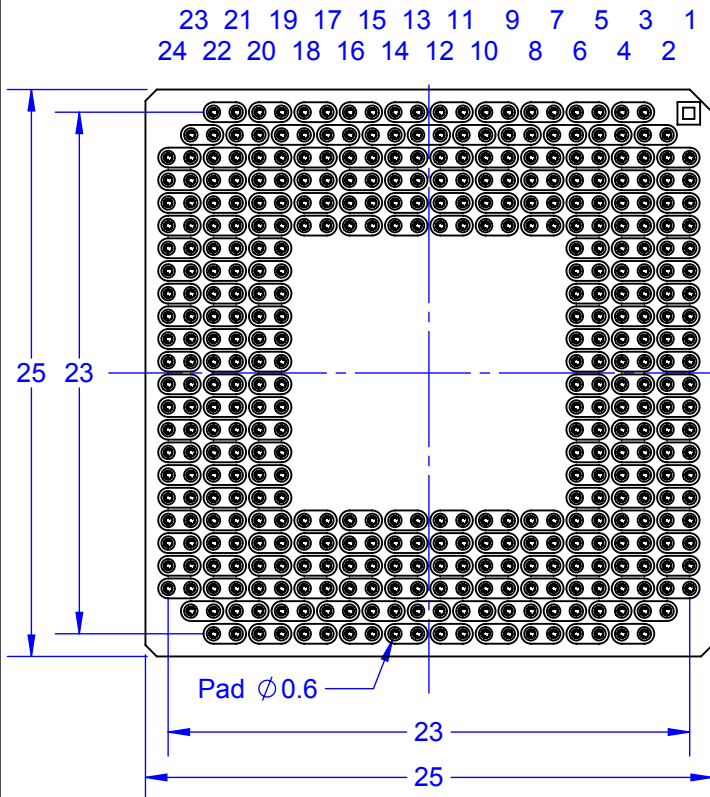
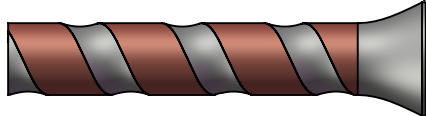


### BOTTOM VIEW

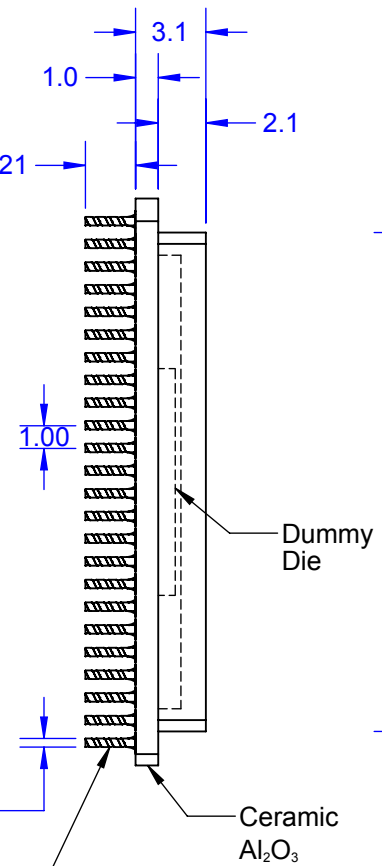


Pb80/Sn20  
Cu RIBBON  
COLUMNS

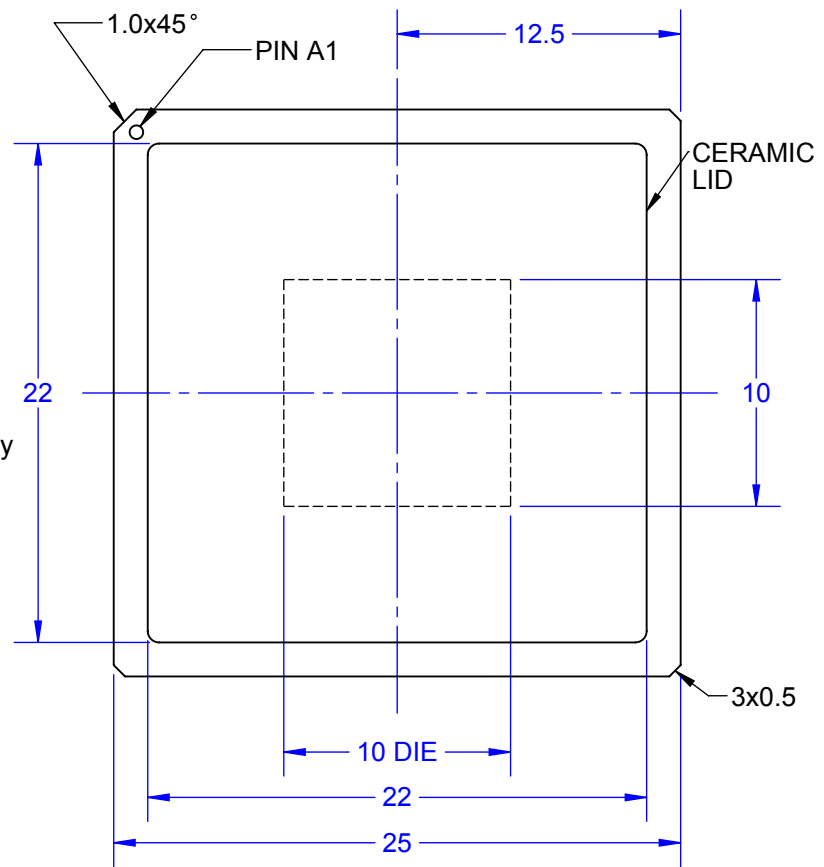


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AC  
AD  
AE

$\varnothing$ 0.38  
NOM



### TOP VIEW



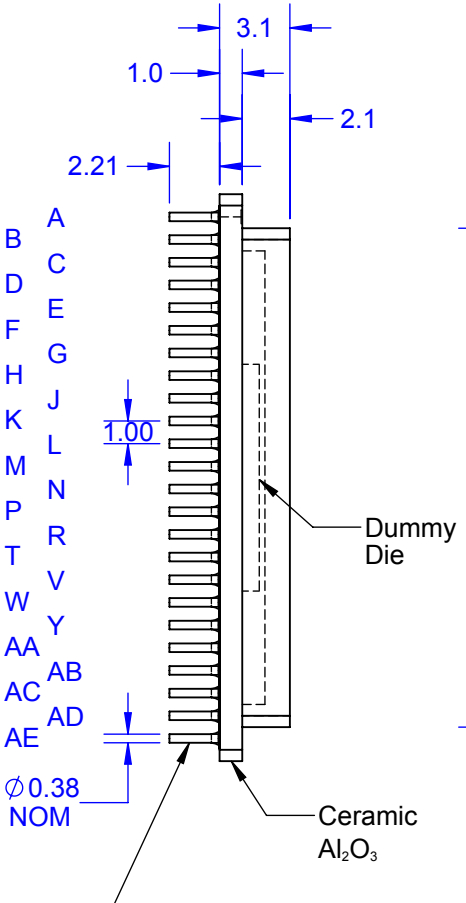
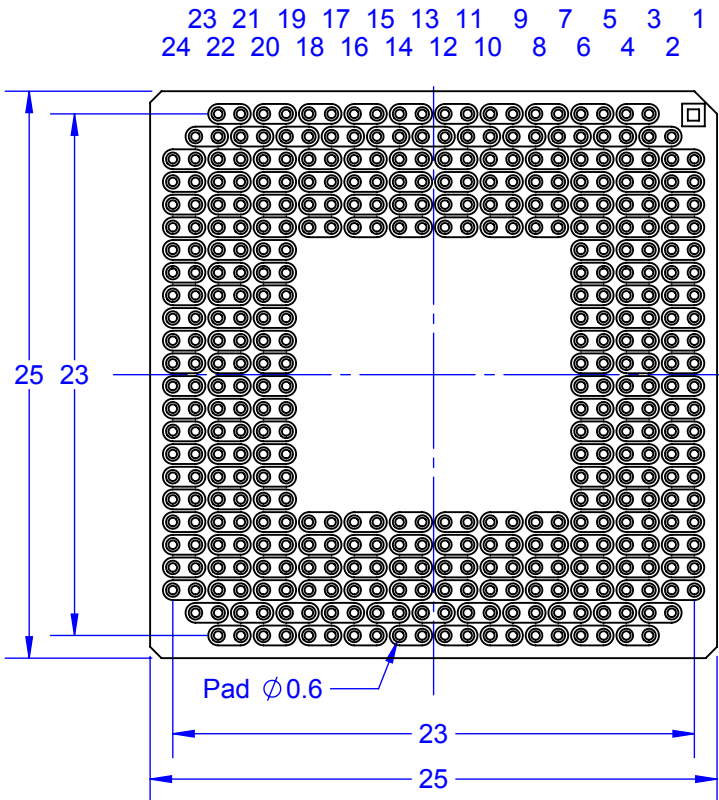
Notes: (Unless Otherwise Specified).

