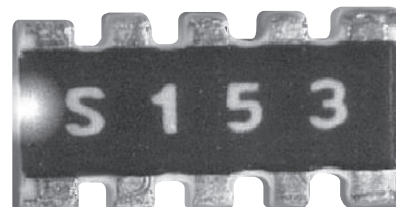


## Thick Film Chip Arrays

### BCN Series

- Sulphur resistant version available (Tested to ASTM-B809)
- AEC-Q200 (BCN10, BCN164AB and BCN4D)
- Convex terminations
- Isolated and bussed versions



Note - BCN4D will be End of Life in September 2021



All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

## Summary of Types

| Type   | Part Number Start | Width (mm) | Resistor Elements | Circuit  | Package Size | Scalloped Convex | Square Convex |  |
|--------|-------------------|------------|-------------------|----------|--------------|------------------|---------------|--|
| BCN10  | BCN104AB          | 1.0        | 0402 x 4          | Isolated | 0804         |                  |               |  |
| BCN164 | BCN164A           | 1.6        | 0603 x 4          |          | 1206         |                  |               |  |
|        | BCN164AB          |            |                   |          |              |                  |               |  |
| BCN168 | BCN168SB          |            | 0603 x 8          | Bussed   |              |                  |               |  |
|        | BCN168RB          |            |                   |          |              |                  |               |  |
| BCN4D  | BCN4D             | 3.1        | 1206 x 4          | Isolated | 2112         |                  |               |  |

## Electrical Data

|                             |        | BCN10                                                | BCN164  | BCN168     | BCN4D     |
|-----------------------------|--------|------------------------------------------------------|---------|------------|-----------|
| Resistor power rating @70°C | mW     | 63                                                   |         | 32         | 125       |
| Package power rating @70°C  | mW     | 250                                                  |         |            | 500       |
| Limiting element voltage    | V      | 25                                                   | 50      | 25         | 75        |
| Maximum overload voltage    | V      | 63                                                   | 125     | 63         | 188       |
| Resistance range            | ohms   | 10R – 1M0                                            |         | 100R – 1M0 | 10R – 1M0 |
| Resistance tolerance        | %      | 1, 5                                                 | 1, 2, 5 | 5          | 1, 5      |
| TCR                         | ppm/°C | ±200                                                 |         |            |           |
| Standard values             |        | E24 (for 2% or 5% tolerance), E96 (for 1% tolerance) |         |            |           |
| Ambient temperature range   | °C     | -55 to +155                                          |         |            |           |

