

Thick Film Chip Arrays

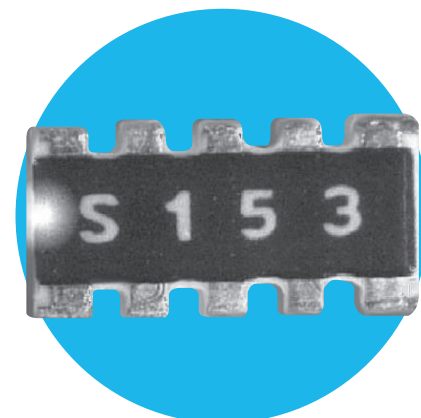
BCN Series

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 amended by (EU) 2015/863 (RoHS3)



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

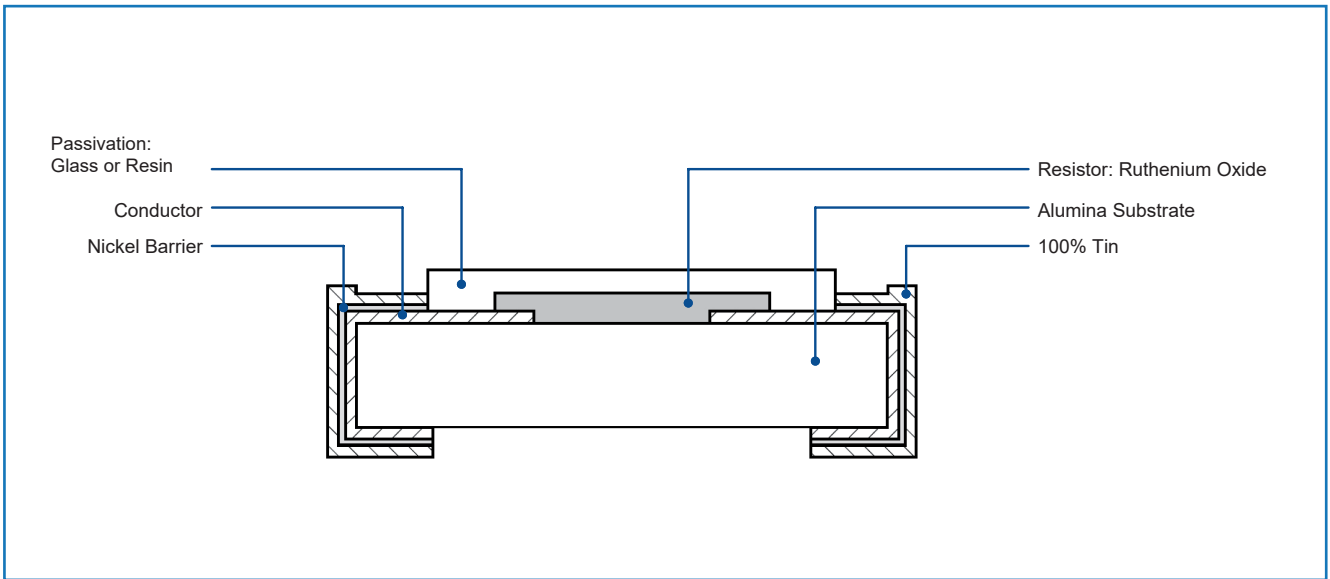
Electrical

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

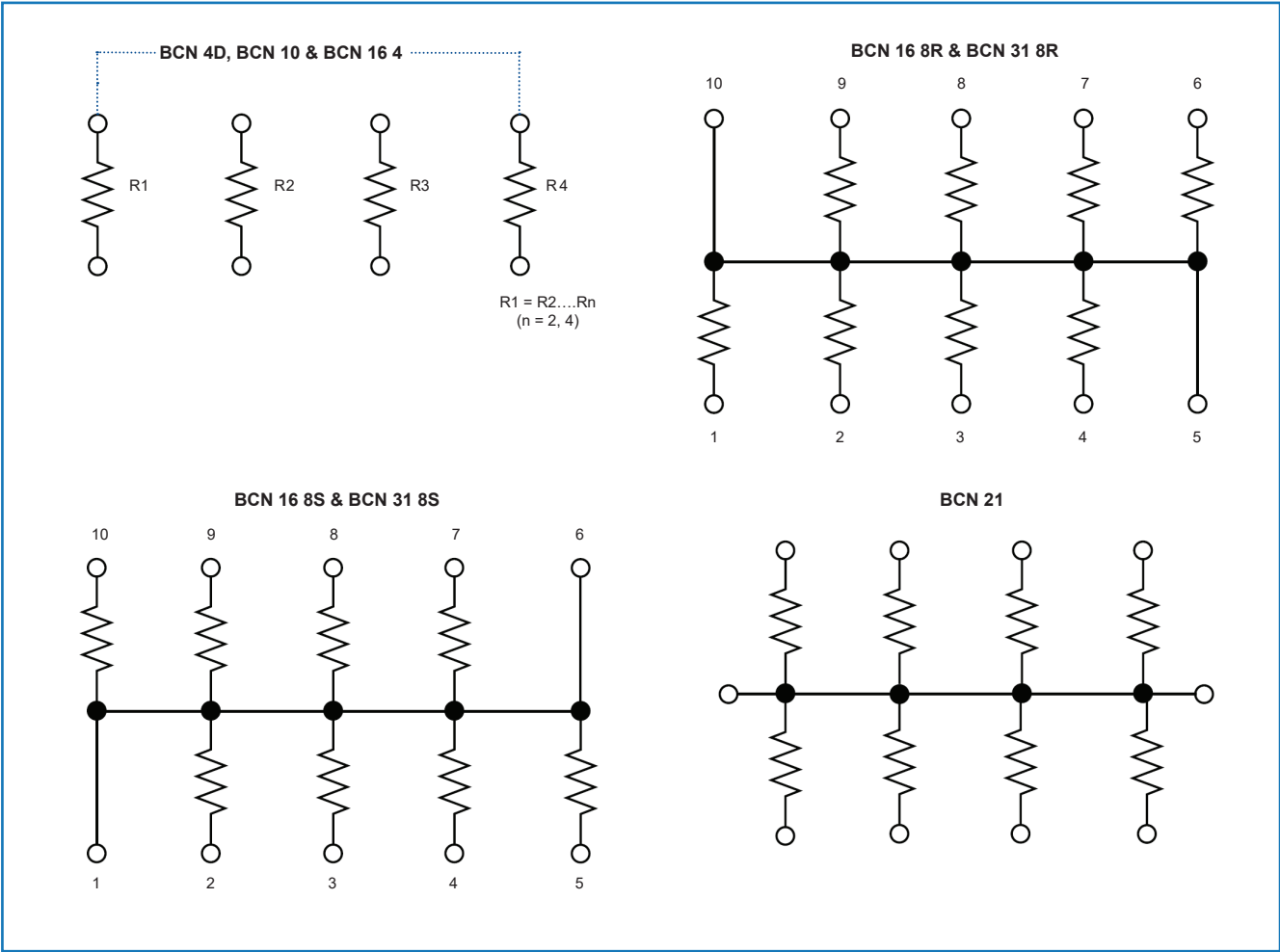


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BCN Series

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)

Scalloped Edge: Models BCN 4D, 16 4A Exterior Termination (Convex) Square Edge: Models BCN 16 4AB, 31							
	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 ±.008	.039 ±.006	.014 ±.004	.020 ±.004	.012 ±.006	.016±.006	.012±.006
	2.00 ±0.20	1.00 ±0.15	0.36 ±0.10	0.50 ±0.10	0.30 ±0.15	0.40 ±0.15	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
BCN 31	.252 ±.008	.122±.012,-.008	.022 ±.004	.050 ±.002	.032 ±.004	.041±.004	.012 ±.004
	6.40 ±0.20	3.1 +0.3, -0.2	0.55 ±0.10	1.27 ±0.051	0.80 ±0.10	1.05±0.10	0.30 ±0.10

