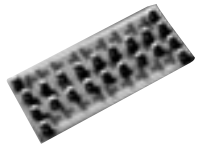
BGA Networks



BGA Network

Model	BB1110B/BB1110TB/BB2110DI	BB1020DT
Resistance Nominal, Ohms	20 to 100	475/121/425
Ball Size (mm)	0.64/0.76	0.64/0.76
Pitch (mm)	1.27, 1	1.27, 1
Absolute Tolerance (%)	±1	±1
Ratio Tolerance (%)	±1	±1
Temperature Coefficient of Resistance (ppm/˚C)	±200	±100
Operating Temperature (˚C)	-55 to 125	-55 to 125
Interlead Capacitance (pF)	<0.1	<0.1
Application	DDR SDRAM	SCSI LVD

Specifications subject to change without notice.
Consult factory for custom products.

Ordering Information

BGA Networks

Model Series

Number of Channels
1 = 9
2 = 18

Pitch
0 = 1.27 mm
1 = 1.00 mm

Tape/Reel Size
7: 7" Reel
13: 13" Reel

Circuit Type:
DT = SCSI Differential Termination
TB = Top Bussed
B = Bussed
DI = Dual Isolated

Resistance (Ω)
DT: 20 = 475/121
B: 10 = 50 ((R1)
TB: 10 = 50/25 (R1/R)
11 = 25/22 (R1/R2)
DI: 10 = 25 (R1)

Notes

BGA Networks

Features

1. Superior high frequency performance.
2. Minimal stray capacitance and inductance.
3. Surface mountable with automatic pick and place equipment.

Applications

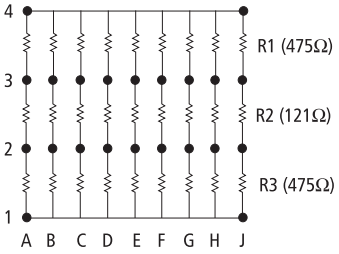
1. DDR memory termination: BB1110TB, BB1110B, BB2110DI
   a. 18 Bit SSTL-2 Termination Sets
   b. Compliant to JEDEC Standard 8-9A.

2. SCSI termination: BB1020DT7
   a. SPI-2 (Ultra2) and SPI-3 (Ultra3) compliant
   b. LVD termination for up to 9 lines

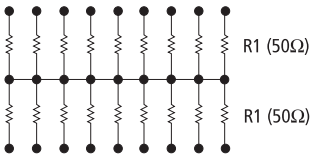
Packaging	
Reel Size (inches)	Part Count
7	1000
13	4000

Schematics

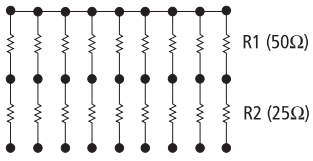
BGA Networks



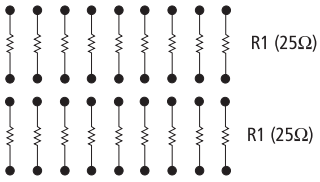
BB1020DT (SCSI LVD)



BB1110B (DDR SRAM)



DB1110TB (DDR SRAM)



BB2110DI (DDR SRAM)

Thick Film Resistor Networks

Surface Mount

Through-Hole

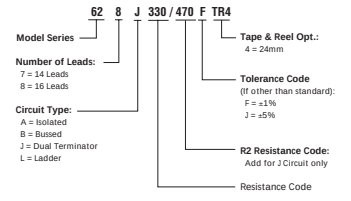
High Voltage Precision Divider, High Voltage

