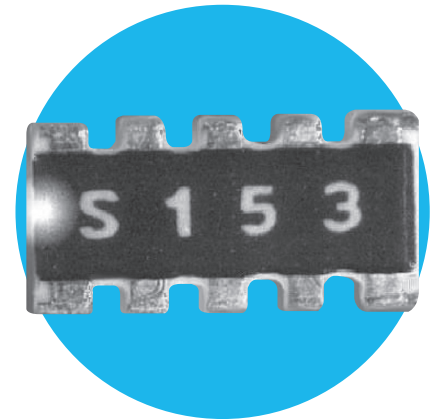


Thick Film Chip Arrays

BCN Series

- Sulphur resistant version available (Tested to ASTM-B809)
- AEC-Q200 (BCN10, BCN164AB and BCN4D)
- Concave and convex versions
- Isolated and bussed versions



 All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Summary of Types

Type	Part Number Start	Width (mm)	Resistor Elements	Circuit	Package Size	Scalloped Convex	Square Convex	Square Concave	
BCN10	BCN104AB	1.0	0402 x 4	Isolated	0804				
BCN164	BCN164A	1.6	0603 x 4			1206			
	BCN164AB								
	BCN164ABI								
BCN168	BCN168SB	2.1	0603 x 8	Bussed	1608				
	BCN168RB								
BCN21	BCN218SBI	3.1	1206 x 4	Isolated	2112				
BCN4D	BCN4D								
	BCN4DBI								
BCN31	BCN318SB	1206 x 8	1206 x 8	Bussed ¹	2512				
	BCN318RB								
	BCN318SBI								
	BCN318RBI								

