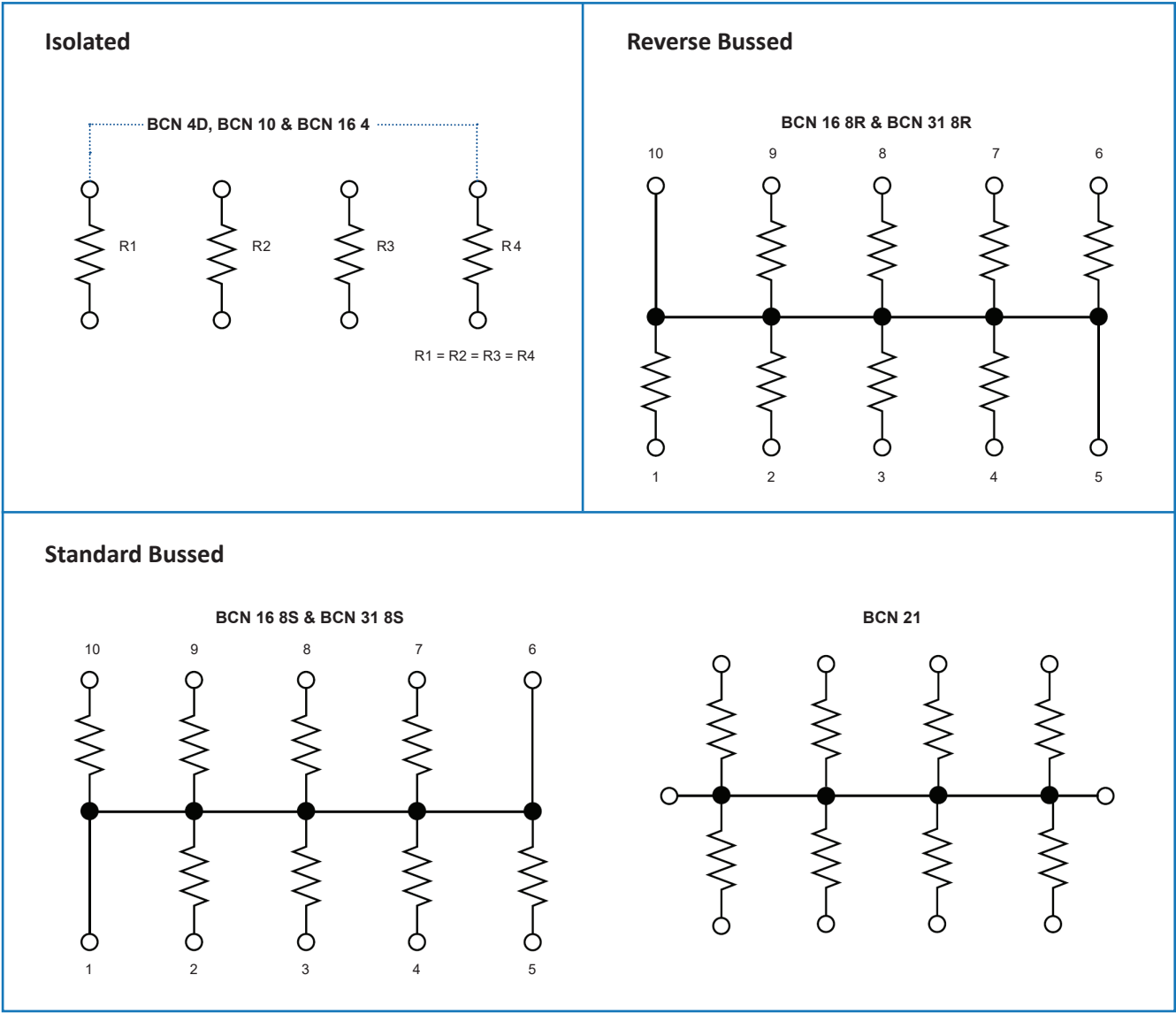


Circuits



Environmental Data

| Test                            | Condition                                                          | $\Delta R\%$ (+0.1 $\Omega$ )            |                                          |
|---------------------------------|--------------------------------------------------------------------|------------------------------------------|------------------------------------------|
|                                 |                                                                    | $\pm 200\text{ppm}/^{\circ}\text{C}$ TCR | $\pm 100\text{ppm}/^{\circ}\text{C}$ TCR |
| Load life                       | 1000 hrs cyclic load @ 70 $^{\circ}\text{C}$                       | 3                                        | 1                                        |
| Short term overload             | 2.5 x rated voltage for 5s                                         | 2                                        | 0.25                                     |
| High temperature operation      | 1000 hrs @ 155 $^{\circ}\text{C}$                                  | 3                                        | 1                                        |
| Temperature cycling             | 5 cycles, -55 to +155 $^{\circ}\text{C}$                           | 1                                        | 1                                        |
| Moisture resistance             | 1000 hrs @ 40 $^{\circ}\text{C}$ , 95% RH                          | 3                                        | 1                                        |
| Resistance to solder heat       | 260 $^{\circ}\text{C}$ for 10s                                     | 1                                        | 0.25                                     |
| Sulphur resistance <sup>1</sup> | 1000 hrs @ 50 $^{\circ}\text{C}$ , 92% RH, 3-5ppm H <sub>2</sub> S | 0.5                                      | 0.5                                      |

