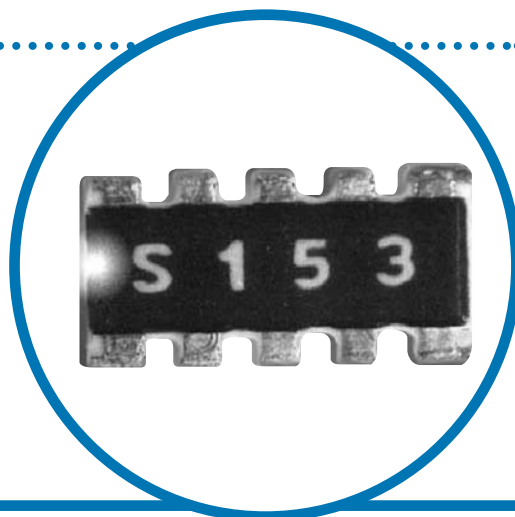


BCN

Features

- Thick Film
- Chip Resistor Arrays
- RoHS Compliant
- Sulphur resistant version available (Tested to ASTM-B809)
- Range extended to include 0201 size resistors



Model Styles

Model (Width)	# of Resistors	Circuit	Package Size	Chip Array	Edge Finish / Termination		
					Scalloped Convex	Square Convex	Square Concave
Model BCN 06 2 (0.6mm)	2 Resistors	Isolated	0302	0201		•	
Model BCN 06 4 (0.6mm)	4 Resistors	Isolated	0502	0201		•	
Model BCN 2D (1.6mm)	2 Resistors	Isolated	0606	0603	•		
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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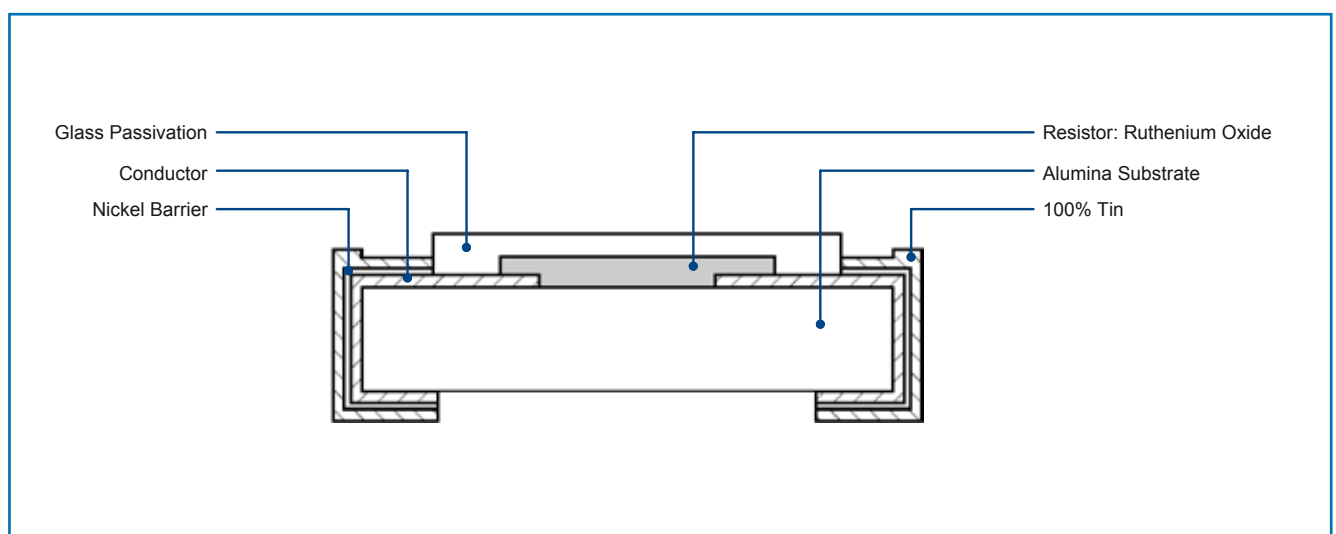
Electrical

