

# MODEL BCN SERIES

## BCN Series

- Thick Film
- Chip Resistor Arrays
- RoHS Compliant



## MODEL STYLES

Model (Width)	# of Resistors	Circuit	Industry Size	Edge Finish / Termination		
				Scalloped Convex	Square Convex	Square Concave
Model BCN 2D (1.6mm)	2 Resistors	Isolated	0606	•		
Model BCN 10 (1.0mm)	4 Resistors	Isolated	0804		•	
Model BCN 16 4ABI (1.6mm)	4 Resistors	Isolated	1206			•
Model BCN 16 4A/AB (1.6mm)	4 Resistors	Isolated	1206	•	•	
Model BCN 16 8RB/8SB (1.6mm)	8 Resistors	Bussed	1206		•	
Model BCN 21 (2.1mm)	8 Resistors	Bussed	1608			•
Model BCN 4D (3.1mm)	4 Resistors	Isolated	2112	•		
Model BCN 4DBI (3.1mm)	4 Resistors	Isolated	2112			•
Model BCN 31 8RB/8SB (3.1mm)	8 Resistors	Bussed	2512		•	
Model BCN 31 8RBI/8SBI (3.1mm)	8 Resistors	Bussed	2512			•
Jumper Chip Array	4/8 Resistors	Isolated/Bussed	1206/2512	•	•	•

## 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

### General Note

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# MODEL BCN SERIES

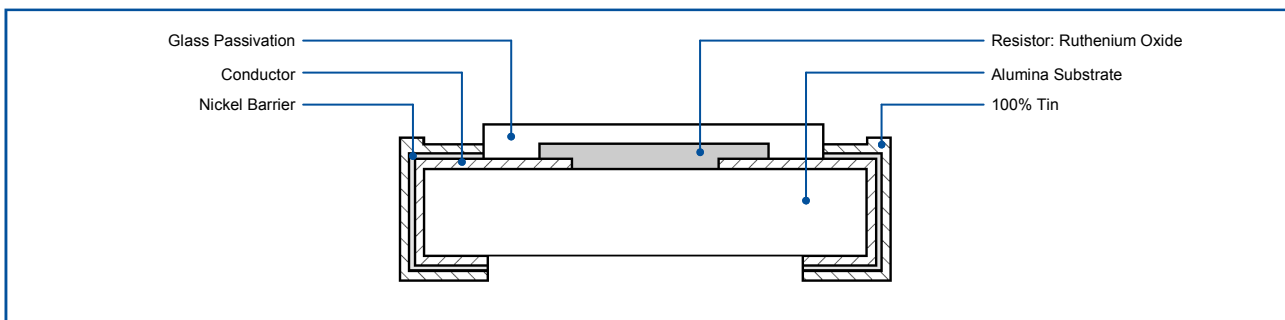
## ELECTRICAL

Standard Resistance Range, Ohms	<b>BCN 2D, BCN 4D, BCN 10, BCN 16 4:</b>	10 to 1 Megohm
	<b>BCN 16 8R / 8S:</b>	100 to 1 Megohm
	<b>BCN 31 8R / 8S:</b>	22 to 1 Megohm
	<b>BCN 21:</b>	68 to 220K
Standard Resistance Tolerance		±5% (J Tol.)
		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	<b>BCN 2D, BCN 16 4, BCN 31 8R / 8S:</b>	50Vdc or $\sqrt{pr}$
	<b>BCN 10, BCN 16 8R / 8S, BCN 21:</b>	25Vdc or $\sqrt{pr}$
	<b>BCN 4D:</b>	75Vdc or $\sqrt{pr}$
Power Rating, Watts at 70°C	<b>BCN 2D:</b>	63mW per Resistor / 125mW per Package
	<b>BCN 4D:</b>	125mW per Resistor / 500mW per Package
	<b>BCN 10D:</b>	31mW per Resistor / 125mW per Package
	<b>BCN 16 4A:</b>	63mW per Resistor / 250mW per Package
	<b>BCN 16 8R / 8S:</b>	32mW per Resistor / 250mW per Package
	<b>BCN 21, BCN 31 8R / 8S:</b>	63mW per Resistor / 500mW per Package