### General Note

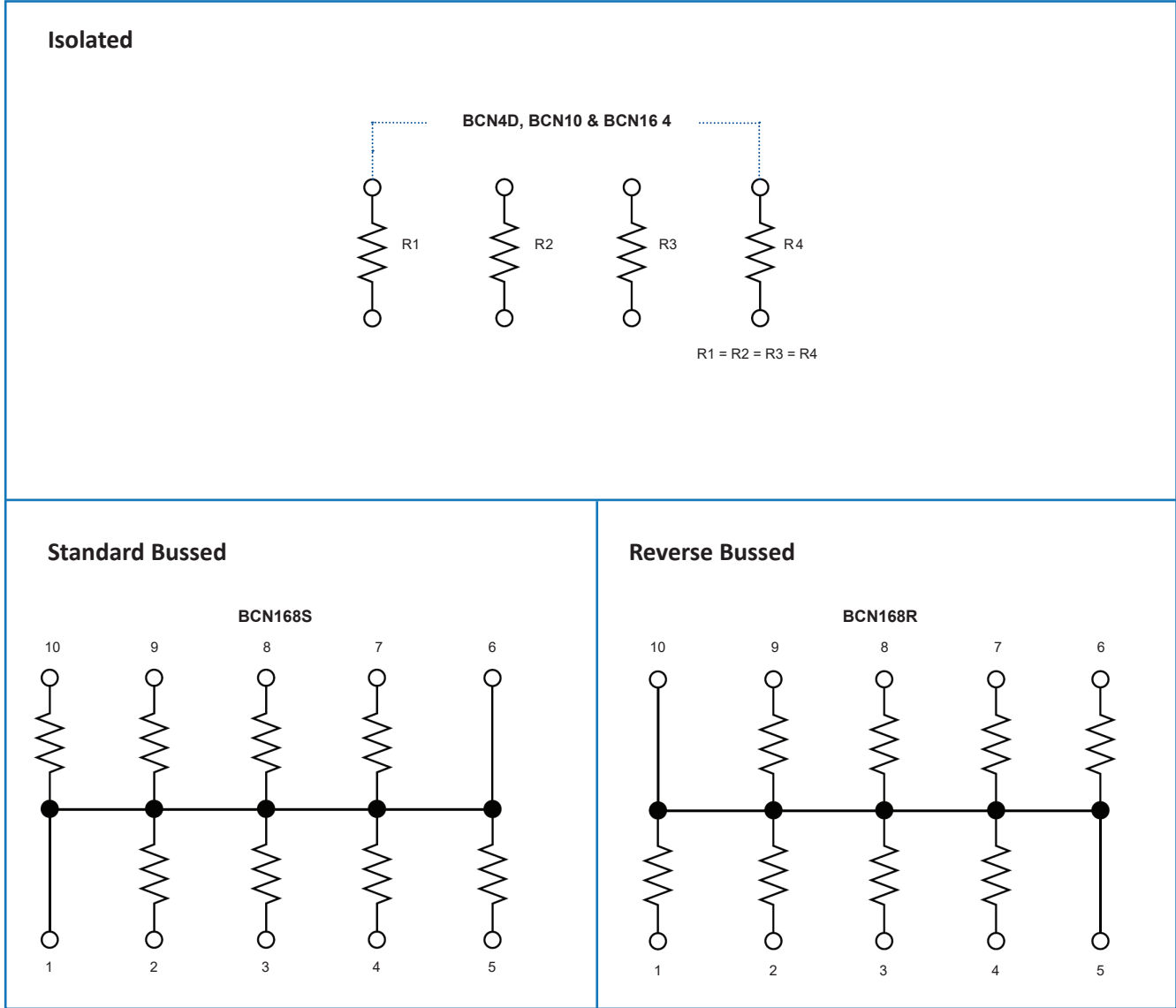
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BI Technologies IRC Welwyn

[www.ttelectronics.com/resistors](http://www.ttelectronics.com/resistors)

BCN Series

Circuits



Environmental Data

| Test                            | Condition                                        | $\Delta R\%$ (+0.1 $\Omega$ ) |
|---------------------------------|--------------------------------------------------|-------------------------------|
| Load life                       | 1000 hrs cyclic load @ 70°C                      | 3                             |
| Short term overload             | 2.5 x rated voltage for 5s                       | 2                             |
| High temperature operation      | 1000 hrs @ 155°C                                 | 3                             |
| Temperature cycling             | 5 cycles, -55 to +155°C                          | 1                             |
| Moisture resistance             | 1000 hrs @ 40°C, 95% RH                          | 3                             |
| Resistance to solder heat       | 260°C for 10s                                    | 1                             |
| Sulphur resistance <sup>1</sup> | 1000 hrs @ 50°C, 92% RH, 3-5ppm H <sub>2</sub> S | 0.5                           |

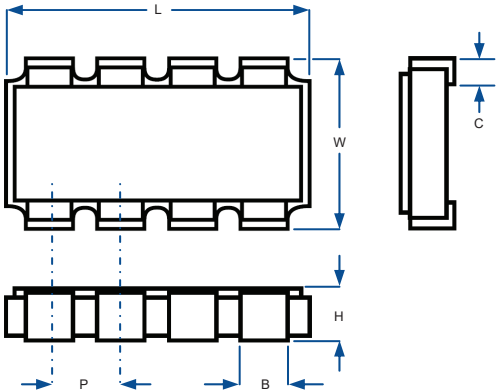
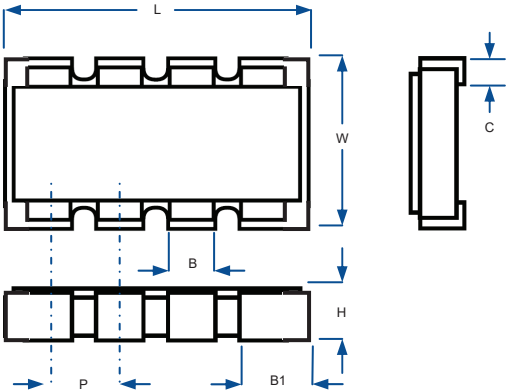
Note 1 – Anti-sulphur construction only