Standard Resistance Range, Ohms	BCN06 2, BCN06 4, BCN2D, 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: $\pm 1\%$ (F Tol.), BCN 4D, BCN 16 4, BCN31 8RB / 8SB Only $\pm 2\%$ (G Tol.), BCN 16 4, BCN31 8RB / 8SB Only	
Operating Voltage, Maximum	BCN 4D: BCN 2D, BCN 16 4, BCN 31 8R / 8S: BCN 10, BCN 16 8R / 8S, BCN 21: BCN 06 2, BCN 06 4:	75Vdc or $\sqrt{pr}$ 50Vdc or $\sqrt{pr}$ 25Vdc or $\sqrt{pr}$ 12.5Vdc or $\sqrt{pr}$
Power Rating, watts at 70°C	BCN 2D: BCN 4D: BCN 06 2: BCN 06 4: BCN 10, BCN 164: BCN 16 8R / 8S: BCN 21, BCN 31 8R / 8S:	63mW per Resistor / 125mW per Package 125mW per Resistor / 500mW per Package 31mW per Resistor / 63mW per Package 31mW per Resistor / 125mW per Package 63mW per Resistor / 250mW per Package 32mW per Resistor / 250mW per Package 63mW per Resistor / 500mW per Package

Environmental

Operating Temperature Range	-55°C to +125°C	
Temperature Coefficient of Resistance	BCN 2D: BCN 06 2, BCN 06 4, BCN 4D, BCN 16 8R / 8S, BCN 21, BCN 31: BCN 10, BCN 16 4:	$\pm 300\text{ppm}/^\circ\text{C}$ $\pm 200\text{ppm}/^\circ\text{C}$ $\pm 200\text{ppm}/^\circ\text{C}$
Moisture Resistance	1,000 hours @ +40°C, 95% R.H. (3.0% +0.1 Ω Δ R)	
High Temperature Operation	1,000 hours @ 70°C (3.0% +0.1 Ω Δ R)	
Short Time Overload	2.5 X rated voltage, 5 seconds (2.0% +0.1 Ω Δ R)	
Temperature Cycling	-55°C to +125°C, 5 cycles (1.0% +0.1 Ω Δ R)	
Resistance to Solder Heat	260°C for 10 seconds (1.0% +0.1 Ω Δ R)	
Load Life	1,000 hours @ 70°C (3.0% +0.1 Ω Δ R)	

