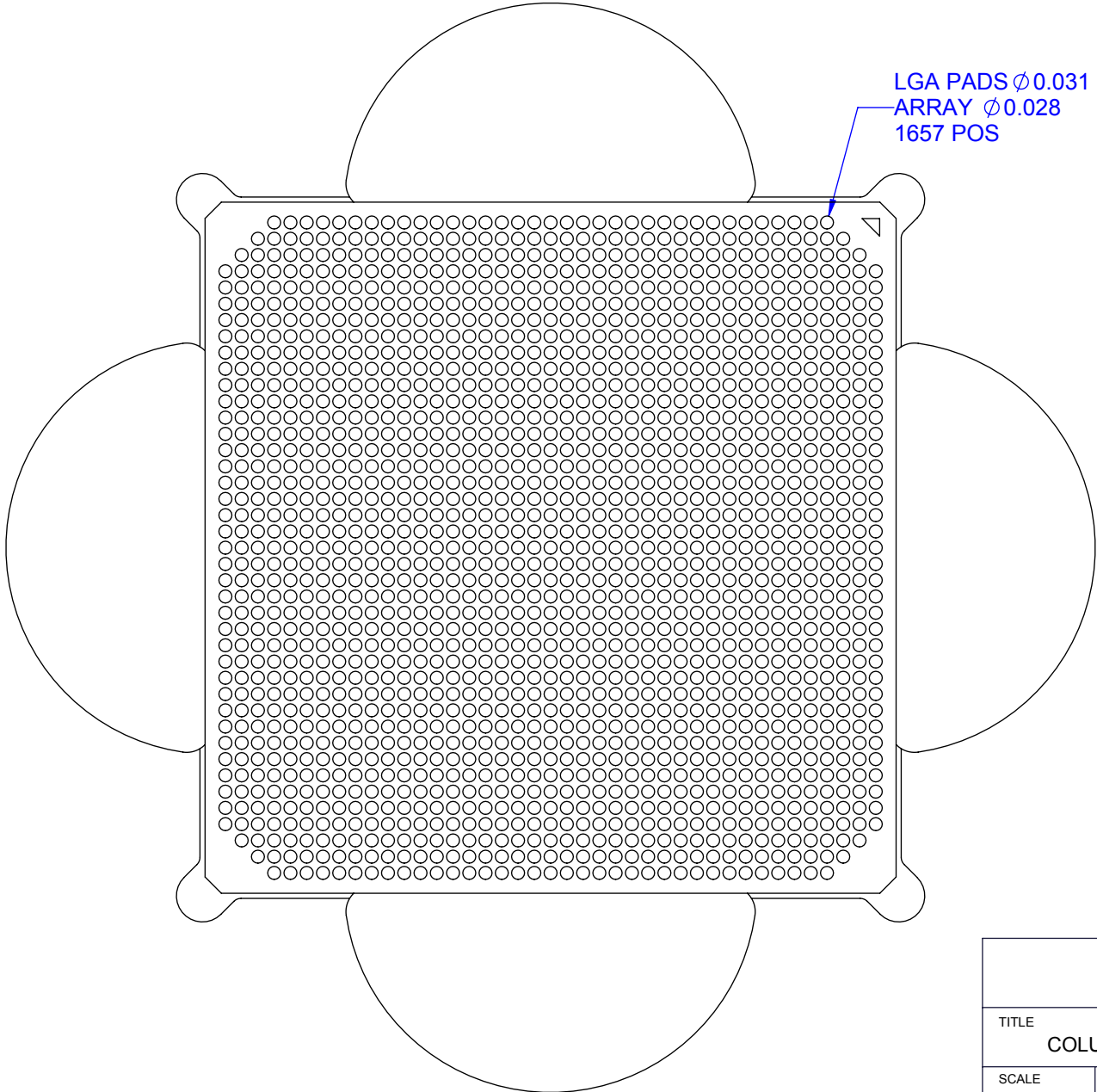
**DETAIL A
SCALE 3 : 1**



NOTES:
1. DIMENSIONS in INCHES.