- 1) DIMENSIONS ARE IN mm.
- 2) SHOWN WITH Pb80/Sn20 Cu RIBBON COLUMNS.
- 3) PART NUMBER CCGA420T1.0-DC246D

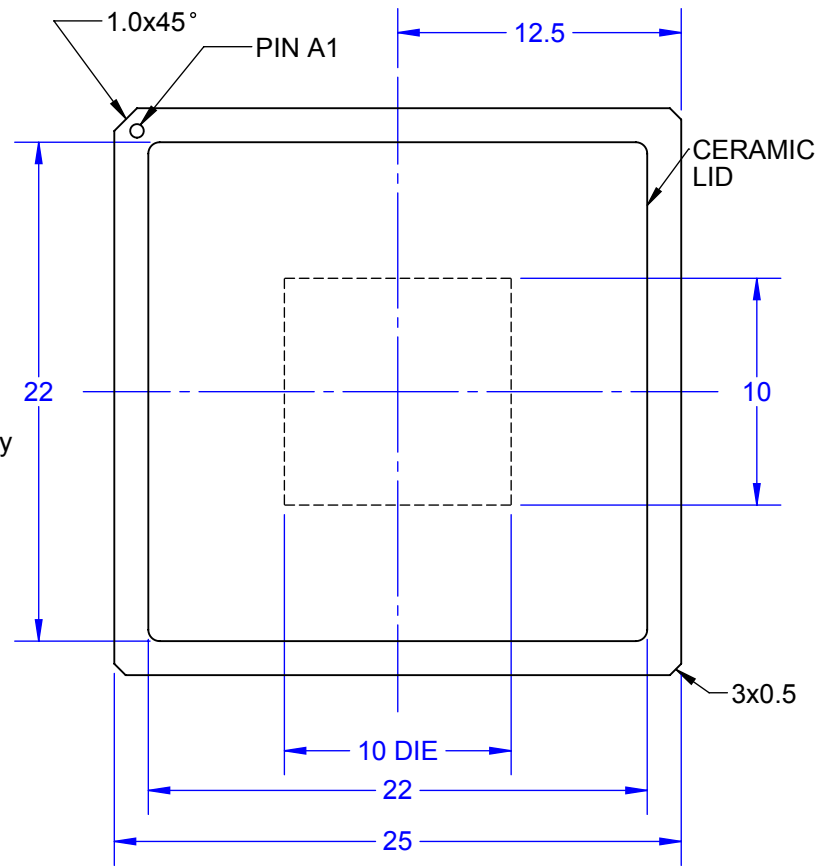
| PART NUMBER OPTIONS |           |                        |
|---------------------|-----------|------------------------|
| PART NUMBER         | DUMMY DIE | SOLDER PIN             |
| CCGA420T1.0-D246D   | YES       | Pb80/Sn20<br>Cu RIBBON |
| CCGA420T1.0A-D246D  | YES       | Pb90/Sn10              |
| CCGA420T1.0M-D246D  | YES       | Micro-Coil             |
| CLGA420T1.0-D246D   | YES       | NONE                   |
| CLGA420T1.0-D246    | NO        | NONE                   |

|             |          |   |      |             |               |
|-------------|----------|---|------|-------------|---------------|
| APPROVALS   | DATE     | <b>TopLine®</b>                                     |      |             |               |
| DRAWN T. Au | 12/23/14 |   |      |             |               |
| ENG M. Hart | 12/23/14 | TITLE CCGA420T1.0-DC246D<br>DUMMY COLUMN GRID ARRAY |      |             |               |
| MFG         |          | SCALE   | SIZE | DRAWING NO. | REV           |
| QA          |          | 3:1   | A    | 160040      | A             |
| CUST        |          | DO NOT SCALE DRAWING                                |      |             | SHEET 1 OF 13 |
| REVISED     |          |   |      |             |               |

### BOTTOM VIEW



### TOP VIEW



Pb90/Sn10  
WIRE COLUMNS

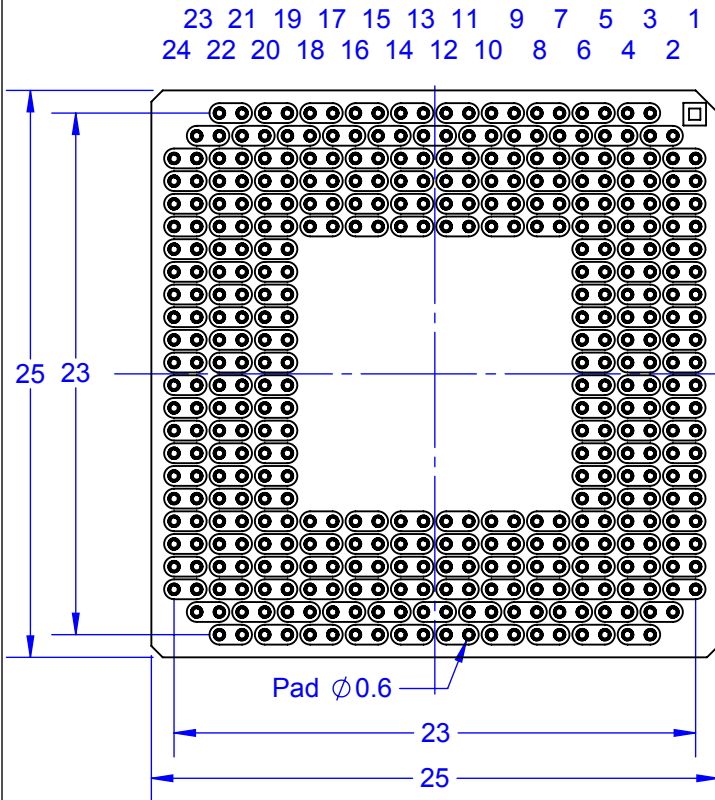


- Notes: (Unless Otherwise Specified).  
 1) DIMENSIONS ARE IN mm.  
 2) SHOWN WITH Pb90/Sn10 PLAIN COLUMNS.  
 3) PART NUMBER CCGA420T1.0A-DC246D

| PART NUMBER OPTIONS |           |                        |
|---------------------|-----------|------------------------|
| PART NUMBER         | DUMMY DIE | SOLDER PIN             |
| CCGA420T1.0-DC246D  | YES       | Pb80/Sn20<br>Cu RIBBON |
| CCGA420T1.0A-DC246D | YES       | Pb90/Sn10              |
| CCGA420T1.0M-DC246D | YES       | Micro-Coil             |
| CLGA420T1.0-DC246D  | YES       | NONE                   |
| CLGA420T1.0-DC246   | NO        | NONE                   |

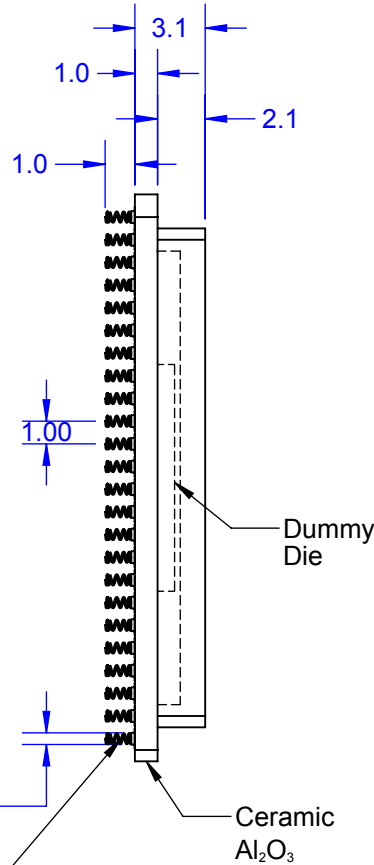
|             |          |   |      |             |               |
|-------------|----------|---|------|-------------|---------------|
| APPROVALS   | DATE     | <b>TopLine®</b>                                     |      |             |               |
| DRAWN T.Au  | 12/23/14 |   |      |             |               |
| ENG M. Hart | 12/23/14 | TITLE CCGA420T1.0-DC246D<br>DUMMY COLUMN GRID ARRAY |      |             |               |
| MFG         |          | SCALE   | SIZE | DRAWING NO. | REV           |
| QA          |          | 3:1   | A    | 160040      | A             |
| CUST        |          | DO NOT SCALE DRAWING                                |      |             | SHEET 2 OF 13 |
| REVISED     |          |   |      |             |               |

### BOTTOM VIEW

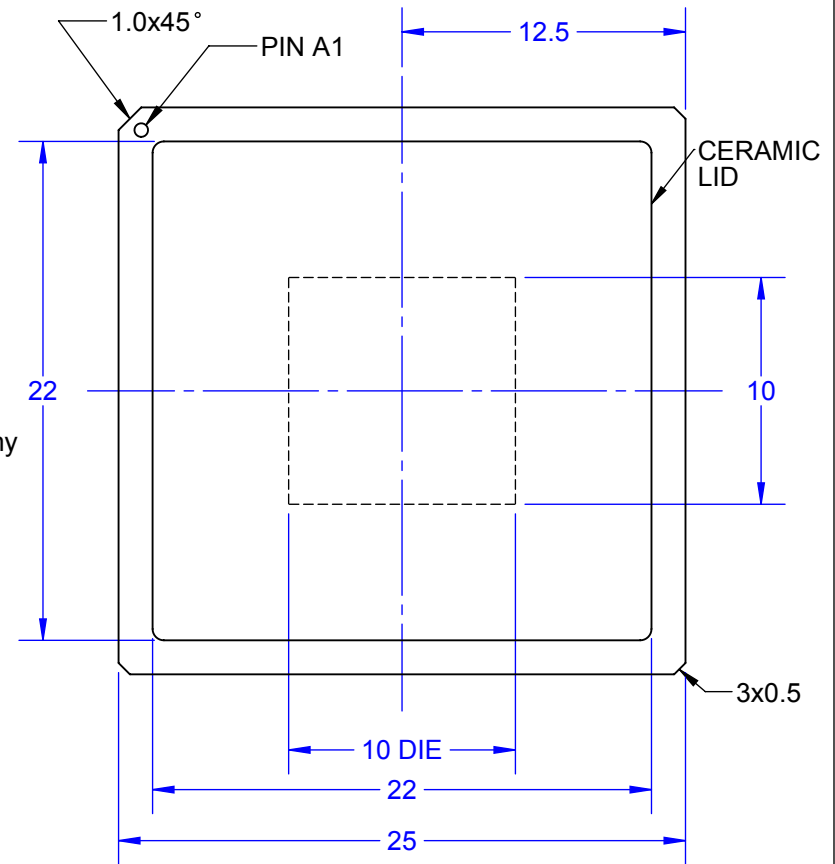


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W  
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AA  
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AC  
AD  
AE