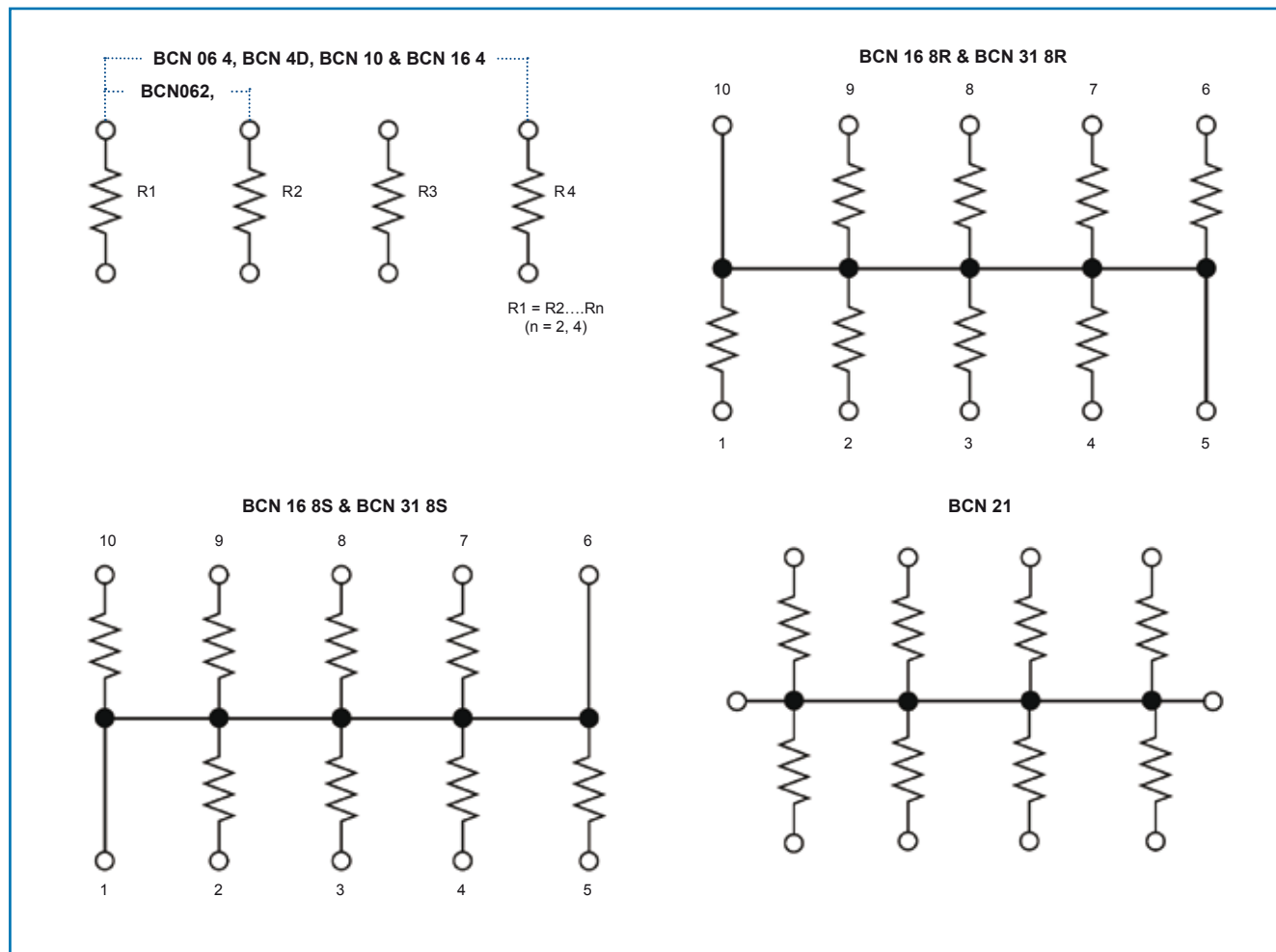
Construction



General Note

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Electrical



Standard Resistance Values, Ohms

Model BCN 06, BCN 2D, 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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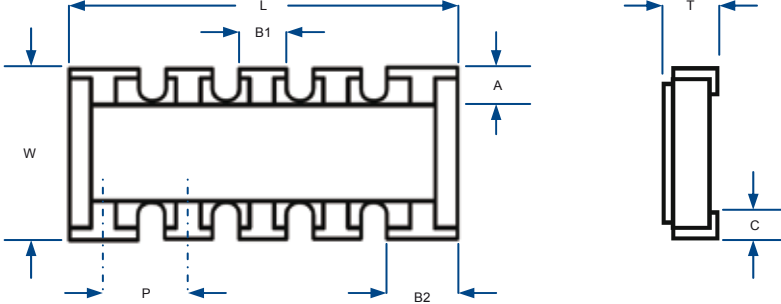
Outline Dimensions (Inch /mm)

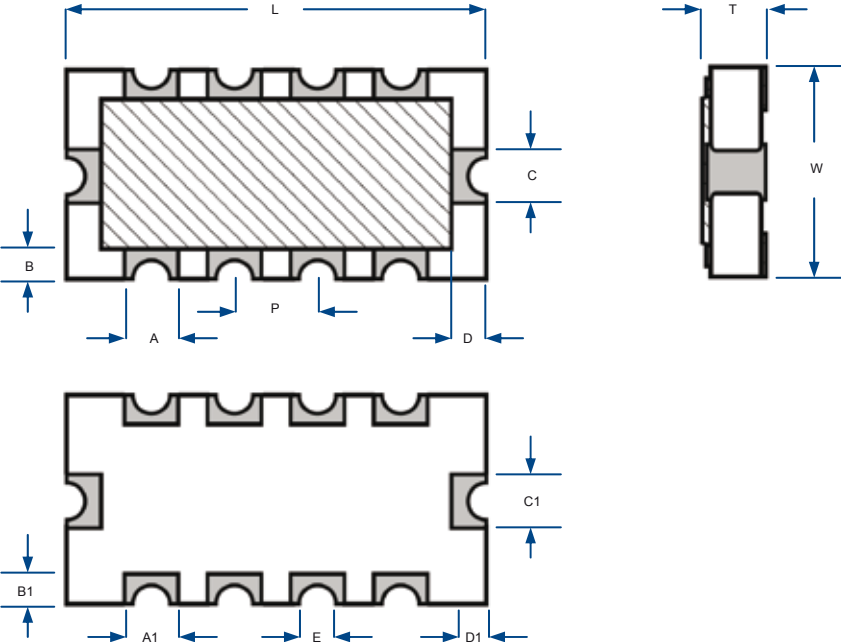
Scalloped Edge: Models BCN 2D, 4D, 16 4A Exterior Termination (Convex) Square Edge: Models BCN 16 4AB, 31							
	L	W	H	P	B	B1	C
BCN 2D	.063 ±.006	.063 ±.006	.020 ±.006	.031 ±.004	.020 ±.004	-	.010 ±.004
	1.60 ±0.15	1.60 ±0.15	0.50 ±0.15	0.80 ±0.10	0.50 ±0.10	-	0.25 ±0.10
BCN 4D	.210 ±.008	.122 ±.008	.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	.006 ±.002
	2.00 ±0.20	1.00 ±0.15	0.36 ±0.10	0.50 ±0.10	0.30 ±0.15	0.40 ±0.15	0.15 ±0.05
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}