Model	627/628	628 Ladder	627T/V	L/M/BH	BHV
Number of Leads	14/16	16	14	4 to 14	2/3
Dimensions, Inches					
Body Length, Maximum	0.395/0.445	0.445	0.395	0.1 x no. of leads	0.953 to 2.35
Height Off Board, Maximum	0.090	0.090	0.090	0.195	0.4 to 0.606
Body Style/Width (Thickness)	(SO-M) 0.220	(SO-M) 0.220	(SO-M) 0.220	0.095	0.100
Resistance					
Range, Ohms	10 to 1 Meg	1K to 100K	50 to 142	22 to 1 Meg	1 Giga, Max.
Tolerance (%)	±2 (±5 for J Circuits)	±2	±2	±2 (±1 Optional)	±1, ±5, ±10
Operating Temperature Range ˚C	-55/125	-55/125	-55/125		
Temp. Coefficient, ppm/°C	±100 (Below 100R, 250)	±100	±250	±100 (< 100Ω = ±250)	±150 (±100 Divider)
Temp. Coefficient Tracking, ppm/°C	±50		±50	±50	±50
Ladder Accuracy		8 Bit: 1/2 LSB			
Power Rating, Watts at 70˚C					
Resistor Power	Schematic A: 0.32 Schematics B & J: 0.16	0.04	0.250	0.125 Bussed 0.200 Isolated	0.8 to 3.0
Package Power	1.28	0.64 W/Pkg.	1.28		
Operating Voltage					30kV (2kV for Precision Divider)
Voltage Coefficient (ppm/V)					2 Max
Packaging Options					
Tubes	50	50	50		
Tape & Reel: 7"					
Tape & Reel: 13"	2000	2000	2000		

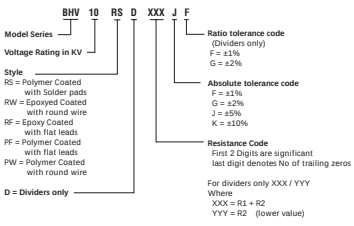
Specification subject to change without notice.
Contact factory for custom products
Also available: 627/628 Jumpers

Ordering Information

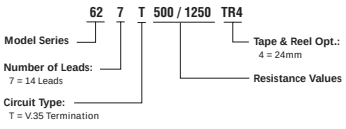
627/628/628 Ladder



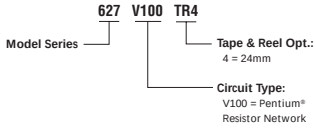
BHV



627T

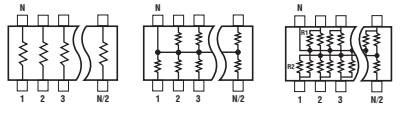


627V100

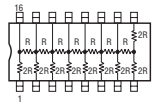


Schematics

627/628

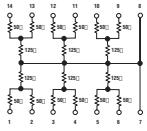


628 Ladder

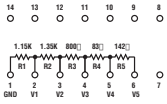


BHV

627T



627V100



Thick Film Chip Resistor Arrays

Resistor Arrays

Model	BCN 10 4	BCN 16 4	BCN 16 8
Industrial Style, Inches (mm)	0804 (2010)	1206 (3216)	1206 (3216)
Standard Resistance Range, Ohms	10 to 1 Meg	10 to 1 Meg	100 to 1 Meg
Standard Resistance Tolerance (%)	±5	±1, ±2, ±5	±5
Temp. Coefficient of Resistance, ppm/°C	±250	±250	±200
Operation voltage	25Vdc	50Vdc	25Vdc
Power Rating at 25°C per Resistor per Package	 31mW 125mW	 63mW 250mW	 32mW 250mW
Capacitance Range, pF (at 1Khz)			
Capacitor Characteristic			
Capacitor Tolerance			
Capacitor Voltage Rating			
Capacitor Dissipation Factor, Maximum			
Dielectric Withstanding Voltage, 50mA Chrg.			
Operating Temperature	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C
Termination Options	Convex	Convex/Concave	Convex
Edge Options	Square	Square/Scalloped	Square
Packaging Options (Quantity/Reel)			
Tape & Reel: 7” Tape & Reel: 13”	Paper: 10K Paper: 40K	Paper: 5K Paper: 20K	Paper: 5K Paper: 20K
Surge Capability			
Short Term Overload			

Specifications subject to change without notice. Consult factory for custom products Also available BCN and BSR jumpers All BCN chip arrays are RoHS compliant