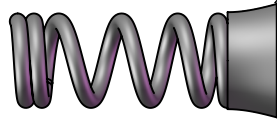
$\phi 0.40$   
NOM



### TOP VIEW




MICRO-COIL SPRING



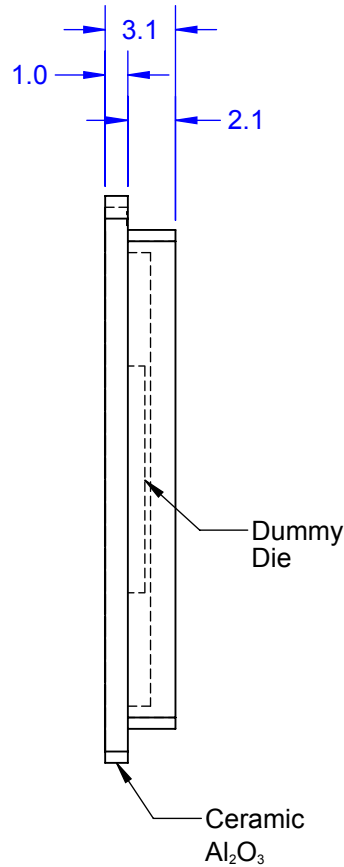
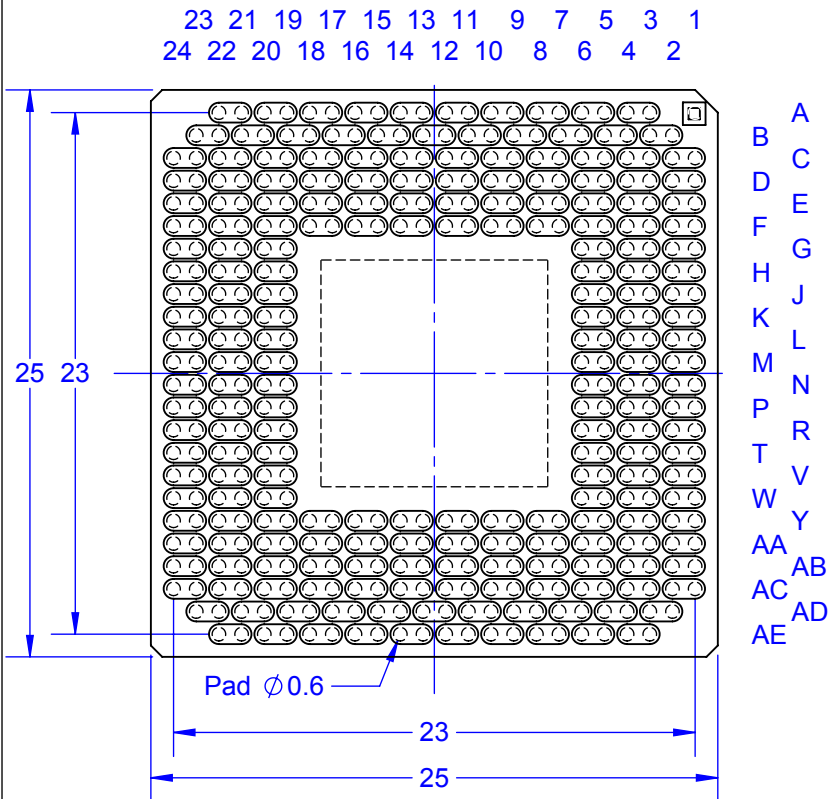
- Notes: (Unless Otherwise Specified).  
 1) DIMENSIONS ARE IN mm.  
 2) SHOWN WITH Micro-Coil Springs.  
 3) PART NUMBER CCGA420T1.0M-DC246D

#### PART NUMBER OPTIONS

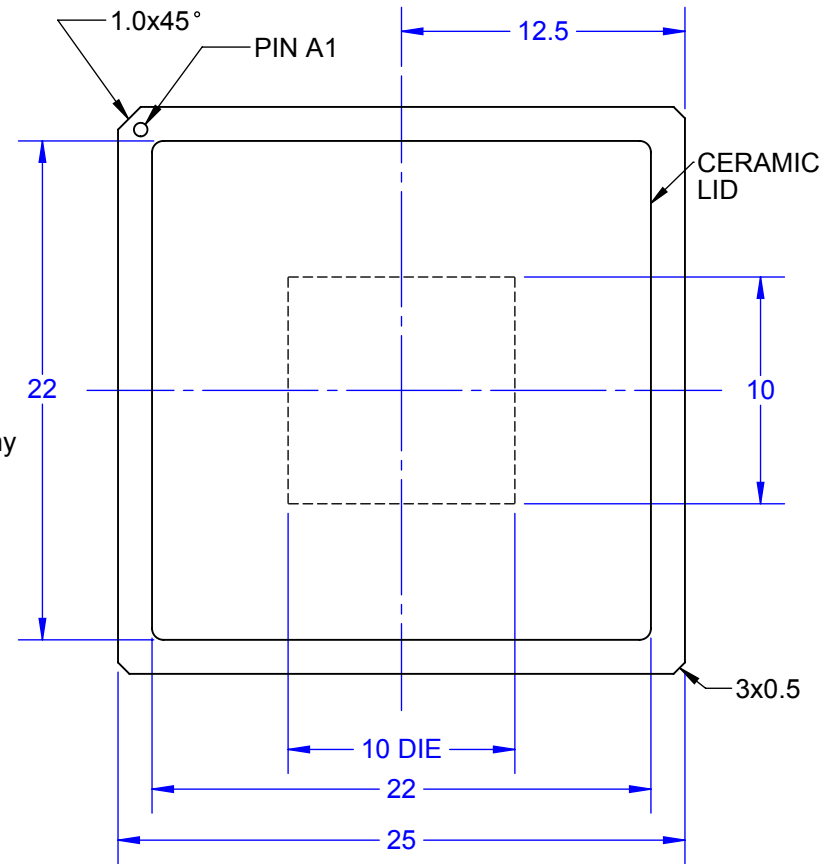
| PART NUMBER         | DUMMY DIE | SOLDER PIN             |
|---------------------|-----------|------------------------|
| CCGA420T1.0-DC246D  | YES       | Pb80/Sn20<br>Cu RIBBON |
| CCGA420T1.0A-DC246D | YES       | Pb90/Sn10              |
| CCGA420T1.0M-DC246D | YES       | Micro-Coil             |
| CLGA420T1.0-DC246D  | YES       | NONE                   |
| CLGA420T1.0-DC246   | NO        | NONE                   |

| APPROVALS   | DATE     |  |        |                    |               |
|-------------|----------|---|--------|--------------------|---------------|
| DRAWN T. Au | 12/23/14 |   |        |                    |               |
| ENG M. Hart | 12/23/14 | TITLE CCGA420T1.0-DC246D<br>DUMMY COLUMN GRID ARRAY                                   |        |                    |               |
| MFG         |          |   |        |                    |               |
| QA          |          | SCALE 3:1   | SIZE A | DRAWING NO. 160040 | REV A         |
| CUST        |          | DO NOT SCALE DRAWING  |        |                    | SHEET 3 OF 13 |
| REVISED     |          |   |        |                    |               |

### BOTTOM VIEW



### TOP VIEW



**NOTES:**

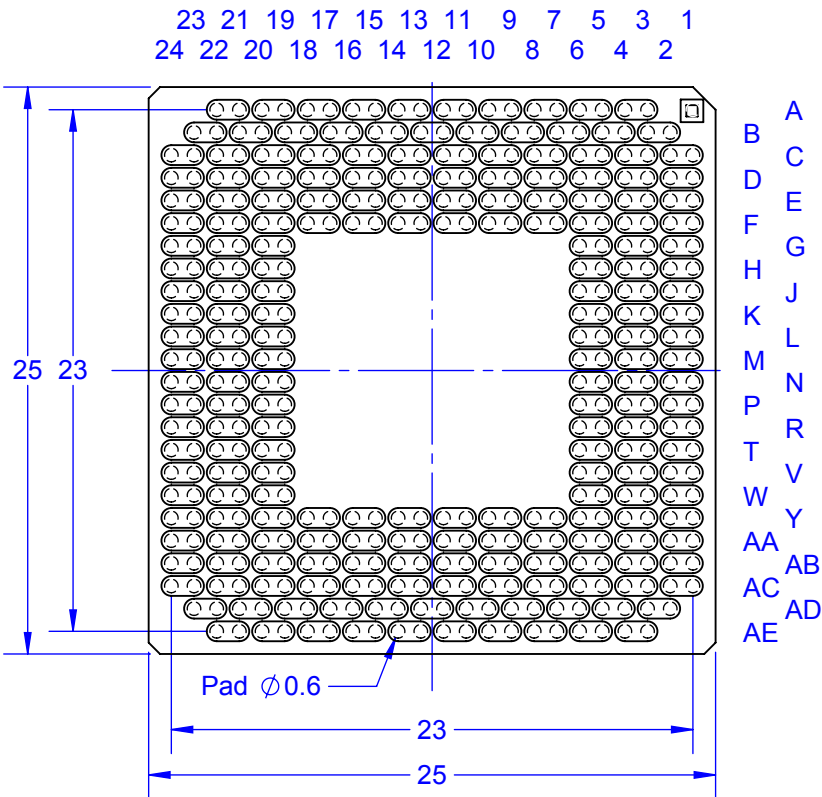
1. PLATING TOP  
ELECTROLESS Ni 1.27~5.7  $\mu\text{m}$  (50~225 micro-inch)  
ELECTROLESS Au 1.5~5.7  $\mu\text{m}$  (60 micro-inch) Min
2. PLATING BOTTOM  
ELECTROLESS Ni 3.2 ~ 8.89 $\mu\text{m}$  (125~350 micro-inch)  
ELECTROLESS Au 0.25 $\mu\text{m}$  Max (10 micro-inch Maximum)

- Notes: (Unless Otherwise Specified).  
 1) DIMENSIONS ARE IN mm.  
 2) SHOWN WITHOUT COLUMNS.  
 3) PART NUMBER CLGA420T1.0-DC246D