General Note

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Outline Dimensions (Inch /mm)

Exterior Termination (Convex) Square Edge: Models BCN 16 8R, 8S							
							
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

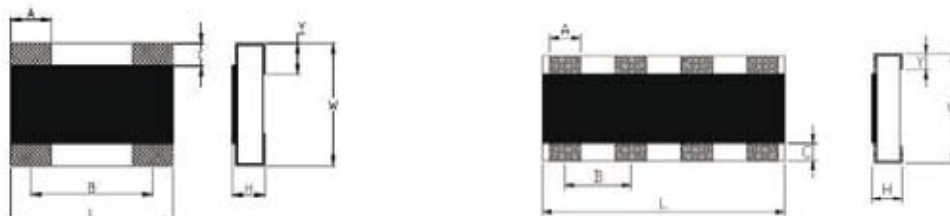
Interior Termination (Concave) Square Edge: Models BCN 21						
						
L	W	T	A	B	C	D
.157 ±.008	.083 ±.008	.021 ±.004	.020 ±.008	.010 ±.008	.020 ±.008	.012 ±.008
4.00 ±0.20	2.10 ±0.20	0.55 ±0.10	0.50 ±0.20	0.25 ±0.20	0.50 ±0.20	0.30 ±0.20
A1	B1	C1	D1	E	P	
.016 ±.008	.014 ±.008	.020 ±.008	.014 ±.008	.012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

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Outline Dimensions

Exterior Termination (Convex)
Square Edge: Models BCN 06 2, BCN 06 4

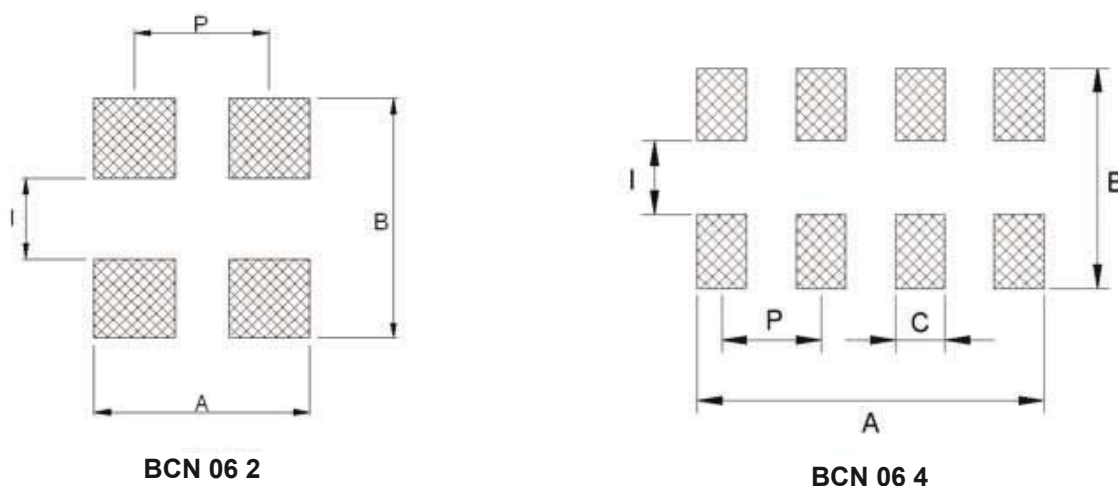


Unit : mm

Type	Number of Resistors	L	W	H	A	B	C	Y	Weight (g) (1000pcs)
BCN 06 2	2	0.80 ± 0.10	0.60 ± 0.10	0.35 ± 0.10	0.30 ± 0.10	0.50 ± 0.10	0.15 ± 0.10	0.15 ± 0.10	0.500
BCN 06 4	4	1.40 ± 0.10	0.60 ± 0.10	0.35 ± 0.10	0.20 ± 0.10	0.40 ± 0.10	0.10 ± 0.07	0.15 ± 0.05	0.833