Note 1 – For R/2R ladder circuit see separate BCN31L datasheet

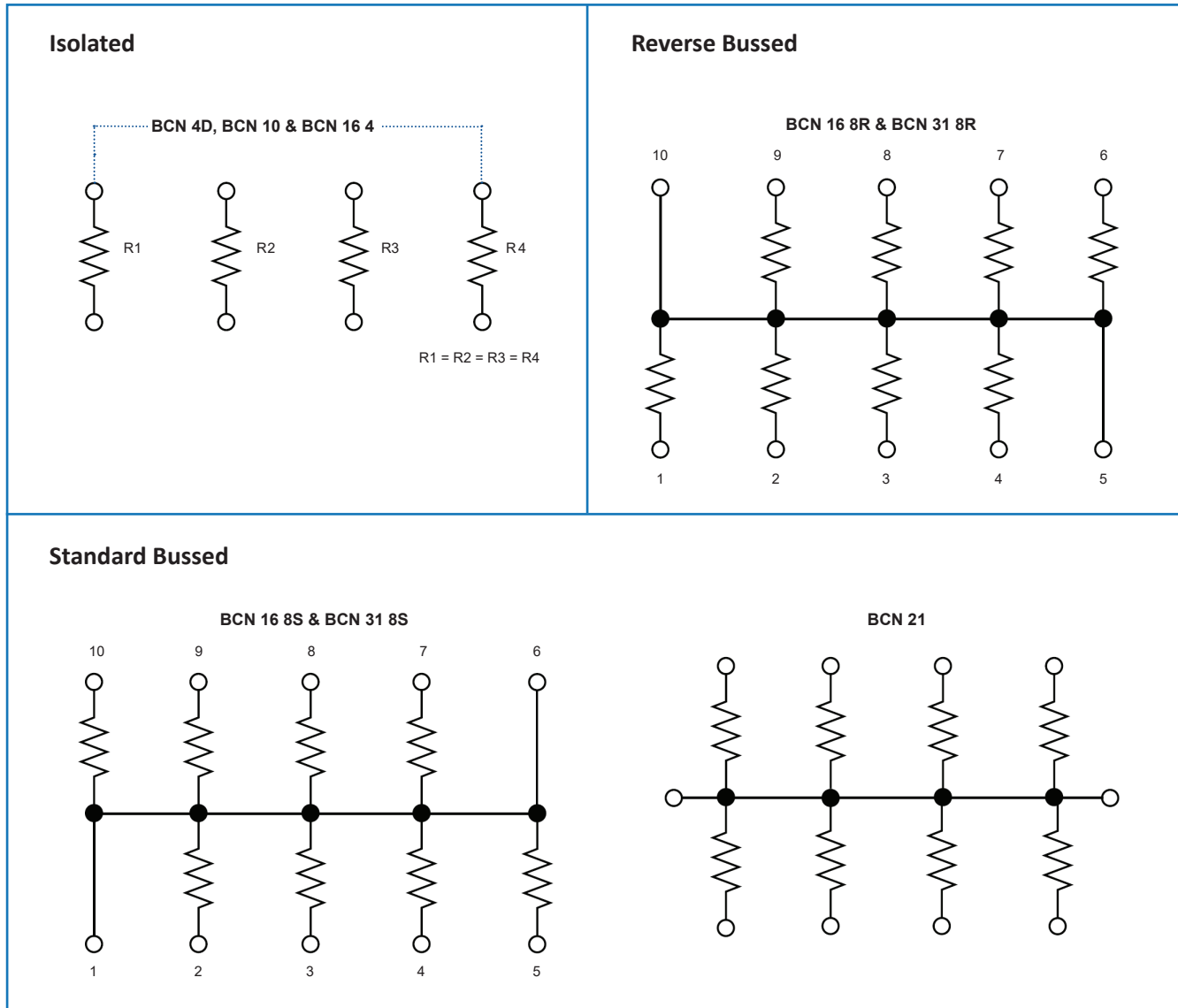
Electrical Data

		BCN10	BCN164A BCN164AB	BCN164ABI	BCN168	BCN21	BCN4D	BCN31
Resistor power rating @70°C	mW	63			32	63	125	63
Package power rating @70°C	mW	250					500	
Limiting element voltage	V	25	50		25		75	50
Maximum overload voltage	V	63	125		63		188	125
Resistance range	ohms	10R – 1M0			100R – 1M0	68R – 220K	10R – 1M0	22R – 1M0
Resistance tolerance	%	1, 5	1, 2, 5		5		1, 5	1, 2, 5
