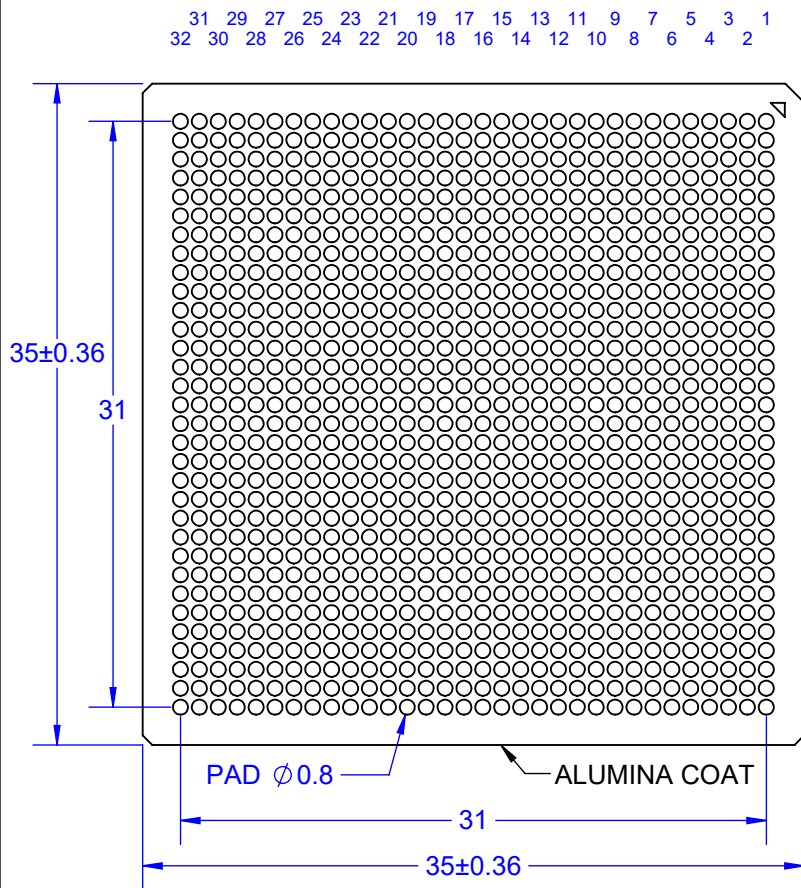
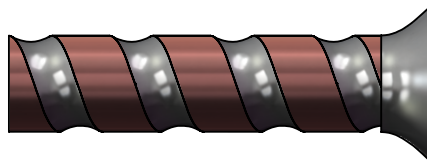


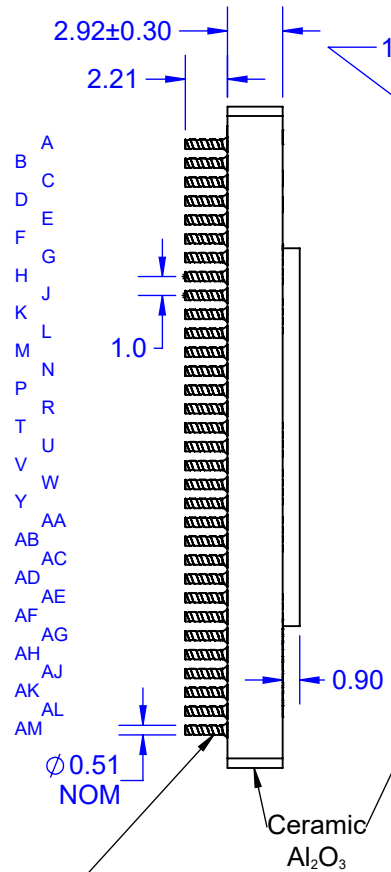
### BOTTOM VIEW



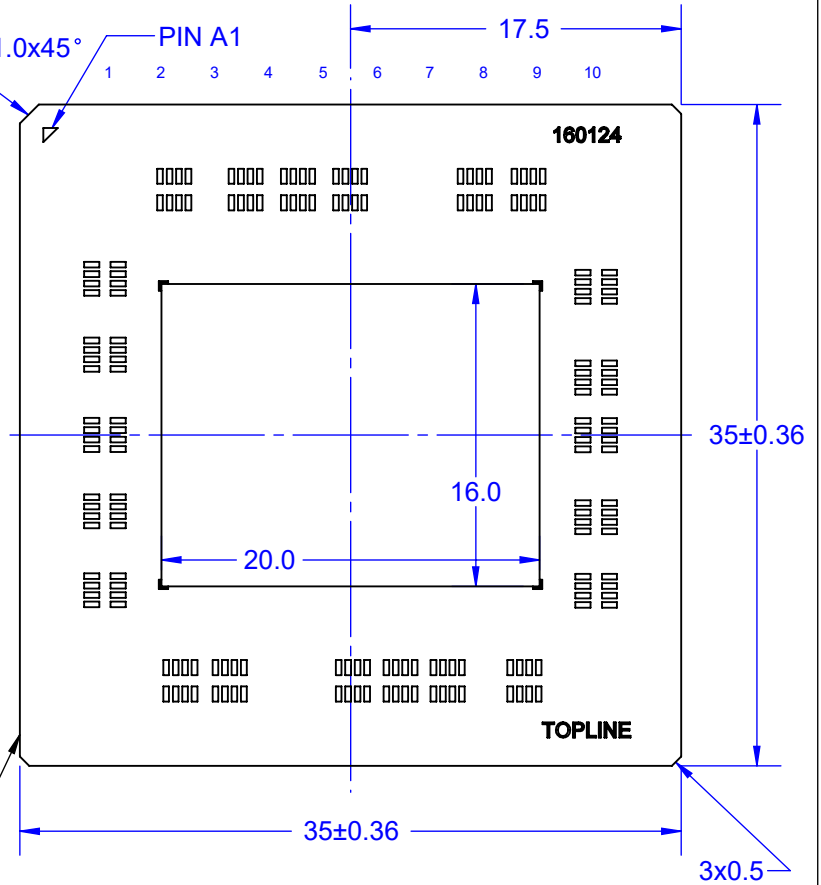
**Pb80/Sn20  
Cu RIBBON  
COLUMNS**



### SHOWN WITH DIE



### TOP VIEW



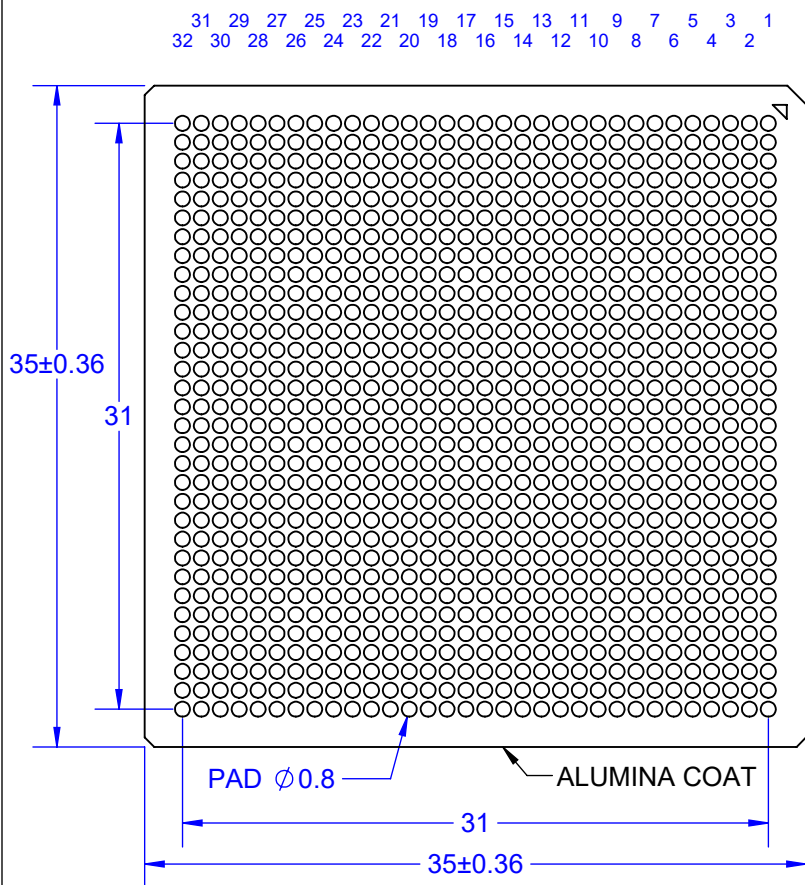
Notes: (Unless Otherwise Specified).

- 1) DIMENSIONS ARE IN mm.
- 2) SHOWN WITH Pb80/Sn20 COLUMNS.
- 3) SHOWN WITHOUT HEAT SINK.
- 4) SHOWN WITH DUMMY DIE.
- 5) SHOWN WITHOUT CAPACITORS.