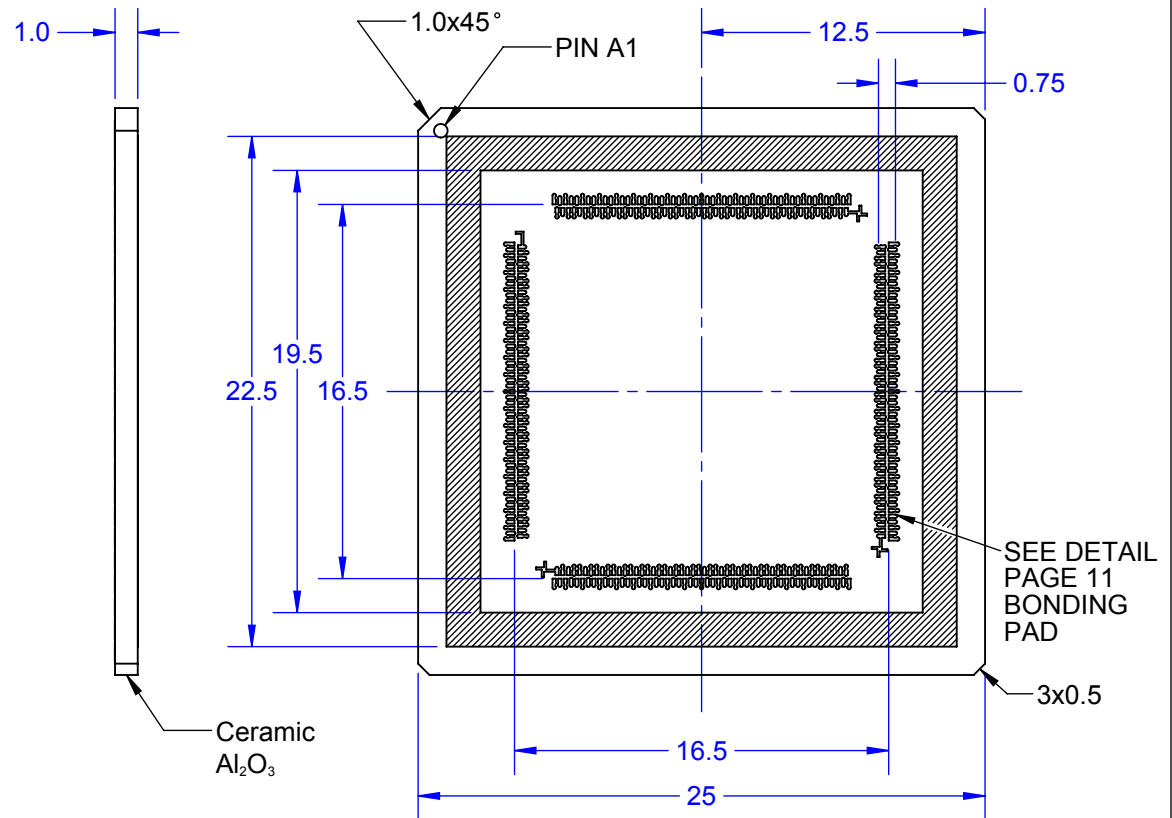
| PART NUMBER OPTIONS |           |            |     |
|---------------------|-----------|------------|-----|
| PART NUMBER         | DUMMY DIE | SOLDER PIN | LID |
| CLGA420T1.0-DC246D  | YES       | NONE       | YES |

|             |          |   |      |             |               |
|-------------|----------|---|------|-------------|---------------|
| APPROVALS   | DATE     | <b>TopLine</b> <sup>®</sup>                         |      |             |               |
| DRAWN T.Au  | 12/23/14 |   |      |             |               |
| ENG M. Hart | 12/23/14 | TITLE CCGA420T1.0-DC246D<br>DUMMY COLUMN GRID ARRAY |      |             |               |
| MFG         |          | SCALE   | SIZE | DRAWING NO. | REV           |
| QA          |          | 3:1   | A    | 160040      | A             |
| CUST        |          | DO NOT SCALE DRAWING                                |      |             | SHEET 4 OF 13 |
| REVISED     |          |   |      |             |               |

### BOTTOM VIEW



### TOP VIEW



#### NOTES:

##### 1. PLATING TOP

ELECTROLESS Ni 1.27~5.7  $\mu$ m (50~225 micro-inch)

ELECTROLESS Au 1.5~5.7  $\mu$ m (60 micro-inch) Min

##### 2. PLATING BOTTOM

ELECTROLESS Ni 3.2 ~ 8.89 $\mu$ m (125~350 micro-inch)

ELECTROLESS Au 0.25 $\mu$ m Max (10 micro-inch Maximum)

Notes: (Unless Otherwise Specified).

1) DIMENSIONS ARE IN mm.

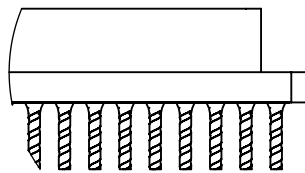
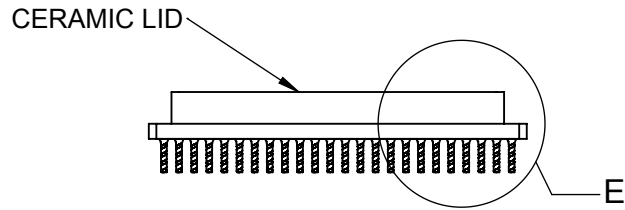
2) SHOWN WITH WITHOUT COLUMNS.

3) PART NUMBER CLGA420T1.0-DC246

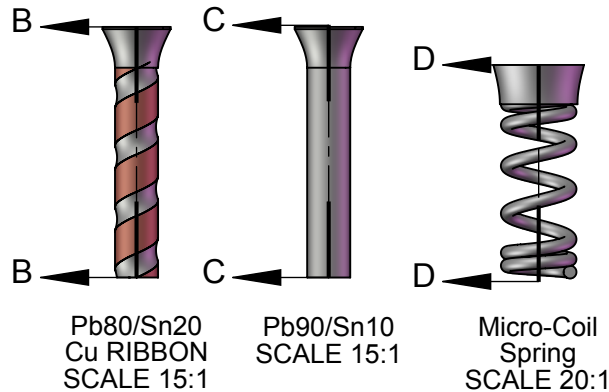
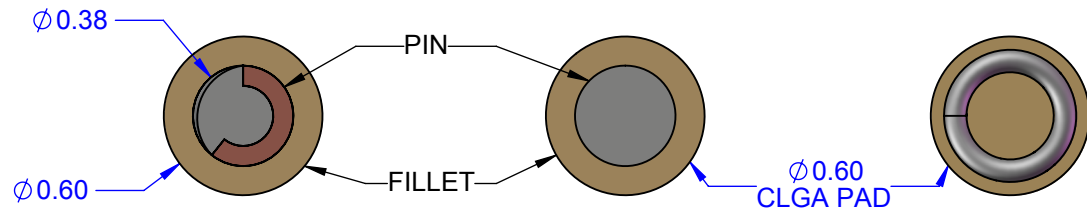
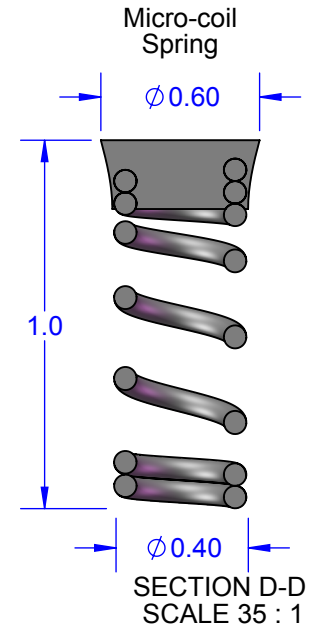
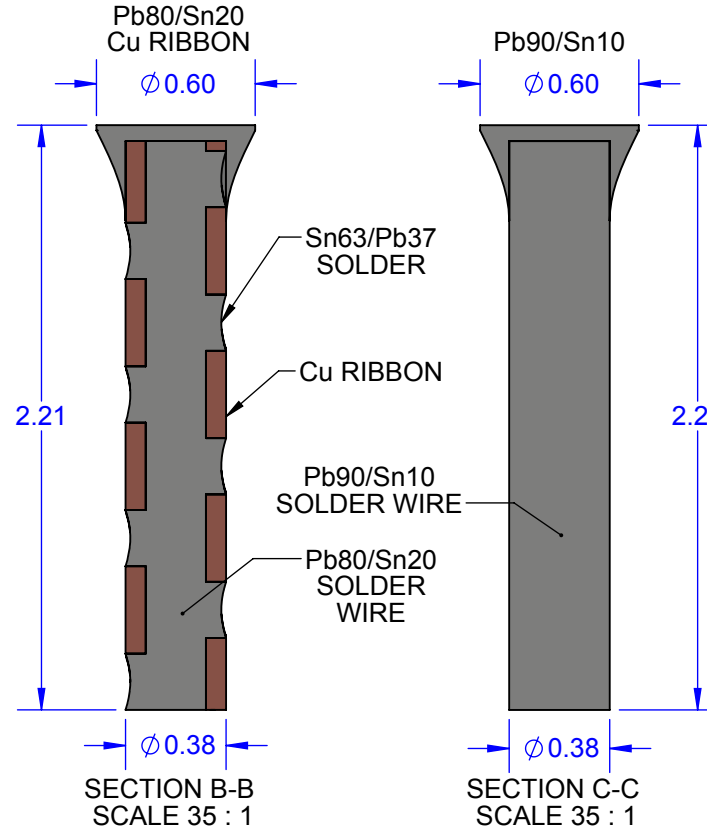
| PART NUMBER OPTIONS |           |            |      |
|---------------------|-----------|------------|------|
| PART NUMBER         | DUMMY DIE | SOLDER PIN | LID  |
| CLGA420T1.0-DC246   | NO        | NONE       | NONE |

|             |          |  |        |                    |               |
|-------------|----------|--|--------|--------------------|---------------|
| APPROVALS   | DATE     |  |        |                    |               |
| DRAWN T.Au  | 12/23/14 |  |        |                    |               |
| ENG M. Hart | 12/23/14 | TITLE CCGA420T1.0-DC246D DUMMY COLUMN GRID ARRAY |        |                    |               |
| MFG         |          | SCALE 3:1  | SIZE A | DRAWING NO. 160040 | REV A         |
| QA          |          | DO NOT SCALE DRAWING                             |        |                    | SHEET 5 OF 13 |
| CUST        |          |  |        |                    |               |
| REVISED     |          |  |        |                    |               |