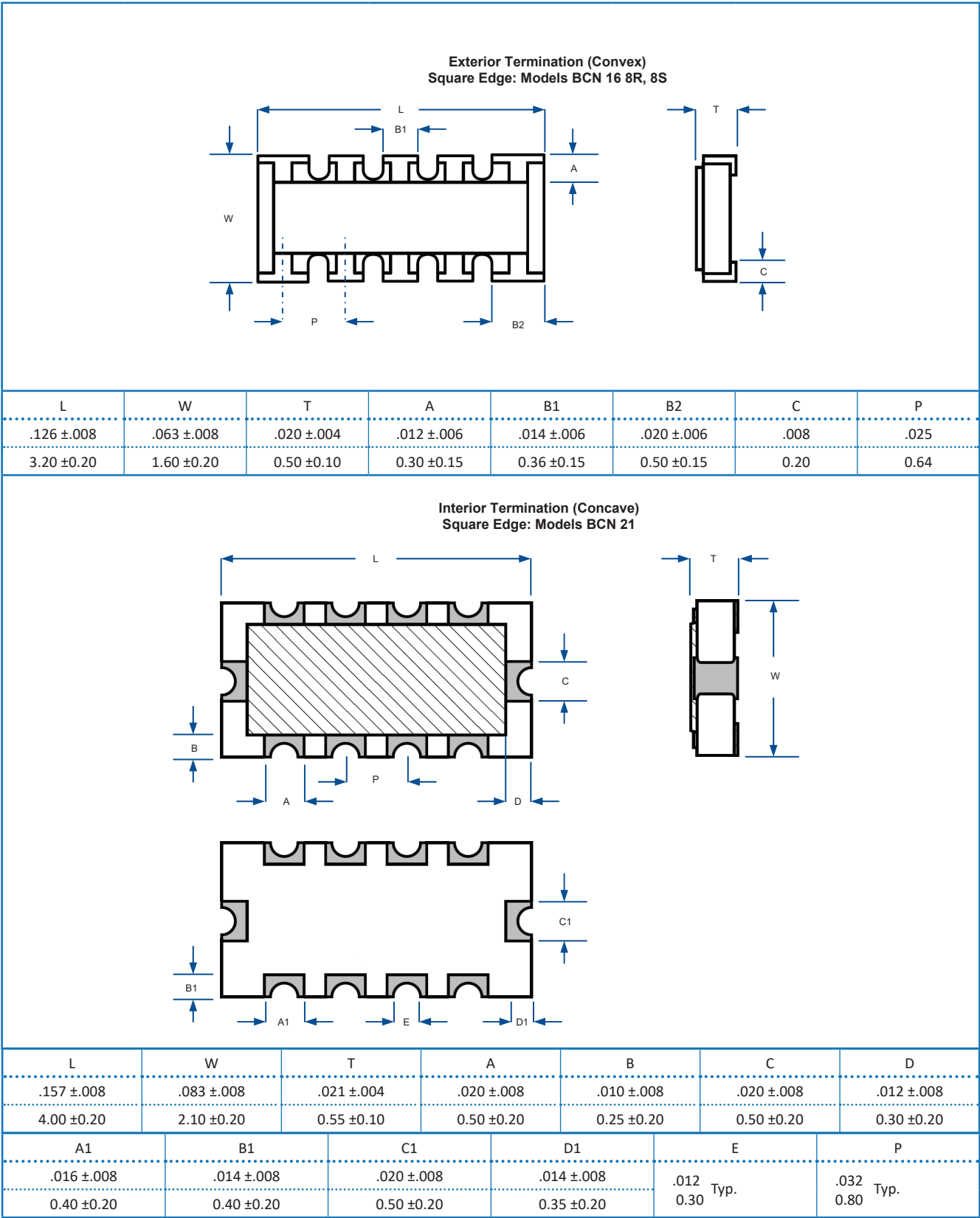
Interior Termination (Concave) Square Edge: Models BCN 4 DBI, 16 4ABI, 31							
	L	W	H	P	B	C	C1
BCN 4 DBI	.210 ±.008	.122 ±.008	.022 ±.004	.050 ±.008	.030 ±.008	.012 ±.008	-
	5.34 ±0.20	3.10 ±0.20	0.55 ±0.10	1.27 ±0.20	0.80 ±0.20	0.30 ±0.20	-
BCN 16 4ABI	.126 ±.008	.063 ±.006	.024 ±.004	.031 ±.004	.016 ±.006	.012 ±.008	.012 ±.008
	3.20 ±0.20	1.60 ±0.15	0.60 ±0.10	0.80 ±0.10	0.40 ±0.15	0.30 ±0.20	0.30 ±0.20
BCN 31	.252 ±.008	.122 ±.008	.024 ±.004	.050	.028 ±.008	.012	.012 ^{+.008} _{-.004}
	6.40 ±0.20	3.10 ±0.20	0.60 ±0.10	1.27	0.70 ±0.20	0.30	0.30 ^{+.02} _{-.01}