TCR	ppm/°C	±200	±100, ±200		±200			
Standard values		E24 preferred, E96 available						
Ambient temperature range	°C	-55 to +155						

General Note

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Circuits



Environmental Data

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

Note 1 – Anti-sulphur construction only

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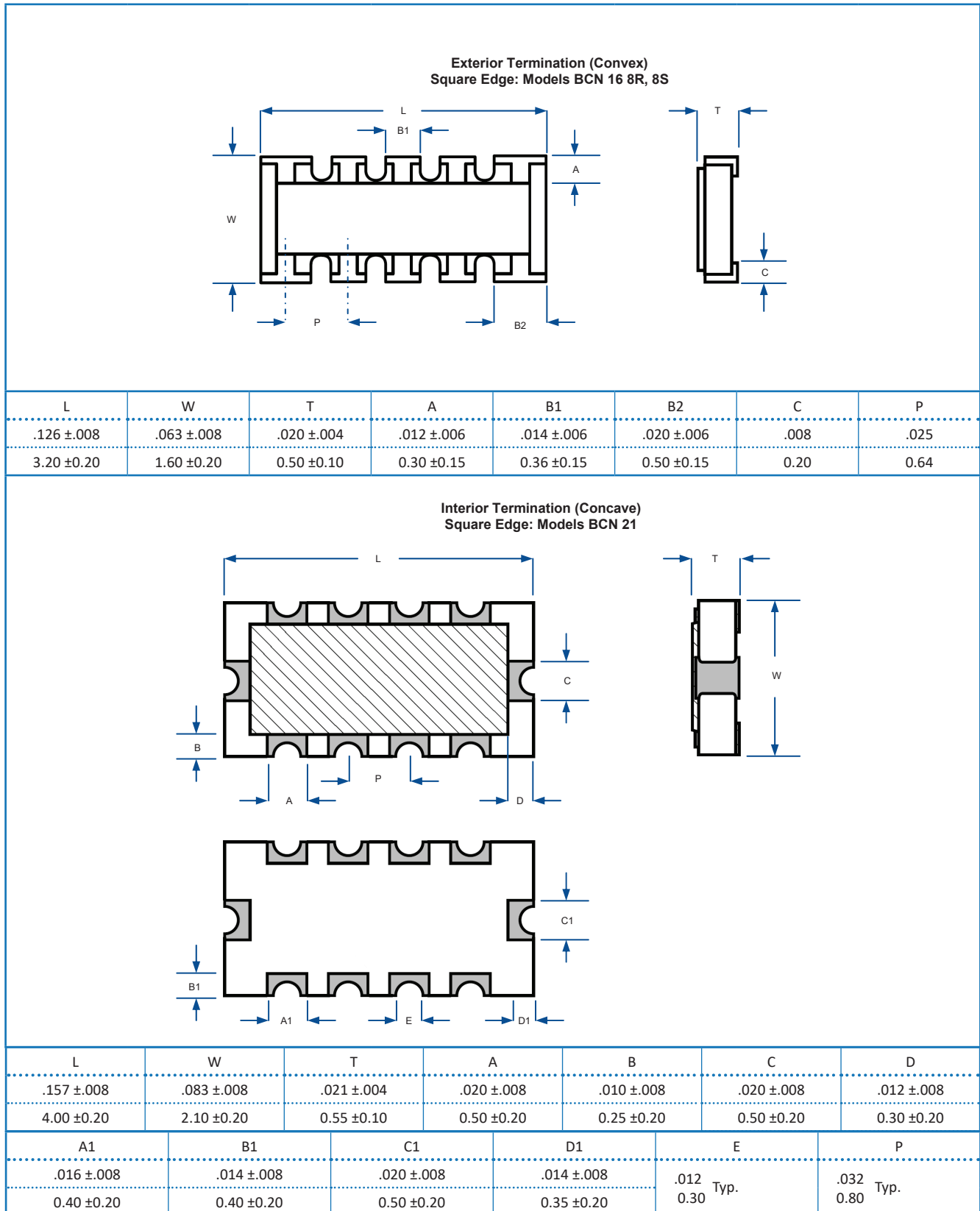
Physical Data (Inch /mm)

