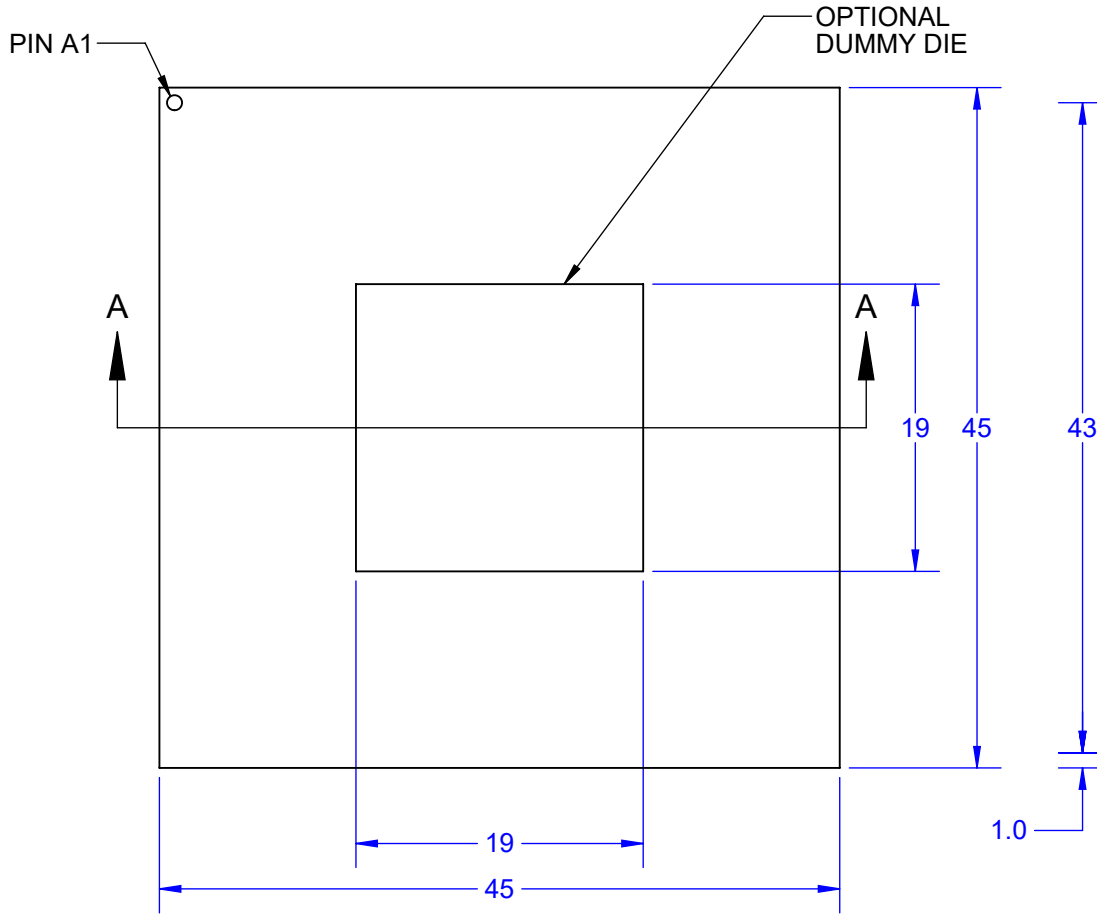
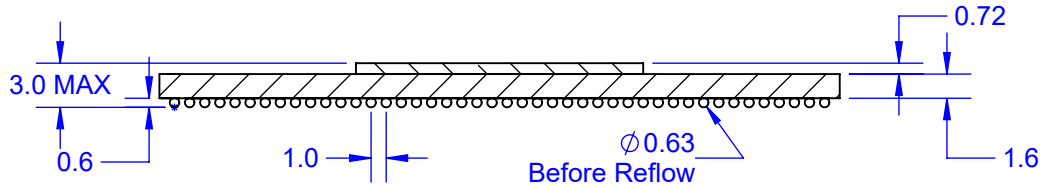
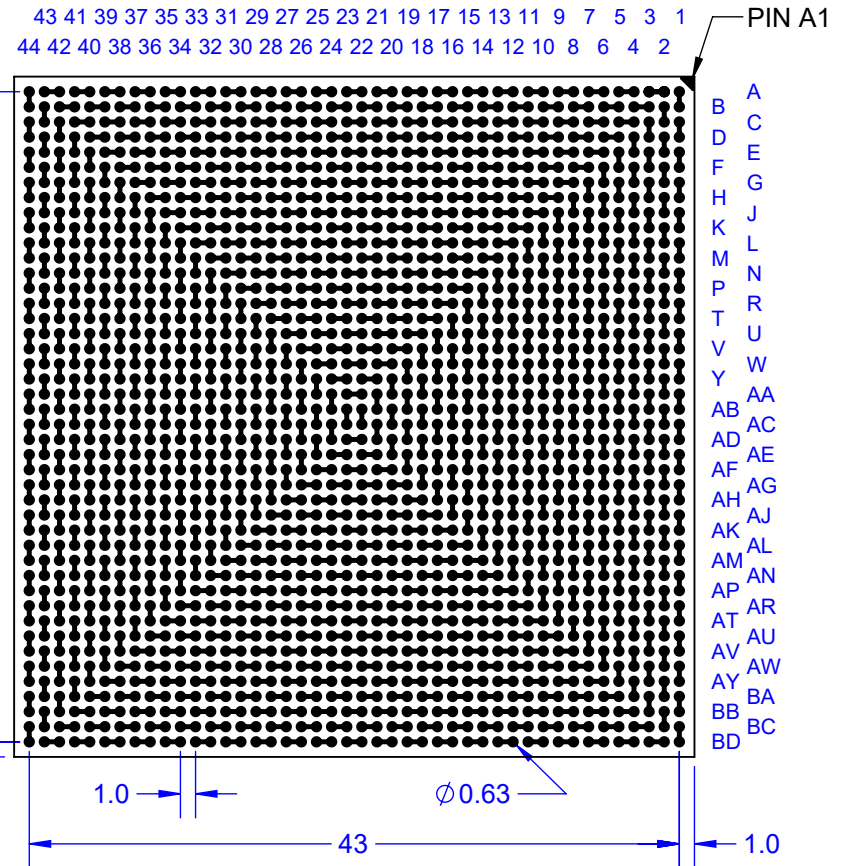