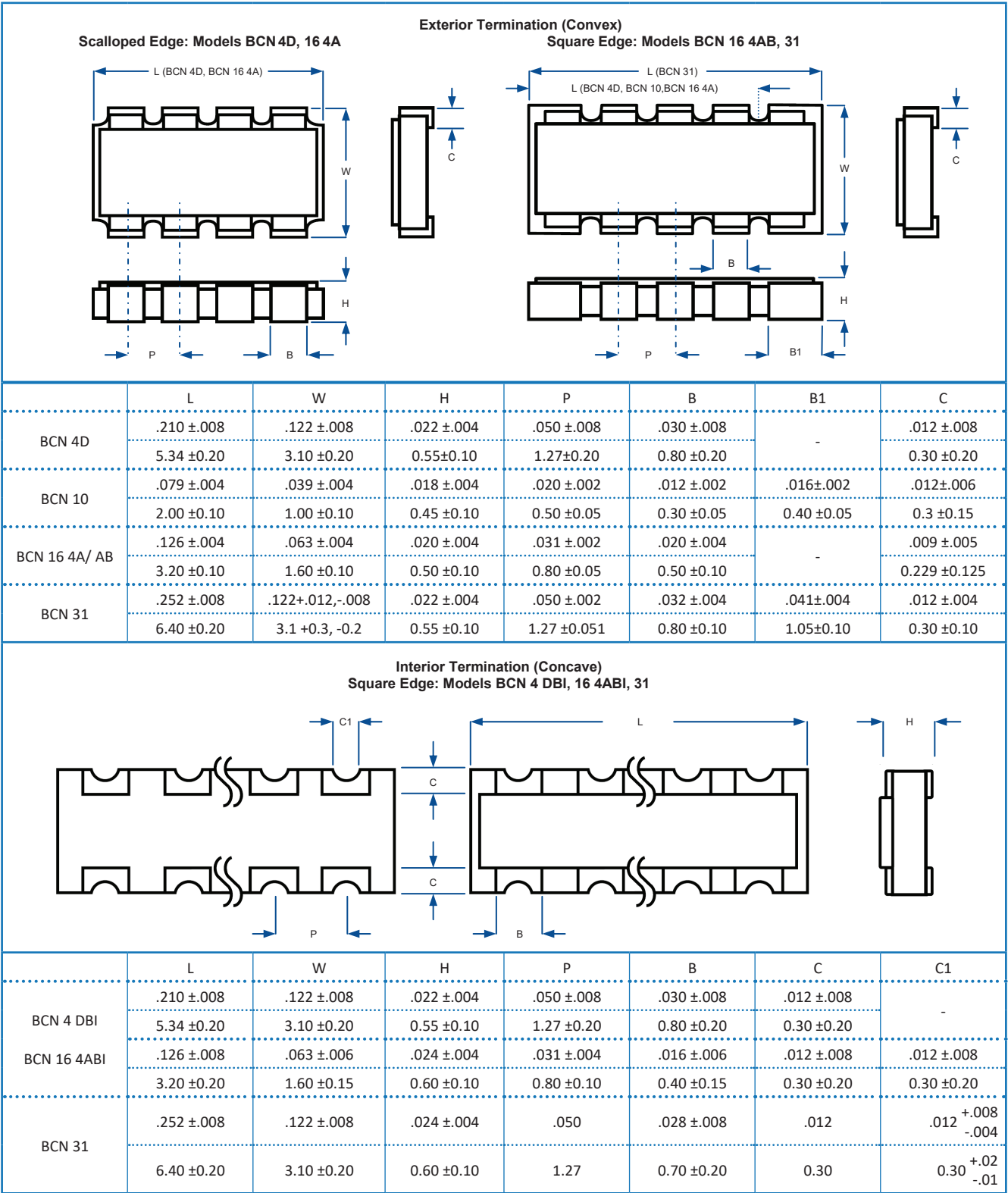
Note 1 – Anti-sulphur construction only

**General Note**  
TT Electronics reserves the right to make changes in product specification without notice or liability.  
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

BI Technologies IRC Welwyn

www.ttelectronics.com/resistors

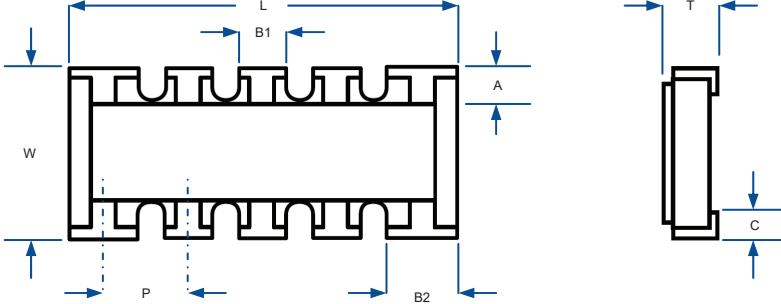
Physical Data (Inch /mm)