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 ±.004	.039 ±.004	.018 ±.004	.020 ±.002	.012 ±.002	.016 ±.002	.012 ±.006
	2.00 ±0.10	1.00 ±0.10	0.45 ±0.10	0.50 ±0.05	0.30 ±0.05	0.40 ±0.05	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 ±.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 ^{+0.008} _{-.004}
	6.40 ±0.20	3.10 ±0.20	0.60 ±0.10	1.27	0.70 ±0.20	0.30	0.30 ^{+0.02} _{-.01}

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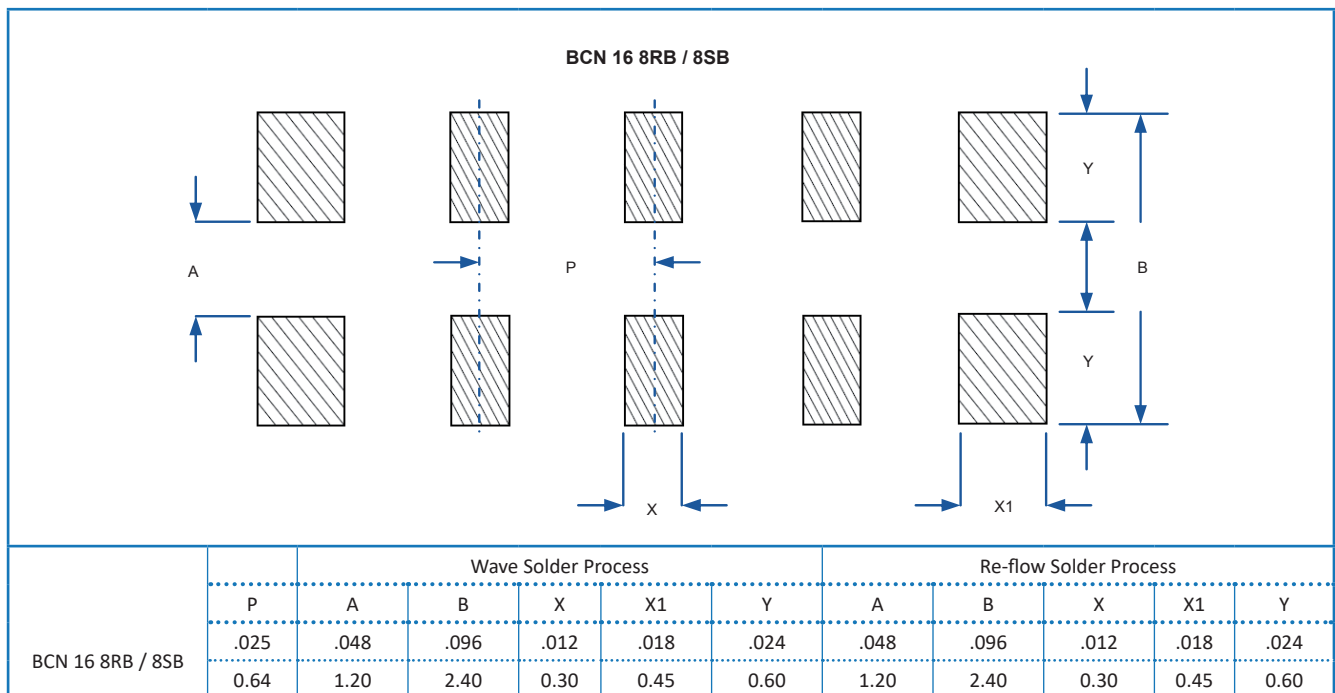
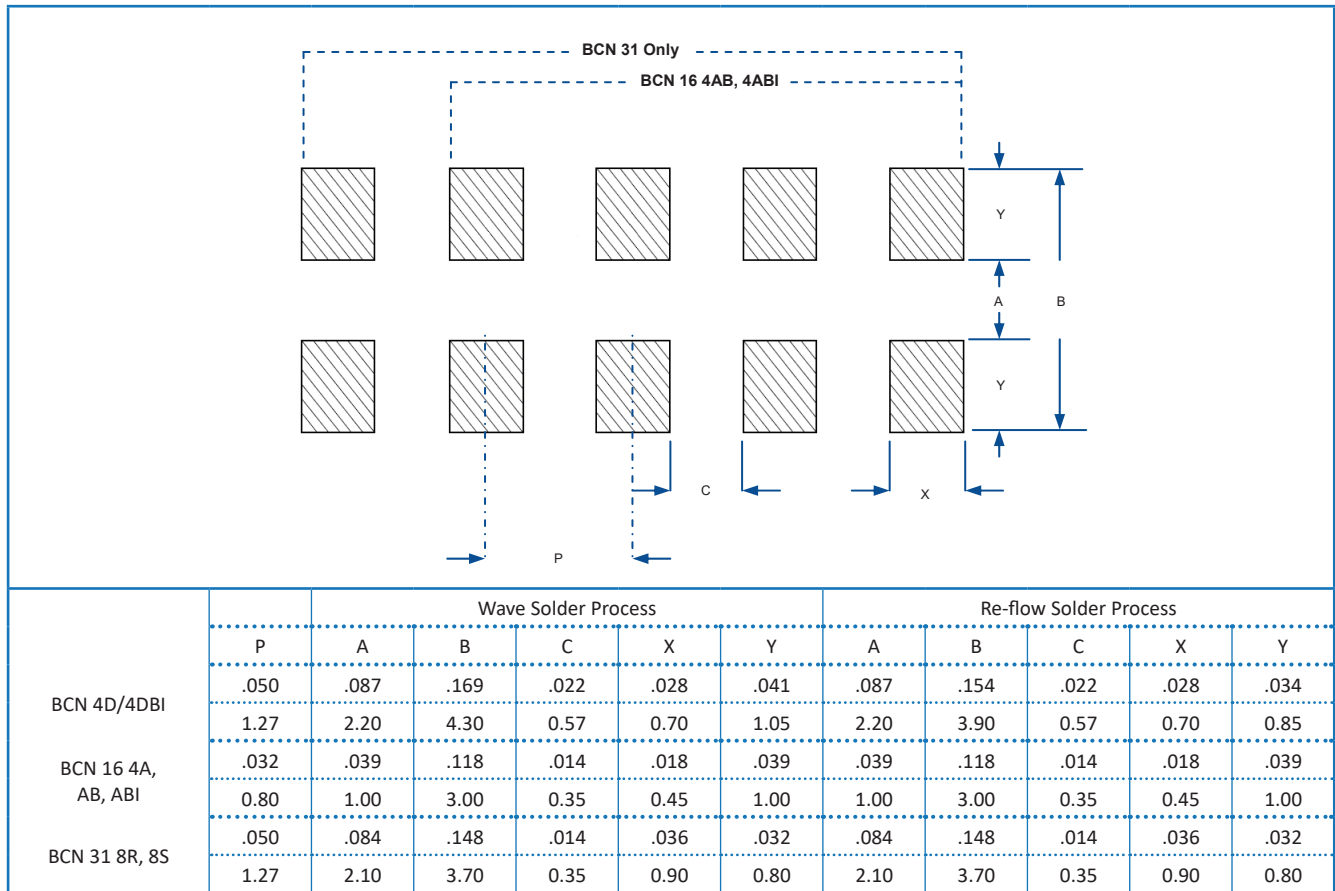
Physical Data (Inch /mm)



