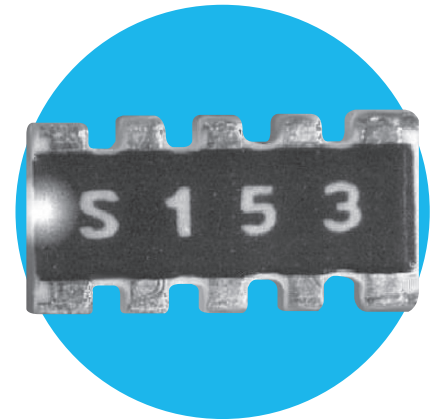


## Thick Film Chip Arrays

### BCN Series

#### Features

- Thick Film
- Chip Resistor Arrays
- RoHS Compliant
- Sulphur resistant version available (Tested to ASTM-B809)
- AEC-Q200 (BCN10, BCN164AB and BCN4D)



All parts are Pb-free and comply with EU Directive 2011/65/EU (RoHS2)

### Model Styles

| Model (Width)                  | # of Resistors | Circuit         | Package Size | Chip Array | Edge Finish / Termination |               |                |
|--------------------------------|----------------|-----------------|--------------|------------|---------------------------|---------------|----------------|
|                                |                |                 |              |            | Scalloped Convex          | Square Convex | Square Concave |
| Model BCN 10 (1.0mm)           | 4 Resistors    | Isolated        | 0804         | 0402       |                           | •             |                |
| Model BCN 16 4ABI (1.6mm)      | 4 Resistors    | Isolated        | 1206         | 0603       |                           |               | •              |
| Model BCN 16 4A/AB (1.6mm)     | 4 Resistors    | Isolated        | 1206         | 0603       | •                         | •             |                |
| Model BCN 16 8RB/8SB (1.6mm)   | 8 Resistors    | Bussed          | 1206         | 0603       |                           | •             |                |
| Model BCN 21 (2.1mm)           | 8 Resistors    | Bussed          | 1608         | 0804       |                           |               | •              |
| Model BCN 4D (3.1mm)           | 4 Resistors    | Isolated        | 2112         | 1206       | •                         |               |                |
| Model BCN 4DBI (3.1mm)         | 4 Resistors    | Isolated        | 2112         | 1206       |                           |               | •              |
| Model BCN 31 8RB/8SB (3.1mm)   | 8 Resistors    | Bussed          | 2512         | 1206       |                           | •             |                |
| Model BCN 31 8RBI/8SBI (3.1mm) | 8 Resistors    | Bussed          | 2512         | 1206       |                           |               | •              |
| Jumper Chip Array              | 4/8 Resistors  | Isolated/Bussed | All          | All        | •                         | •             | •              |

#### Features

- Reliable monolithic construction
- Nickel barrier terminations
- Top side marking for easy identification
- Concave or convex termination styles
- Square or scalloped edges available

#### Benefits

- Saves board space over equivalent rated chip resistors
- Eliminates up to seven pick & place operations
- Single component reliability
- Leadless chip, reduced inductance
- Mounts close to active devices

#### Applications

- Pull up / pull down resistors for digital IC's
- Series termination on high speed data busses
- Current limit for LED displays
- Available as an 8 bit R/2R Ladder Network