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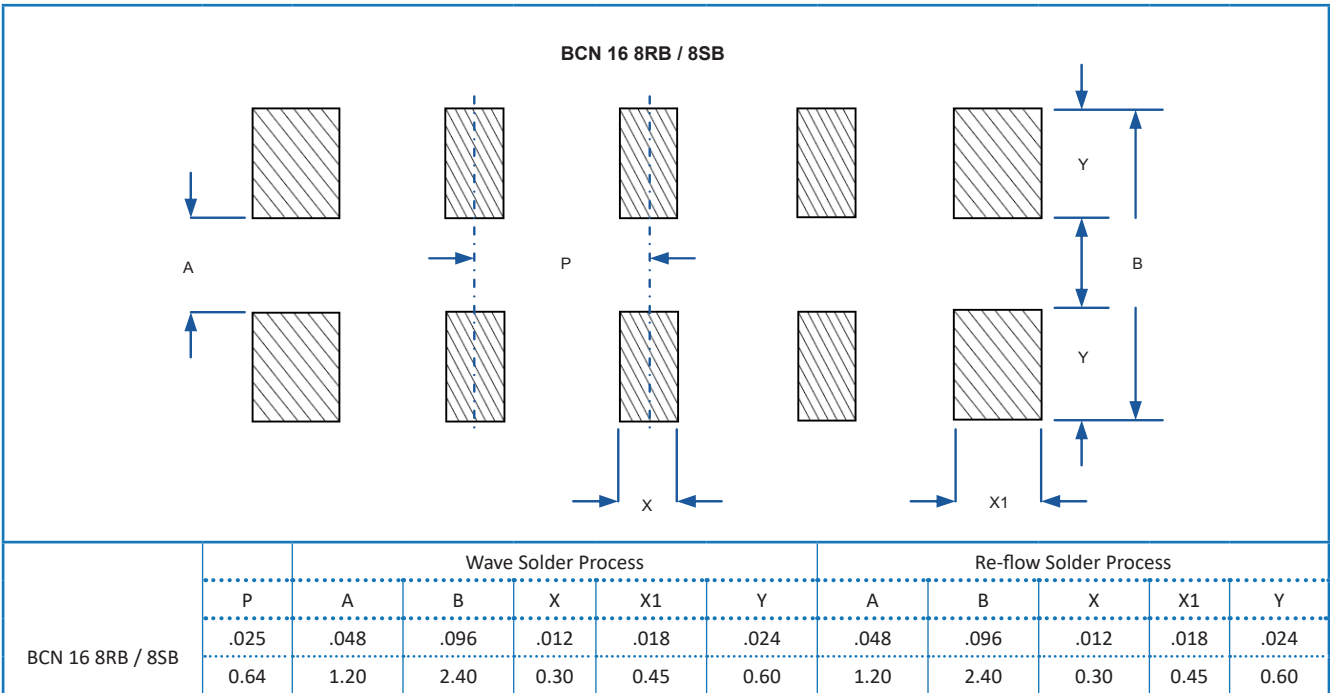