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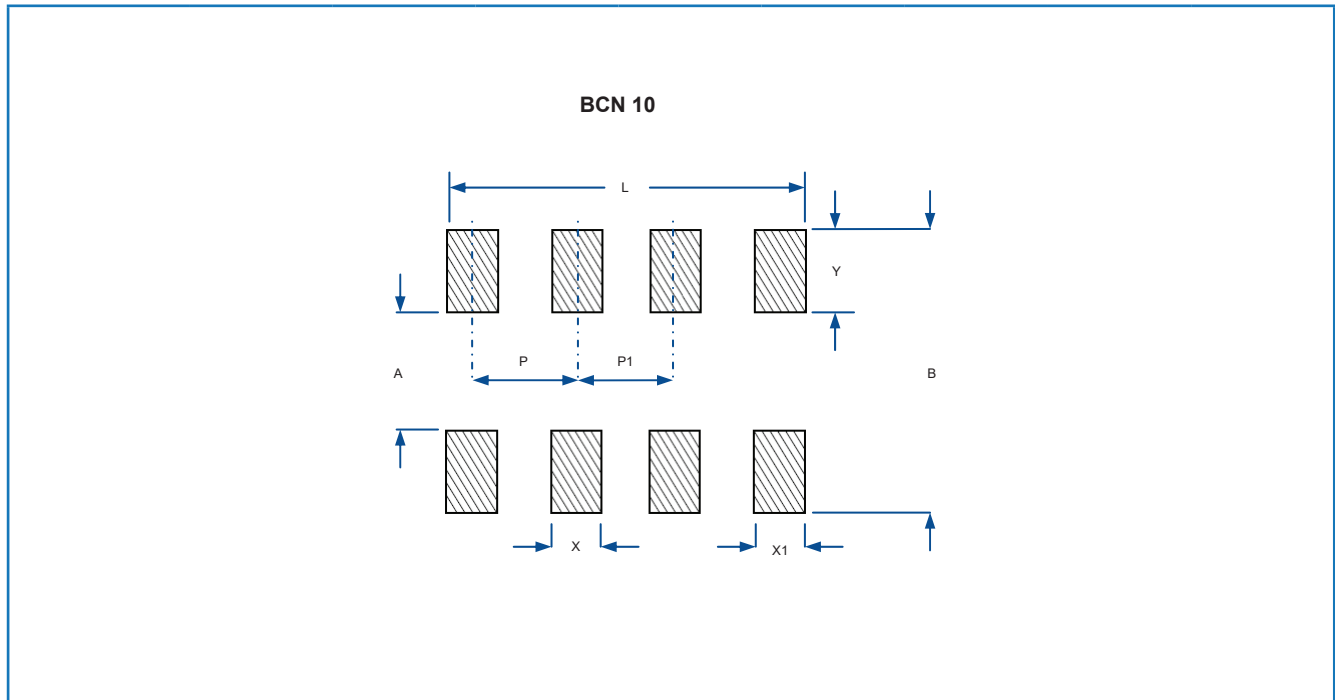
Solder pad layout (Inch / mm)