#### General Note

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BCN Series

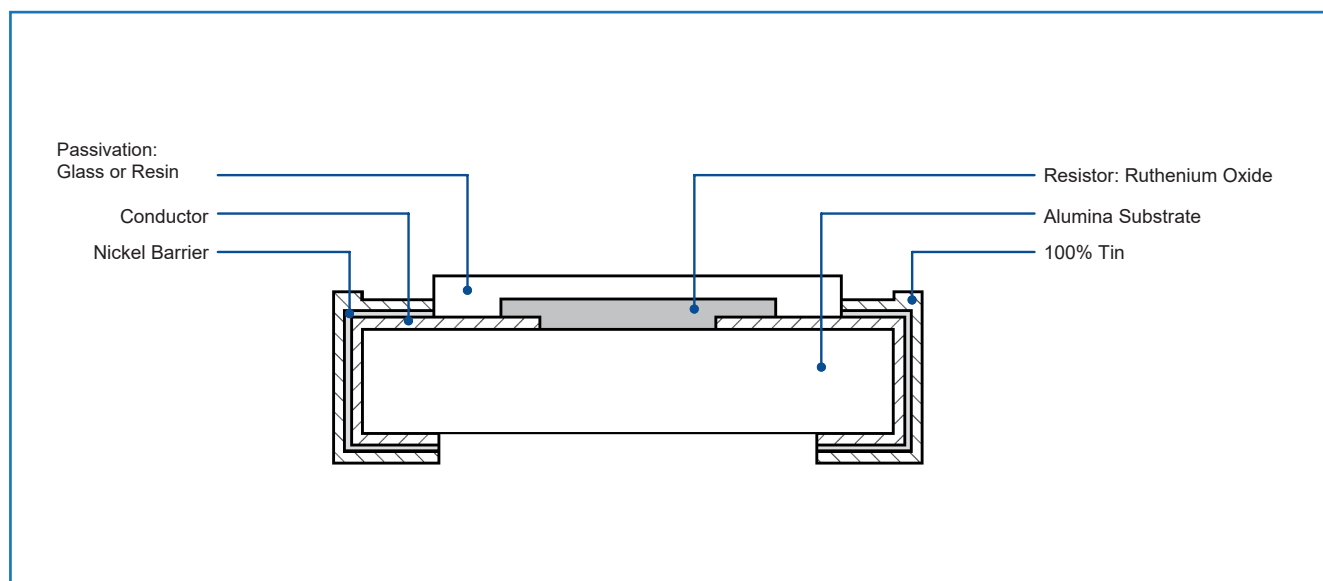
## Electrical

|                                 |   |   |
|---------------------------------|---|---|
| Standard Resistance Range, Ohms | BCN4D, BCN10, BCN16 4:<br>BCN 16 8R / 8S:<br>BCN 31 8R / 8S:<br>BCN 21:   | 10 to 1 Megohm<br>100 to 1 Megohm<br>22 to 1 Megohm<br>68 to 220K   |
| Standard Resistance Tolerance   |   | ±5% (J Tol.)<br>Optional: ±1% (F Tol.), BCN 4D, BCN 16 4, BCN31 8RB / 8SB Only<br>±2% (G Tol.), BCN 16 4, BCN31 8RB / 8SB Only                                    |
| Operating Voltage, Maximum      | BCN 4D:<br>BCN 16 4, BCN 31 8R / 8S:<br>BCN 10, BCN 16 8R / 8S, BCN 21:   | 75Vdc or Vpr<br>50Vdc or Vpr<br>25Vdc or Vpr  |
| Power Rating, watts at 70°C     | BCN 4D:<br>BCN 10, BCN 164:<br>BCN 16 8R / 8S:<br>BCN 21, BCN 31 8R / 8S: | 125mW per Resistor / 500mW per Package<br>63mW per Resistor / 250mW per Package<br>32mW per Resistor / 250mW per Package<br>63mW per Resistor / 500mW per Package |

## Environmental

| Test                                  | Condition                      | Parts with no TCR code | Parts with Z TCR code |
|---------------------------------------|--------------------------------|------------------------|-----------------------|
| Operating Temperature Range           |                                |                        | -55°C to +155°C       |
| Temperature Coefficient of Resistance |                                | ±200ppm/°C             | ±100ppm/°C            |
| Moisture Resistance                   | 1,000 hours @ +40°C, 95% R.H.  | 3% +0.1Ω ΔR            | 1% +0.1Ω ΔR           |
| High Temperature Operation            | 1,000 hours @ 155°C            | 3% +0.1Ω ΔR            | 1% +0.1Ω ΔR           |
| Short Time Overload                   | 2.5 x rated voltage, 5 seconds | 2% +0.1Ω ΔR            | 0.25% +0.1Ω ΔR        |
| Temperature Cycling                   | -55°C to +155°C, 5 cycles      | 1% +0.1Ω ΔR            | 1% +0.1Ω ΔR           |
| Resistance to Solder Heat             | 260°C for 10 seconds           | 1% +0.1Ω ΔR            | 0.25% +0.1Ω ΔR        |
| Load Life                             | 1,000 hours @ 70°C             | 3% +0.1Ω ΔR            | 1% +0.1Ω ΔR           |