## ENVIRONMENTAL

Operating Temperature Range		-55°C to +125°C
Temperature Coefficient of Resistance	<b>BCN 2D:</b>	±300ppm/°C
	<b>BCN 4D, BCN 16 8R / 8S, BCN 21, BCN 31:</b>	±200ppm/°C
	<b>BCN 10, BCN 16 4:</b>	±250ppm/°C
Moisture Resistance		1,000 hours @ +40°C, 95% R.H. (3.0% +0.1Ω ΔR)
High Temperature Operation		1,000 hours @ 70°C (3.0% +0.1Ω ΔR)
Short Time Overload		2.5 X rated voltage, 5 seconds (2.0% +0.1Ω ΔR)
Temperature Cycling		-55°C to +125°C, 5 cycles (1.0% +0.1Ω ΔR)
Resistance to Solder Heat		260°C for 10 seconds (1.0% +0.1Ω ΔR)
Load Life		1,000 hours @ 70°C (3.0% +0.1Ω ΔR)

## CONSTRUCTION



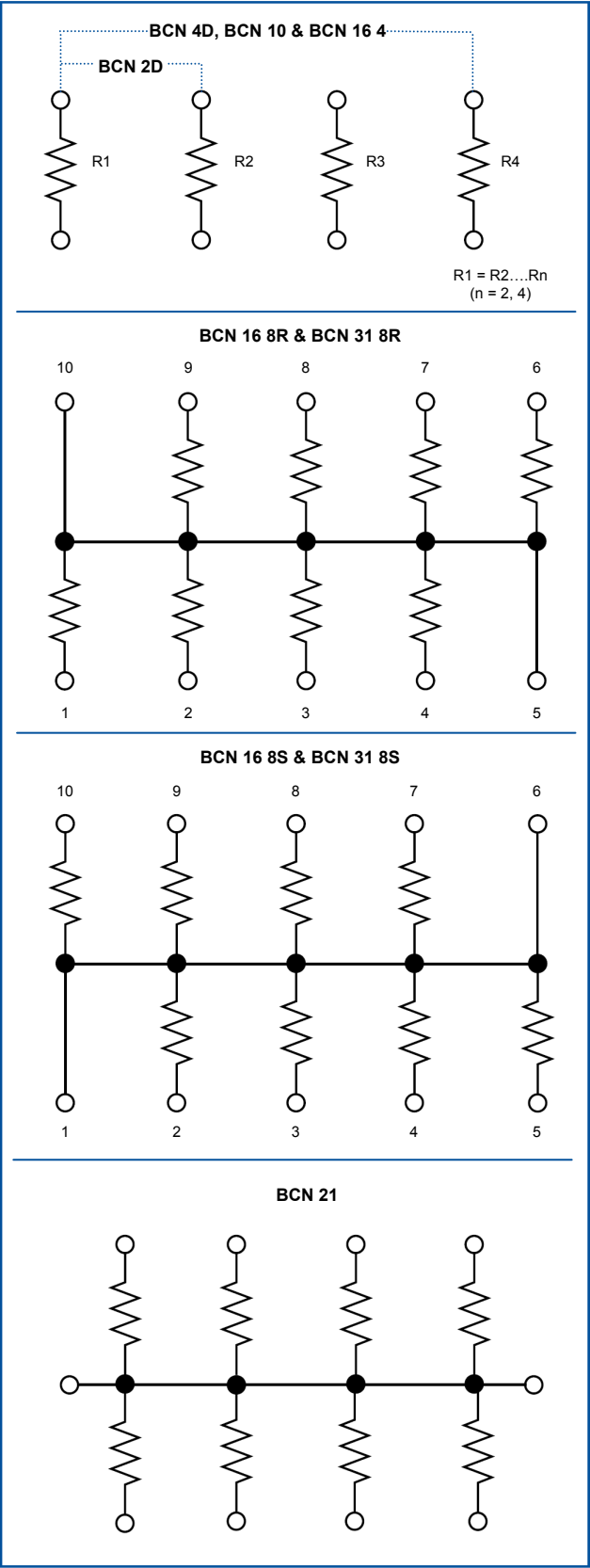
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## ELECTRICAL