Solder Pad Layout

Exterior Termination (Convex)
Square Edge: Models BCN 06 2, BCN 06 4



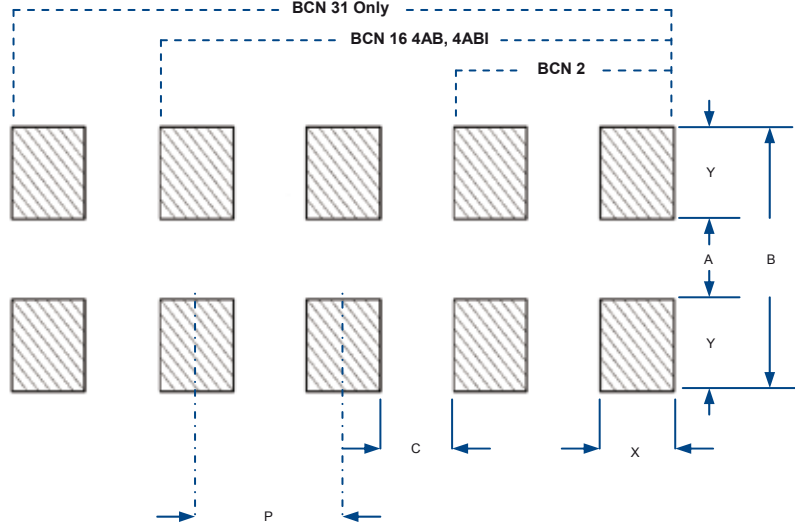
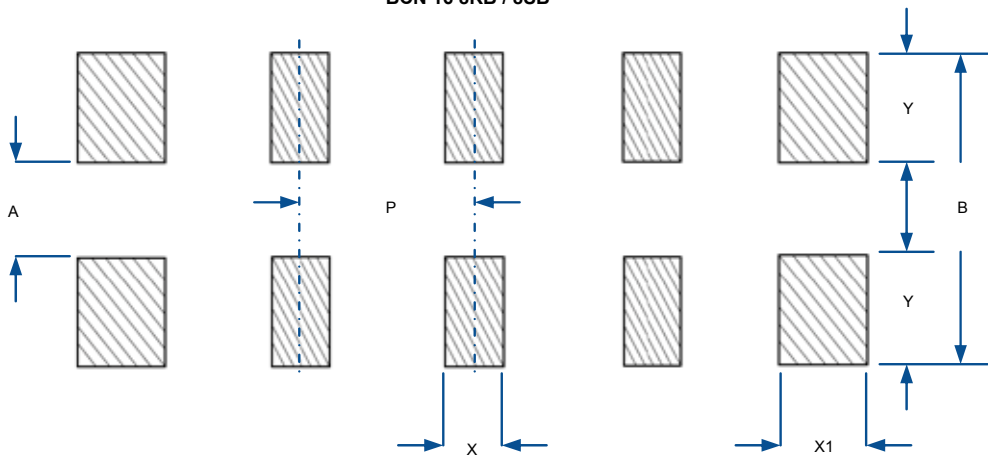
Unit : mm

Type	A	B	C	I	P
BCN 06 2	0.80	0.90	-	0.30	0.50
BCN 06 4	1.40	0.90	0.20	0.30	0.40

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Solder pad layout (Inch / mm)