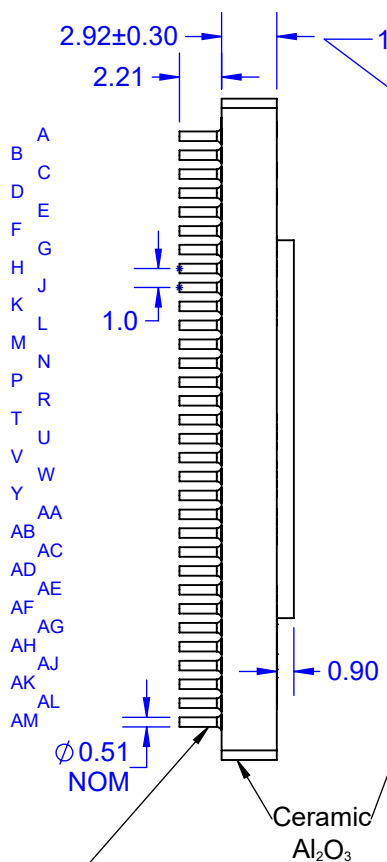
PART NUMBER OPTIONS				
PART NUMBER	DUMMY DIE	SOLDER PIN	HEAT SINK	CAPACITOR
CCGA1024T1.0-DC328D	NONE	YES	NONE	NONE

APPROVALS	DATE	<b>TopLine®</b>			
DRAWN T.Au	6/27/2021				
ENG M. Hart	6/27/2021	TITLE CCGA1024T1.0-DC328D COLUMN GRID ARRAY			
MFG		SCALE 2.5:1	SIZE A	DRAWING NO. 160124	REV A
QA		DO NOT SCALE DRAWING			SHEET 1 OF 13
CUST					
REVISED					

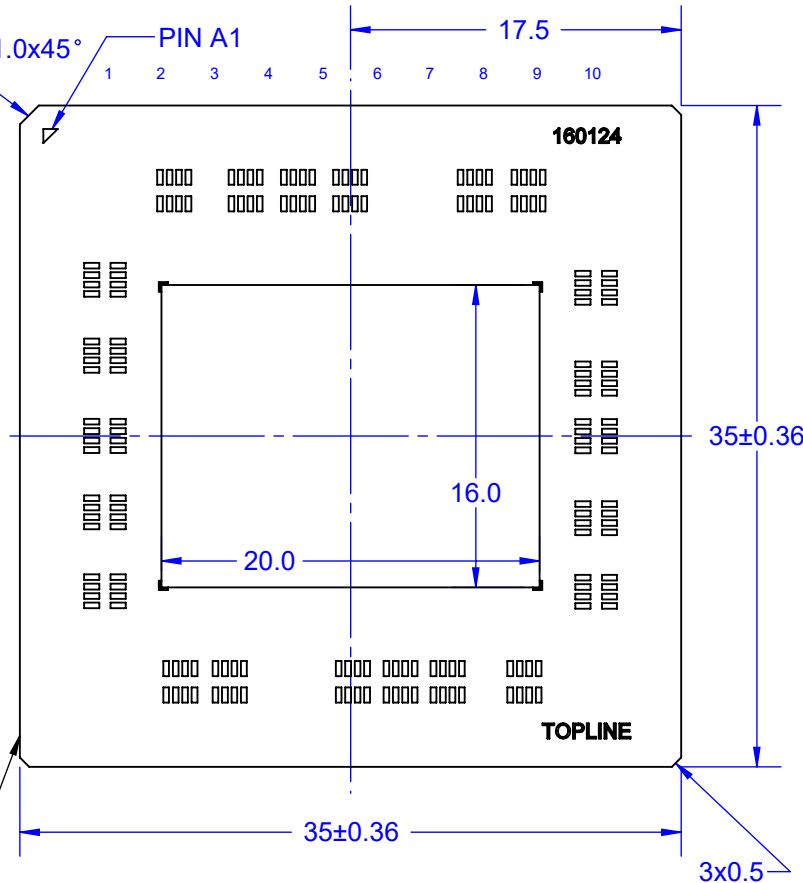
### BOTTOM VIEW



### SHOWN WITH DIE



### TOP VIEW



**Pb90/Sn10  
WIRE COLUMNS**



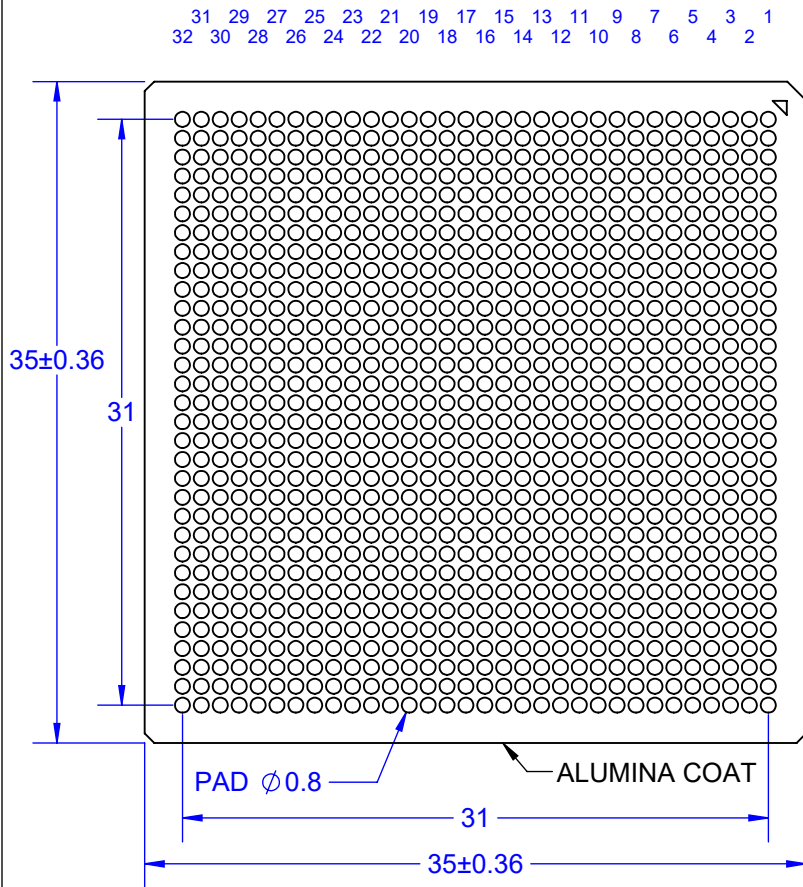
Notes: (Unless Otherwise Specified).

- 1) DIMENSIONS ARE IN mm.
- 2) SHOWN WITH Pb90/Sn10 COLUMNS.
- 3) SHOWN WITHOUT HEAT SINK.
- 4) SHOWN WITH DUMMY DIE.
- 5) SHOWN WITHOUT CAPACITORS.

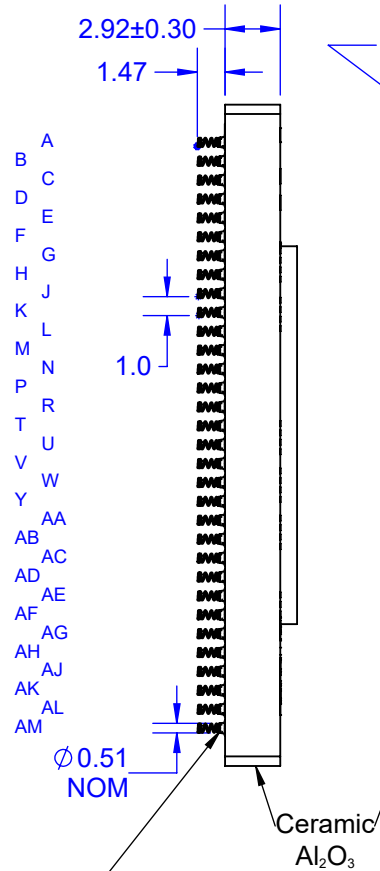
PART NUMBER OPTIONS				
PART NUMBER	DUMMY DIE	SOLDER PIN	HEAT SINK	CAPACITOR
CCGA1024T1.0A-DC328D	NONE	YES	NONE	NONE

<b>TopLine®</b>			
TITLE CCGA1024T1.0-DC328D COLUMN GRID ARRAY			
SCALE 2.5:1	SIZE A	DRAWING NO. 160124	REV A
DO NOT SCALE DRAWING			SHEET 2 OF 13