## STANDARD RESISTANCE VALUES, OHMS



**Model 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**

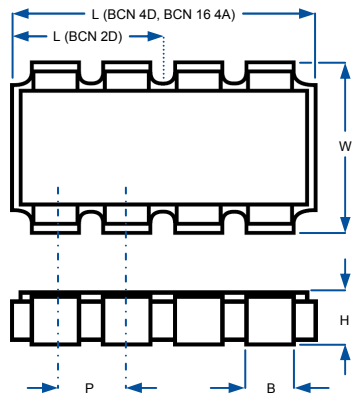
68	330	4.7K	10K
220	1K	47K	100K

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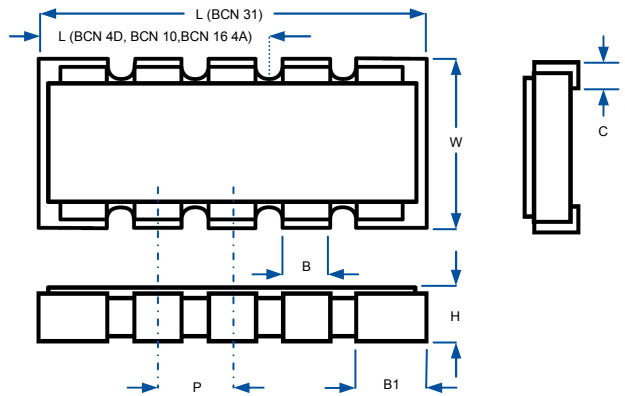
## OUTLINE DIMENSIONS (Inch / mm)

Scalloped Edge: Models BCN 2D, 4D, 16 4A



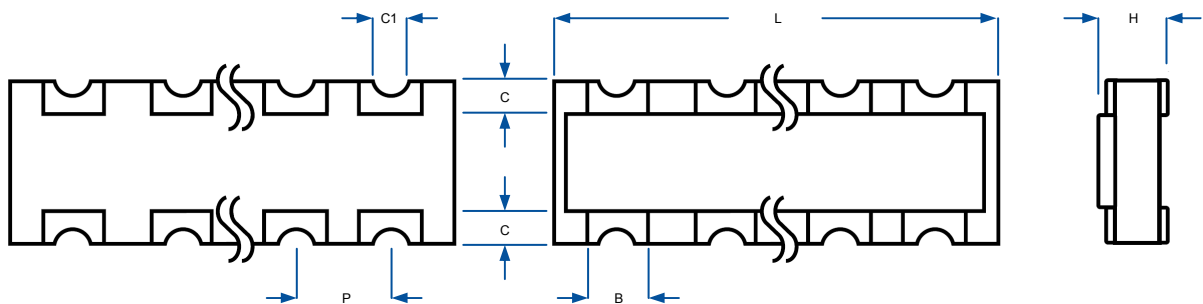
Exterior Termination (Convex)

Square Edge: Models BCN 16 4AB, 31



	L	W	H	P	B	B1	C
BCN 2D	$.063 \pm .006$	$.063 \pm .006$	$.020 \pm .004$	$.031 \pm .004$	$.020 \pm .004$		$.010 \pm .004$
	$1.60 \pm 0.15$	$1.60 \pm 0.15$	$0.50 \pm 0.15$	$0.80 \pm 0.10$	$0.50 \pm 0.10$		$0.25 \pm 0.10$
BCN 4D	$.210 \pm .008$	$.122 \pm .008$	$.022 \pm .004$	$.050 \pm .008$	$.030 \pm .008$		$.012 \pm .008$
	$5.34 \pm 0.20$	$3.10 \pm 0.20$	$0.55 \pm 0.10$	$1.27 \pm 0.20$	$0.80 \pm 0.20$		$0.30 \pm 0.20$
BCN 10	$.079 \pm .008$	$.039 \pm .006$	$.014 \pm .004$	$.020 \pm .004$	$.012 \pm .006$	$.016 \pm .006$	$.006 \pm .002$
	$2.00 \pm 0.20$	$1.00 \pm 0.15$	$0.36 \pm 0.10$	$0.50 \pm 0.10$	$0.30 \pm 0.15$	$0.40 \pm 0.15$	$0.15 \pm 0.05$
BCN 16 4A/ AB	$.126 \pm .004$	$.063 \pm .004$	$.020 \pm .004$	$.031 \pm .002$	$.020 \pm .004$		$.009 \pm .005$
	$3.20 \pm 0.10$	$1.60 \pm 0.10$	$0.50 \pm 0.10$	$0.80 \pm 0.05$	$0.50 \pm 0.10$		$0.229 \pm 0.125$
BCN 31	$.252 \pm .004$	$.122 \pm .004$	$.022 \pm .004$	$.050 \pm .002$	$.032 \pm .004$	$.041 \pm .004$	$.012 \pm .004$
	$6.40 \pm 0.20$	$3.10 \pm 0.20$	$0.55 \pm 0.10$	$1.27 \pm 0.051$	$0.80 \pm 0.10$	$1.05 \pm 0.10$	$0.30 \pm 0.10$