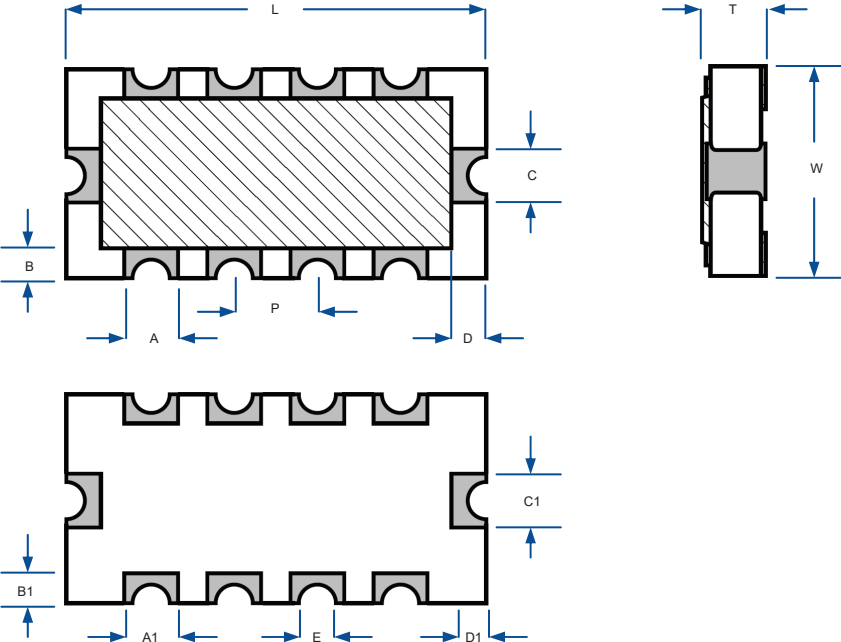


General Note

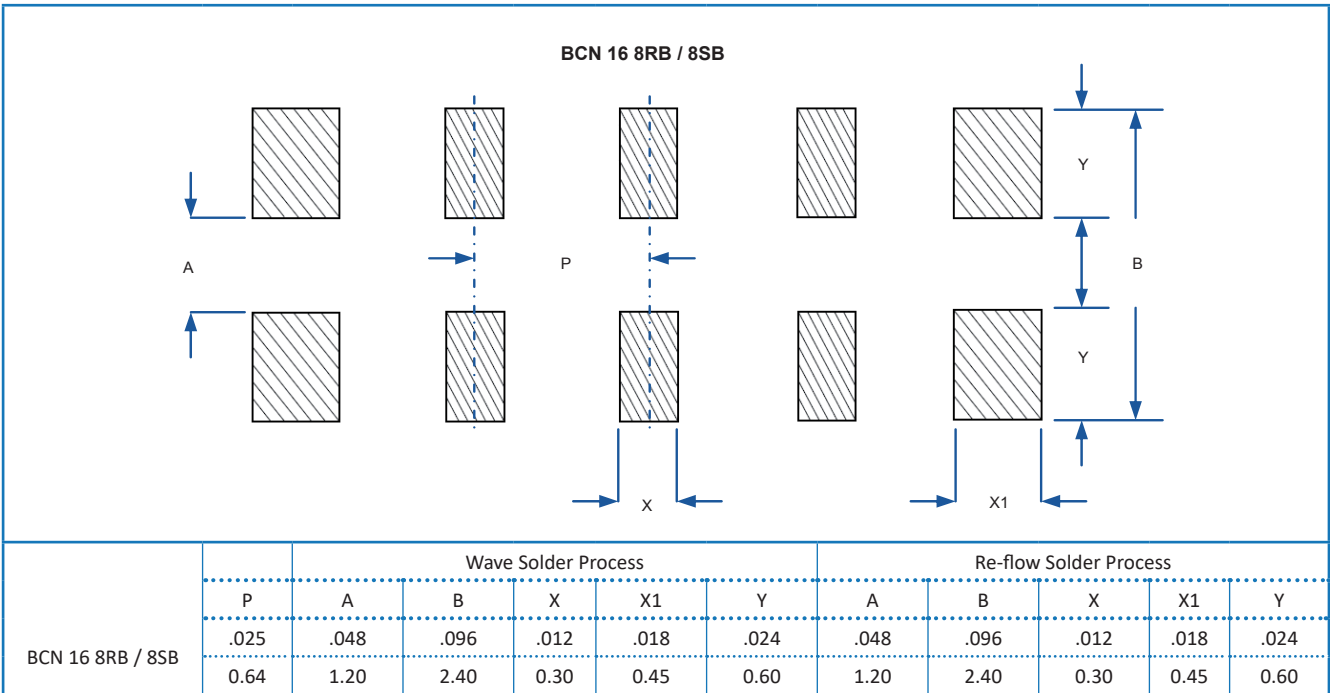
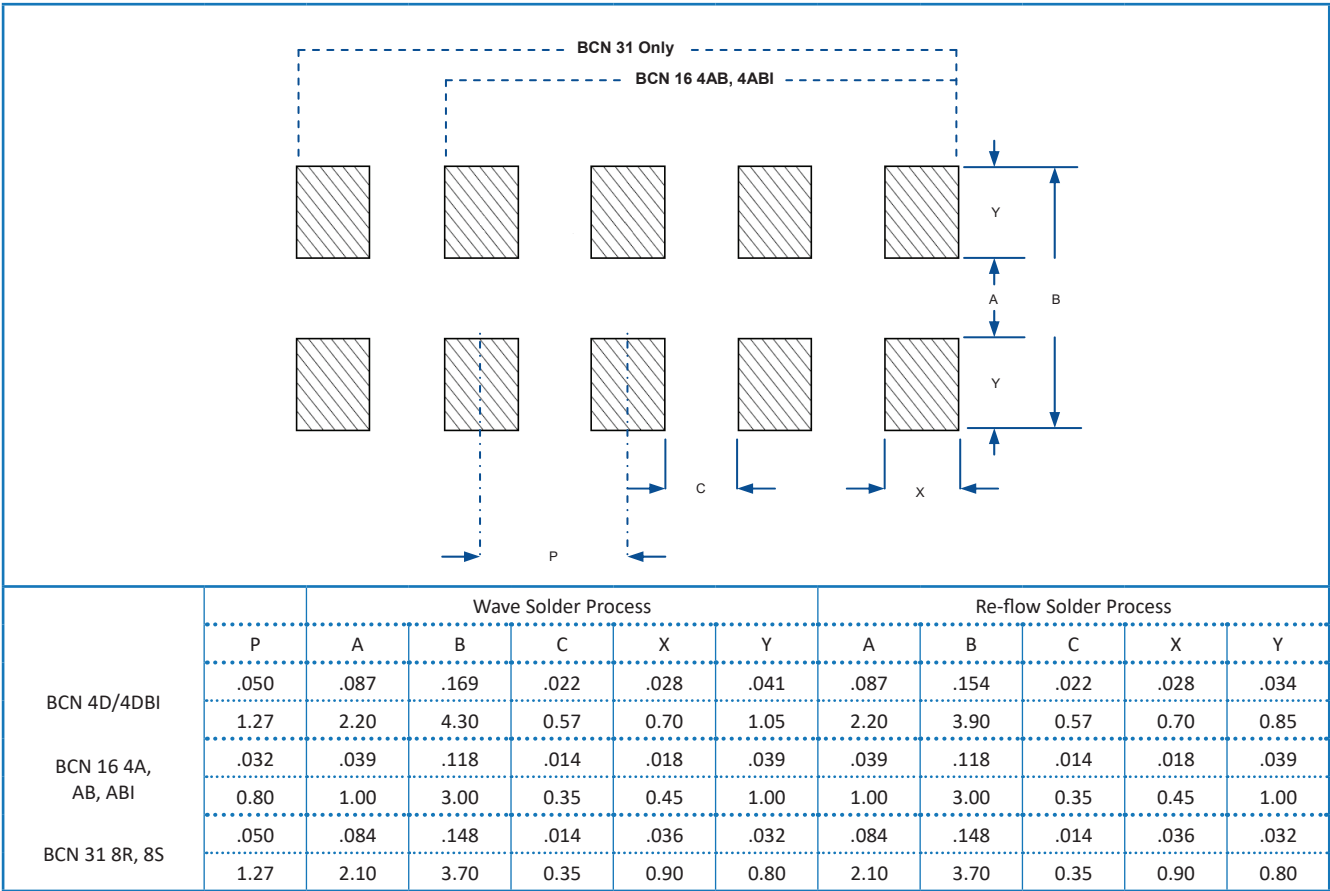
TT Electronics reserves the right to make changes in product specification without notice or liability.  
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