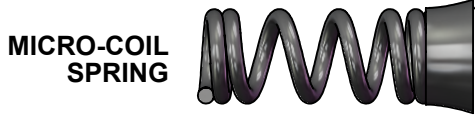
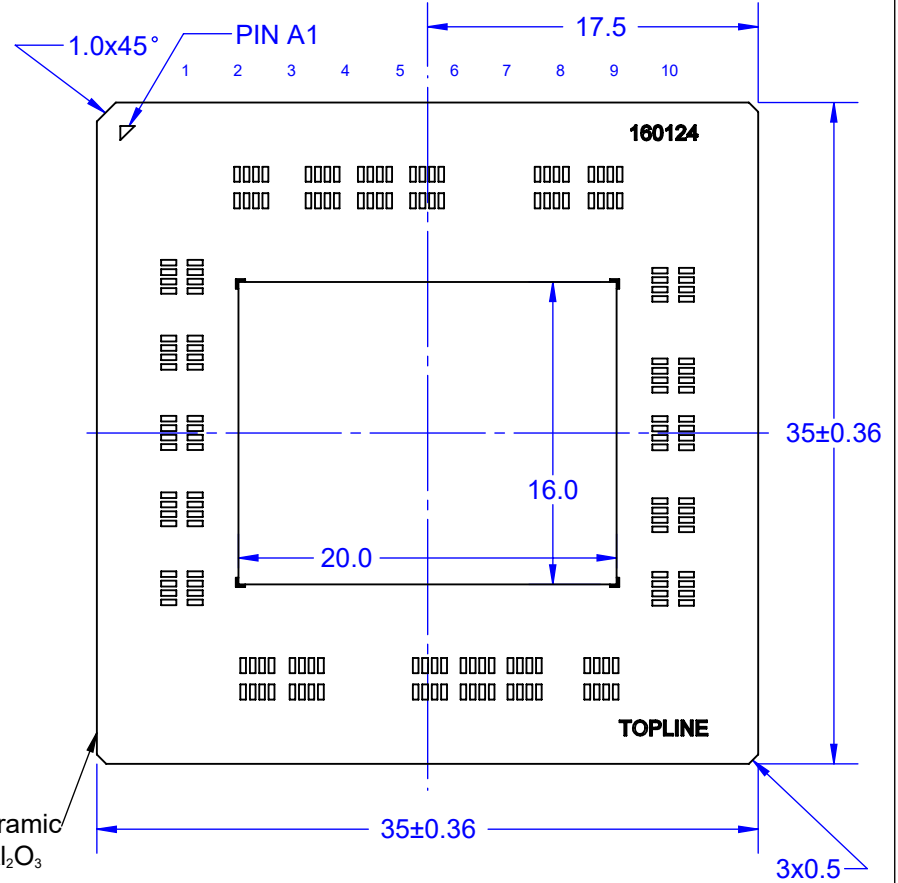
### BOTTOM VIEW



### SHOWN WITH DIE



### TOP VIEW



- Notes: (Unless Otherwise Specified).
- 1) DIMENSIONS ARE IN mm.
  - 2) SHOWN WITH MICRO-COIL SPRING.
  - 3) SHOWN WITHOUT HEAT SINK.
  - 4) SHOWN WITH DUMMY DIE.
  - 5) SHOWN WITHOUT CAPACITORS.

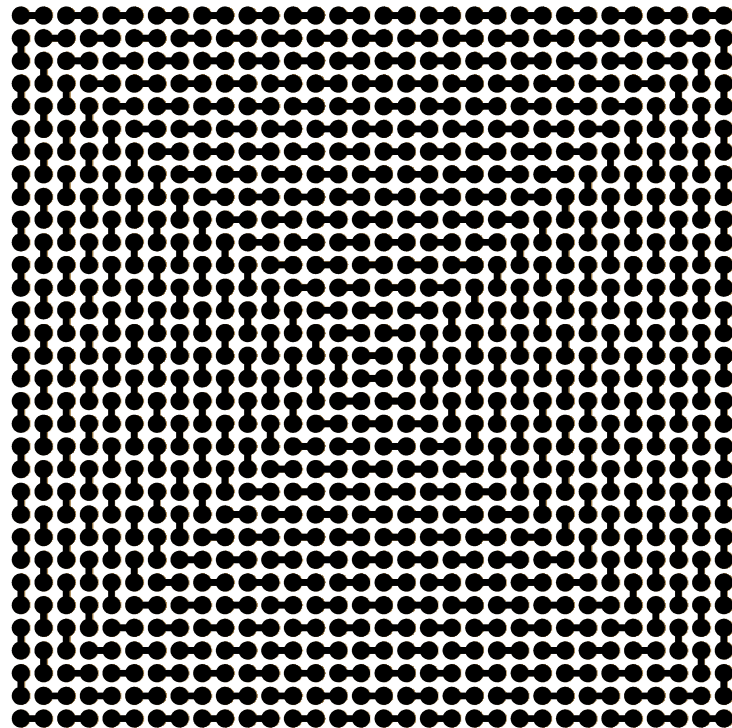
PART NUMBER OPTIONS				
PART NUMBER	DUMMY DIE	SOLDER PIN	HEAT SINK	CAPACITOR
CCGA1024T1.0M-DC328D	NONE	YES	NONE	NONE

<b>TopLine®</b>			
TITLE CCGA1024T1.0-DC328D COLUMN GRID ARRAY			
SCALE 2.5:1	SIZE A	DRAWING NO. 160124	REV A
DO NOT SCALE DRAWING			SHEET 3 OF 13

# DAISY CHAIN PATTERN

## COLUMN (PAD) VIEW

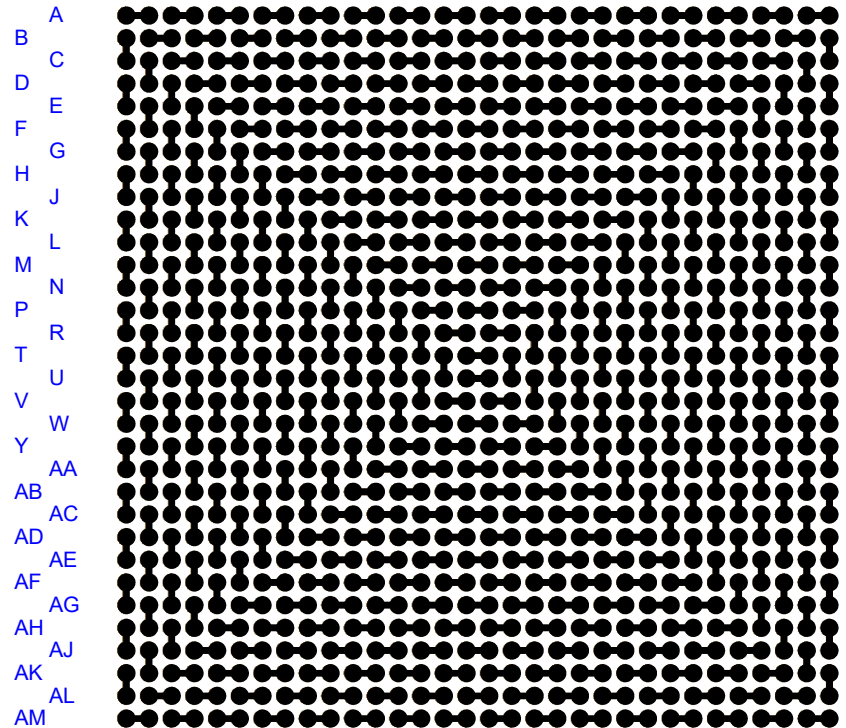
31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1  
32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2



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

## BOTTOM X-RAY VIEWED FROM TOP

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32  
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31



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

**TopLine®**

TITLE CCGA1024T1.0-DC328D  
COLUMN GRID ARRAY

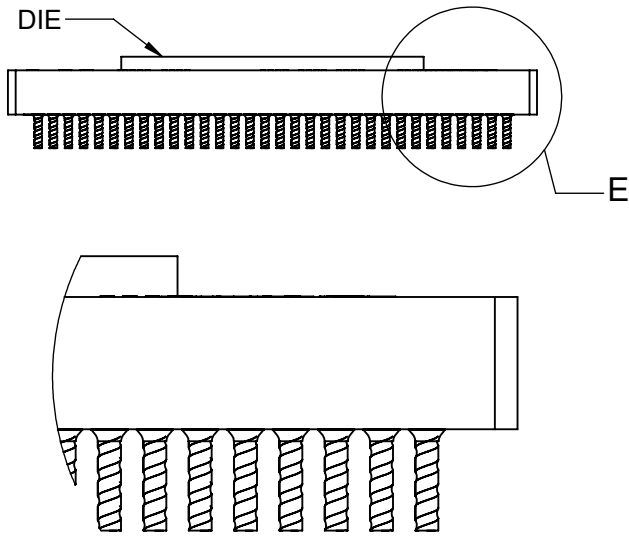
SCALE 3:1	SIZE A	DRAWING NO. 160124	REV A
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DO NOT SCALE DRAWING