## Construction

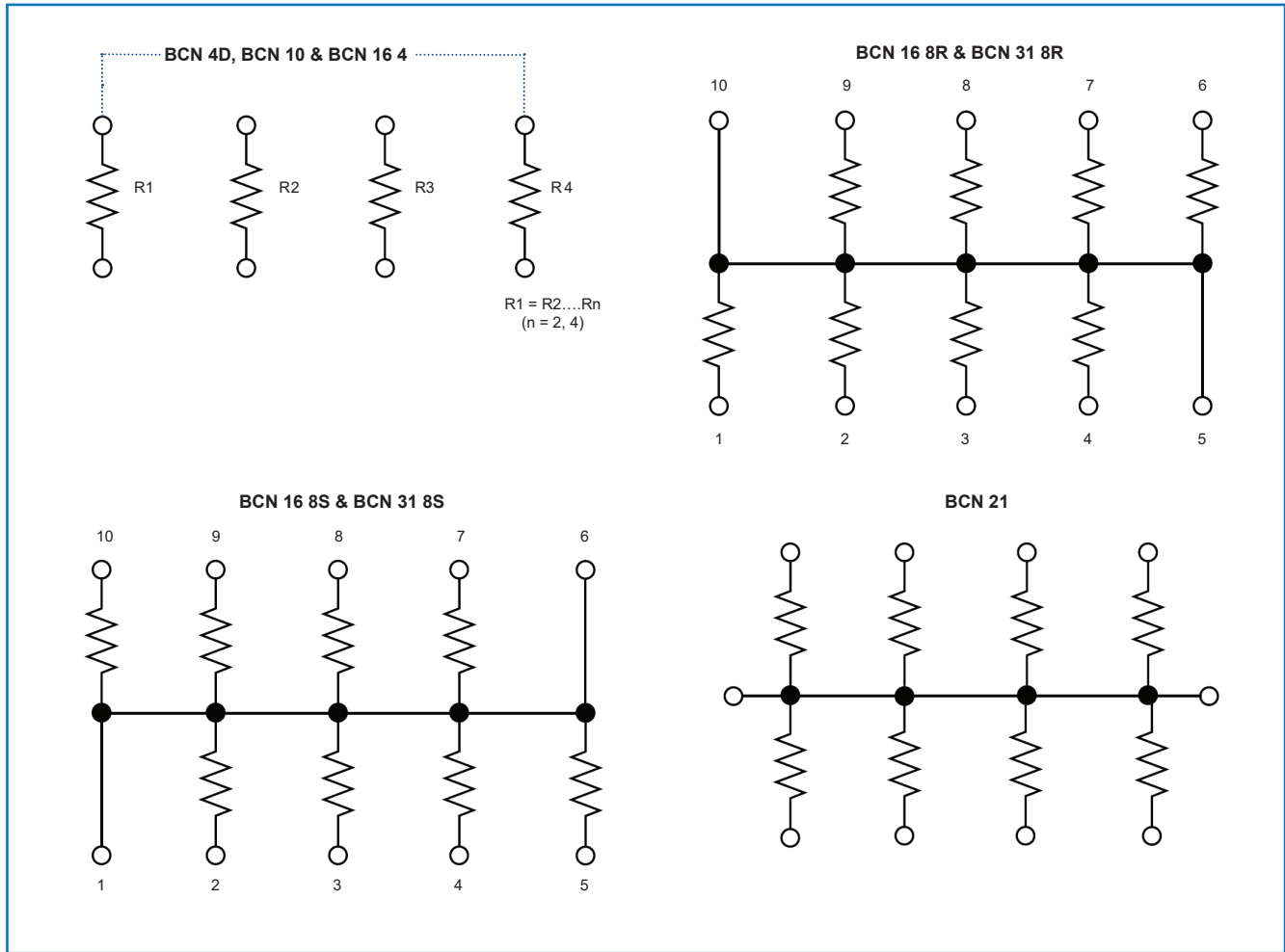


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BCN Series

Electrical



Standard Resistance Values, Ohms

| Model, BCN 4D, BCN 10 & BCN 16 4 |     |      |     |      |        |
|----------------------------------|-----|------|-----|------|--------|
| 10                               | 100 | 1K   | 10K | 100K | 1 Meg  |
| 12                               | 120 | 1.2K | 12K | 120K | Jumper |
| 15                               | 150 | 1.5K | 15K | 150K |        |
| 18                               | 180 | 1.8K | 18K | 180K |        |
| 22                               | 220 | 2.2K | 22K | 220K |        |
| 27                               | 270 | 2.7K | 27K | 270K |        |
| 33                               | 330 | 3.3K | 33K | 330K |        |
| 39                               | 390 | 3.9K | 39K | 390K |        |
| 47                               | 470 | 4.7K | 47K | 470K |        |
| 56                               | 560 | 5.6K | 56K | 560K |        |
| 68                               | 680 | 6.8K | 68K | 680K |        |
| 82                               | 820 | 8.2K | 82K | 820K |        |

| Model BCN 16 8R & BCN 16 8S |      |     |       |
|-----------------------------|------|-----|-------|
| 220                         | 1K   | 10K | 100K  |
| 330                         | 4.7K | 47K | 1 Meg |

| Model BCN 31 8R |      | Model BCN 31 8S |       |
|-----------------|------|-----------------|-------|
| 220             | 2.2K | 10K             | 100K  |
| 330             | 2.7K | 22K             | 470K  |
| 1K              | 4.7K | 47K             | 1 Meg |