### TOP VIEW



### 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.

PART NUMBER TABLE

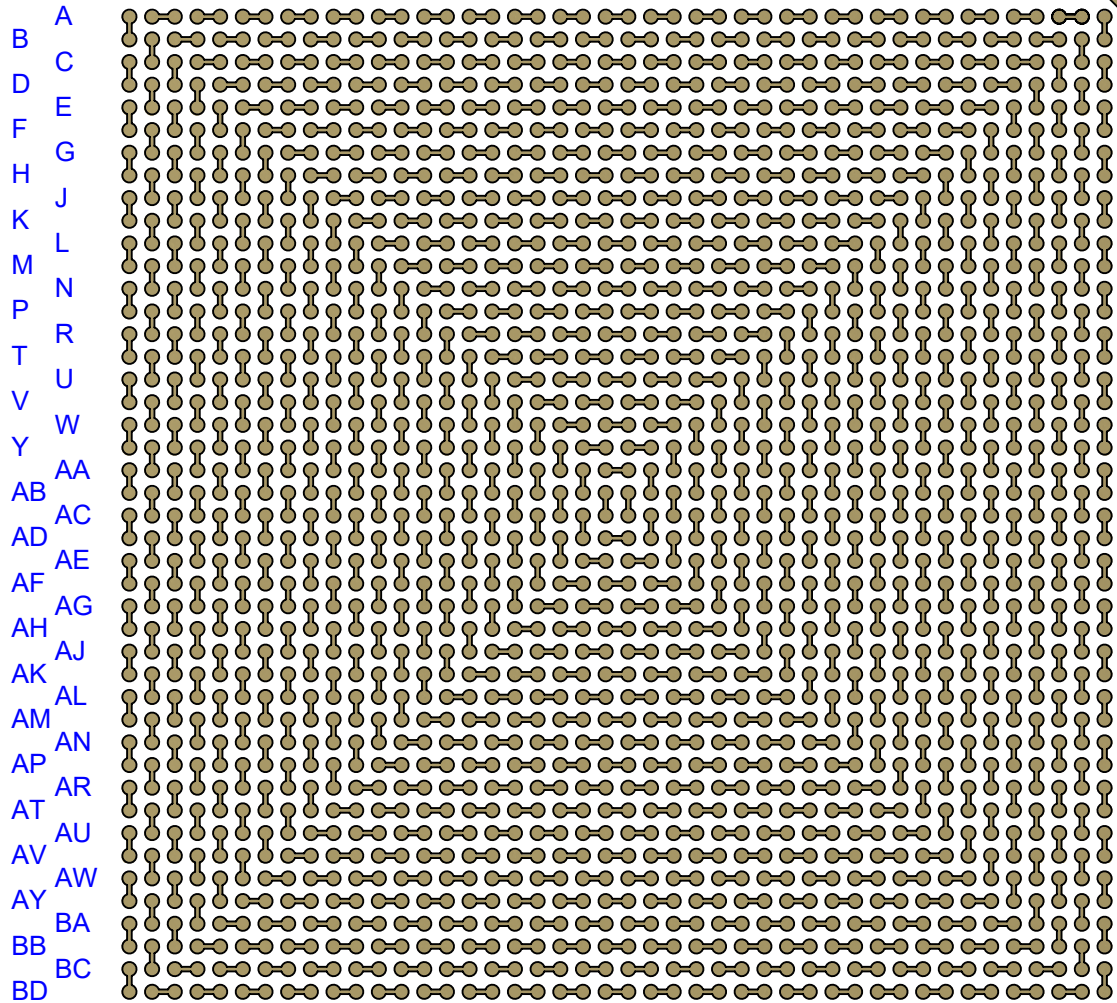
| PART NUMBER          | BALL ALLOY         | Pb-FREE | RoHS | Si DIE |
|----------------------|--------------------|---------|------|--------|
| LBGA1936T1.0C-DC449  | Sn96.5/Ag3.0/Cu0.5 | YES     | YES  | NO     |
| LBGA1939T1.0C-DC449D | Sn96.5/Ag3.0/Cu0.5 | YES     | YES  | YES    |
| LBGA1936T1.0-DC449   | Sn63/Pb37          | NO      | NO   | NO     |
| LBGA1936T1.0-DC449D  | Sn63/Pb37          | NO      | NO   | YES    |