APPROVALS	DATE	TopLine®			
DRAWN T.Au	10/29/14				
ENG M. Hart	10/29/14	TITLE C7-GRAPHITE-1657A COLUMN ATTACHMENT TOOLS			
MFG		SCALE	SIZE	DRAWING NO.	REV
QA		1:1.25	A	714180	A
CUST		DO NOT SCALE DRAWING			SHEET 1 OF 7
REVISED					

**DETAIL B
ARRAY
41 x 41 MATRIX**



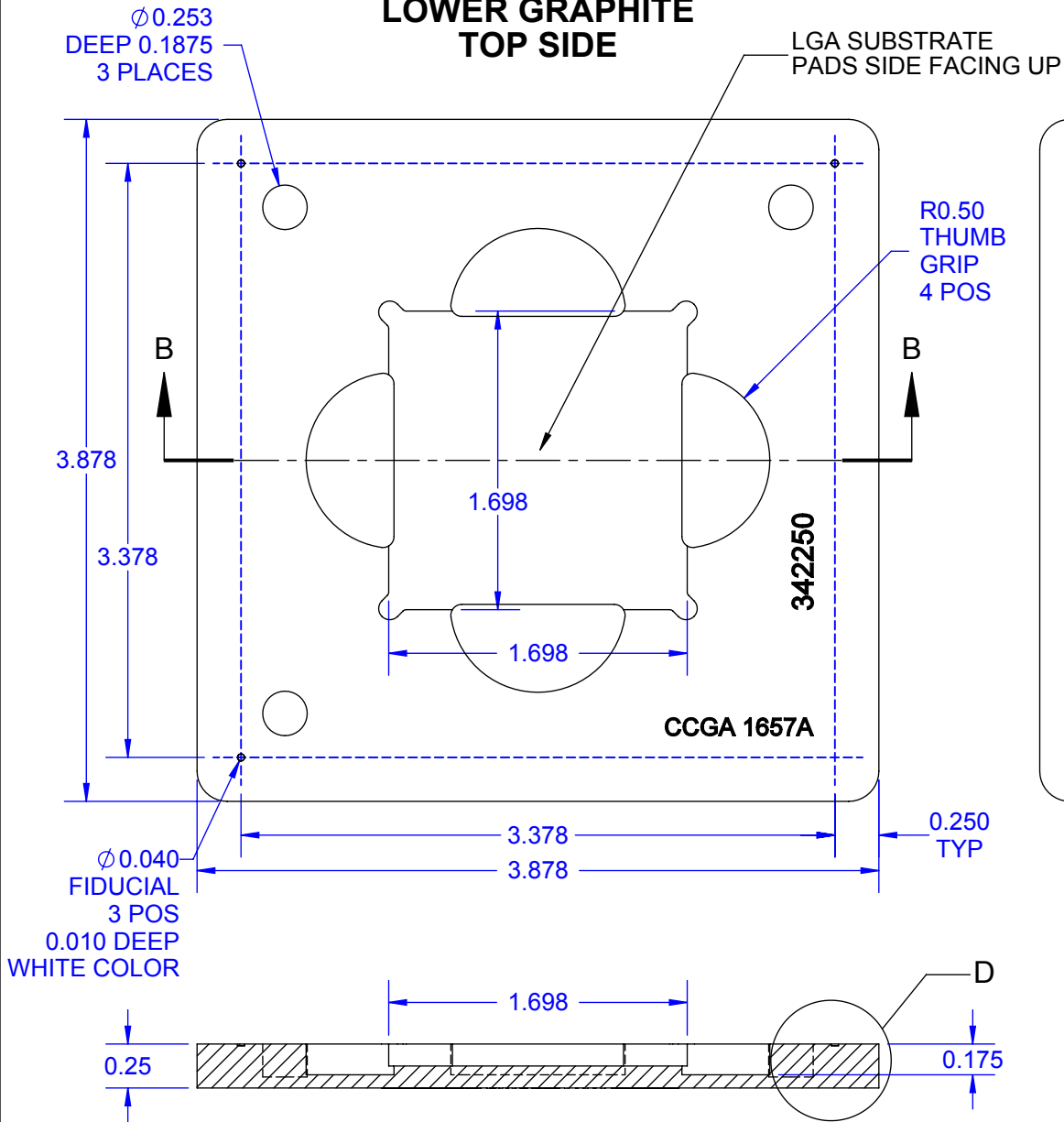
LGA PADS $\text{Ø}0.031$
ARRAY $\text{Ø}0.028$
1657 POS