SHEET 4 OF 13

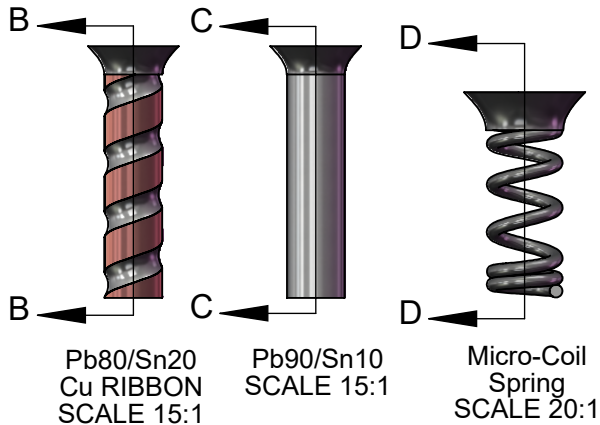
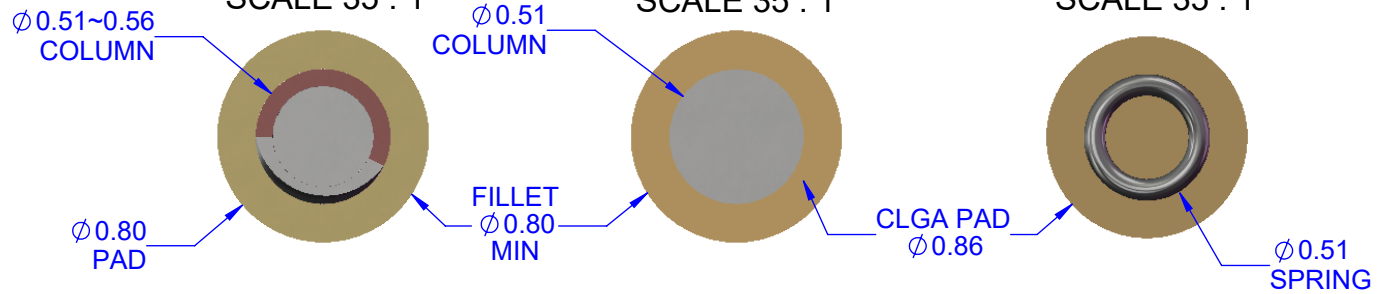
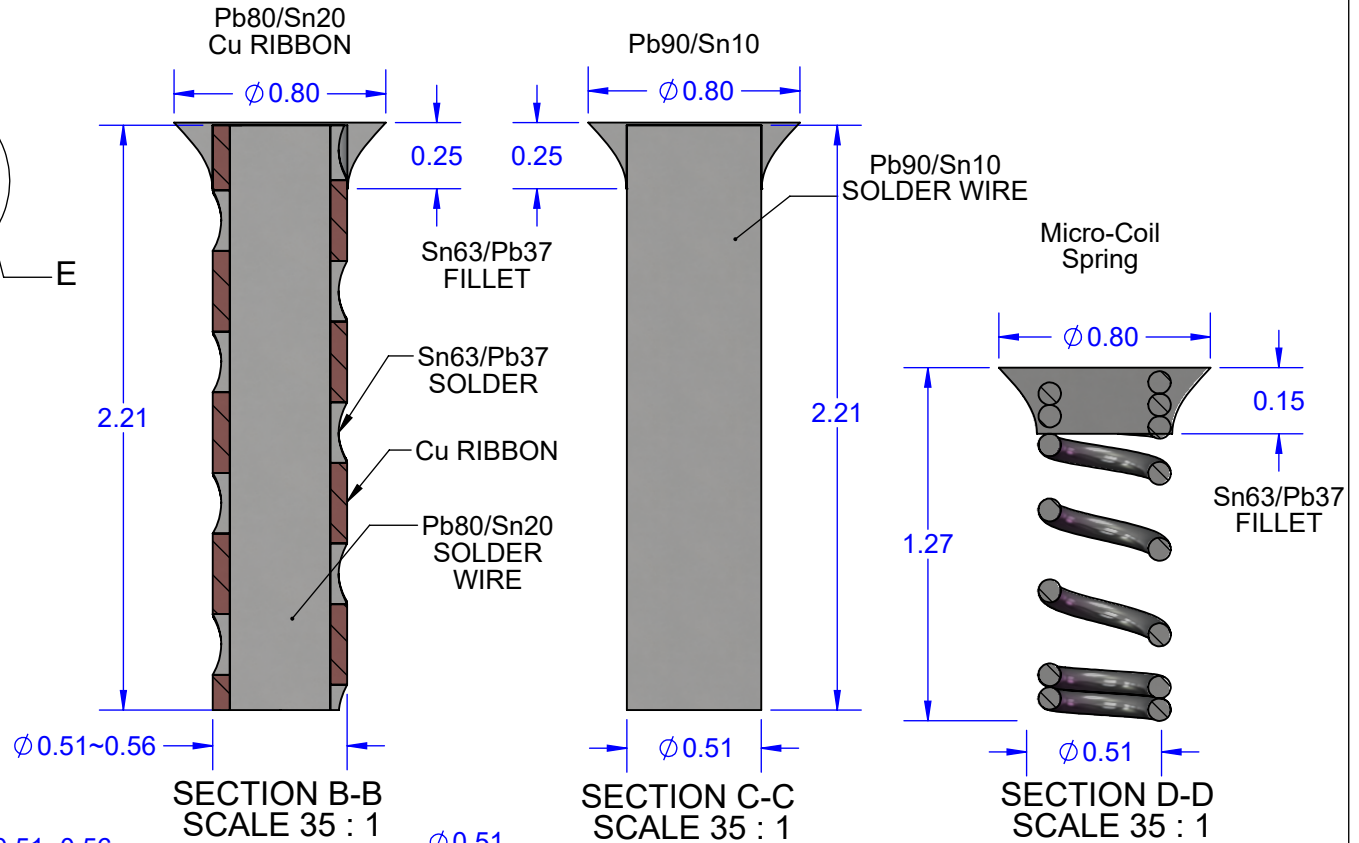


**AVAILABLE WITH OPTIONAL  
HEAT SPREADER**



DETAIL E  
SCALE 6 : 1

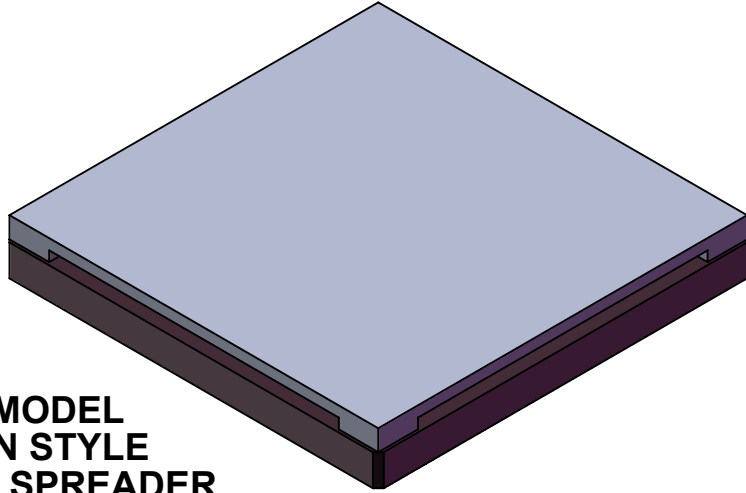
**SOLDER PIN OPTIONS**



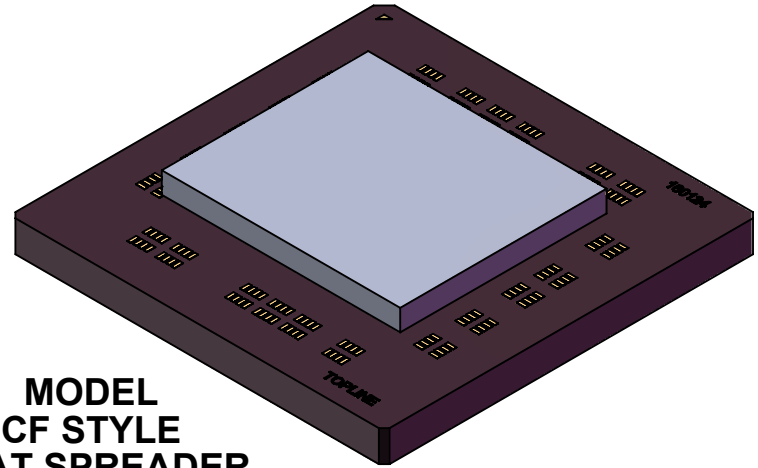
PART NUMBER OPTIONS		
PART NUMBER	DUMMY DIE	SOLDER PIN
CCGA1024T1.0-DC328D	YES	Pb80/Sn20 Cu RIBBON
CCGA1024T1.0A-DC328D	YES	Pb90/Sn10
CCGA1024T1.0M-DC328D	YES	Micro-Coil

<b>TopLine®</b>			
TITLE		CCGA1024T1.0-DC328D COLUMN GRID ARRAY	
SCALE	SIZE	DRAWING NO.	REV
2:1	A	160124	A
DO NOT SCALE DRAWING			SHEET 5 OF 13