Interior Termination (Concave)  
Square Edge: Models BCN 4 DBI, 16 4ABI, 31



	L	W	H	P	B	C	C1
BCN 4 DBI	$.210 \pm .008$	$.122 \pm .008$	$.022 \pm .004$	$.050 \pm .008$	$.030 \pm .008$	$.012 \pm .008$	
	$5.34 \pm 0.20$	$3.10 \pm 0.20$	$0.55 \pm 0.10$	$1.27 \pm 0.20$	$0.80 \pm 0.20$	$0.30 \pm 0.20$	
BCN 16 4ABI	$.126 \pm .008$	$.063 \pm .006$	$.024 \pm .004$	$.031 \pm .004$	$.016 \pm .006$	$.012 \pm .008$	$.012 \pm .008$
	$3.20 \pm 0.20$	$1.60 \pm 0.15$	$0.60 \pm 0.10$	$0.80 \pm 0.10$	$0.40 \pm 0.15$	$0.30 \pm 0.20$	$0.30 \pm 0.20$
BCN 31	$.252 \pm .008$	$.122 \pm .008$	$.024 \pm .004$	$.050$	$.028 \pm .008$	$.012$	$.012 \pm .008$
	$6.40 \pm 0.20$	$3.10 \pm 0.20$	$0.60 \pm 0.10$	$1.27$	$0.70 \pm 0.20$	$0.30$	$0.30 \pm .02$ $- .01$