# SOLDER PIN OPTIONS



DETAIL E  
SCALE 3 : 1



| PART NUMBER OPTIONS |           |                        |
|---------------------|-----------|------------------------|
| PART NUMBER         | DUMMY DIE | SOLDER PIN             |
| CCGA420T1.0-DC246D  | YES       | Pb80/Sn20<br>Cu RIBBON |
| CCGA420T1.0A-DC246D | YES       | Pb90/Sn10              |
| CCGA420T1.0M-DC246D | YES       | Micro-Coil             |
| CLGA420T1.0-DC246D  | YES       | NONE                   |
| CLGA420T1.0-DC246   | NO        | NONE                   |

**TopLine**<sup>®</sup>

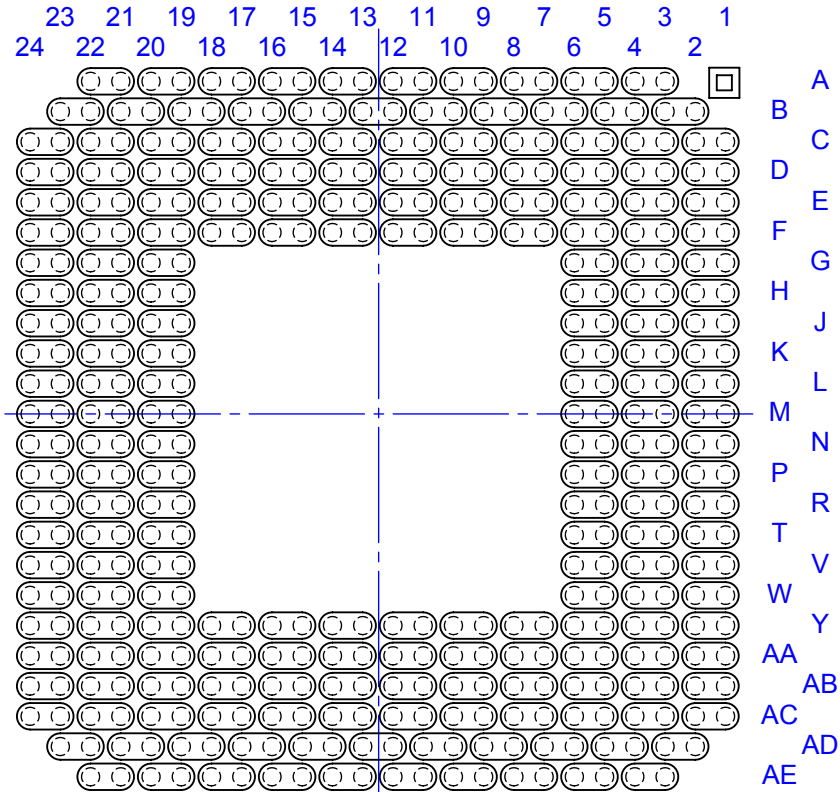
TITLE CCGA420T1.0-DC246D  
DUMMY COLUMN GRID ARRAY

|              |           |                       |          |
|--------------|-----------|-----------------------|----------|
| SCALE<br>1:1 | SIZE<br>A | DRAWING NO.<br>160040 | REV<br>A |
|--------------|-----------|-----------------------|----------|

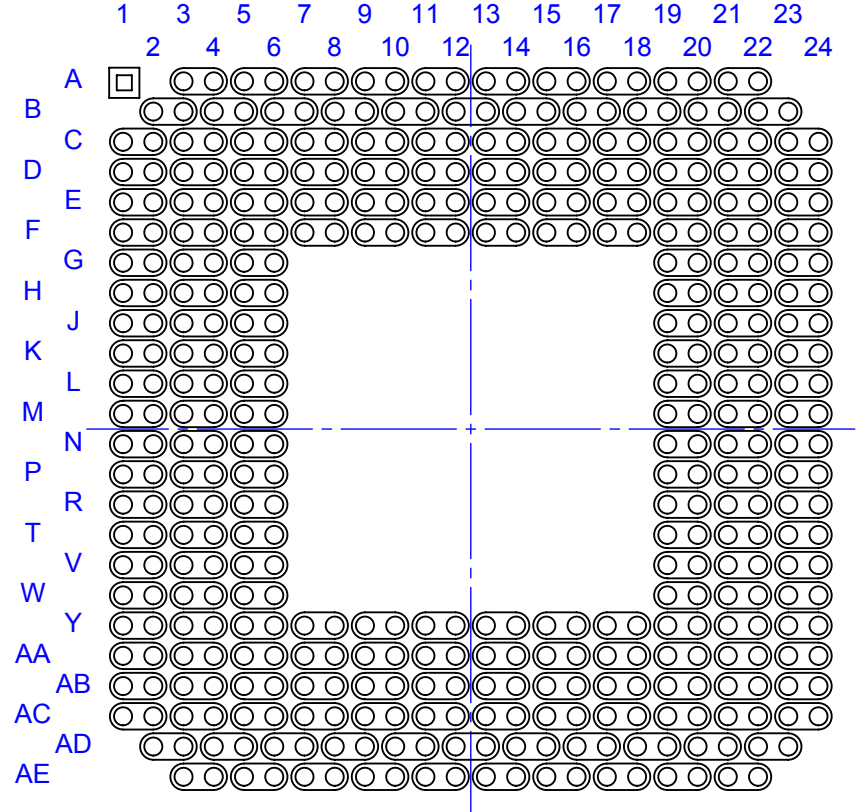
DO NOT SCALE DRAWING SHEET 6 OF 13

# DAISY CHAIN PATTERN

## COLUMN (BALL) VIEW



## BOTTOM X-RAY VIEWED FROM TOP



**TopLine®**

TITLE CCGA420T1.0-DC246D  
DUMMY COLUMN GRID ARRAY

|              |           |                       |          |
|--------------|-----------|-----------------------|----------|
| SCALE<br>4:1 | SIZE<br>A | DRAWING NO.<br>160040 | REV<br>A |
|--------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING

SHEET 7 OF 13

## NET LIST DAISY CHAIN CONNECTION TABLE

| DC PAIR |      |
|---------|------|
| A3      | A4   |
| A5      | A6   |
| A7      | A8   |
| A9      | A10  |
| A11     | A12  |
| A13     | A14  |
| A15     | A16  |
| A17     | A18  |
| A19     | A20  |
| A21     | A22  |
| AA1     | AA2  |
| AA3     | AA4  |
| AA5     | AA6  |
| AA7     | AA8  |
| AA9     | AA10 |
| AA11    | AA12 |
| AA13    | AA14 |
| AA15    | AA16 |
| AA17    | AA18 |
| AA19    | AA20 |
| AA21    | AA22 |
| AA23    | AA24 |
| AB1     | AB2  |
| AB3     | AB4  |
| AB5     | AB6  |
| AB7     | AB8  |
| AB9     | AB10 |
| AB11    | AB12 |
| AB13    | AB14 |
| AB15    | AB16 |

| DC PAIR |      |
|---------|------|
| AB17    | AB18 |
| AB19    | AB20 |
| AB21    | AB22 |
| AB23    | AB24 |
| AC1     | AC2  |
| AC3     | AC4  |
| AC5     | AC6  |
| AC7     | AC8  |
| AC9     | AC10 |
| AC11    | AC12 |
| AC13    | AC14 |
| AC15    | AC16 |
| AC17    | AC18 |
| AC19    | AC20 |
| AC21    | AC22 |
| AC23    | AC24 |
| AD2     | AD3  |
| AD4     | AD5  |
| AD6     | AD7  |
| AD8     | AD9  |
| AD10    | AD11 |
| AD12    | AD13 |
| AD14    | AD15 |
| AD16    | AD17 |
| AD18    | AD19 |
| AD20    | AD21 |
| AD22    | AD23 |
| AE3     | AE4  |
| AE5     | AE6  |
| AE7     | AE8  |

| DC PAIR |      |
|---------|------|
| AE9     | AE10 |
| AE11    | AE12 |
| AE13    | AE14 |
| AE15    | AE16 |
| AE17    | AE18 |
| AE19    | AE20 |
| AE21    | AE22 |
| B2      | B3   |
| B4      | B5   |
| B6      | B7   |
| B8      | B9   |
| B10     | B11  |
| B12     | B13  |
| B14     | B15  |
| B16     | B17  |
| B18     | B19  |
| B20     | B21  |
| B22     | B23  |
| C1      | C2   |
| C3      | C4   |
| C5      | C6   |
| C7      | C8   |
| C9      | C10  |
| C11     | C12  |
| C13     | C14  |
| C15     | C16  |
| C17     | C18  |
| C19     | C20  |
| C21     | C22  |
| C23     | C24  |

| DC PAIR |     |
|---------|-----|
| D1      | D2  |
| D3      | D4  |
| D5      | D6  |
| D7      | D8  |
| D9      | D10 |
| D11     | D12 |
| D13     | D14 |
| D15     | D16 |
| D17     | D18 |
| D19     | D20 |
| D21     | D22 |
| D23     | D24 |
| E1      | E2  |
| E3      | E4  |
| E5      | E6  |
| E7      | E8  |
| E9      | E10 |
| E11     | E12 |
| E13     | E14 |
| E15     | E16 |
| E17     | E18 |
| E19     | E20 |
| E21     | E22 |
| E23     | E24 |
| F1      | F2  |
| F3      | F4  |
| F5      | F6  |
| F7      | F8  |
| F9      | F10 |
| F11     | F12 |

| DC PAIR |     |
|---------|-----|
| F13     | F14 |
| F15     | F16 |
| F17     | F18 |
| F19     | F20 |
| F21     | F22 |
| F23     | F24 |
| G1      | G2  |
| G3      | G4  |
| G5      | G6  |
| G19     | G20 |
| G21     | G22 |
| G23     | G24 |
| H1      | H2  |
| H3      | H4  |
| H5      | H6  |
| H19     | H20 |
| H21     | H22 |
| H23     | H24 |
| J1      | J2  |
| J3      | J4  |
| J5      | J6  |
| J19     | J20 |
| J21     | J22 |
| J23     | J24 |
| K1      | K2  |
| K3      | K4  |
| K5      | K6  |
| K19     | K20 |
| K21     | K22 |
| K23     | K24 |