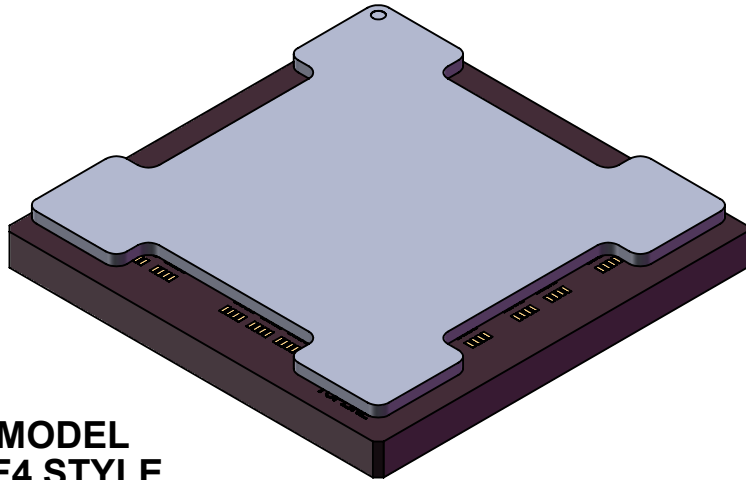
**MODEL  
TOP VIEW**



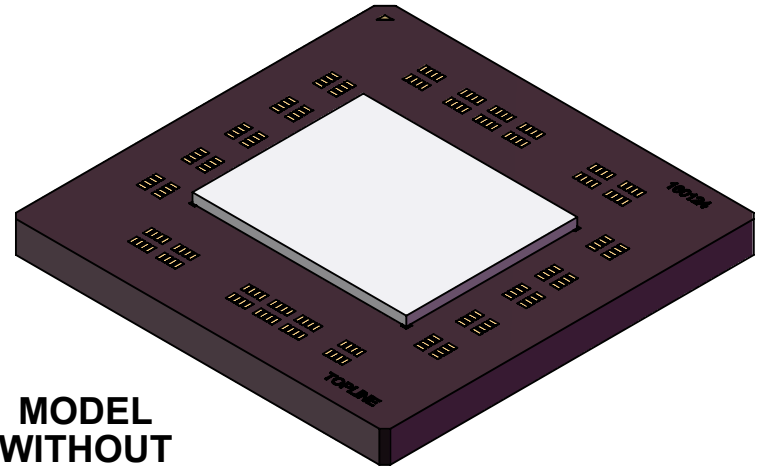
**MODEL  
CN STYLE  
HEAT SPREADER**



**MODEL  
CF STYLE  
HEAT SPREADER**



**MODEL  
CF4 STYLE  
HEAT SPREADER**



**MODEL  
WITHOUT  
HEAT SPREADER**

**TopLine®**

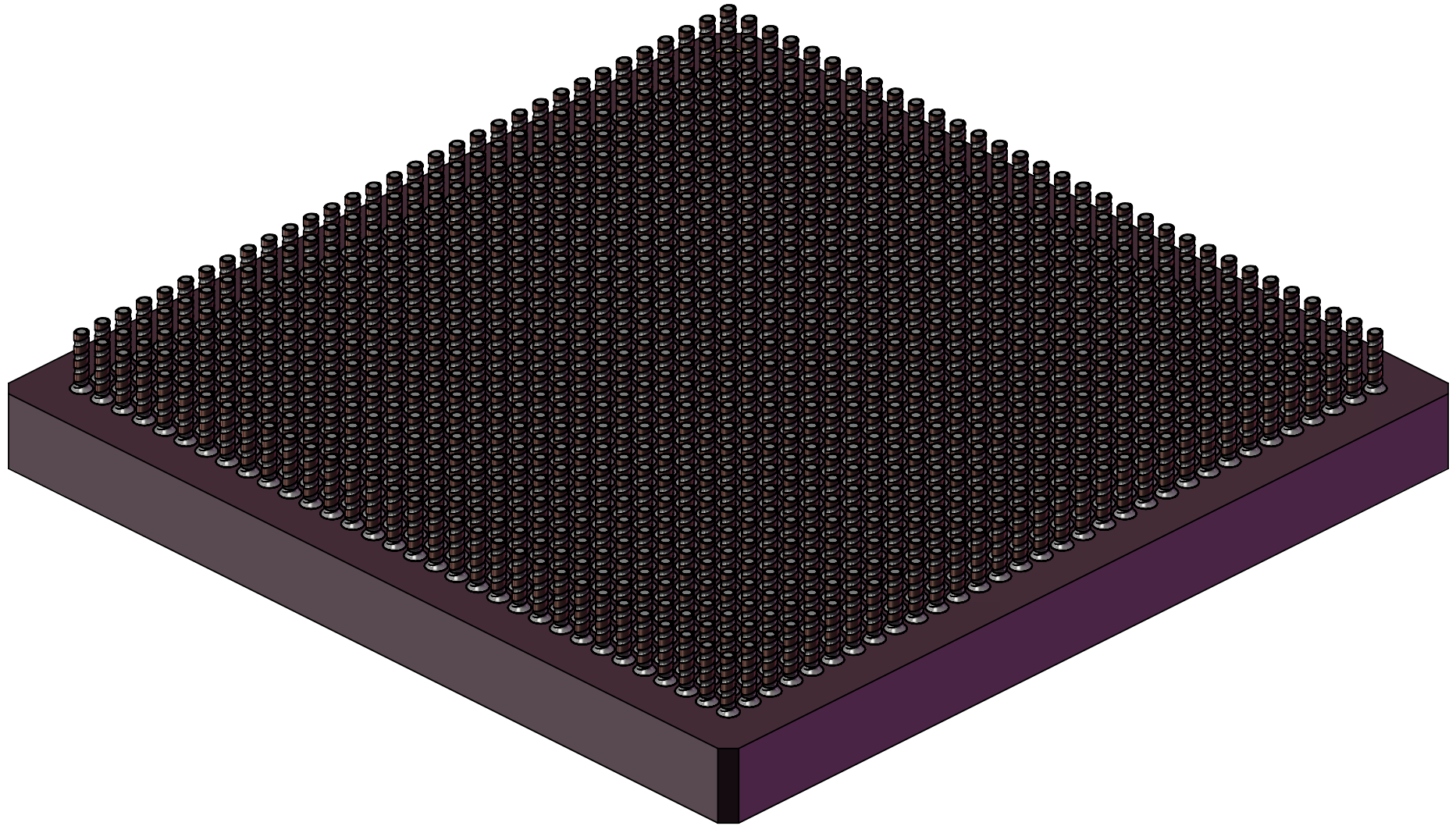
TITLE CCGA1024T1.0-DC328D  
COLUMN GRID ARRAY

SCALE 2:1	SIZE A	DRAWING NO. 160124	REV A
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DO NOT SCALE DRAWING

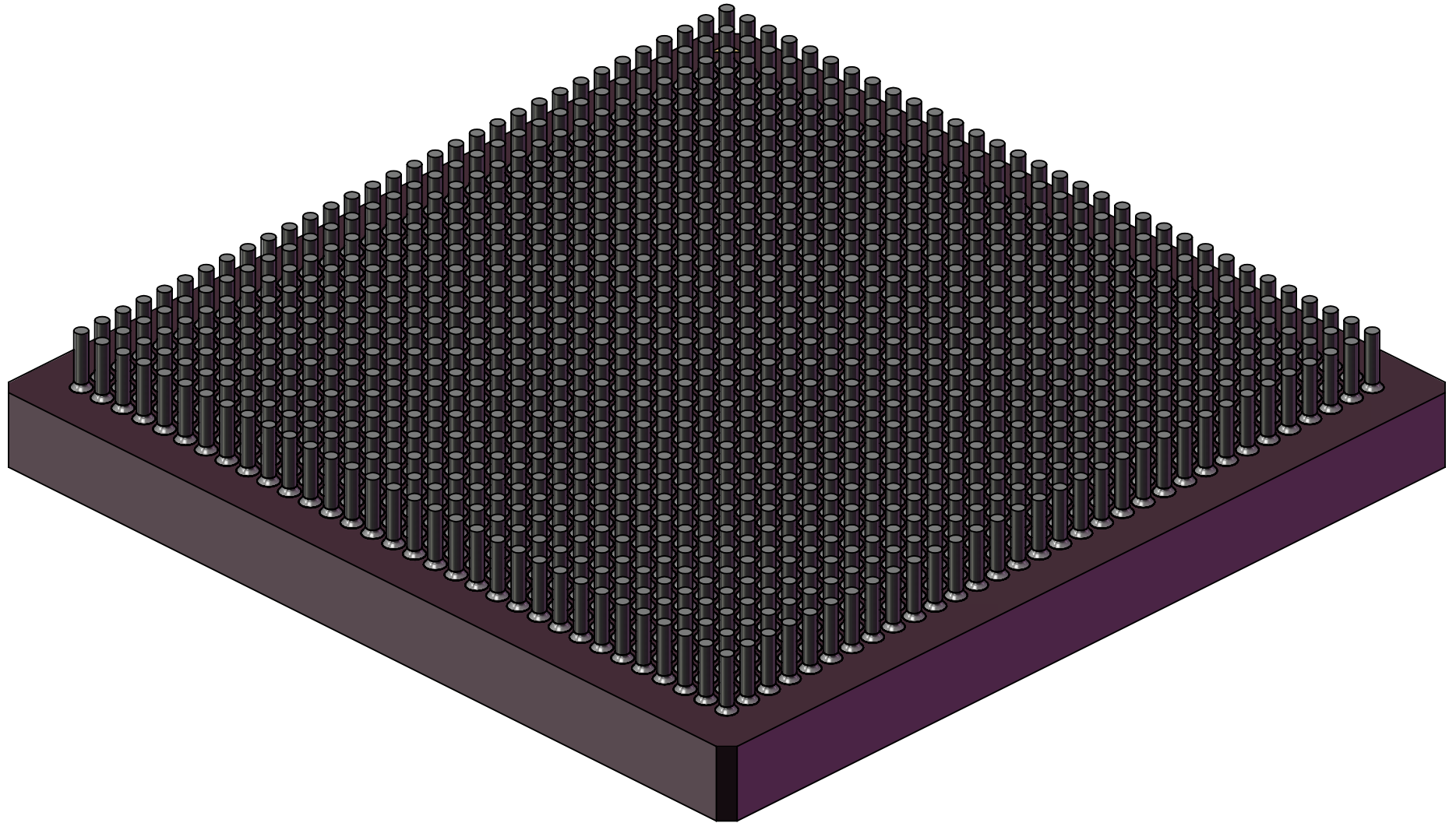
SHEET 6 OF 13

MODEL  
BOTTOM VIEW  
Pb80/Sn20 Cu WRAP COLUMNS



<b>TopLine®</b>			
TITLE		CCGA1024T1.0-DC328D COLUMN GRID ARRAY	
SCALE	SIZE	DRAWING NO.	REV
6:1	A	160124	A
DO NOT SCALE DRAWING			SHEET 7 OF 13