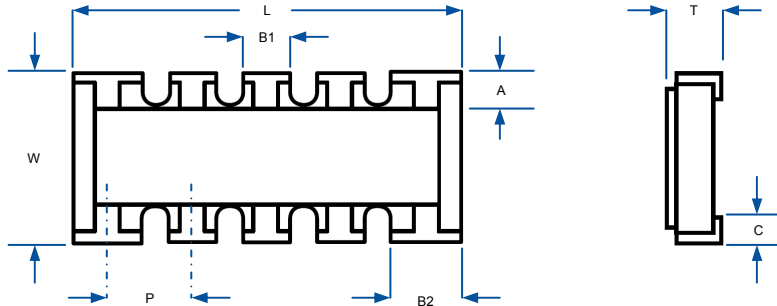
**General Note**

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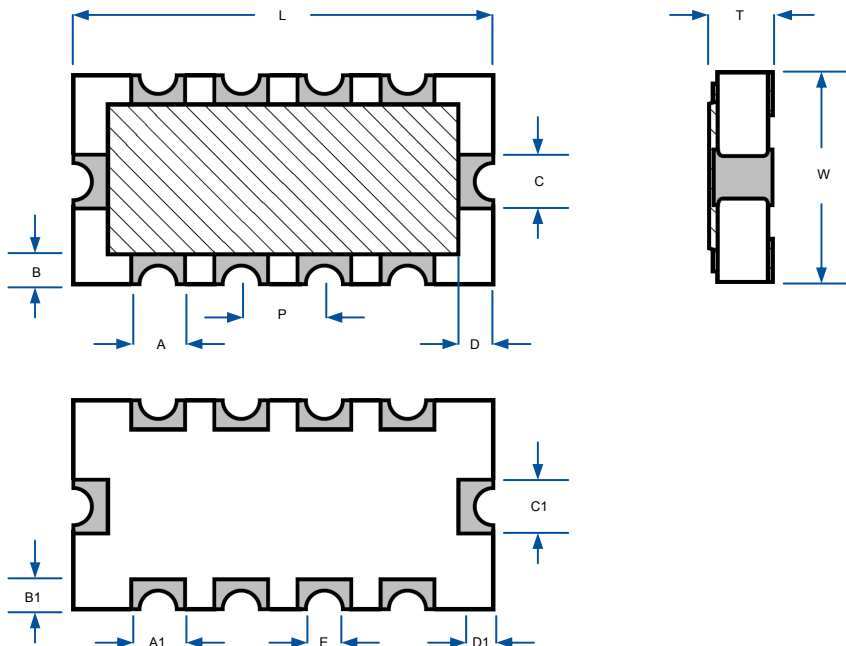
## OUTLINE DIMENSIONS (Inch / mm)

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

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



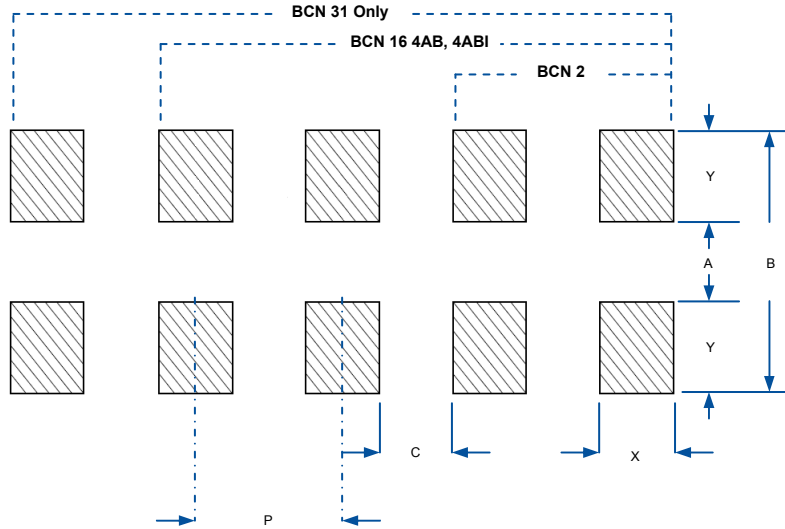
L	W	T	A	B	C	D
.157 ±.008	.083 ±.008	.021 ±.004	.020 ±.008	.010 ±.008	.020 ±.008	.012 ±.008
4.00 ±0.20	2.10 ±0.20	0.55 ±0.10	0.50 ±0.20	0.25 ±0.20	0.50 ±0.20	0.30 ±0.20
A1	B1	C1	D1	E	P	
.016 ±.008	.014 ±.008	.020 ±.008	.014 ±.008	.012	.032	
0.40 ±0.20	0.35 ±0.20	0.50 ±0.20	0.35 ±0.20	0.30 Typ.	0.80 Typ.	

**General Note**

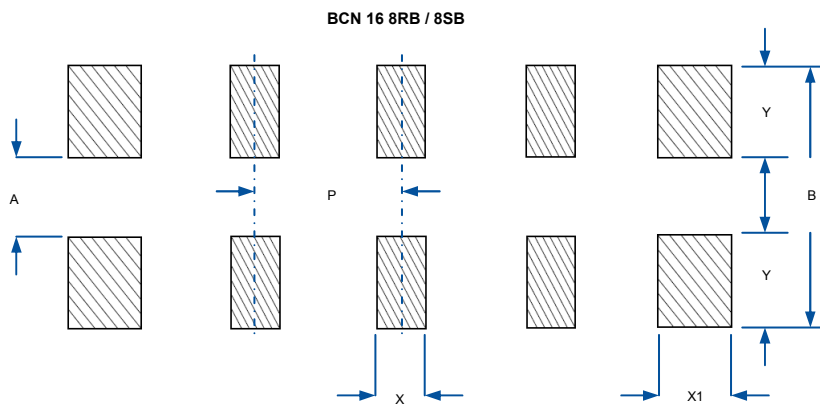
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## SOLDER PAD LAYOUT (Inch / mm)