| DC PAIR |     |
|---------|-----|
| L1      | L2  |
| L3      | L4  |
| L5      | L6  |
| L19     | L20 |
| L21     | L22 |
| L23     | L24 |
| M1      | M2  |
| M3      | M4  |
| M5      | M6  |
| M19     | M20 |
| M21     | M22 |
| M23     | M24 |
| N1      | N2  |
| N3      | N4  |
| N5      | N6  |
| N19     | N20 |
| N21     | N22 |
| N23     | N24 |
| P1      | P2  |
| P3      | P4  |
| P5      | P6  |
| P19     | P20 |
| P21     | P22 |
| P23     | P24 |
| R1      | R2  |
| R3      | R4  |
| R5      | R6  |
| R19     | R20 |
| R21     | R22 |
| R23     | R24 |

| DC PAIR |     |
|---------|-----|
| T1      | T2  |
| T3      | T4  |
| T5      | T6  |
| T19     | T20 |
| T21     | T22 |
| T23     | T24 |
| V1      | V2  |
| V3      | V4  |
| V5      | V6  |
| V19     | V20 |
| V21     | V22 |
| V23     | V24 |
| W1      | W2  |
| W3      | W4  |
| W5      | W6  |
| W19     | W20 |
| W21     | W22 |
| W23     | W24 |
| Y1      | Y2  |
| Y3      | Y4  |
| Y5      | Y6  |
| Y7      | Y8  |
| Y9      | Y10 |
| Y11     | Y12 |
| Y13     | Y14 |
| Y15     | Y16 |
| Y17     | Y18 |
| Y19     | Y20 |
| Y21     | Y22 |
| Y23     | Y24 |



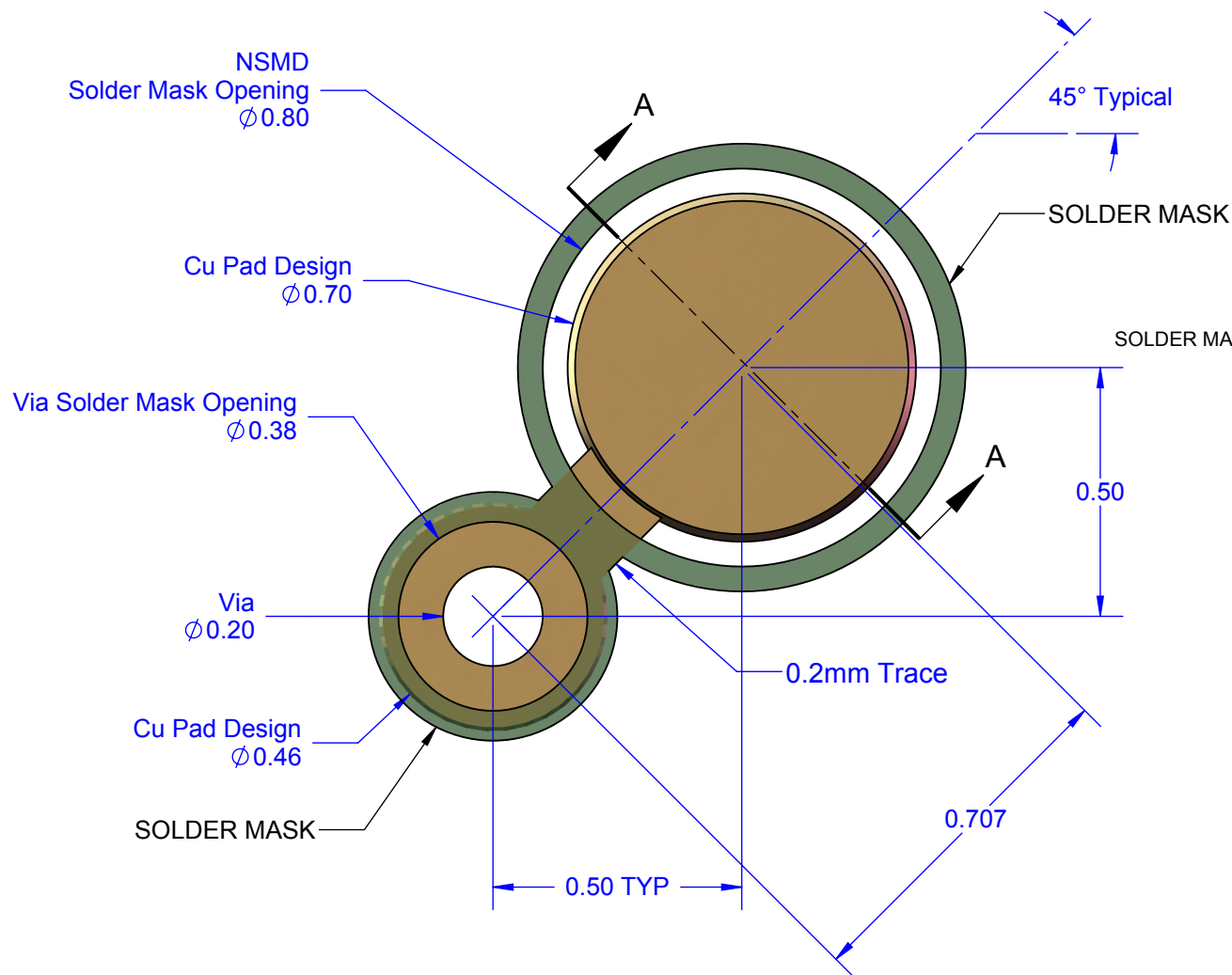
TITLE CCGA420T1.0-DC246D  
DUMMY COLUMN GRID ARRAY

|               |           |                       |          |
|---------------|-----------|-----------------------|----------|
| SCALE<br>NONE | SIZE<br>A | DRAWING NO.<br>160040 | REV<br>A |
|---------------|-----------|-----------------------|----------|

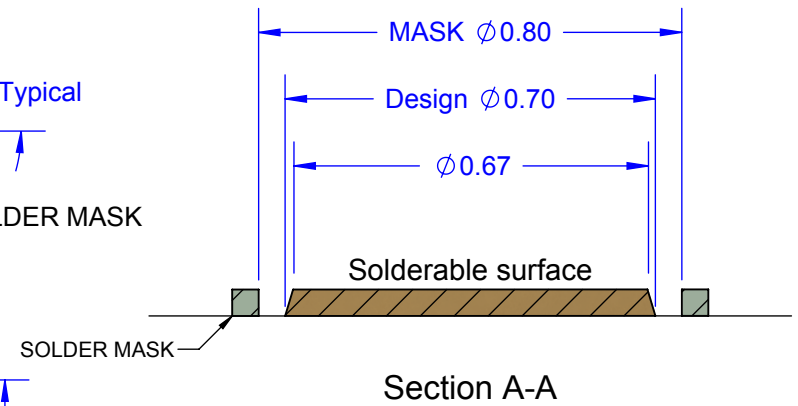
DO NOT SCALE DRAWING

SHEET 8 OF 13

## PCB PAD DESIGN RULES CCGA PITCH 1.0MM



### Cu PAD SIDE VIEW



#### NOTES:

1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED.
2. SOLDERABLE SURFACE  $\phi 0.67$  IS THE FUNCTIONAL SURFACE OF Cu PAD.
3.  $\phi 0.70$  IS THE DESIGN DIMENSION OF Cu PAD.
4. PCB BOARD DIMENSIONS ARE PRESENTED ONLY AS A GUIDELINE.  
DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.

**TopLine**<sup>®</sup>

TITLE CCGA420T1.0-DC246D  
DUMMY COLUMN GRID ARRAY

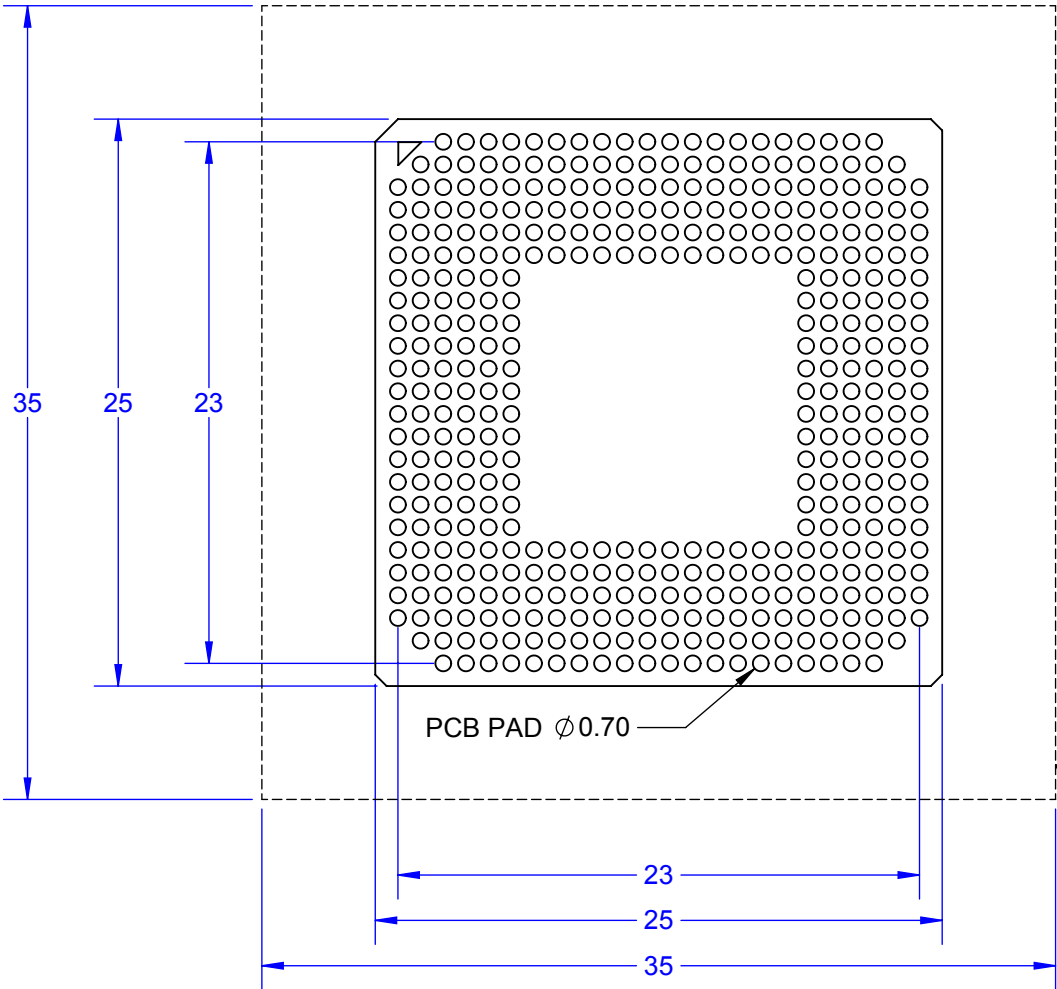
| SCALE | SIZE | DRAWING NO. | REV |
|-------|------|-------------|-----|
| 70:1  | A    | 160040      | A   |