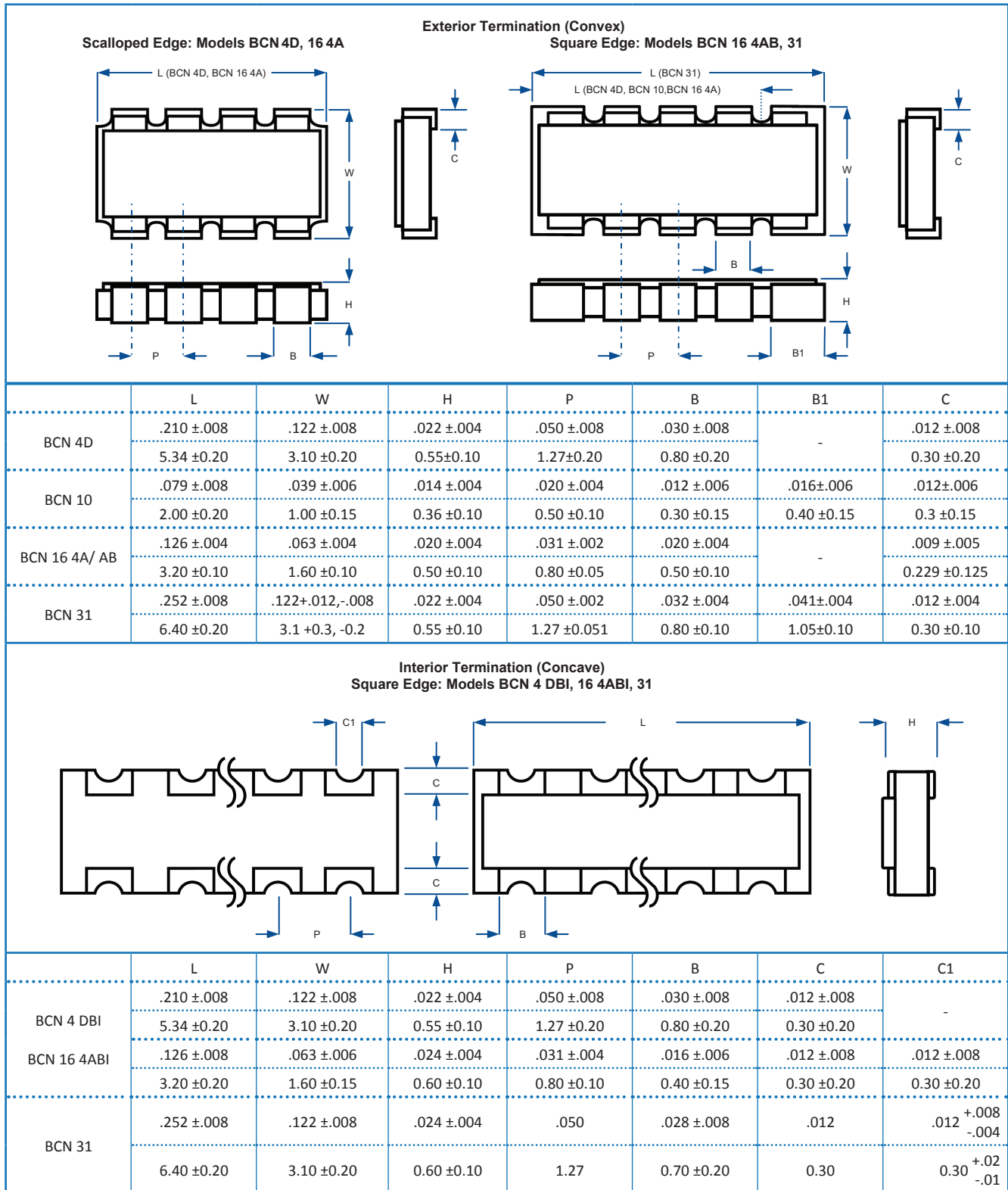
| Model BCN 21 |     |      |      |
|--------------|-----|------|------|
| 68           | 330 | 4.7K | 10K  |
| 220          | 1K  | 47K  | 100K |

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BCN Series

Outline Dimensions (Inch /mm)