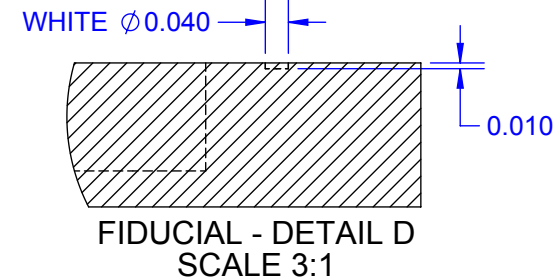
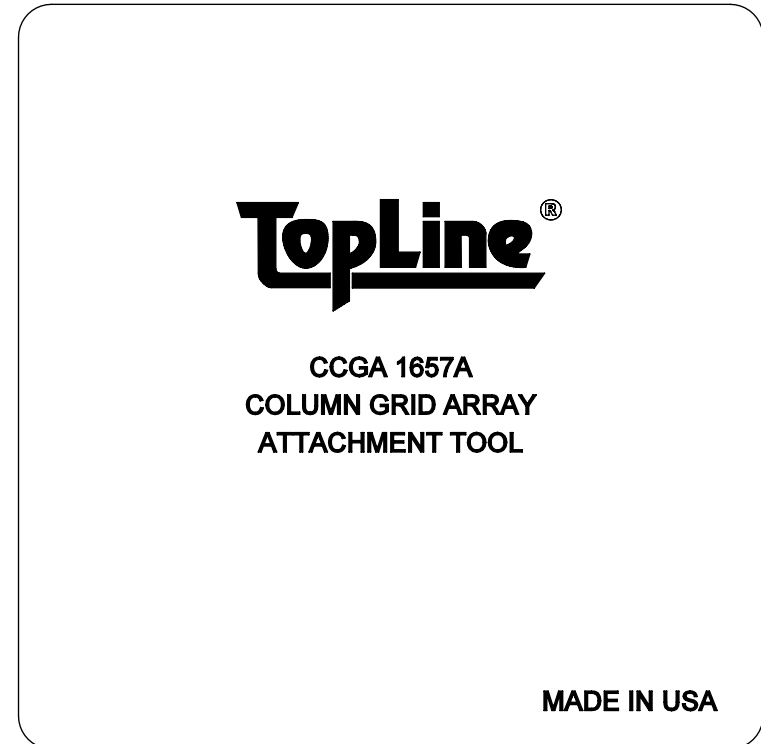
TITLE C7-GRAPHITE-1657A
COLUMN ATTACHMENT TOOLS

SCALE	SIZE	DRAWING NO.	REV
2.5:1	A	714180	A

**LOWER GRAPHITE
TOP SIDE**



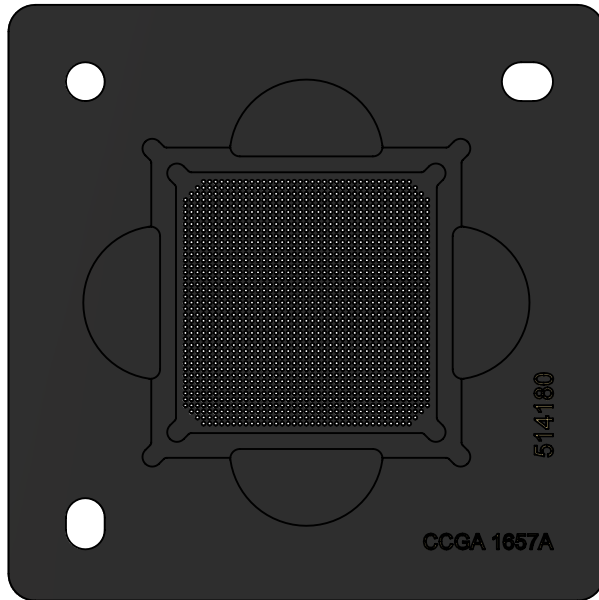
**LOWER GRAPHITE
BOTTOM SIDE**



NOTES:
1. DIMENSIONS in INCHES.