Physical Data (Inch /mm)

|                                                                                                                                                                              |            |            |            |            |            |      |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------|------|
| <div>Exterior Termination (Convex)<br/>Square Edge: Models BCN 16 8R, 8S</div> <div></div> |            |            |            |            |            |      |      |
| 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 |

|                                                                                                                                                                          |            |            |            |            |            |            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|
| <div>Interior Termination (Concave)<br/>Square Edge: Models BCN 21</div> <div></div> |            |            |            |            |            |            |
| L                                                                                                                                                                        | W          | T          | A          | B          | C          | D          |
| .157 ±.008                                                                                                                                                               | .083 ±.008 | .021 ±.004 | .020 ±.008 | .010 ±.008 | .020 ±.008 | .012 ±.008 |
| 4.00 ±0.20                                                                                                                                                               | 2.10 ±0.20 | 0.55 ±0.10 | 0.50 ±0.20 | 0.25 ±0.20 | 0.50 ±0.20 | 0.30 ±0.20 |
| A1                                                                                                                                                                       | B1         | C1         | D1         | E          | P          |            |
| .016 ±.008                                                                                                                                                               | .014 ±.008 | .020 ±.008 | .014 ±.008 | .012       | .032       |            |
| 0.40 ±0.20                                                                                                                                                               | 0.40 ±0.20 | 0.50 ±0.20 | 0.35 ±0.20 | 0.30 Typ.  | 0.80 Typ.  |            |