DO NOT SCALE DRAWING

SHEET 9 OF 13

**PCB LAND ARRAY**  
SHOWN WHITOUT DAISY CHAIN

23 21 19 17 15 13 11 9 7 5 3 1  
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  
V  
W  
Y  
AA  
AB  
AC  
AD  
AE

| SOLDER PASTE STENCIL |                          |
|----------------------|--------------------------|
| Thickness            | 190~203µm<br>7.5~8.0 mil |
| Aperture             | 1:1                      |

| SOLDER PASTE VOLUME |  |
|---------------------|--|
| Nominal             | 0.06mm <sup>3</sup><br>4000 mils <sup>3</sup>  |
| Maximum             | 0.078mm <sup>3</sup><br>5000 mils <sup>3</sup> |
| Minimum             | 0.031mm <sup>3</sup><br>2000 mils <sup>3</sup> |

| SOLDER PASTE   |  |
|--|--|
| Sn63/Pb37<br>90% solder by weight<br>50% solids by volume<br>Type T3 Particle Size<br>Flux ROL0<br>No Clean Paste (Optional) |  |

CLEARANCE 5.0 MIN  
ADJACENT COMPONENTS

**NOTES:**

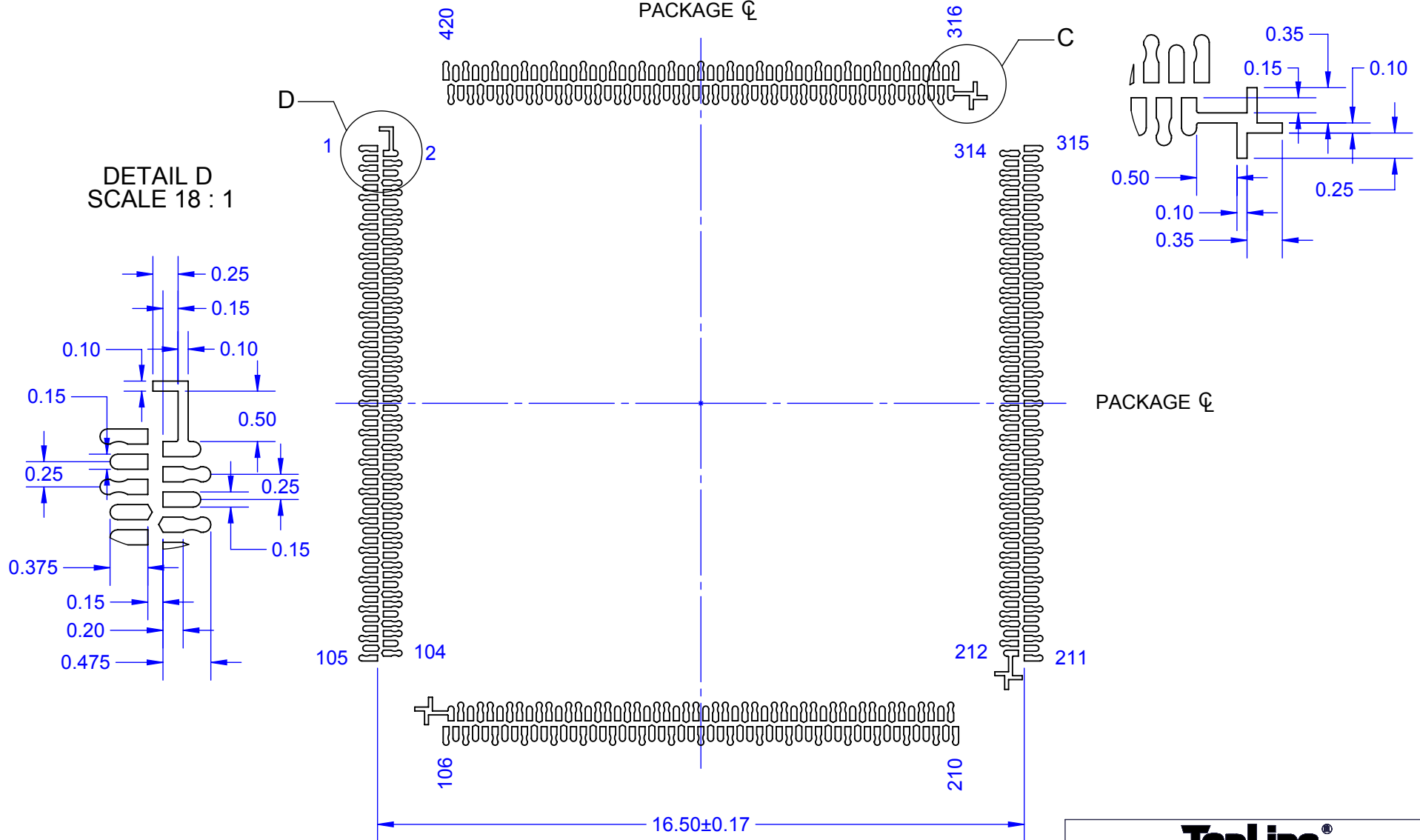
1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
2. SOLDERABLE SURFACE  $\phi 0.67$  IS THE FUNCTIONAL SURFACE OF Cu PAD.
3.  $\phi 0.70$  IS THE DESIGN DIMENSION OF Cu PAD.
4. PCB BOARD DIMENSIONS ARE PRESENTED ONLY AS A GUIDELINE.  
DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.

|   |           |                       |                |
|---|-----------|-----------------------|----------------|
| <b>TopLine®</b>                                     |           |                       |                |
| TITLE CCGA420T1.0-DC246D<br>DUMMY COLUMN GRID ARRAY |           |                       |                |
| SCALE<br>3:1  | SIZE<br>A | DRAWING NO.<br>160040 | REV<br>A       |
| DO NOT SCALE DRAWING                                |           |                       | SHEET 10 OF 13 |

# BONDING DIAGRAM

DETAIL C  
SCALE 18 : 1

DETAIL D  
SCALE 18 : 1



NOTE:  
1. SEE BONDING TABLE ON PAGE 12

|   |      |             |                |
|---|------|-------------|----------------|
| <b>TopLine®</b>                                     |      |             |                |
| TITLE CCGA420T1.0-DC246D<br>DUMMY COLUMN GRID ARRAY |      |             |                |
| SCALE   | SIZE | DRAWING NO. | REV            |
| 7:1   | A    | 160040      | A              |
| DO NOT SCALE DRAWING                                |      |             | SHEET 11 OF 13 |

## TABLE BONDING PADS TO PIN LOCATIONS ON BOTTOM SIDE OF PACKAGE

| B/A | PAD |
|-----|-----|
| 1   | B2  |
| 2   | D4  |
| 3   | C2  |
| 4   | D3  |
| 5   | C1  |
| 6   | E4  |
| 7   | D2  |
| 8   | E3  |
| 9   | D1  |
| 10  | F4  |
| 11  | E2  |
| 12  | F3  |
| 13  | E1  |
| 14  | F5  |
| 15  | F1  |
| 16  | F6  |
| 17  | F2  |
| 18  | G6  |
| 19  | G3  |
| 20  | G5  |
| 21  | G2  |
| 22  | G4  |
| 23  | G1  |
| 24  | H6  |
| 25  | H3  |
| 26  | H5  |
| 27  | H2  |
| 28  | H4  |
| 29  | H1  |
| 30  | J6  |

| B/A | PAD |
|-----|-----|
| 31  | J3  |
| 32  | J5  |
| 33  | J2  |
| 34  | J4  |
| 35  | J1  |
| 36  | K6  |
| 37  | K3  |
| 38  | K5  |
| 39  | K2  |
| 40  | K4  |
| 41  | K1  |
| 42  | L6  |
| 43  | L3  |
| 44  | L5  |
| 45  | L2  |
| 46  | L4  |
| 47  | L1  |
| 48  | M6  |
| 49  | M3  |
| 50  | M5  |
| 51  | M2  |
| 52  | M4  |
| 53  | M1  |
| 54  | N6  |
| 55  | N1  |
| 56  | N5  |
| 57  | N2  |
| 58  | N4  |
| 59  | N3  |
| 60  | P6  |

| B/A | PAD |
|-----|-----|
| 61  | P1  |
| 62  | P5  |
| 63  | P2  |
| 64  | P4  |
| 65  | P3  |
| 66  | R6  |
| 67  | R1  |
| 68  | R5  |
| 69  | R2  |
| 70  | R4  |
| 71  | R3  |
| 72  | T6  |
| 73  | T1  |
| 74  | T5  |
| 75  | T2  |
| 76  | T4  |
| 77  | T3  |
| 78  | V6  |
| 79  | V1  |
| 80  | V5  |
| 81  | V2  |
| 82  | V4  |
| 83  | V3  |
| 84  | W6  |
| 85  | W1  |
| 86  | W5  |
| 87  | W2  |
| 88  | W4  |
| 89  | W3  |
| 90  | Y5  |