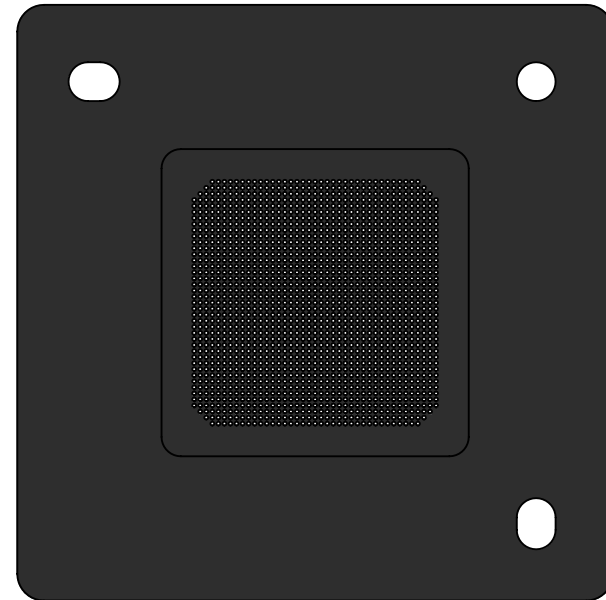
TopLine [®]			
TITLE C7-GRAPHITE-1657A COLUMN ATTACHMENT TOOLS			
SCALE 1:1	SIZE A	DRAWING NO. 714180	REV A
DO NOT SCALE DRAWING			SHEET 3 OF 7

UPPER GRAPHITE
TOP SIDE
SHOWN WITHOUT PIN-PACK™

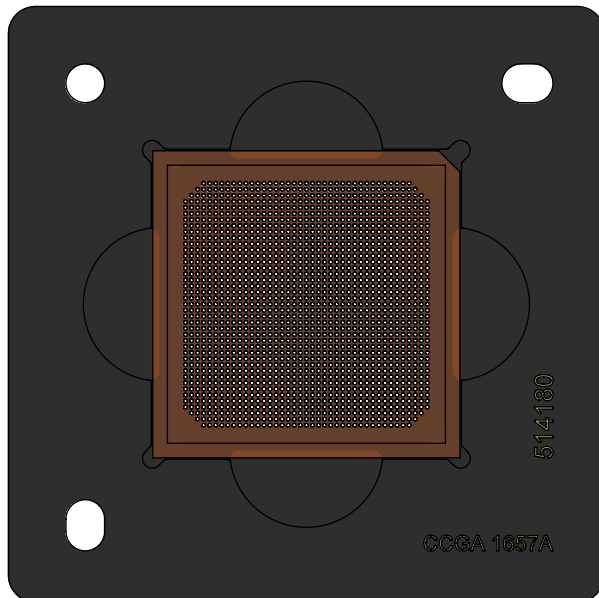


MODELS

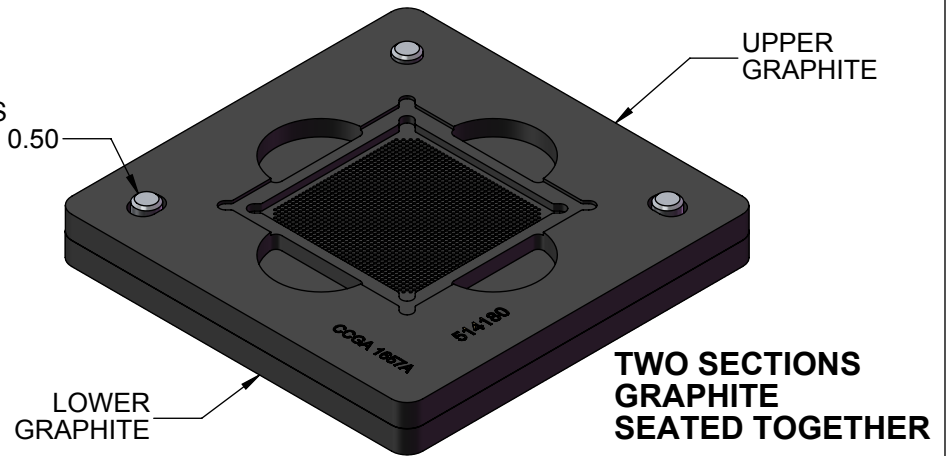
UPPER GRAPHITE
BOTTOM VIEW
RIGHT READING