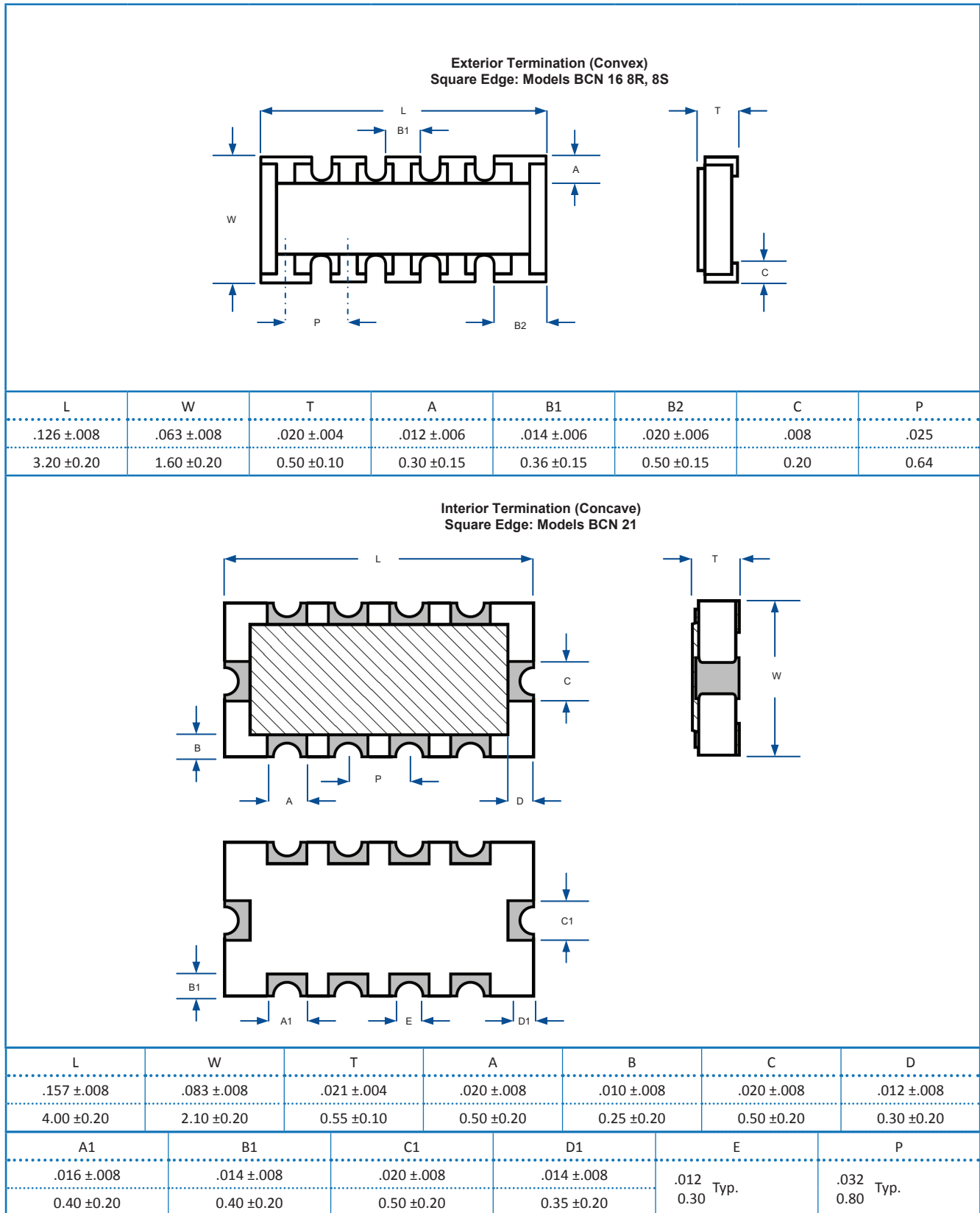


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BCN Series

Outline Dimensions (Inch /mm)