| APPROVALS   | DATE     |  |        |                    |              |
|-------------|----------|--|--------|--------------------|--------------|
| DRAWN T.Au  | 09/19/15 |  |        |                    |              |
| ENG M. Hart | 09/19/15 | TITLE LBGA1936T1.0-DC449D<br>DAISY CHAIN DUMMY |        |                    |              |
| MFG         |          | SCALE 2:1                                      | SIZE A | DRAWING NO. 514491 | REV A        |
| QA          |          | DO NOT SCALE DRAWING                           |        |                    | SHEET 1 OF 7 |
| CUST        |          |  |        |                    |              |
| REVISED     |          |  |        |                    |              |

# BALL VIEW

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

PIN A1



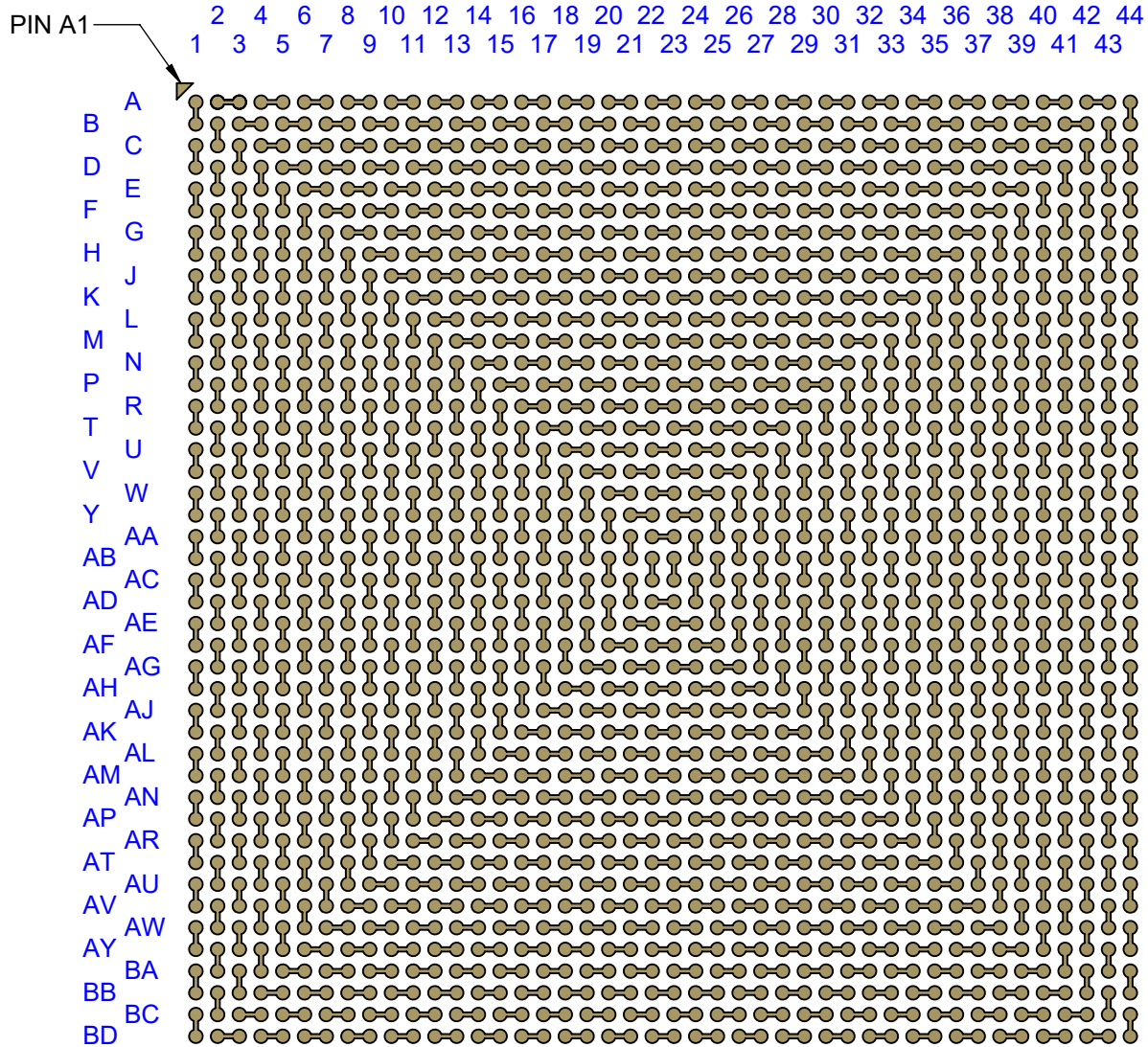
**TopLine®**

TITLE LBGA1936T1.0-DC449D  
 DAISY CHAIN DUMMY

|              |           |                       |          |
|--------------|-----------|-----------------------|----------|
| SCALE<br>3:1 | SIZE<br>A | DRAWING NO.<br>514491 | REV<br>A |
|--------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING SHEET 2 OF 7

# BOTTOM SIDE (TOP X-RAY VIEW)



**TopLine®**

TITLE LBGA1936T1.0-DC449D  
DAISY CHAIN DUMMY

|              |           |                       |          |
|--------------|-----------|-----------------------|----------|
| SCALE<br>3:1 | SIZE<br>A | DRAWING NO.<br>514491 | REV<br>A |
|--------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING SHEET 3 OF 7