**MODEL  
BOTTOM VIEW  
Pb90/Sn10 PLAIN COLUMNS**



**TopLine®**

TITLE CCGA1024T1.0-DC328D  
COLUMN GRID ARRAY

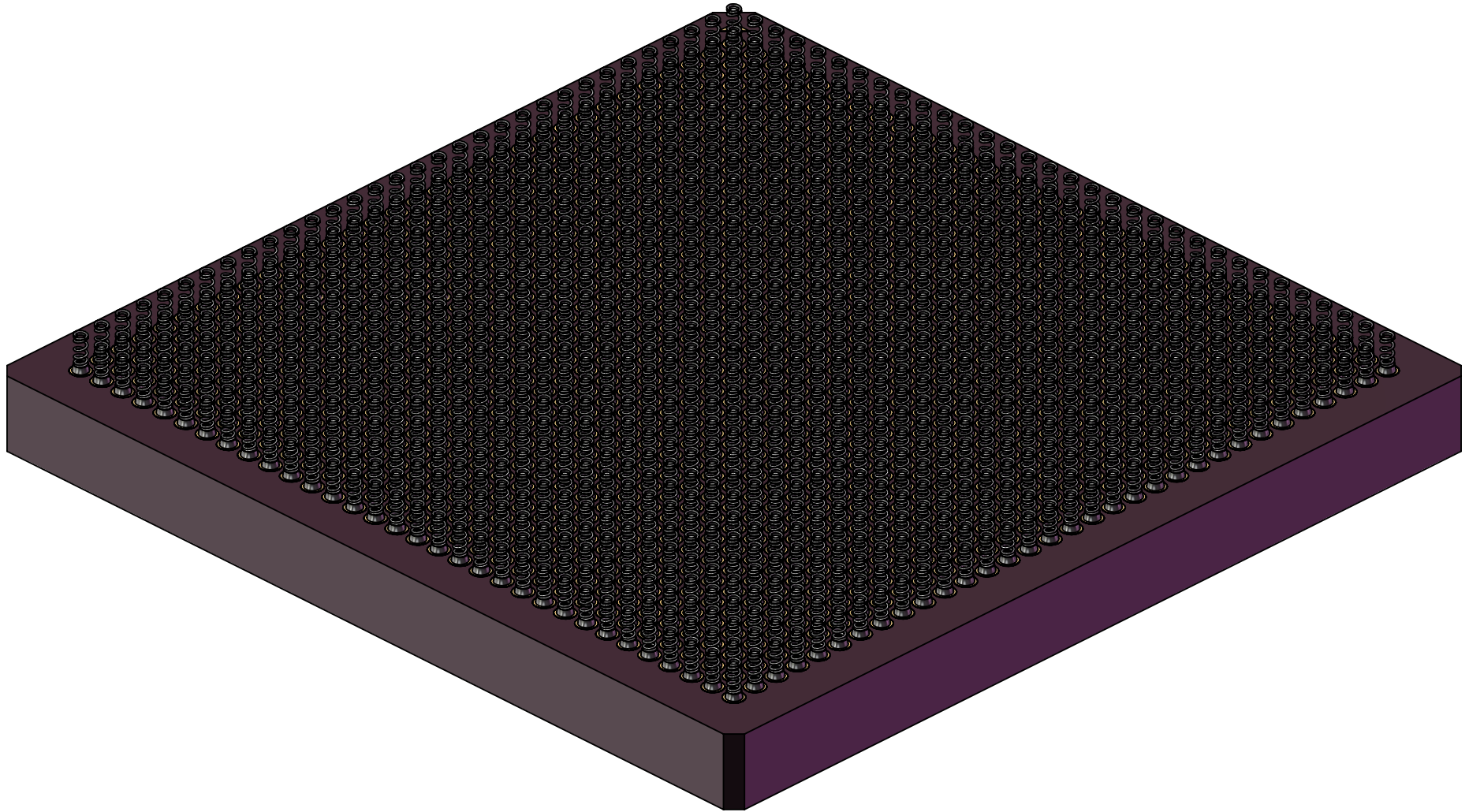
SCALE 6:1	SIZE A	DRAWING NO. 160124	REV A
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DO NOT SCALE DRAWING

SHEET 8 OF 13



**MODEL  
BOTTOM VIEW  
MICRO-COIL SPRINGS (MCS)**



**TopLine®**

TITLE CCGA1024T1.0-DC328D  
COLUMN GRID ARRAY

SCALE 6:1	SIZE A	DRAWING NO. 160124	REV A
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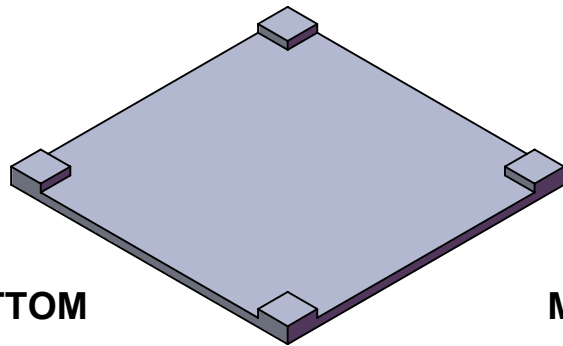
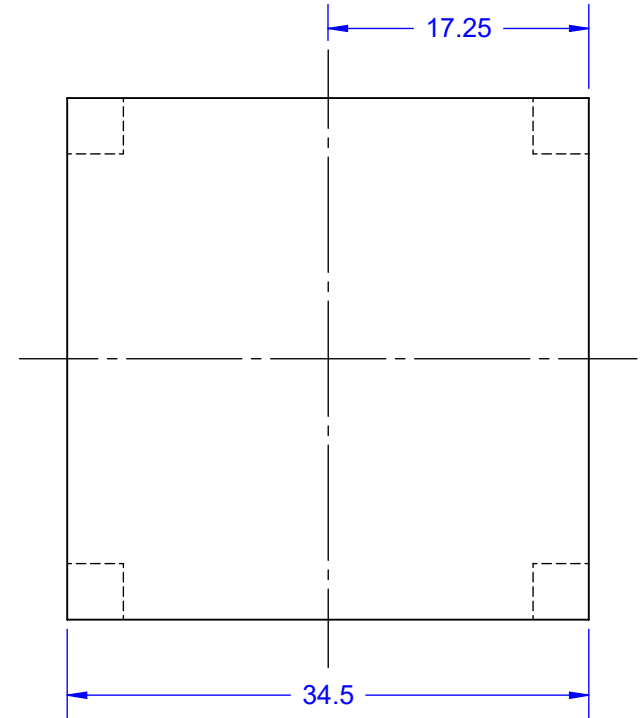
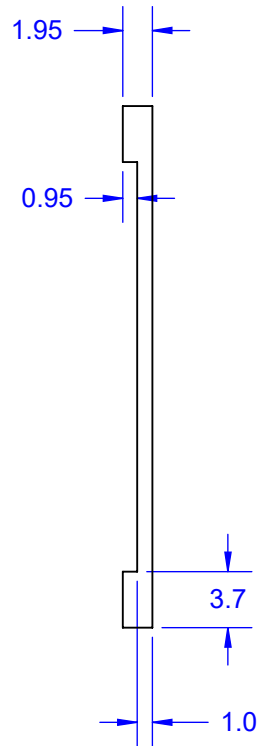
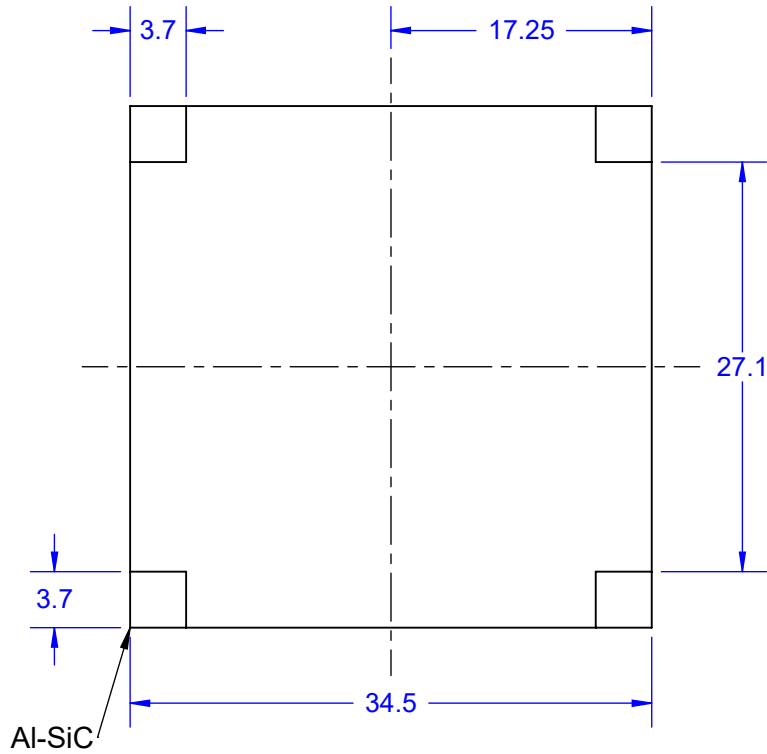
DO NOT SCALE DRAWING