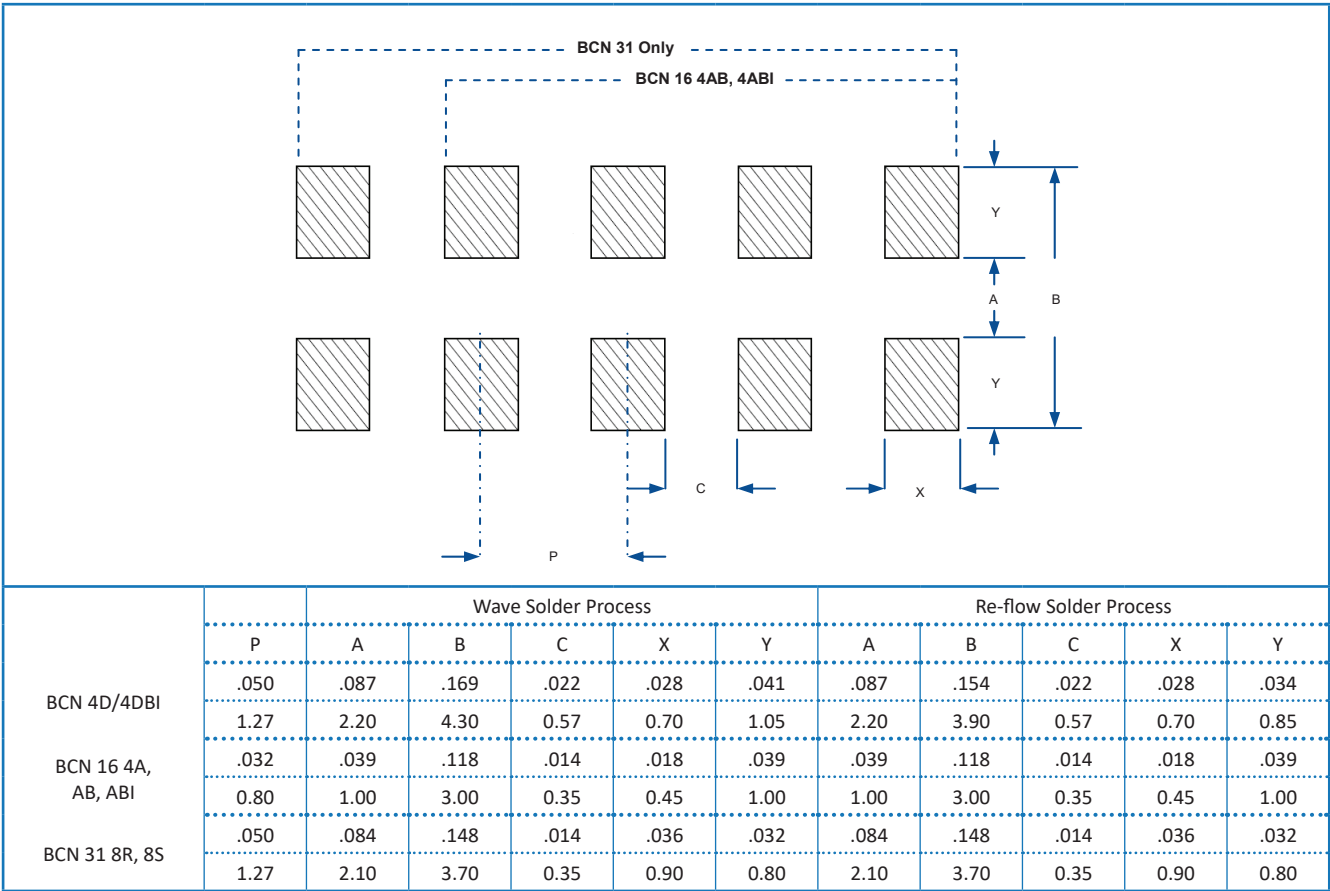
Outline Dimensions (Inch /mm)