	Wave Solder Process						Re-flow Solder Process				
	P	A	B	C	X	Y	A	B	C	X	Y
<b>BCN 2D</b>	.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
<b>BCN 4D/4DBI</b>	.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
<b>BCN 16 4A, AB, ABI</b>	.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
<b>BCN 31 8R, 8S</b>	.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



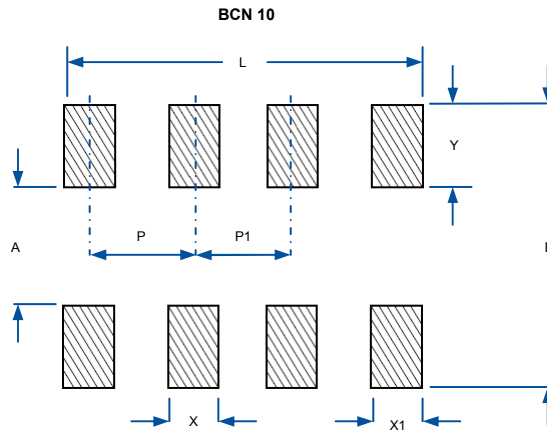
	Wave Solder Process						Re-flow Solder Process				
	P	A	B	X	X1	Y	A	B	X	X1	Y
<b>BCN 16 8RB / 8SB</b>	.025	.048	.096	.012	.018	.024	.048	.096	.012	.018	.024
	0.64	1.20	2.40	0.30	0.45	0.60	1.20	2.40	0.30	0.45	0.60

**General Note**

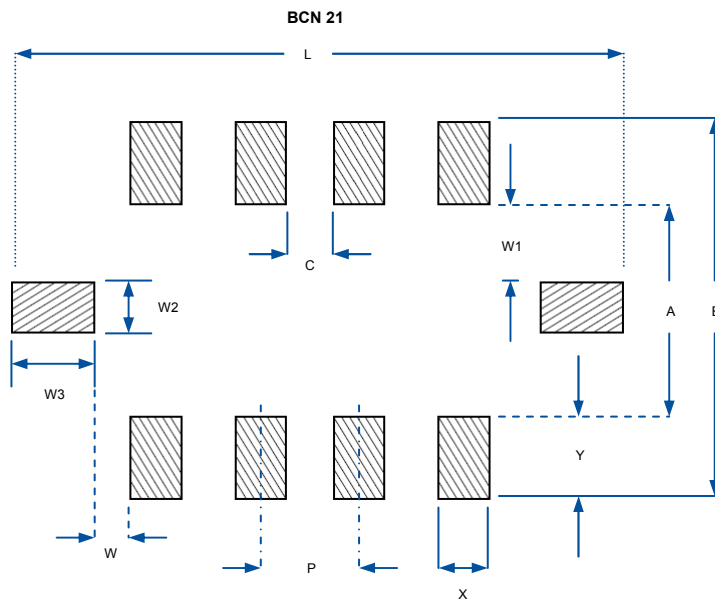
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# MODEL BCN SERIES