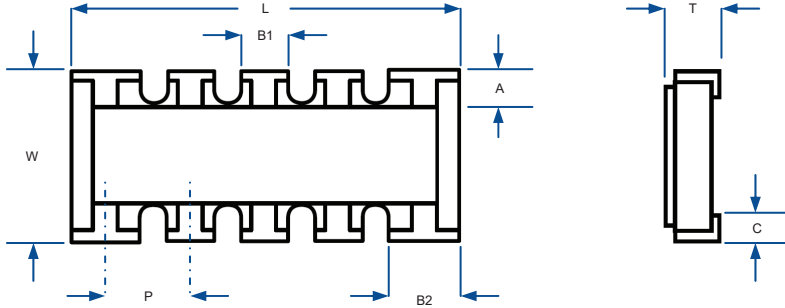
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BCN Series

Physical Data (Inch /mm)

| BCN4D, BCN164A (scalloped convex)                                                 |            |            |            | BCN10, BCN164AB (square convex)                                                    |            |            |              |
|-----------------------------------------------------------------------------------|------------|------------|------------|------------------------------------------------------------------------------------|------------|------------|--------------|
|  |            |            |            |  |            |            |              |
|                                                                                   | L          | W          | H          | P                                                                                  | B          | B1         | C            |
| BCN 4D                                                                            | .210 ±.008 | .122 ±.008 | .022 ±.004 | .050 ±.008                                                                         | .030 ±.008 | -          | .012 ±.008   |
|                                                                                   | 5.34 ±0.20 | 3.10 ±0.20 | 0.55±0.10  | 1.27±0.20                                                                          | 0.80 ±0.20 | -          | 0.30 ±0.20   |
| BCN 10                                                                            | .079 ±.004 | .039 ±.004 | .018 ±.004 | .020 ±.002                                                                         | .012 ±.002 | .016±.002  | .012±.006    |
|                                                                                   | 2.00 ±0.10 | 1.00 ±0.10 | 0.45 ±0.10 | 0.50 ±0.05                                                                         | 0.30 ±0.05 | 0.40 ±0.05 | 0.3 ±0.15    |
| BCN 16 4A/ AB                                                                     | .126 ±.004 | .063 ±.004 | .020 ±.004 | .031 ±.002                                                                         | .020 ±.004 | -          | .009 ±.005   |
|                                                                                   | 3.20 ±0.10 | 1.60 ±0.10 | 0.50 ±0.10 | 0.80 ±0.05                                                                         | 0.50 ±0.10 | -          | 0.229 ±0.125 |

| BCN168 (square convex)                                                               |            |            |            |            |            |      |      |
|--------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------|------|
|  |            |            |            |            |            |      |      |
| L                                                                                    | W          | T          | A          | B1         | B2         | C    | P    |
| .126 ±.008                                                                           | .063 ±.008 | .020 ±.004 | .012 ±.006 | .014 ±.006 | .020 ±.006 | .008 | .025 |
| 3.20 ±0.20                                                                           | 1.60 ±0.20 | 0.50 ±0.10 | 0.30 ±0.15 | 0.36 ±0.15 | 0.50 ±0.15 | 0.20 | 0.64 |

BCN Series

Solder pad layout (Inch / mm)