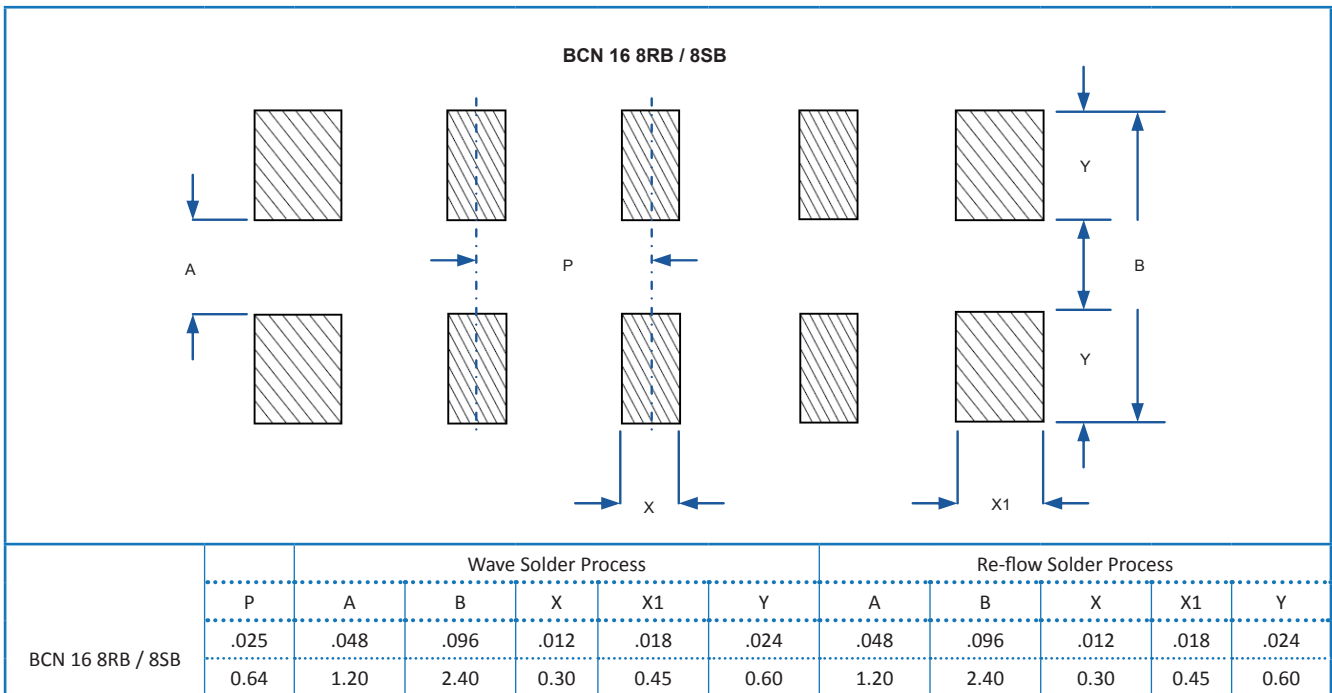
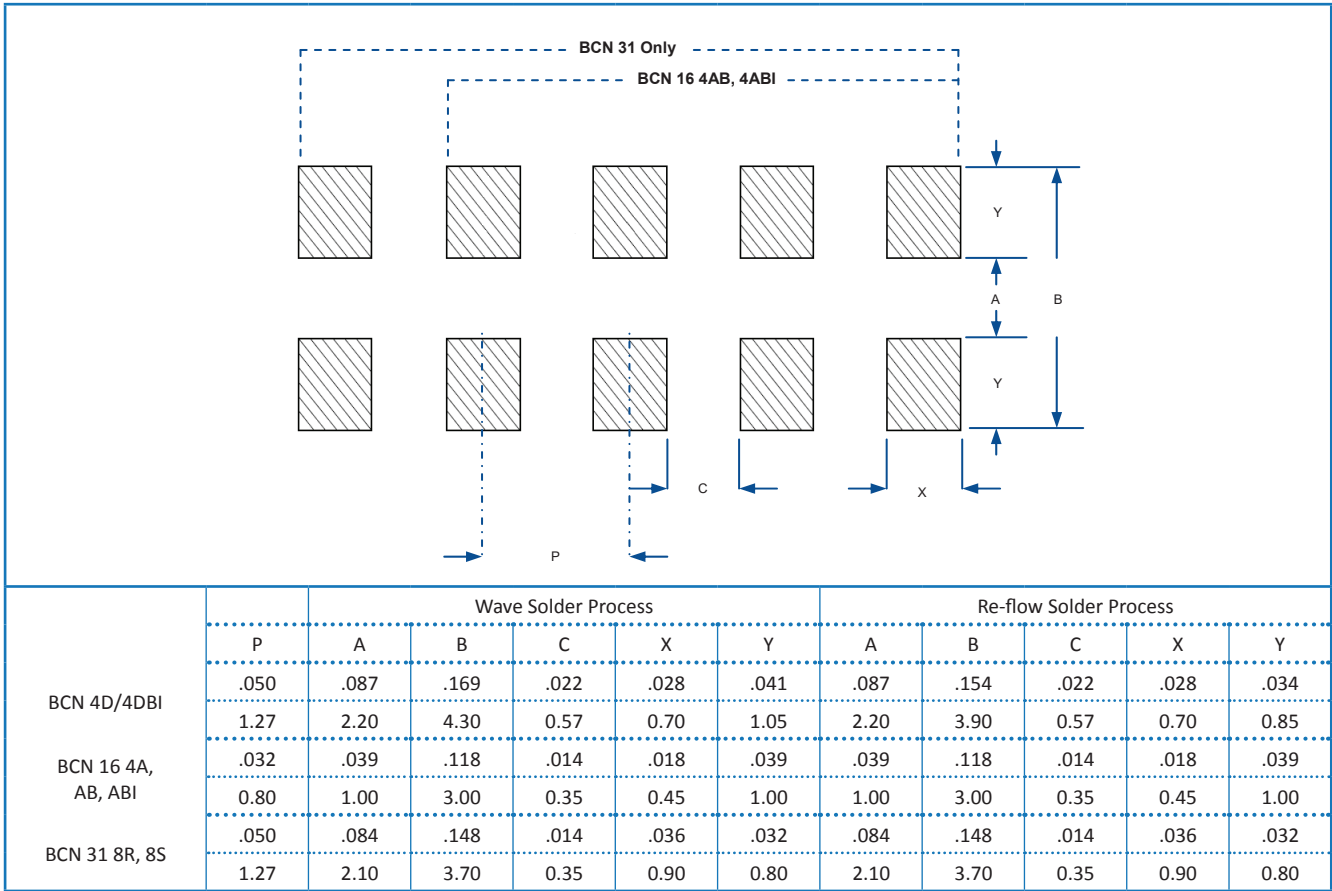


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BCN Series

Solder pad layout (Inch / mm)