Ordering Information

BCN

BCN 16 4 A B I 102 J 7

- **Model Series**
- **Width:** 10 = 1.0mm; 16 = 1.6mm; 21 = 2.1mm; 31 = 3.1mm
- **No of Resistors:** BCN 10 = 4 Resistors; BCN 16 = 4A Resistors; BCN 16 8R or 8S = 8 Resistors; BCN 21 = 8 Resistors; BCN 31 8R or 8S = 8 Resistors
- **Circuit Configuration:** A = Isolated (BCN 10, BCN 16 4A); R = Bussed (Reversed) (BCN 16, 8R or BCN 31 8R); S = Bussed (Standard) (BCN 16 8S or BCN 21 8S)
- **Edge Option:** (B = Square edge) Scalloped Edge - No code used (Standard) Square Edge **Only** - Use Code 'B'
- **Termination Code:** I = Interior (concave) Termination; No code used for exterior termination (Standard); All interior terminations require 'B' for square edge (BCN 16 4ABI, BCN 31 8RBI, BCn 31 8SBI)
- **Resistance Code:** 3 Digits for E6, E12, E24 series, all tolerances; 4 Digits for E96 series, 1% tolerance
- **Tolerance:** F = ±1% (BCN 4D, BCN 16 4, BCN 31 8RB/8SB only); G = ±2% (BCN 16 4, BCN 31 8RB/8SB only); J = ±5% (Standard); (Use JP for Jumper Chip Array, BNC16 4, BNC 31)
- **Package Option:** (see Table A)

BCN

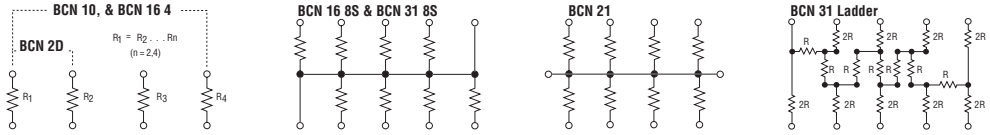
Packaging

	7" Reel Diameter		13" Reel Diameter	
	Paper	Embossed	Paper	Embossed
BCN 10	10k		40k	
BCN 16 4	5k		20k	
BCN 16 8	5k		20k	
BCN 21		4k		16k
BCN 31		4k		16k

See ‘Model Styles’ for Available Options:
Note: Tape & Reel dimensions per EIA-481.

Schematics

BCN








Resistors Capacitor Networks


Surge Resistors

BCN 21 8	BCN 31 8	BCN 31 Ladder
1608 (4021)	2512 (6531)	2512 (6531)
68 to 200K	22 to 1 Meg	1K to 100K
±5	±1, ±2, ±5	±2
±200	±200	±200
25Vdc	50Vdc	50Vdc
63mW 500mW	63mW 500mW	25mW 400mW
55°C to +125°C	-55°C to +125°C	-40°C to +125°C
Concave	Convex/Concave	Convex
Square	Square	Square
Embossed: 4K Embossed: 16K	Embossed: 4K Embossed: 16K	Embossed: 4K Embossed: 16K

RC4	RC6
206 (3216)	2512 (6531)
10 to 1 Meg	10 to 1 Meg
±20	±20
±200	
50Vdc	50Vdc
63mW	63mW 1W
10 to 220	10 to 220
X7R	X7R
20%	20%
50	50
2.50%	2.50%
125Vdc, 5 sec.	125Vdc, 5 sec.
-55°C to +125°C	-55°C to +125°C
	Convex
	Square
Paper: 5K Paper: 20K	Embossed: 4K Embossed: 16K

BSR Surge Resistors
2512" (6531mm)
0.050 to 100K
±1, ±2, ±5, ±10, ±20
±100ppm for values above 1W
100Vdc
2 W/Pkg.
-55°C to +125°C
Embossed: 4K
1.2/50µs, 250V; 10/700µs, 250V
2.5 x Rated Voltage

All BCN and RC parts are RoHS Compliant

Ordering Information

BSR

BSR 1 120 J E

- **Model Series**
- **R2 Resistance Code:** First 2 Digits are significant last digit denotes No of trailing zeros
- **Resistance Tolerance:**
  - F = ±1%
  - G = ±2%
  - J = ±5%
  - K = ±10%
  - M = ±20%
- **Packing option**
  - E = Embossed Tape

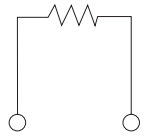
RC4/RC6

RC 6 E 101 M 101 M 7

- **Model Series**
- **Size Code**
  - 4 = 1206
  - 6 = 2512
- **Circuit Type** Code used for R6 only refer to curuit schematics
- **Resistance Code** 3 digit code in ohms
- **Resistance Tolerance**
  - J = ±5% (optional)
  - K = ±10% (optional)
  - M = ±20% (standard)
- **Capacitor Code** 3 digit code in picofarads
- **Capacitor Tolerance:**
  - M = ±20%
- **Packaging Option**
  - 7 = 7" Tape & Reel
  - 13 = 13" Tape & Reel

Schematics

BSR



RC4

RC6