SHEET 9 OF 13

### BOTTOM VIEW

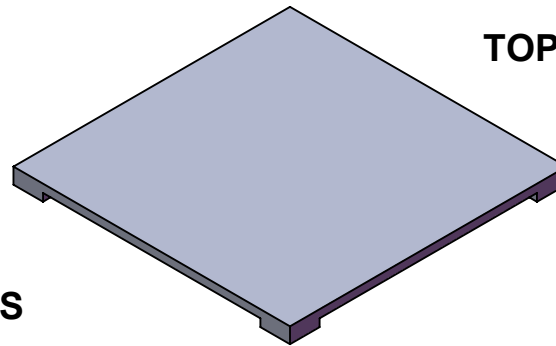
### OPTIONAL "CN" STYLE HEAT SPREADER

### TOP VIEW



**BOTTOM**

**MODELS**



**TOP**

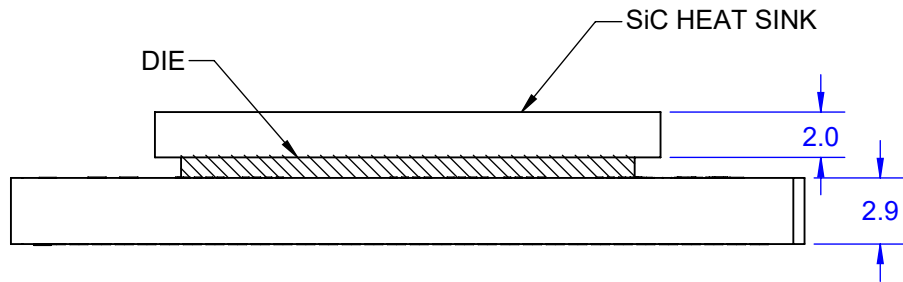
- NOTES ABOUT HEAT SINK:  
 1. DIMENSIONS IN mm.  
 2. MATERIAL: Al-SiC HEAT SINK.  
 3. NON-HERMETIC.

<b>TopLine®</b>			
TITLE		CCGA1024T1.0-DC328D COLUMN GRID ARRAY	
SCALE	SIZE	DRAWING NO.	REV
2:1	A	160124	A
DO NOT SCALE DRAWING			SHEET 10 OF 13

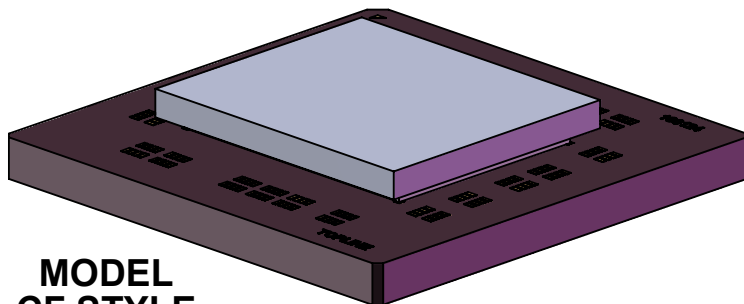
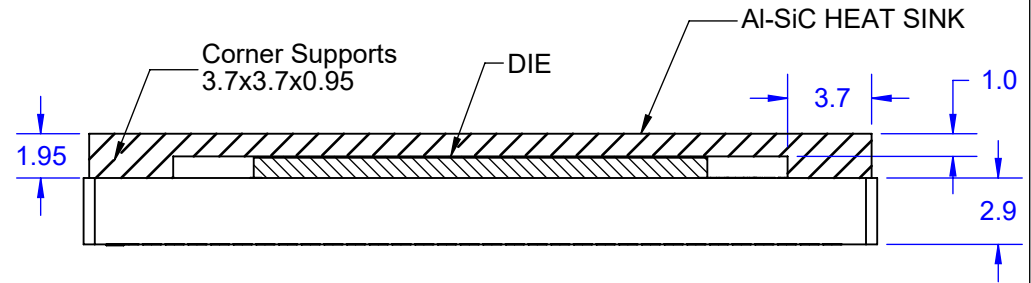


**OPTIONAL  
COMPARISON SIDE VIEW  
"CF" AND "CN" STYLE**  
Not to Scale  
SHOWN WITHOUT COLUMNS

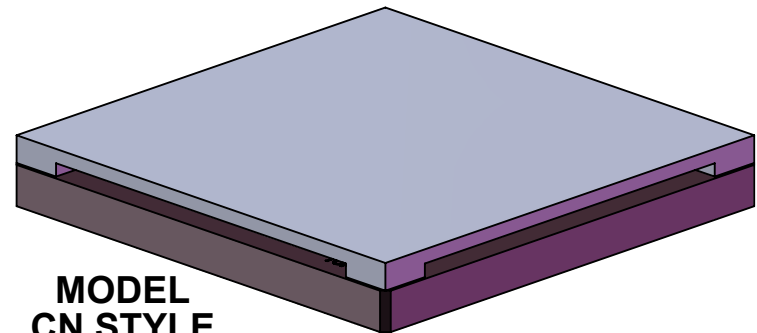
**CF STYLE**



**CN STYLE**



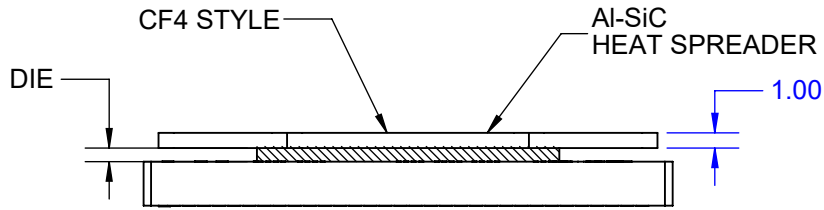
**MODEL  
CF STYLE  
HEAT SPREADER**



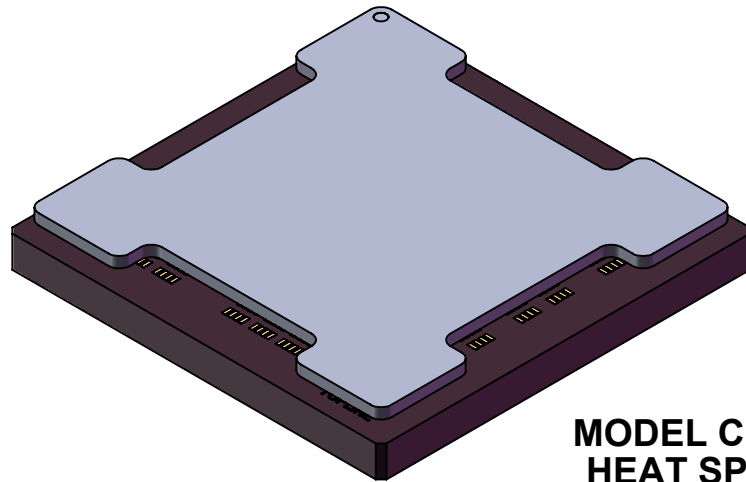
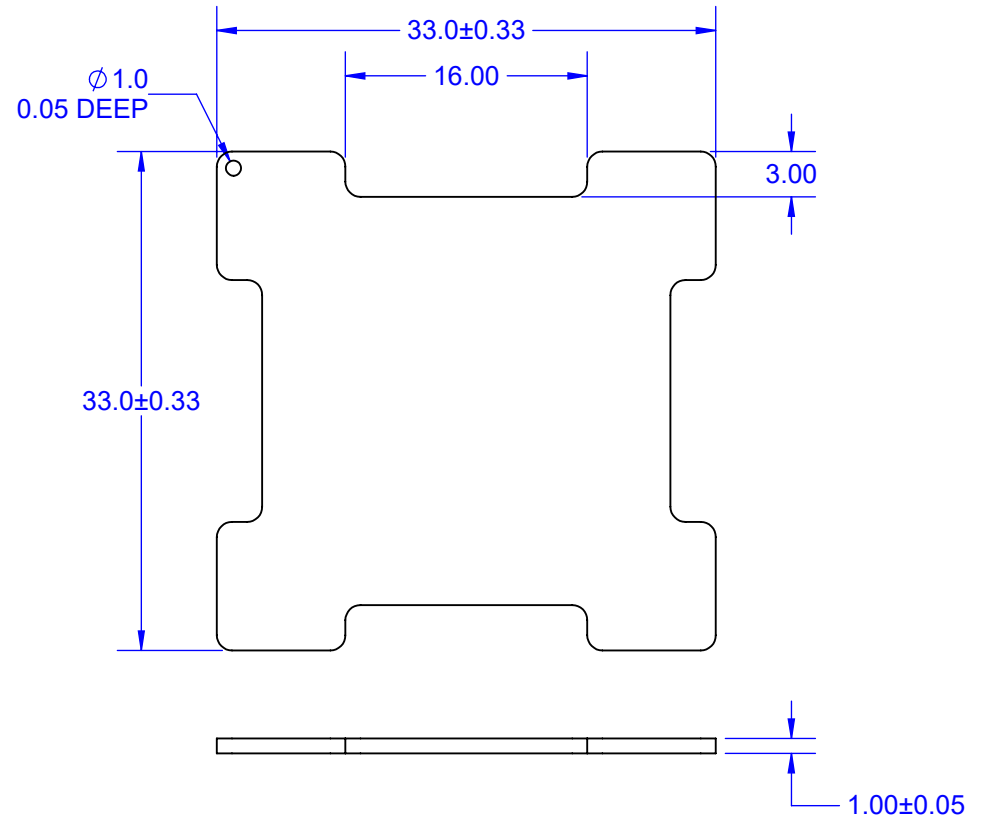
**MODEL  
CN STYLE  
HEAT SPREADER**