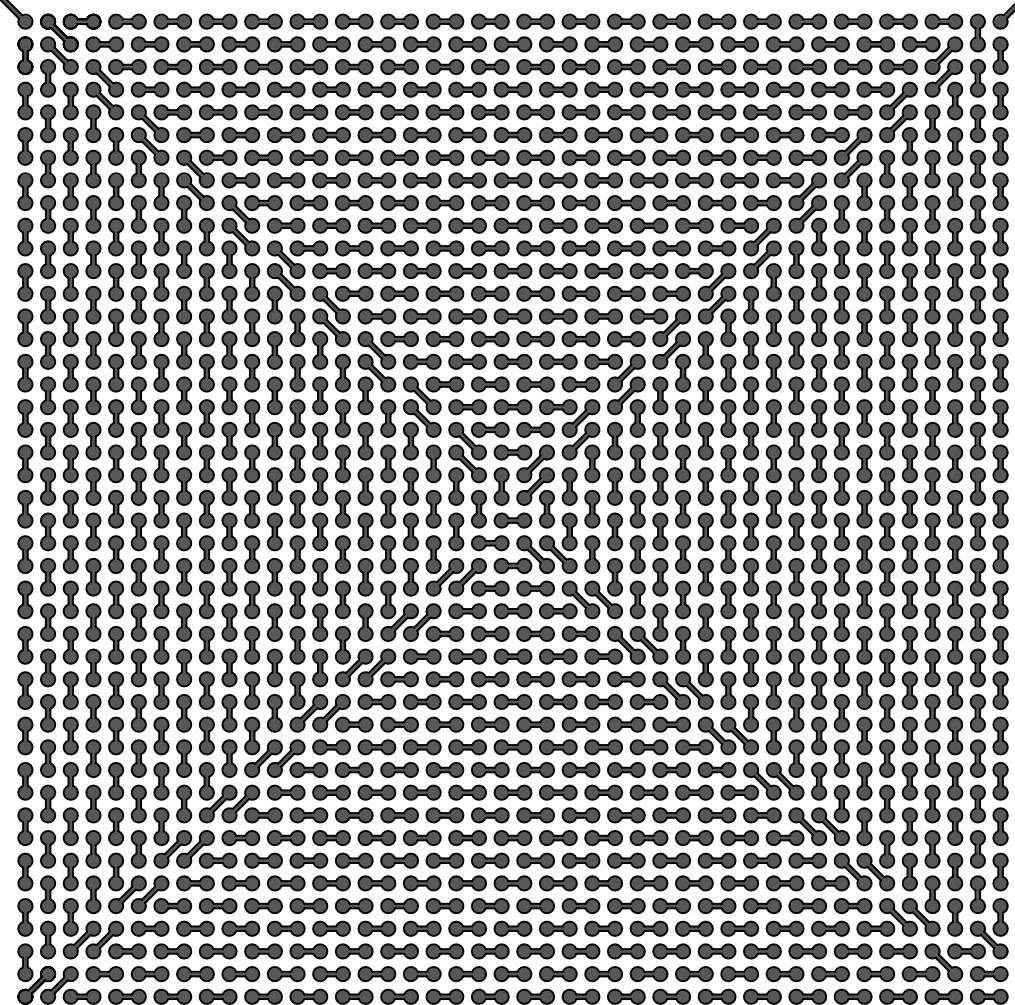
T+

# TEST VEHICLE BOARD

T-

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

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



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].



|  |      |             |              |
|--|------|-------------|--------------|
| TITLE                                    |      |             |              |
| LBGA1936T1.0-DC449D<br>DAISY CHAIN DUMMY |      |             |              |
| SCALE                                    | SIZE | DRAWING NO. | REV          |
| 3:1                                      | A    | 514491      | A            |
| DO NOT SCALE DRAWING                     |      |             | SHEET 4 OF 7 |