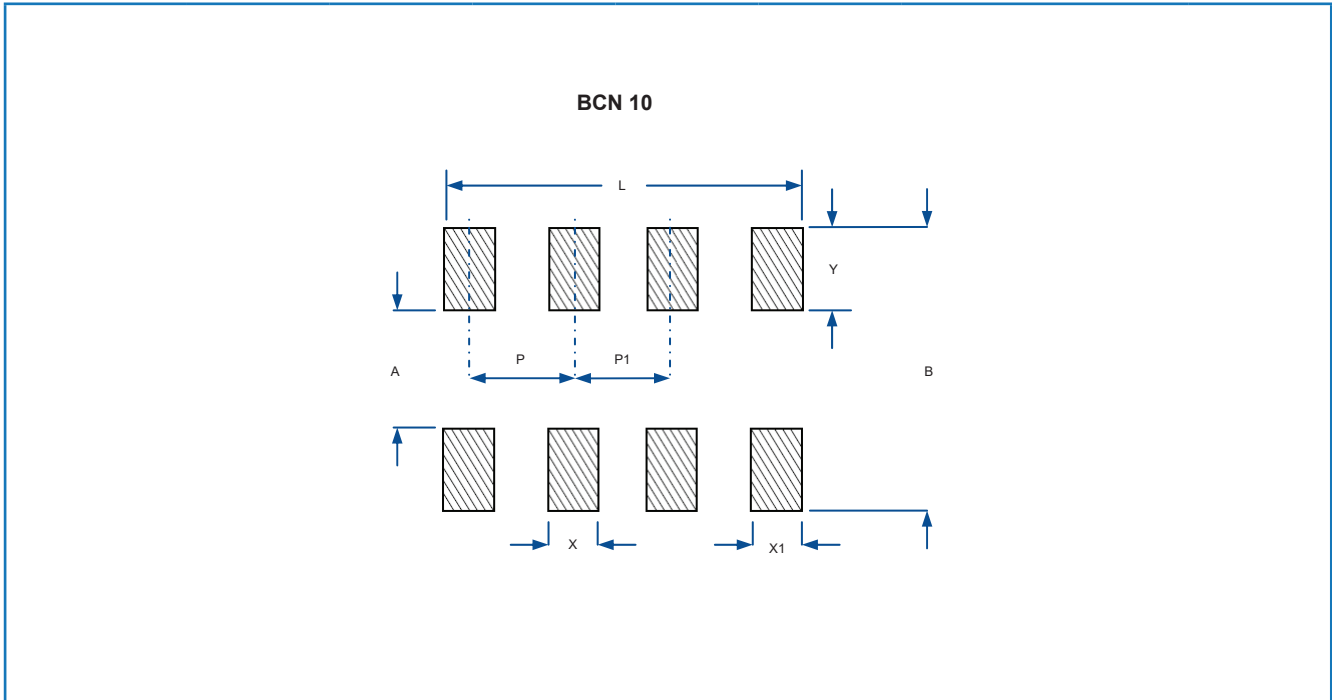


General Note

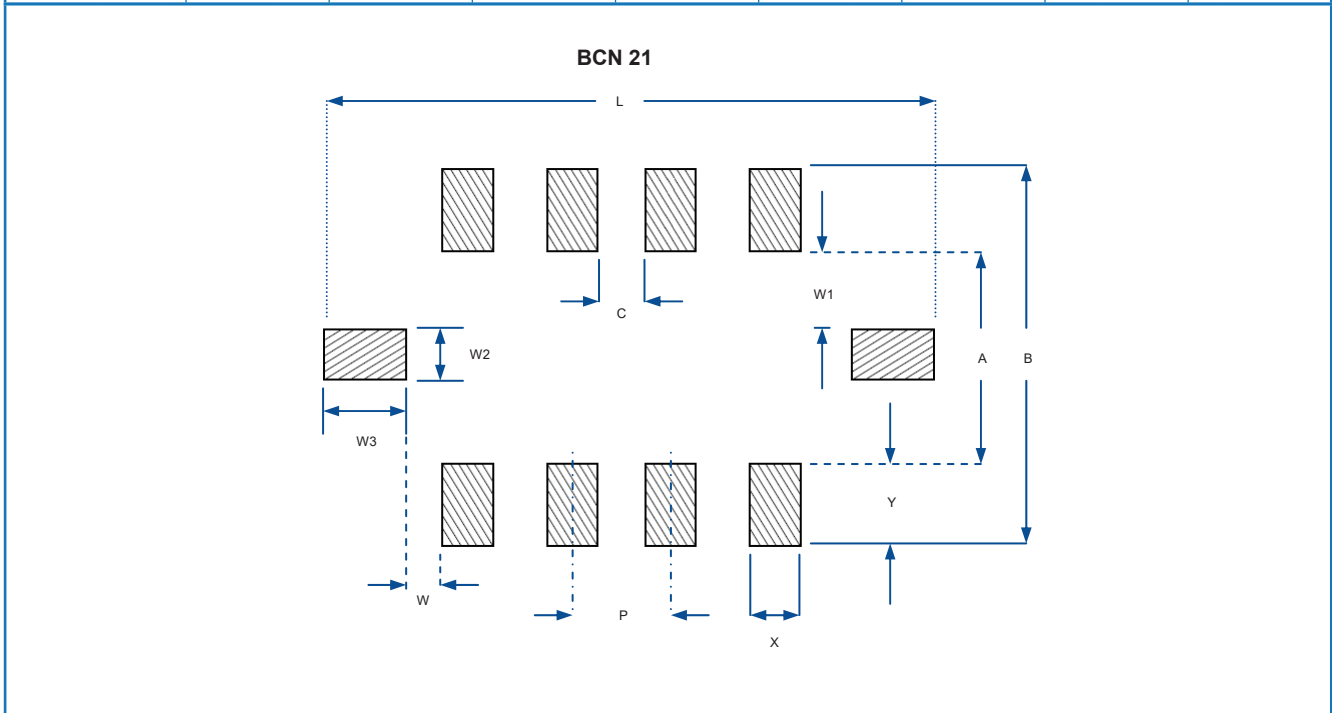
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BCN Series

Solder pad layout (Inch / mm)



|        | P    | P1   | A          | B          | X          | X1         | Y          | L          |
|--------|------|------|------------|------------|------------|------------|------------|------------|
| BCN 10 | .024 | .020 | .020 ±.004 | .060 ±.004 | 0.10 ±.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 |