Solder pad layout (Inch / mm)



General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.  
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

Solder pad layout (Inch / mm)

BCN 10

The diagram illustrates the BCN 10 layout, which consists of two rows of four rectangular pads each. The top row is labeled 'A' on the left and 'B' on the right. The bottom row is labeled 'X' and 'X1' below the pads. The overall length of the layout is labeled 'L'. The pitch between the pads in each row is labeled 'P'. The width of the pads in the top row is labeled 'P1'. The height of the pads in the top row is labeled 'A', and the height of the pads in the bottom row is labeled 'B'. The width of the pads in the bottom row is labeled 'X' and 'X1'. The distance between the two rows is labeled 'Y'.

BCN 10

| P    | P1   | A          | B          | X          | X1         | Y          | L          |
|------|------|------------|------------|------------|------------|------------|------------|
| .024 | .020 | .020 ±.004 | .060 ±.004 | 010 ±.004  | .018 ±.004 | .020 ±.004 | .085 ±.004 |
| 0.60 | 0.50 | 0.50 ±0.10 | 1.50 ±0.10 | 0.25 ±0.15 | 0.45 ±0.10 | 0.50 ±0.10 | 2.15 ±0.10 |

BCN 21

The diagram illustrates the BCN 21 layout, which consists of two rows of four rectangular pads each. The top row is labeled 'A' on the right and 'B' on the right. The bottom row is labeled 'C' on the right and 'X' on the right. The overall length of the layout is labeled 'L'. The pitch between the pads in each row is labeled 'P'. The width of the pads in the top row is labeled 'W1'. The width of the pads in the bottom row is labeled 'W'. The height of the pads in the top row is labeled 'A', and the height of the pads in the bottom row is labeled 'B'. The distance between the two rows is labeled 'Y'. The width of the pads in the top row is labeled 'W2' and 'W3'.

BCN 21

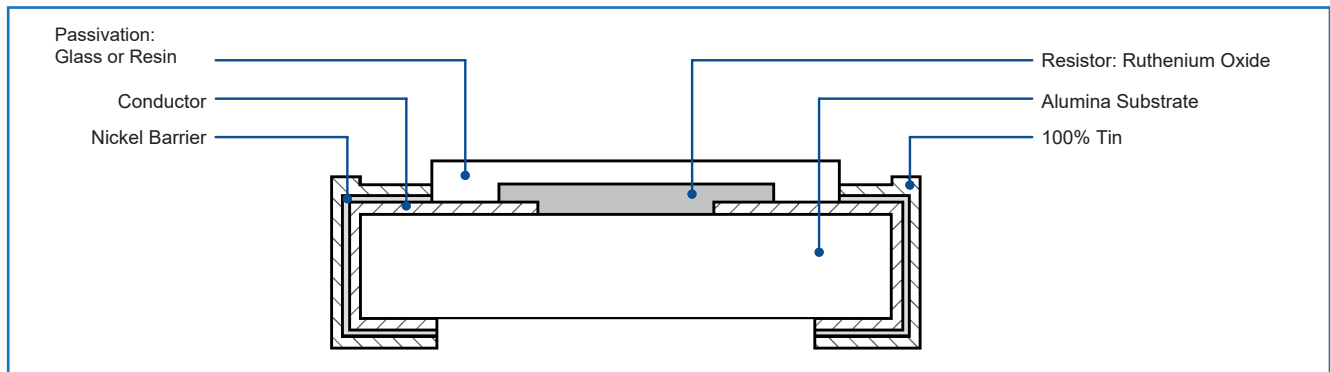
| P    | A          | B          | C          | X          | Y          | W          | W1         | W2         | W3         | L          |
|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| .032 | .060 ±.008 | .120 ±.008 | .016 ±.004 | .016 ±.004 | .030 ±.004 | .012 ±.001 | .015 ±.004 | .030 ±.004 | .030 ±.004 | .196 ±.008 |
| 0.80 | 1.20 ±0.20 | 3.00 ±0.20 | 0.40 ±0.10 | 0.40 ±0.10 | 0.75 ±0.10 | 0.31 ±0.02 | 0.38 ±0.10 | 0.75 ±0.10 | 0.75 ±0.10 | 4.98 ±0.20 |