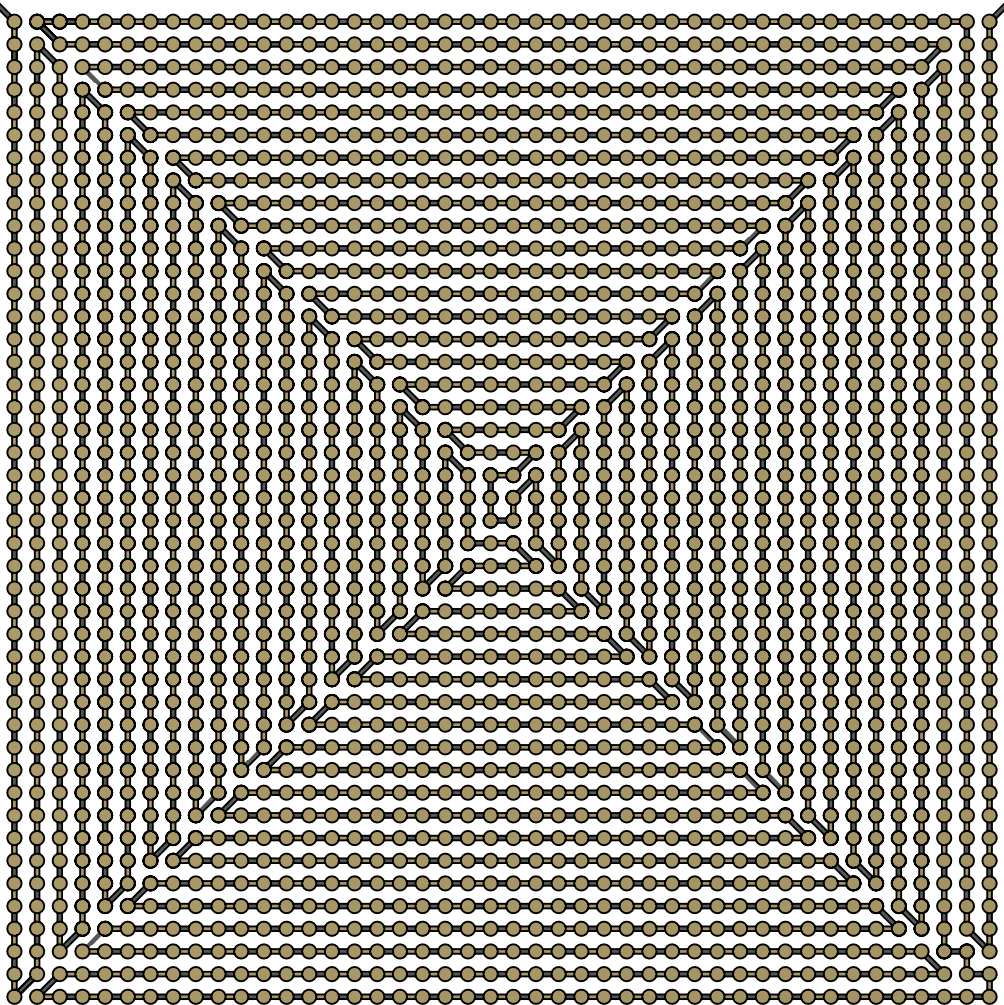
T+

# AFTER MOUNTING

T-

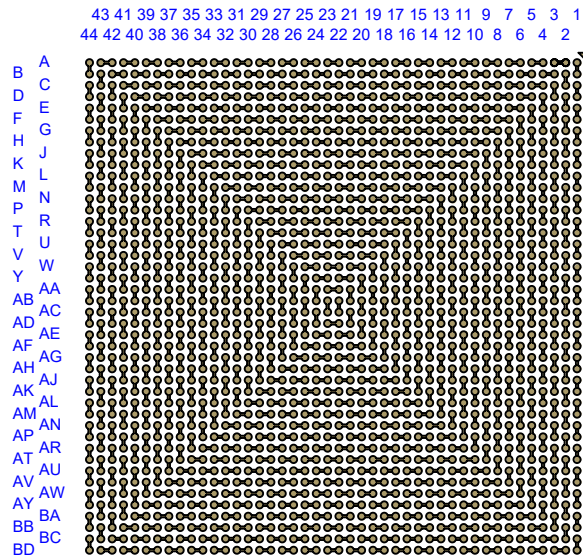
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44  
 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43