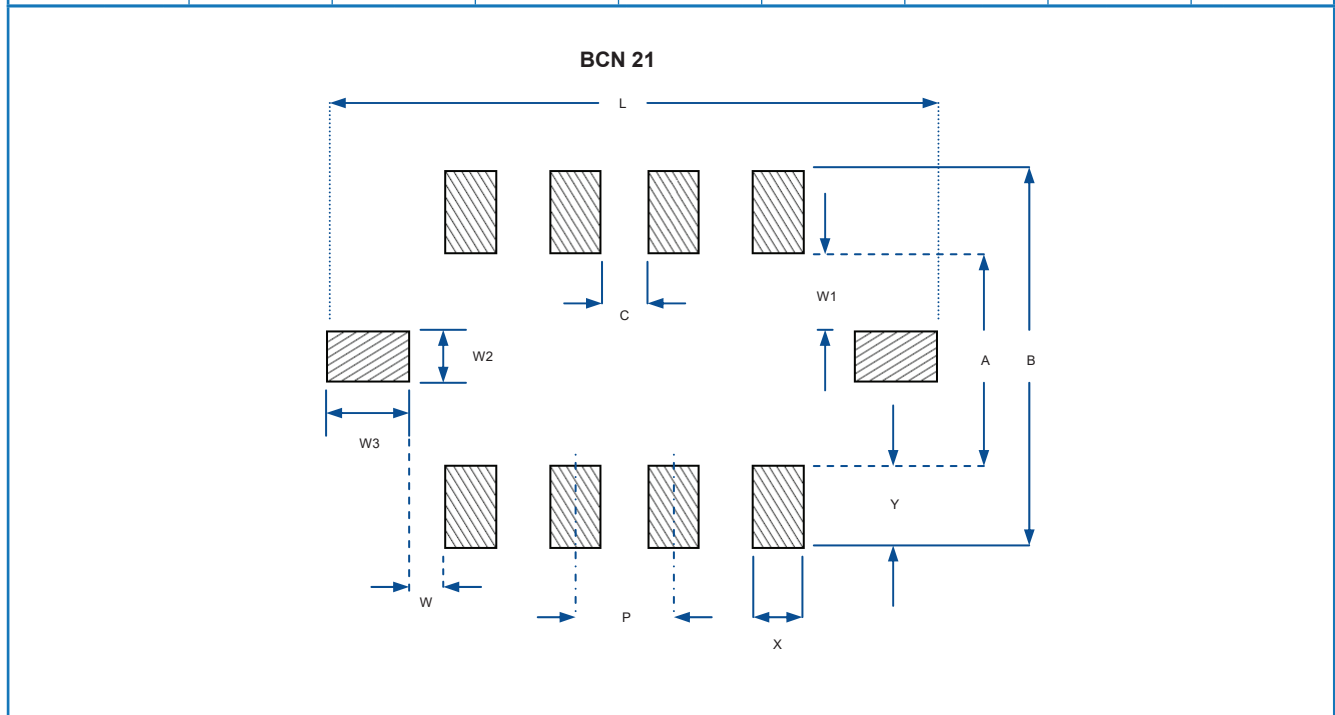
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Solder pad layout (Inch / mm)



	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



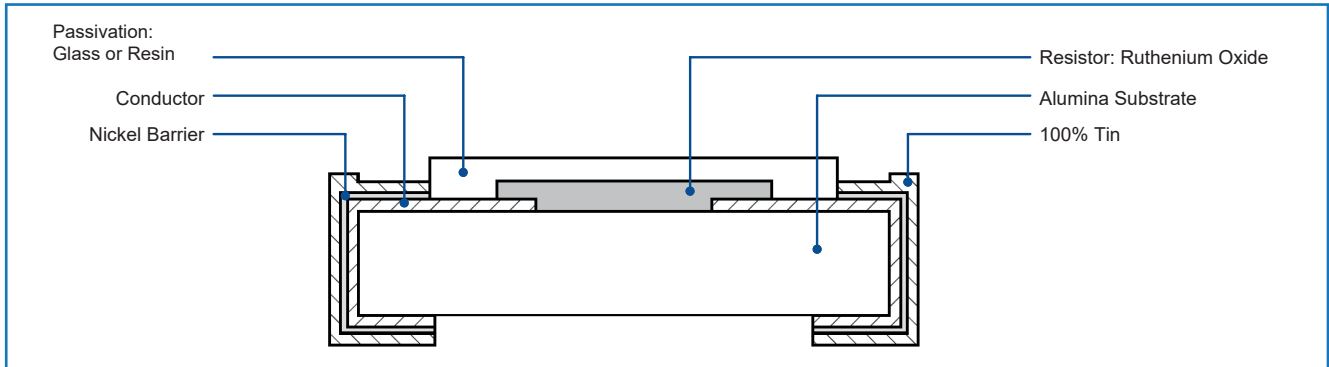
	P	A	B	C	X	Y	W	W1	W2	W3	L
BCN 21	.032	.060 ±.008	.120 ±.008	.016 ±.004	.016 ±.004	.030 ±.004	.012 ±.001	.015 ±.004	.030 ±.004	.030 ±.004	.196 ±.008
	0.80	1.20 ±0.20	3.00 ±0.20	0.40 ±0.10	0.40 ±0.10	0.75 ±0.10	0.31 ±0.02	0.38 ±0.10	0.75 ±0.10	0.75 ±0.10	4.98 ±0.20

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BCN Series

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).



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 8	A=Isolated D=Isolated	Blank=Scalloped B=Square	Blank=External (convex) I=Internal (concave)	Blank= ± 200 Z= ± 100	3 digits for E24 at 2% or 5% 4 digits for uniquely E96 and for all values at 1%	F= $\pm 1\%$ G= $\pm 2\%$ J= $\pm 5\%$ (Blank for jumper)	7=7" reel 13=13" reel	Blank=Standard S=Anti-sulphur
	10=1.0mm 16=1.6mm 21=2.1mm 31=3.1mm		S=Standard bussed R=Reverse bussed							
										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		

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