| B/A | PAD |
|-----|-----|
| 91  | Y1  |
| 92  | Y4  |
| 93  | Y2  |
| 94  | Y3  |
| 95  | AA1 |
| 96  | AA5 |
| 97  | AA2 |
| 98  | AA4 |
| 99  | AB1 |
| 100 | AA3 |
| 101 | AB2 |
| 102 | AB3 |
| 103 | AC1 |
| 104 | AC3 |
| 105 | AC2 |
| 106 | AD2 |
| 107 | AB4 |
| 108 | AD3 |
| 109 | AC4 |
| 110 | AE3 |
| 111 | AB5 |
| 112 | AD4 |
| 113 | AC5 |
| 114 | AE4 |
| 115 | AB6 |
| 116 | AD5 |
| 117 | AC6 |
| 118 | AE5 |
| 119 | AA6 |
| 120 | AE6 |

| B/A | PAD  |
|-----|------|
| 121 | Y6   |
| 122 | AD6  |
| 123 | Y7   |
| 124 | AC7  |
| 125 | AA7  |
| 126 | AD7  |
| 127 | AB7  |
| 128 | AE7  |
| 129 | Y8   |
| 130 | AC8  |
| 131 | AA8  |
| 132 | AD8  |
| 133 | AB8  |
| 134 | AE8  |
| 135 | Y9   |
| 136 | AC9  |
| 137 | AA9  |
| 138 | AD9  |
| 139 | AB9  |
| 140 | AE9  |
| 141 | Y10  |
| 142 | AC10 |
| 143 | AA10 |
| 144 | AD10 |
| 145 | AB10 |
| 146 | AE10 |
| 147 | Y11  |
| 148 | AC11 |
| 149 | AA11 |
| 150 | AD11 |

| B/A | PAD  |
|-----|------|
| 151 | AB11 |
| 152 | AE11 |
| 153 | Y12  |
| 154 | AC12 |
| 155 | AA12 |
| 156 | AD12 |
| 157 | AB12 |
| 158 | AE12 |
| 159 | Y13  |
| 160 | AE13 |
| 161 | AA13 |
| 162 | AD13 |
| 163 | AB13 |
| 164 | AC13 |
| 165 | Y14  |
| 166 | AE14 |
| 167 | AA14 |
| 168 | AD14 |
| 169 | AB14 |
| 170 | AC14 |
| 171 | Y15  |
| 172 | AE15 |
| 173 | AA15 |
| 174 | AD15 |
| 175 | AB15 |
| 176 | AC15 |
| 177 | Y16  |
| 178 | AE16 |
| 179 | AA16 |
| 180 | AD16 |

| B/A | PAD  |
|-----|------|
| 181 | AB16 |
| 182 | AC16 |
| 183 | Y17  |
| 184 | AE17 |
| 185 | AA17 |
| 186 | AD17 |
| 187 | AB17 |
| 188 | AC17 |
| 189 | Y1B  |
| 190 | AE18 |
| 191 | AA18 |
| 192 | AD18 |
| 193 | AB18 |
| 194 | AC18 |
| 195 | AA19 |
| 196 | AE19 |
| 197 | AB19 |
| 198 | AD19 |
| 199 | AC19 |
| 200 | AE20 |
| 201 | AA20 |
| 202 | AD20 |
| 203 | AB20 |
| 204 | AE21 |
| 205 | AC20 |
| 206 | AD21 |
| 207 | AC21 |
| 208 | AE22 |
| 209 | AC22 |
| 210 | AD22 |

| B/A | PAD  |
|-----|------|
| 211 | AD23 |
| 212 | AB21 |
| 213 | AC23 |
| 214 | AB22 |
| 215 | AC24 |
| 216 | AA21 |
| 217 | AB23 |
| 218 | AA22 |
| 219 | AB24 |
| 220 | Y21  |
| 221 | AA23 |
| 222 | Y22  |
| 223 | AA24 |
| 224 | Y20  |
| 225 | Y24  |
| 226 | Y19  |
| 227 | Y23  |
| 228 | W19  |
| 229 | W22  |
| 230 | W20  |
| 231 | W23  |
| 232 | W21  |
| 233 | W24  |
| 234 | V19  |
| 235 | V22  |
| 236 | V20  |
| 237 | V23  |
| 238 | V21  |
| 239 | V24  |
| 240 | T19  |

CONTINUED NEXT PAGE

|   |           |                       |                |
|---|-----------|-----------------------|----------------|
| <b>TopLine®</b>                                     |           |                       |                |
| TITLE CCGA420T1.0-DC246D<br>DUMMY COLUMN GRID ARRAY |           |                       |                |
| SCALE<br>NONE                                       | SIZE<br>A | DRAWING NO.<br>160040 | REV<br>A       |
| DO NOT SCALE DRAWING                                |           |                       | SHEET 12 OF 13 |

## TABLE BONDING PADS TO PIN LOCATIONS ON BOTTOM SIDE OF PACKAGE

| B/A | PAD |
|-----|-----|
| 241 | T22 |
| 242 | T20 |
| 243 | T23 |
| 244 | T21 |
| 245 | T24 |
| 246 | R19 |
| 247 | R22 |
| 248 | R20 |
| 249 | R23 |
| 250 | R21 |
| 251 | R24 |
| 252 | P19 |
| 253 | P22 |
| 254 | P20 |
| 255 | P23 |
| 256 | P21 |
| 257 | P24 |
| 258 | N19 |
| 259 | N22 |
| 260 | N20 |
| 261 | N23 |
| 262 | N21 |
| 263 | N24 |
| 264 | M19 |
| 265 | M24 |
| 266 | M20 |
| 267 | M23 |
| 268 | M21 |
| 269 | M22 |
| 270 | L19 |

| B/A | PAD |
|-----|-----|
| 271 | L24 |
| 272 | L20 |
| 273 | L23 |
| 274 | L21 |
| 275 | L22 |
| 276 | K19 |
| 277 | K24 |
| 278 | K20 |
| 279 | K23 |
| 280 | K21 |
| 281 | K22 |
| 282 | J19 |
| 283 | J24 |
| 284 | J20 |
| 285 | J23 |
| 286 | J21 |
| 287 | J22 |
| 288 | H19 |
| 289 | H24 |
| 290 | H20 |
| 291 | H23 |
| 292 | H21 |
| 293 | H22 |
| 294 | G19 |
| 295 | G24 |
| 296 | G20 |
| 297 | G23 |
| 298 | G21 |
| 299 | G22 |
| 300 | F20 |

| B/A | PAD |
|-----|-----|
| 301 | F24 |
| 302 | F21 |
| 303 | F23 |
| 304 | F22 |
| 305 | E24 |
| 306 | E20 |
| 307 | E23 |
| 308 | E21 |
| 309 | D24 |
| 310 | E22 |
| 311 | D23 |
| 312 | D22 |
| 313 | C24 |
| 314 | C22 |
| 315 | C23 |
| 316 | B23 |
| 317 | D21 |
| 318 | B22 |
| 319 | C21 |
| 320 | A22 |
| 321 | D20 |
| 322 | B21 |
| 323 | C20 |
| 324 | A21 |
| 325 | D19 |
| 326 | B20 |
| 327 | C19 |
| 328 | A20 |
| 329 | E19 |
| 330 | A19 |

| B/A | PAD |
|-----|-----|
| 331 | F19 |
| 332 | B19 |
| 333 | F18 |
| 334 | C18 |
| 335 | E18 |
| 336 | B18 |
| 337 | D18 |
| 338 | A18 |
| 339 | F17 |
| 340 | C17 |
| 341 | E17 |
| 342 | B17 |
| 343 | D17 |
| 344 | A17 |
| 345 | F16 |
| 346 | C16 |
| 347 | E16 |
| 348 | B16 |
| 349 | D16 |
| 350 | A16 |
| 351 | F15 |
| 352 | C15 |
| 353 | E15 |
| 354 | B15 |
| 355 | D15 |
| 356 | A15 |
| 357 | F14 |
| 358 | C14 |
| 359 | E14 |
| 360 | B14 |

| B/A | PAD |
|-----|-----|
| 361 | D14 |
| 362 | A14 |
| 363 | F13 |
| 364 | C13 |
| 365 | E13 |
| 366 | B13 |
| 367 | D13 |
| 368 | A13 |
| 369 | F12 |
| 370 | E12 |
| 371 | B12 |
| 372 | D12 |
| 373 | C12 |
| 374 | F11 |
| 375 | A11 |
| 376 | E11 |
| 377 | B11 |
| 378 | D11 |
| 379 | C11 |
| 380 | F11 |
| 381 | A10 |
| 382 | E10 |
| 383 | B10 |
| 384 | D10 |
| 385 | C10 |
| 386 | F9  |
| 387 | A9  |
| 388 | E9  |
| 389 | B9  |
| 390 | D9  |

| B/A | PAD |
|-----|-----|
| 391 | D9  |
| 392 | C9  |
| 393 | F8  |
| 394 | A8  |
| 395 | E8  |
| 396 | B8  |
| 397 | D8  |
| 398 | C8  |
| 399 | F7  |
| 400 | A7  |
| 401 | E7  |
| 402 | B7  |
| 403 | D7  |
| 404 | C7  |
| 405 | E6  |
| 406 | A6  |
| 407 | D6  |
| 408 | B6  |
| 409 | C6  |
| 410 | A5  |
| 411 | E5  |
| 412 | B5  |
| 413 | D5  |
| 414 | A4  |
| 415 | C5  |
| 416 | B4  |
| 417 | C4  |
| 418 | A3  |
| 419 | C3  |
| 420 | B3  |



TITLE CCGA420T1.0-DC246D  
DUMMY COLUMN GRID ARRAY

|               |           |                       |          |
|---------------|-----------|-----------------------|----------|
| SCALE<br>NONE | SIZE<br>A | DRAWING NO.<br>160040 | REV<br>A |
|---------------|-----------|-----------------------|----------|