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.  
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

BCN Series

Construction



Ordering Procedure

**Example:** BCN164ABZ102J7S (BCN 1.6mm wide, 4 resistors, isolated circuit, square edge, convex terminations with TCR  $\pm 100\text{ppm}/^\circ\text{C}$  at 1 kilohm  $\pm 5\%$ , on a 7" reel, anti-sulphur construction, Pb-free).

|   |   |   |   |   |   |   |   |   |    |    |   |   |   |   |
|---|---|---|---|---|---|---|---|---|----|----|---|---|---|---|
| B | C | N | 1 | 6 | 4 | A | B | Z | 1  | 0  | 2 | J | 7 | S |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |   |   |   |   |

| 1      | 2            | 3                   | 4                 | 5                | 6                        | 7            | 8                                                  | 9                  | 10                       | 11              |
|--------|--------------|---------------------|-------------------|------------------|--------------------------|--------------|----------------------------------------------------|--------------------|--------------------------|-----------------|
| Series | Width        | Number of Resistors | Circuit           | Edge             | Termination              | TCR (ppm/°C) | Value                                              | Tolerance          | Packaging                | Construction    |
| BCN    | Blank= 3.1mm | 4                   | A=Isolated        | Blank= Scalloped | Blank= External (convex) | Blank= ±200  | 3 digits for E24 at 2% or 5%                       | F=±1%              | 7=7" reel<br>13=13" reel | Blank= Standard |
|        |              | 8                   | D=Isolated        |                  |                          |              |                                                    | G=±2%              |                          |                 |
|        | 10=1.0mm     |                     | S=Standard bussed | B=Square         | I=Internal (concave)     | Z=±100       | 4 digits for uniquely E96 and for all values at 1% | J=±5%              |                          | S=Anti-sulphur  |
|        | 16=1.6mm     |                     |                   |                  |                          |              |                                                    | (Blank for jumper) |                          |                 |
|        | 21=2.1mm     |                     |                   |                  |                          |              |                                                    |                    |                          |                 |
|        | 31=3.1mm     |                     |                   |                  |                          |              |                                                    |                    |                          |                 |
|        |              |                     |                   |                  |                          |              | JP=Jumper                                          |                    |                          |                 |

| Valid Combinations (1 – 6) | Valid Options (7, 8 & 11)                                         | Packaging Quantity & Tape (10)            |
|----------------------------|-------------------------------------------------------------------|-------------------------------------------|
| 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              | Z= $\pm 100\text{ppm}/^\circ\text{C}$ , JP=Jumper, S=Anti-sulphur | 7=5000/reel, 13=20,000/reel, Paper tape   |
| B C N 1 6 4 A B            | Z= $\pm 100\text{ppm}/^\circ\text{C}$ , JP=Jumper, S=Anti-sulphur |                                           |
| B C N 1 6 4 A B I          | JP=Jumper                                                         |                                           |
| B C N 1 6 8 S B            |                                                                   |                                           |
| B C N 1 6 8 R B            | S=Anti-sulphur                                                    |                                           |
| B C N 2 1 8 S B I          |                                                                   | 7=4000/reel, 13=16,000/reel, Plastic tape |
| B C N 4 4 D                | JP=Jumper, S=Anti-sulphur                                         |                                           |
| B C N 4 4 D B I            | JP=Jumper                                                         |                                           |
| B C N 3 1 8 S B            |                                                                   |                                           |
| B C N 3 1 8 R B            |                                                                   |                                           |
| B C N 3 1 8 S B I          |                                                                   |                                           |
| B C N 3 1 8 R B I          |                                                                   |                                           |

**General Note**  
TT Electronics reserves the right to make changes in product specification without notice or liability.  
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.