<b>TopLine®</b>			
TITLE CCGA1024T1.0-DC328D COLUMN GRID ARRAY			
SCALE 3:1	SIZE A	DRAWING NO. 160124	REV A
DO NOT SCALE DRAWING			SHEET 11 OF 13

**OPTIONAL  
CF4 STYLE HEAT SPREADER**  
Not to Scale  
SHOWN WITHOUT COLUMNS



**TOP VIEW**

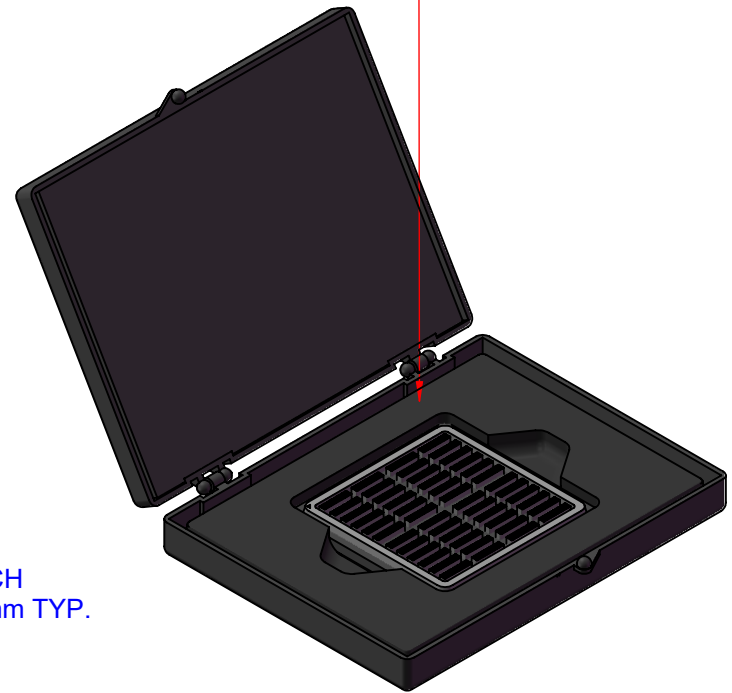
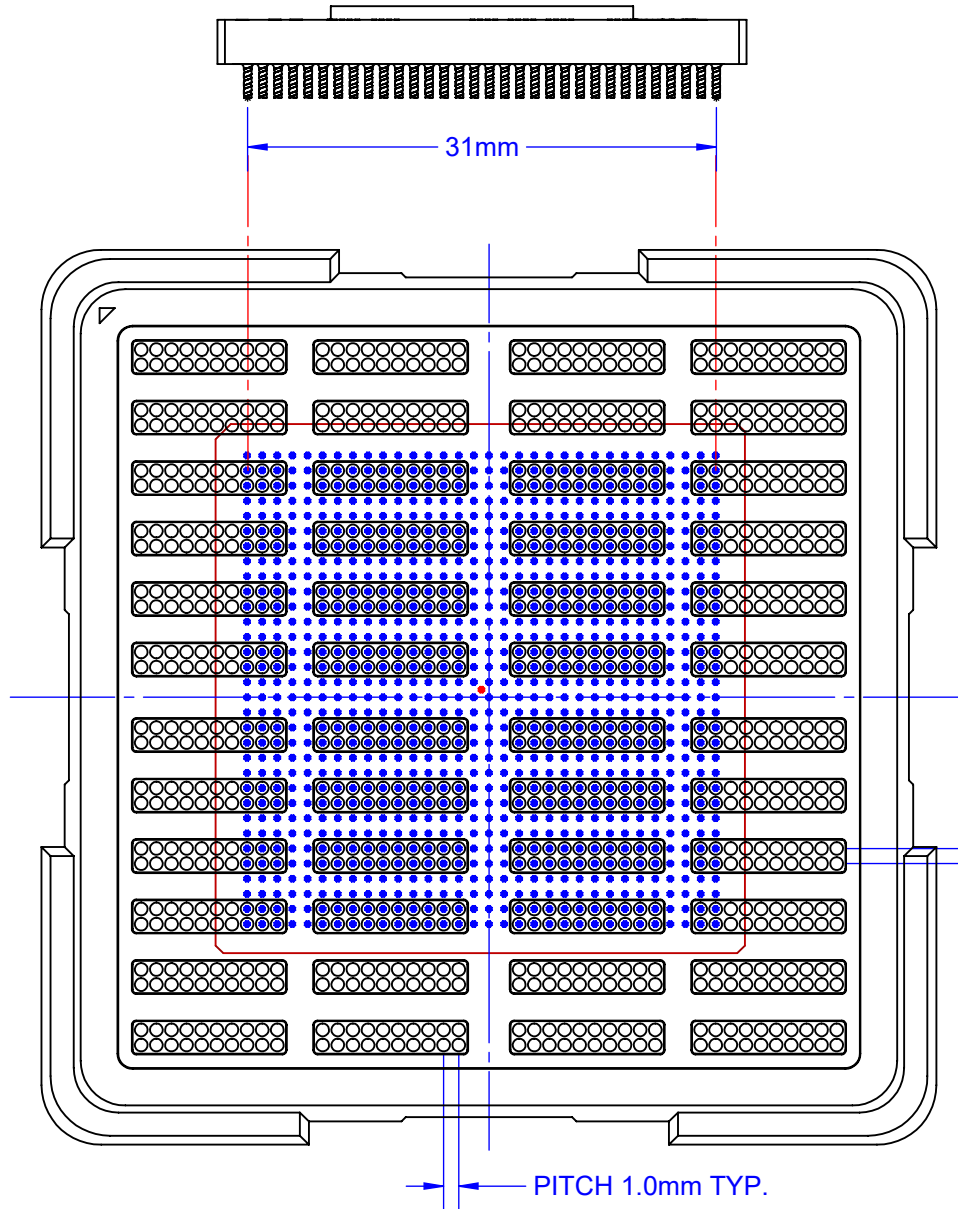
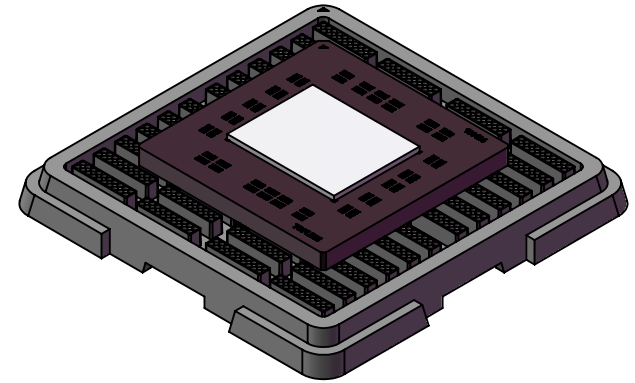


**MODEL CF4 STYLE  
HEAT SPREADER**

<b>TopLine®</b>			
TITLE		CCGA1024T1.0-DC328D COLUMN GRID ARRAY	
SCALE	SIZE	DRAWING NO.	REV
2:1	A	160124	A
DO NOT SCALE DRAWING			SHEET 12 OF 13

# PACKAGING AFTER COLUMN ATTACH

CCGA1024  
COLUMNS 32x32  
35x35mm



PITCH  
1.0mm TYP.

PITCH 1.0mm TYP.

**TopLine®**

TITLE			
CCGA1024T1.0-DC328D COLUMN GRID ARRAY			
SCALE	SIZE	DRAWING NO.	REV
2:1	A	160124	A
DO NOT SCALE DRAWING			SHEET 13 OF 13