											
BCN 2D BCN 4D/4DBI BCN 16 4A, AB, ABI BCN 31 8R, 8S	Wave Solder Process						Re-flow Solder Process				
	P	A	B	C	X	Y	A	B	C	X	Y
	.032	.039	.102	.014	.018	.032	.039	.079	.014	.018	.020
	0.80	1.00	2.60	0.35	0.45	0.80	1.00	2.00	0.35	0.45	0.50
	.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
	.050	.084	.148	.014	.036	.032	.084	.148	.014	.036	.032
	1.27	2.10	3.70	0.35	0.90	0.80	2.10	3.70	0.35	0.90	0.80
BCN 16 8RB / 8SB 											
BCN 16 8RB / 8SB	Wave Solder Process						Re-flow Solder Process				
	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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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 horizontal distance between the center of the first pad in the top row and the center of the first pad in the bottom row is labeled 'P'. The horizontal distance between the center of the second pad in the top row and the center of the second pad in the bottom row is labeled 'P1'. The horizontal distance between the center of the first pad in the top row and the center of the fourth pad in the top row is labeled 'L'. The vertical distance between the top edge of the first pad in the top row and the top edge of the first pad in the bottom row is labeled 'Y'. The horizontal distance between the right edge of the first pad in the top row and the right edge of the first pad in the bottom row is labeled 'X'. The horizontal distance between the right edge of the first pad in the top row and the right edge of the first pad in the bottom row is labeled 'X1'.

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. The bottom row is labeled 'X' below the pads. The horizontal distance between the center of the first pad in the top row and the center of the first pad in the bottom row is labeled 'P'. The horizontal distance between the center of the second pad in the top row and the center of the second pad in the bottom row is labeled 'Y'. The horizontal distance between the center of the first pad in the top row and the center of the fourth pad in the top row is labeled 'L'. The vertical distance between the top edge of the first pad in the top row and the top edge of the first pad in the bottom row is labeled 'W'. The vertical distance between the top edge of the first pad in the top row and the top edge of the first pad in the bottom row is labeled 'W1'. The vertical distance between the top edge of the first pad in the top row and the top edge of the first pad in the bottom row is labeled 'W2'. The vertical distance between the top edge of the first pad in the top row and the top edge of the first pad in the bottom row is labeled '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

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Ordering Information

Model Series	BCN	4	D	B	I	102	J	7	S	Construction Option:
No. of Resistors:										No code = Standard product
BCN 2D = 2 Resistors										S = Sulphur resistant - only
BCN 4D = 4 Resistors										on BCN4DxxxJ7
Circuit Configuration:										Packaging Option:
D = Isolated										7" or 13"
										(See Table A)
Edge Option (B = Square Edge):										Tolerance: ±5%
BCN 2D: Scalloped Edge Only - No Code Used										Resistance Code
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	102	J	7	S	Construction Option:
Width:											No code = Standard product
06 = 0.6mm											S = Sulphur resistant - only
10 = 1.0mm											on BCN 104/164/168RB
16 = 1.6mm											Packaging Option:
21 = 2.1mm											7" or 13"
31 = 3.1mm											(See Table A)
No. of Resistors:											Tolerance:
BCN 06 2 = 2 Resistors											F = ±1% (BCN 4D / 16 4 / 31 8RB / 31 8SB)
BCN 10 / 06 4 / 16 4 = 4 Resistors											G = ±2% (BCN 16 4, 31 8RB / 8SB Only)
BCN 16 8R / 16 8S = 8 Resistors											J = ±5% (Standard)
BCN 21 / 31 8R / 31 8S = 8 Resistors											(Use JP for Jumper Chip Array - BCN 16 4 / 31)
Circuit Configuration:											Resistance Code:
A = Isolated (BCN 06 / 10 / 16 4A)											3 digits for E4,E12,E24 Series, all Tol.
R = Bussed (Reversed) (BCN 16 8R / 31 8R)											4 digits for E96 Series, 1% Tol.
S = Bussed (Standard) (BCN 21 / 16 8S / 31 8S)											Termination Code:
Edge Option (B = Square Edge):											I = Interior (Concave) Termination
Scalloped Edge - No Code Used (Standard)											No code used for exterior termination (Standard)
Square Edge Only - Use Code 'B'											All interior termination requires 'B' for square edge
											(BCN 16 4ABI / 31 8RBI / 31 8SBI)

See 'Model Styles' for Available Options

General Note

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Packaging (Table A)

	7" Reel Diameter		13" Reel Diameter	
	Paper	Embossed	Paper	Embossed
BCN 2D	5K		20K	
BCN 4D		4K		16K
BCN 06 2	10K			
BCN 06 4	10K			
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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