A  
B  
C  
D  
E  
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R  
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BD

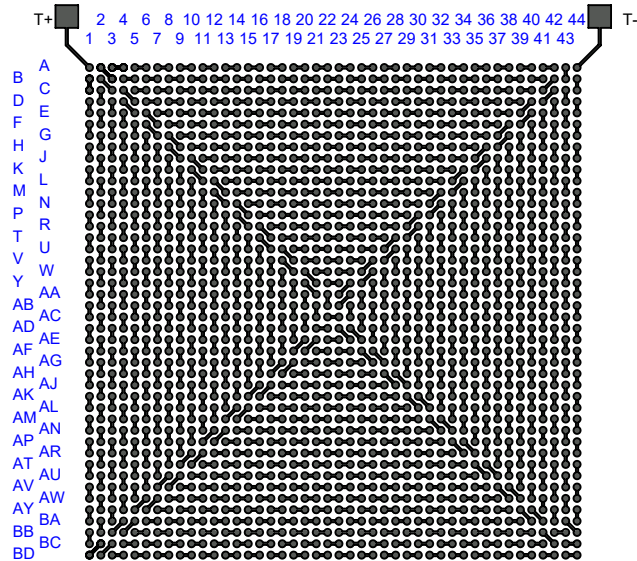
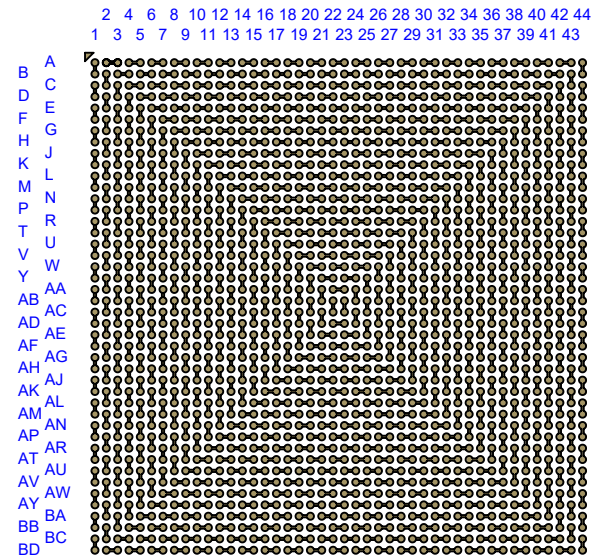