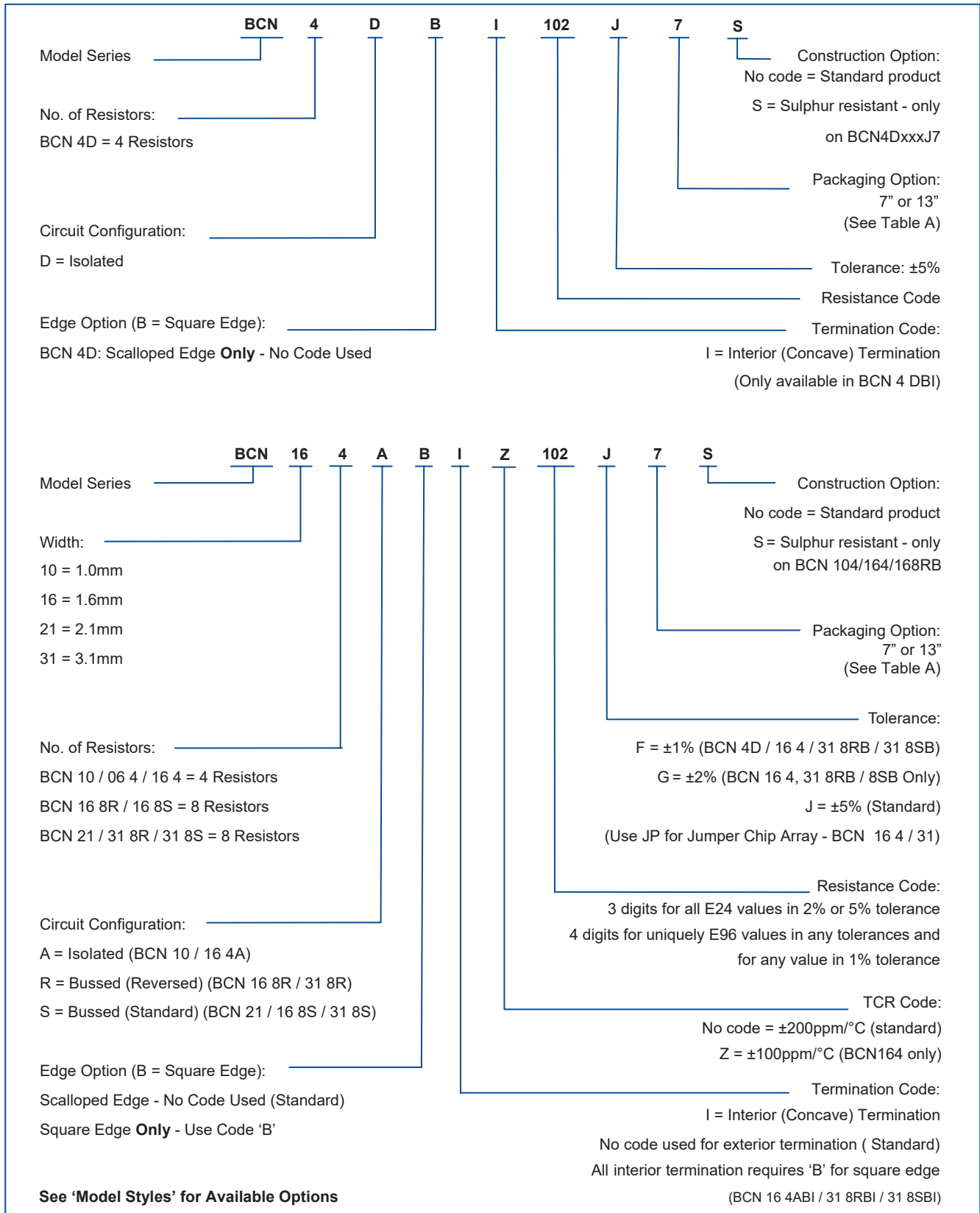
|        | P    | A          | B          | C          | X          | Y          | W          | W1         | W2         | W3         | L          |
|--------|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| BCN 21 | .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 |

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BCN Series

## Ordering Information



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**BCN Series**

**Packaging (Table A)**

|          | 7" Reel Diameter |          | 13" Reel Diameter |          |
|----------|------------------|----------|-------------------|----------|
|          | Paper            | Embossed | Paper             | Embossed |
| BCN 4D   |                  | 4K       |                   | 16K      |
| BCN 10   | 10K              |          | 40K               |          |
| BCN 16 4 | 5K               |          | 20K               |          |
| BCN 16 8 | 5K               |          | 20K               |          |
| BCN 21   |                  | 4K       |                   | 16K      |
| BCN 31   |                  | 4K       |                   | 16K      |

Note: Tape & Reel dimensions per EIA-481.

**Sulphur Resistant Arrays**

- Special construction resists sulphide growth
- Withstands sulphur bearing fume environment
- Tested to ASTM-B809 ("Flowers-of-Sulphur")
- Suitable for industrial, automotive and roadside uses
- RoHS compliant matt Tin finish terminations

**Performance Data**

Hydrogen Sulphide exposure:

- 1000 Hours, 3-5ppm H<sub>2</sub>S, 50°C, 92%RH
- 0.5% Max ΔR and no visual defects

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