UPPER GRAPHITE
TOP SIDE
SHOWN WITH PIN-PACK™



3x PEGS
0.2945 x 0.50



TopLine®

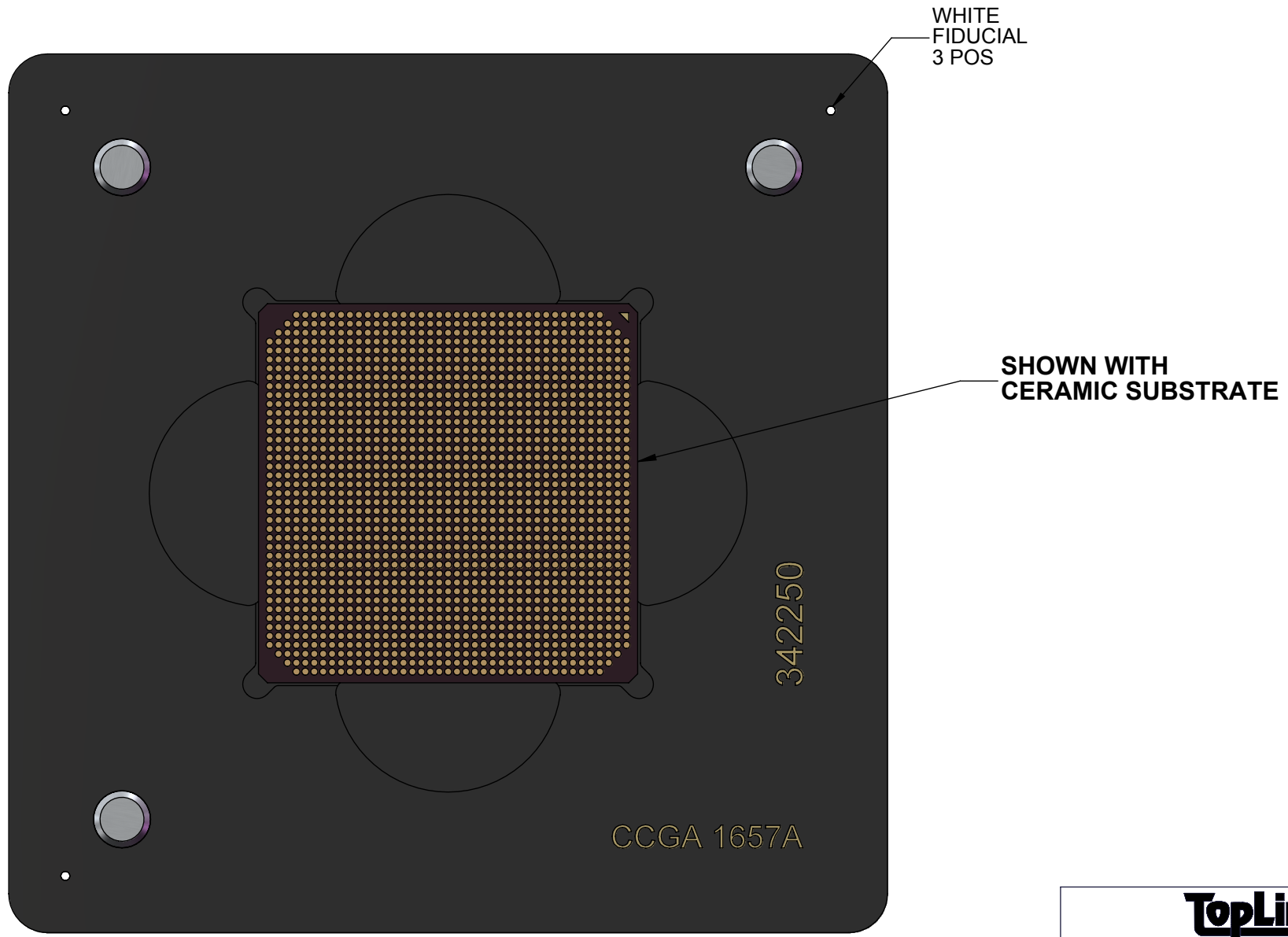
TITLE C7-GRAPHITE-1657A
COLUMN ATTACHMENT TOOLS