BCN4D, BCN164

BCN 4D

BCN 16 4A, AB

Wave Solder Process

Re-flow Solder Process

P

A

B

C

X

Y

A

B

C

X

Y

.050

.087

.169

.022

.028

.041

.087

.154

.022

.028

.034

1.27

2.20

4.30

0.57

0.70

1.05

2.20

3.90

0.57

0.70

0.85

.032

.039

.118

.014

.018

.039

.039

.118

.014

.018

.039

0.80

1.00

3.00

0.35

0.45

1.00

1.00

3.00

0.35

0.45

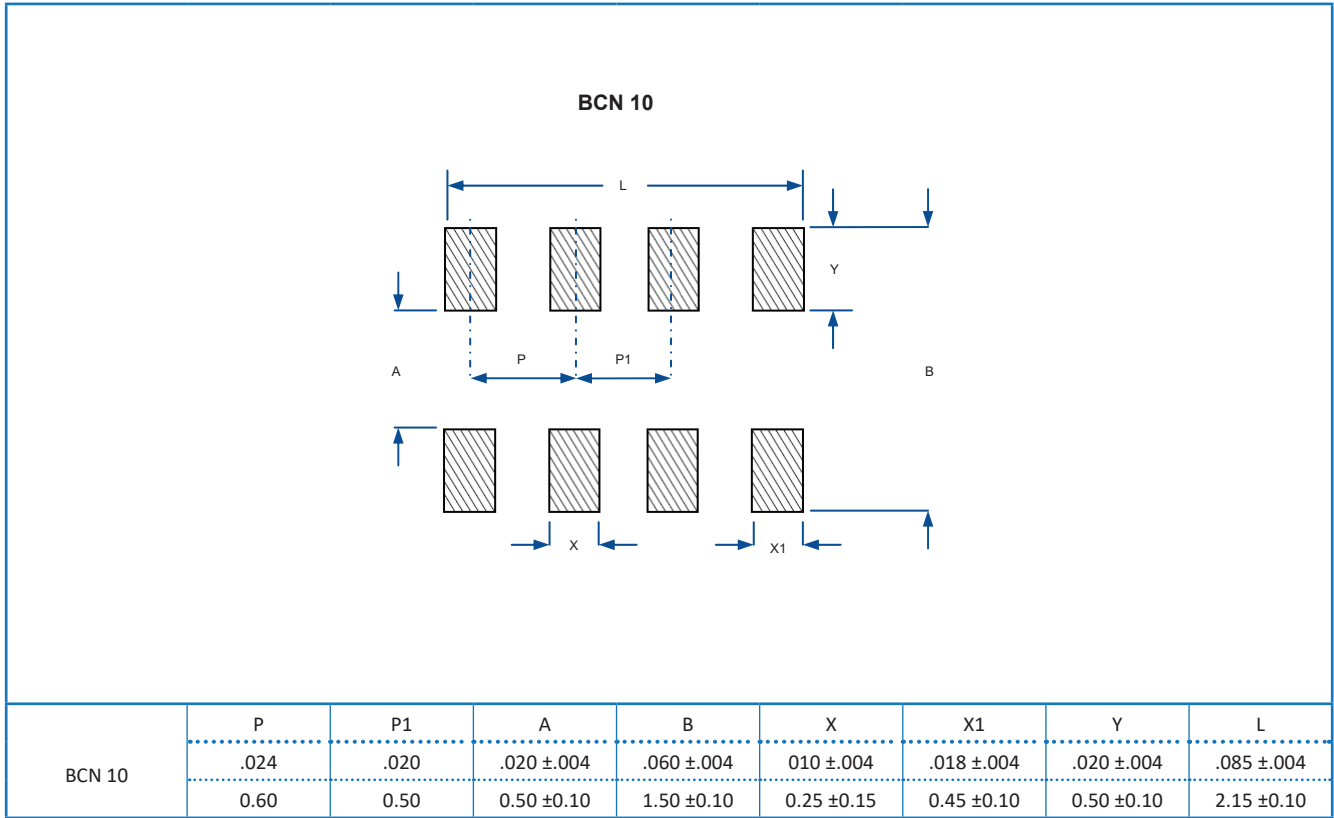
1.00

| BCN168           |      |      |      |      |      |      |      |      |      |      |      |
|------------------|------|------|------|------|------|------|------|------|------|------|------|
|                  |      |      |      |      |      |      |      |      |      |      |      |
| BCN 16 8RB / 8SB | P    | A    | B    | X    | X1   | Y    | A    | B    | X    | X1   | Y    |
|                  | .025 | .048 | .096 | .012 | .018 | .024 | .048 | .096 | .012 | .018 | .024 |
|                  | 0.64 | 1.20 | 2.40 | 0.30 | 0.45 | 0.60 | 1.20 | 2.40 | 0.30 | 0.45 | 0.60 |
|                  |      |      |      |      |      |      |      |      |      |      |      |