|  |      |             |              |
|--|------|-------------|--------------|
| TITLE                                    |      |             |              |
| LBGA1936T1.0-DC449D<br>DAISY CHAIN DUMMY |      |             |              |
| SCALE                                    | SIZE | DRAWING NO. | REV          |
| 3:1                                      | A    | 514491      | A            |
| DO NOT SCALE DRAWING                     |      |             | SHEET 5 OF 7 |

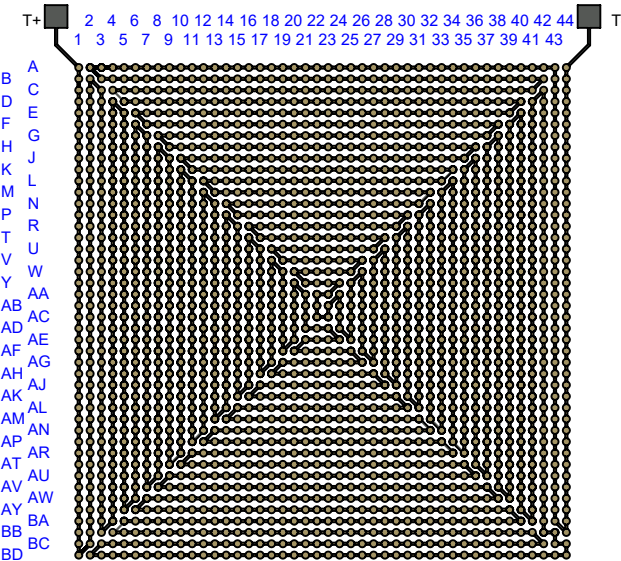
## BALL VIEW



## BOTTOM SIDE (TOP X-RAY VIEW)



## TEST VEHICLE BOARD



## AFTER MOUNTING

### Notes:

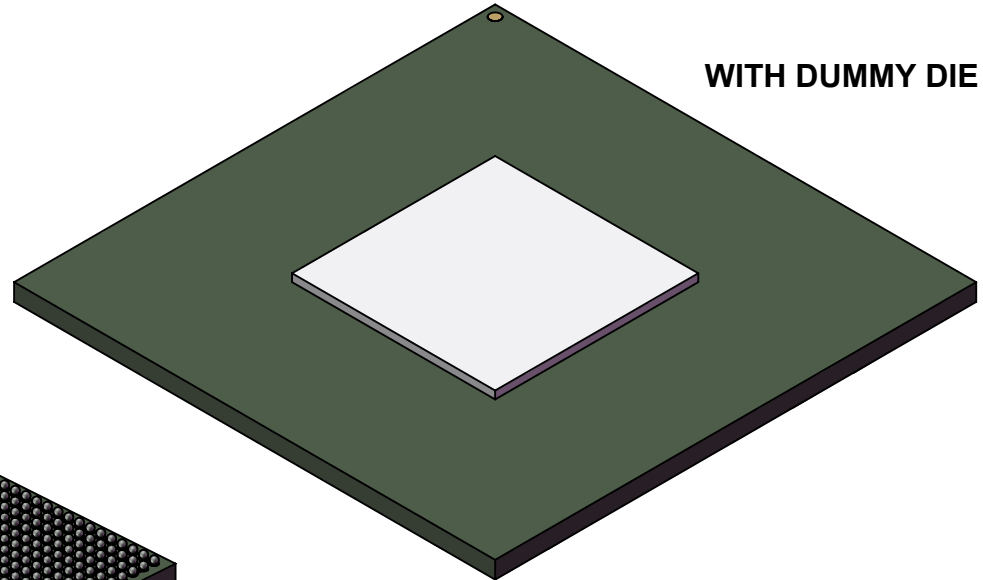
- 1) PCB BOARD DIMENSIONS ARE PRESENTD ONLY AS A GUIDELINE. DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.
- 2) PCB Cu BALL PAD DIAMETER 0.635mm [25 MIL].
- 3) PCB DAISY CHAIN TRACING LINE WIDTH 0.204mm [8 MIL].
- 4) SMD (SOLDER MASK DEFINED) PAD OPENING 0.508mm [20 MIL].