SCALE 1:1.25	SIZE A	DRAWING NO. 714180	REV A
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DO NOT SCALE DRAWING

SHEET 4 OF 7

**LOWER GRAPHITE
TOP SIDE**



WHITE
FIDUCIAL
3 POS

SHOWN WITH
CERAMIC SUBSTRATE

342250

CCGA 1657A

NOTE 1. APPLY SOLDER PASTE TO SUBSTRATE PADS BEFORE COVERING WITH TOP GRAPHITE.

TopLine®			
TITLE C7-GRAPHITE-1657A COLUMN ATTACHMENT TOOLS			
SCALE 2:1	SIZE A	DRAWING NO. 714180	REV A
DO NOT SCALE DRAWING			SHEET 5 OF 7

COLUMN ARRAY
IN HOLES

EXPLODED VIEW

PIN-PACK™
PATENT PENDING

UPPER GRAPHITE

DIRECTION OF FEED
↓

COLUMNS GRAVITY FEED

LGA SUBSTRATE

PEGS

PEGS

LOWER GRAPHITE

FIDUCIALS
3 POS

TopLine®

TITLE C7-GRAPHITE-1657A
COLUMN ATTACHMENT TOOLS

SCALE 1:1.25	SIZE A	DRAWING NO. 714180	REV A
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DO NOT SCALE DRAWING

SHEET 6 OF 7

TOOL PART NUMBERS & ACCESSORIES

MODEL NUMBER	DESCRIPTION	LGA X/Y SIZE	LGA Z - HEIGHT	PAD MATRIX	PITCH	DWG
C7-GRAPHITE-1657A	GRAPHITE SET	42.5mm SQ 1.673-inch	2.54mm 0.100"	41x41	1.0mm	714180
C7-INSERT-1657A	GRAPHITE BOTTOM	42.5mm SQ 1.673-inch	2.54mm 0.100"	ALL	ALL	342250
C7-ARRAY-1657A	GRAPHITE TOP	42.5mm SQ 1.673-inch	ALL	41x41	1.0mm	514180
C7-PEG	ALIGNMENT PEG	6.3 x 1.27mm 0.25 x 0.50-inch	ALL	ALL	ALL	702550
PP83C1657E20x100A	Pin-Pack Pb80/Sn20 Copper	0.51 x 2.54mm 0.022 x 0.100-inch	ALL	41x41	1.0mm	831410
PP83C1657E20x110A	Pin-Pack Pb80/Sn20 Copper	0.51 x 2.80mm 0.020 x 0.110-inch	ALL	41x41	1.0mm	831411
PP90U1657E20x100A	Pin-Pack Pb90/Sn10	0.51 x 2.54mm 0.020 x 0.100-inch	ALL	41x41	1.0mm	901410
PP17P1657E20x50A	Pin-Pack Micro-Coil Spring	0.51 x 1.27mm 0.020 x 0.50-inch	ALL	41x41	1.0mm	171410



TITLE			
C7-GRAPHITE-1657A COLUMN ATTACHMENT TOOLS			
SCALE	SIZE	DRAWING NO.	REV
NONE	A	714180	A
DO NOT SCALE DRAWING			SHEET 7 OF 7