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BCN Series

Solder pad layout (Inch / mm)



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BCN Series

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' and 'B' at its ends, and the bottom row is labeled 'X' and 'X1' at its ends. The total length of the layout is labeled 'L'. The total width is labeled 'Y'. The pitch between the centers of the pads in each row is labeled 'P'. The pitch between the centers of the pads between the two rows is labeled 'P1'. The width of each pad is labeled 'A', and the height of each pad is labeled 'B'. The distance from the left edge to the center of the first pad in the bottom row is labeled 'X', and the distance from the right edge to the center of the last pad in the bottom row is labeled 'X1'.

BCN 10

P	P1	A	B	X	X1	Y	L
.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

BCN 21

The diagram illustrates the BCN 21 layout, which consists of two rows of four rectangular pads each. The top row is labeled 'C' and 'W1' at its ends, and the bottom row is labeled 'X' and 'Y' at its ends. The total length of the layout is labeled 'L'. The total width is labeled 'B'. The pitch between the centers of the pads in each row is labeled 'P'. The pitch between the centers of the pads between the two rows is labeled 'Y'. The width of each pad is labeled 'A', and the height of each pad is labeled 'B'. The distance from the left edge to the center of the first pad in the bottom row is labeled 'X', and the distance from the right edge to the center of the last pad in the bottom row is labeled 'Y'. The distance from the left edge to the center of the first pad in the top row is labeled 'W3', and the distance from the right edge to the center of the last pad in the top row is labeled 'W1'. The distance from the left edge to the center of the first pad in the bottom row is labeled 'W', and the distance from the right edge to the center of the last pad in the bottom row is labeled 'X'. The distance from the left edge to the center of the first pad in the top row is labeled 'W2', and the distance from the right edge to the center of the last pad in the top row is labeled 'W1'.

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

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BCN Series

Ordering Information

Model Series	BCN	4	D	B	I	102	J	7	S	Construction Option: No code = Standard product S = Sulphur resistant - only on BCN4DxxxJ7
No. of Resistors: BCN 4D = 4 Resistors										Packaging Option: 7" or 13" (See Table A)
Circuit Configuration: D = Isolated										Tolerance: $\pm 5\%$ Resistance Code
Edge Option (B = Square Edge): BCN 4D: Scalloped Edge Only - No Code Used										Termination Code: I = Interior (Concave) Termination (Only available in BCN 4 DBI)

Model Series	BCN	16	4	A	B	I	Z	102	J	7	S	Construction Option: No code = Standard product S = Sulphur resistant - only on BCN 104/164/168RB
Width: 10 = 1.0mm 16 = 1.6mm 21 = 2.1mm 31 = 3.1mm												Packaging Option: 7" or 13" (See Table A)
No. of Resistors: BCN 10 / 06 4 / 16 4 = 4 Resistors BCN 16 8R / 16 8S = 8 Resistors BCN 21 / 31 8R / 31 8S = 8 Resistors												Tolerance: F = $\pm 1\%$ (BCN 4D / 16 4 / 31 8RB / 31 8SB) G = $\pm 2\%$ (BCN 16 4, 31 8RB / 8SB Only) J = $\pm 5\%$ (Standard) (Use JP for Jumper Chip Array - BCN 16 4 / 31)
Circuit Configuration: A = Isolated (BCN 10 / 16 4A) R = Bussed (Reversed) (BCN 16 8R / 31 8R) S = Bussed (Standard) (BCN 21 / 16 8S / 31 8S)												Resistance Code: 3 digits for all E24 values in 2% or 5% tolerance 4 digits for uniquely E96 values in any tolerances and for any value in 1% tolerance
Edge Option (B = Square Edge): Scalloped Edge - No Code Used (Standard) Square Edge Only - Use Code 'B'												TCR Code: No code = $\pm 200\text{ppm}/^\circ\text{C}$ (standard) Z = $\pm 100\text{ppm}/^\circ\text{C}$ (BCN164 only)
See 'Model Styles' for Available Options												Termination Code: I = Interior (Concave) Termination No code used for exterior termination (Standard) All interior termination requires 'B' for square edge (BCN 16 4ABI / 31 8RBI / 31 8SBI)

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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 H₂S, 50°C, 92%RH
- 0.5% Max ΔR and no visual defects

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