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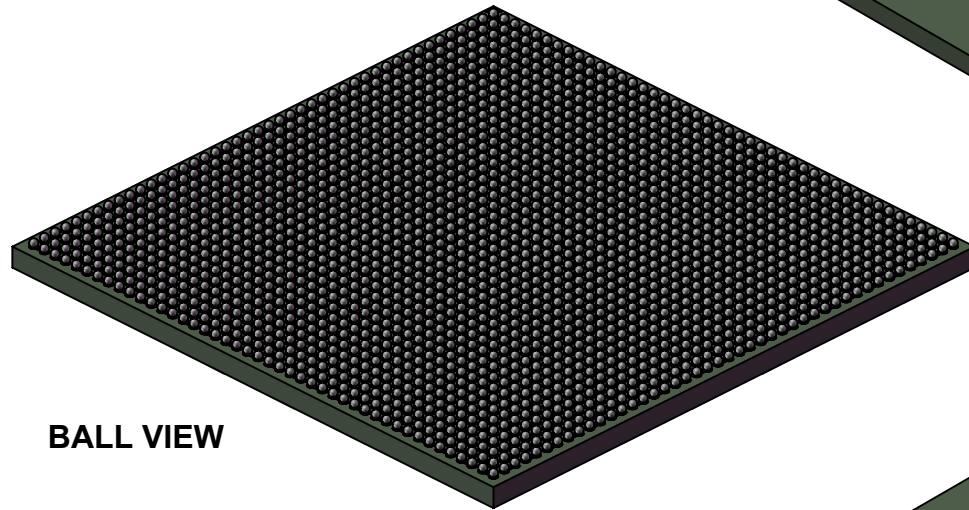
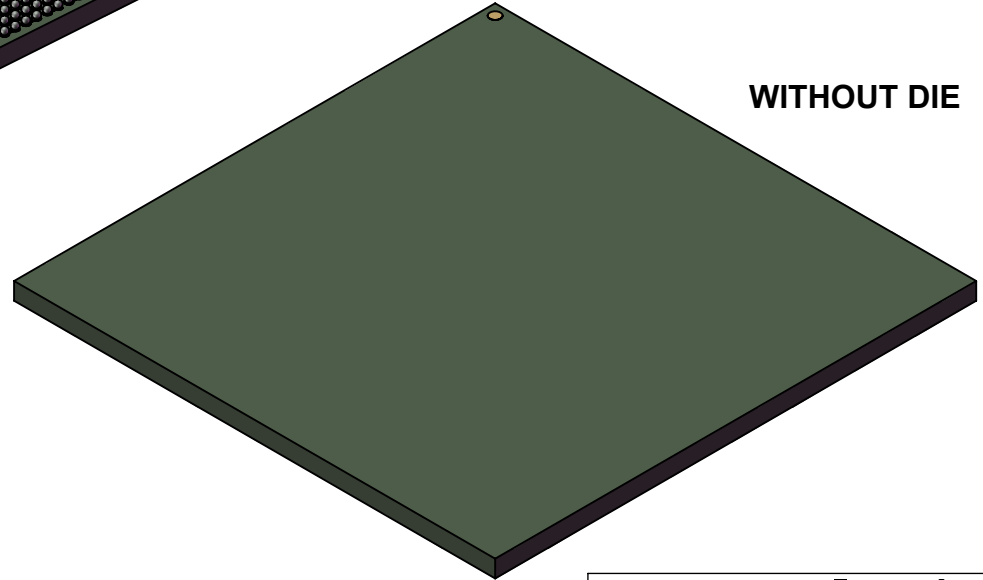
|                      |      |  |     |
|----------------------|------|--|-----|
| TITLE                |      | LBGA1936T1.0-DC449D<br>DAISY CHAIN DUMMY |     |
| SCALE                | SIZE | DRAWING NO.                              | REV |
| 3:2                  | A    | 514491                                   | A   |
| DO NOT SCALE DRAWING |      | SHEET 6 OF 7                             |     |

**MODEL**

**WITH DUMMY DIE**



**WITHOUT DIE**



**BALL VIEW**

**TopLine®**

TITLE LBGA1936T1.0-DC449D  
DAISY CHAIN DUMMY

|              |           |                       |          |
|--------------|-----------|-----------------------|----------|
| SCALE<br>2:1 | SIZE<br>A | DRAWING NO.<br>514491 | REV<br>A |
|--------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING SHEET 7 OF 7