## SOLDER PAD LAYOUT (Inch / mm)



	P	P1	A	B	X	X1	Y	L
BCN 10	.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

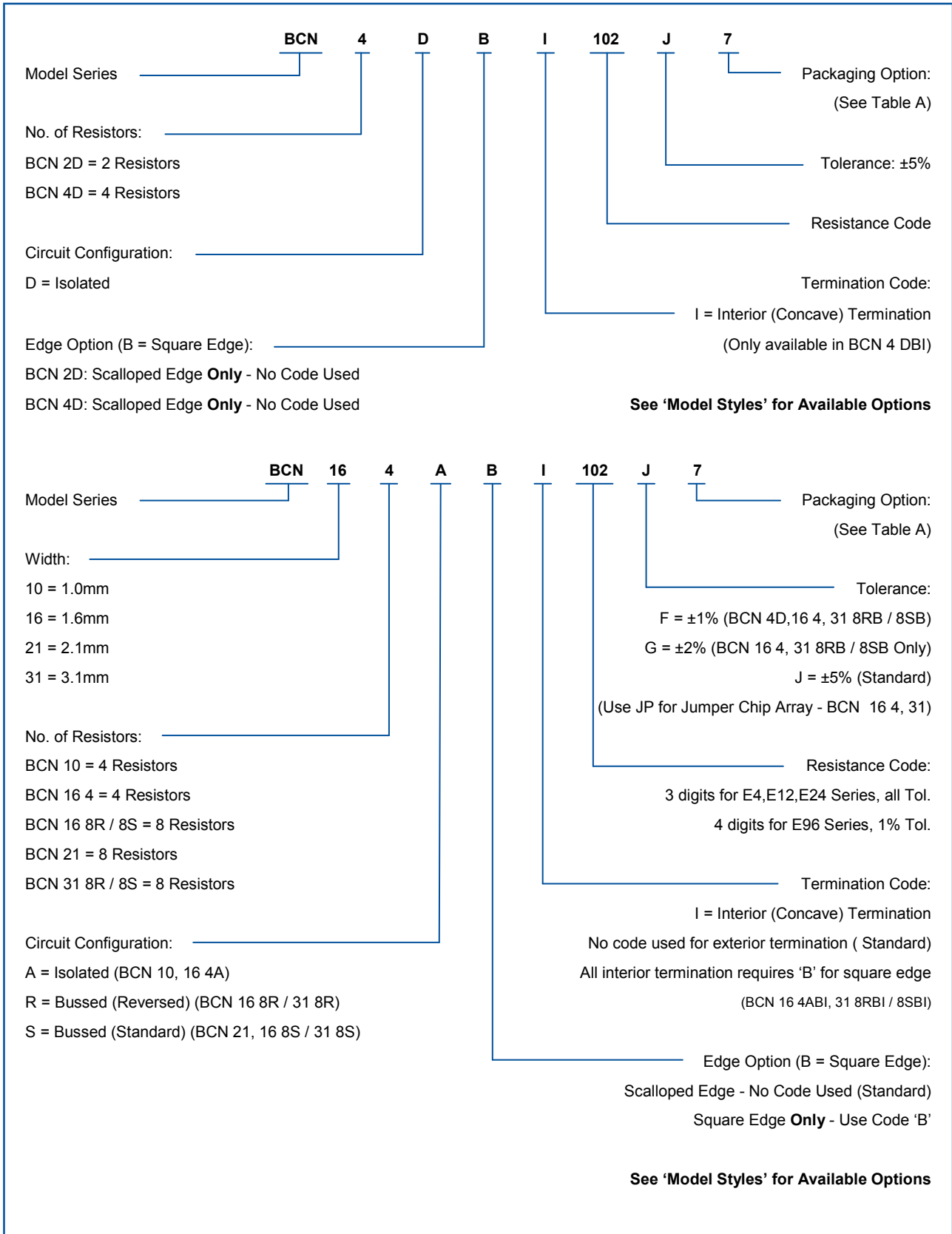


	P	A	B	C	X	Y	W	W1	W2	W3	L
BCN 21	.032	.060 ±.008	.120 ±.008	.016 ±.004	.016 ±.004	.030 ±.004	.012 ±.001	.015 ±.004	.030 ±.004	.030 ±.004	.196 ±.008
	0.80	1.50 ±0.20	3.00 ±0.20	0.40 ±0.10	0.40 ±0.10	0.75 ±0.10	0.31 ±0.02	0.38 ±0.10	0.75 ±0.10	0.75 ±0.10	4.98 ±0.20

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# MODEL BCN SERIES

## ORDERING INFORMATION



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## MODEL STYLES

	7" Reel Diameter		13" Reel Diameter	
	Paper	Embossed	Paper	Embossed
<b>BCN 2D</b>	5K		20K	
<b>BCN 4D</b>		4K		16K
<b>BCN 10</b>	10K		40K	
<b>BCN 16 4</b>	5K		20K	
<b>BCN 16 8</b>	5K		20K	
<b>BCN 21</b>		4K		16K
<b>BCN 31</b>		4K		16K

Note: Tape & Reel dimensions per EIA-481.

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