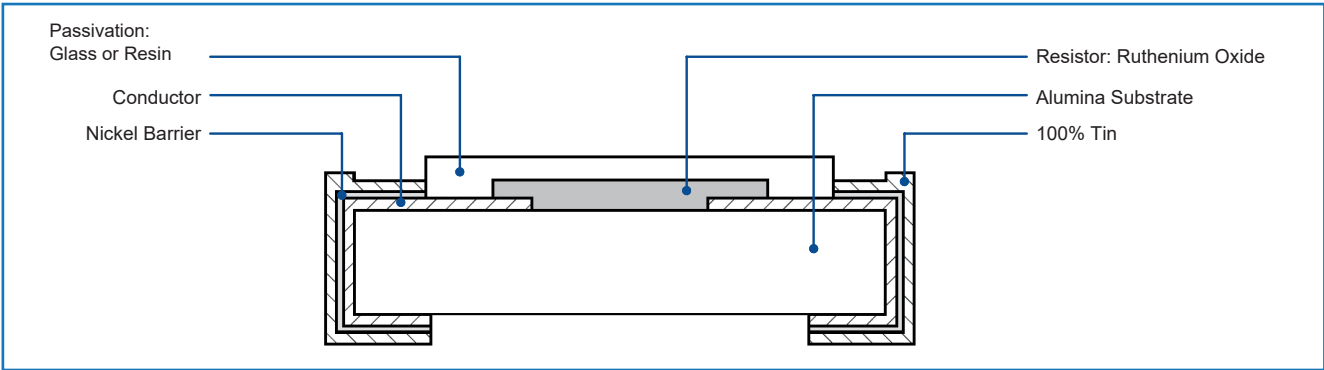
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BCN Series

Solder pad layout (Inch / mm)



Construction



General Note

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## BCN Series

### Ordering Procedure

**Example: BCN164AB102J7S** (BCN 1.6mm wide, 4 resistors, isolated circuit, square edge, convex terminations at 1 kilohm  $\pm 5\%$ , on a 7" reel, anti-sulphur construction, Pb-free).

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | C | N | 1 | 6 | 4 | A | B | 1 | 0 | 2 | J | 7 | S |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |   |   |   |   |   |

| 1<br>Series | 2<br>Width  | 3<br>Number of Resistors | 4<br>Circuit      | 5<br>Edge       | 6<br>Value                                         | 7<br>Tolerance                     | 8<br>Packaging           | 9<br>Construction |
|-------------|-------------|--------------------------|-------------------|-----------------|----------------------------------------------------|------------------------------------|--------------------------|-------------------|
| BCN         | Blank=3.1mm | 4                        | A=Isolated        | Blank=Scalloped | 3 digits for E24 at 2% or 5%                       | F= $\pm 1\%$<br>G= $\pm 2\%$       | 7=7" reel<br>13=13" reel | Blank=Standard    |
|             | 10=1.0mm    |                          | S=Standard bussed | B=Square        | 4 digits for uniquely E96 and for all values at 1% | J= $\pm 5\%$<br>(Blank for jumper) |                          | S=Anti-sulphur    |
|             | 16=1.6mm    |                          | R=Reverse bussed  |                 |                                                    |                                    |                          |                   |
|             | 21=2.1mm    |                          |                   |                 | JP=Jumper                                          |                                    |                          |                   |

| Valid Options (1 - 5) |   |   |   |   |   |   |   | Valid Options (6 & 9)     |  |  | Packaging Quantity & Tape (8)             |  |  |
|-----------------------|---|---|---|---|---|---|---|---------------------------|--|--|-------------------------------------------|--|--|
| B                     | C | N | 1 | 0 | 4 | A | B | JP=Jumper, S=Anti-sulphur |  |  | 7=10,000/reel, 13=40,000/reel, Paper tape |  |  |
| B                     | C | N | 1 | 6 | 4 | A |   | JP=Jumper, S=Anti-sulphur |  |  | 7=5000/reel, 13=20,000/reel, Paper tape   |  |  |
| B                     | C | N | 1 | 6 | 4 | A | B | JP=Jumper, S=Anti-sulphur |  |  |                                           |  |  |
| B                     | C | N | 1 | 6 | 8 | S | B |                           |  |  |                                           |  |  |
| B                     | C | N | 1 | 6 | 8 | R | B | S=Anti-sulphur            |  |  |                                           |  |  |
| B                     | C | N |   |   | 4 | D |   | JP=Jumper, S=Anti-sulphur |  |  | 7=4000/reel, 13=16,000/reel, Plastic tape |  |  |

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