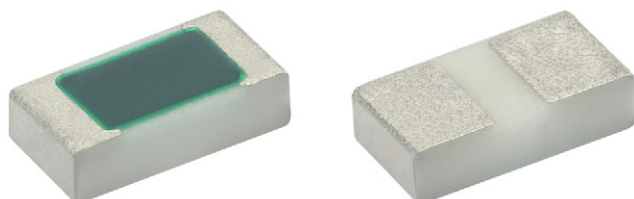


High Power Wraparound Thick Film SMD Resistors



LINKS TO ADDITIONAL RESOURCES



FEATURES

- 0402 to 1206 case sizes
- Compact footprints with high power density
- Available substrate materials: AlN, and BeO
- Solder attachment
- Wide resistance range from low ohmic values to megaohms
- Multiple tolerance options ($\pm 1\%$, $\pm 2\%$, $\pm 5\%$)
- Customization options available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

Vishay B-RD wraparound resistors are designed for high power DC applications, offering reliable performance and strong thermal handling. Their robust thick film construction ensures stable resistance under heavy load and long-term operation, making them well suited for power supplies, current sensing, and resistive loading.

POWER RATING BY SUBSTRATE PROPERTIES (W)

CASE SIZE ⁽¹⁾	SUBSTRATE THICKNESS AND MATERIAL: GLOBAL P/N MATERIAL CODE / THICKNESS / MATERIAL			
	L 0.015" AlN	F 0.015" BeO	M 0.025" AlN	G 0.025" BeO
0402	1	1.5	-	-
0505	5	6	-	-
0603	2.5	3.5	-	-
0805	-	-	8	10
1005	-	-	10	12
1206	-	-	12	16

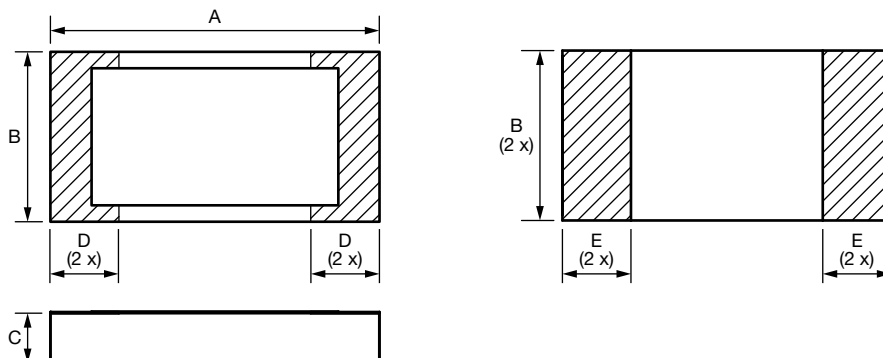
Note

⁽¹⁾ Imperial - refer to Dimensions table for metric

TECHNICAL SPECIFICATIONS

MODEL	SIZE	RESISTANCE RANGE Ω	SUBSTRATE			RATED POWER P _n	OPERATING TEMPERATURE °C	TOLERANCE $\pm \%$
			CODE	MATERIAL AlN / BeO	THICKNESS MIL			
B-RD0402	0402	10 to 6K	L	AlN	15	1	-55 to +150	1, 2, 5
		0.1 to 10M	F	BeO	15	1.5	-55 to +150	1, 2, 5
B-RD0505	0505	10 to 6K	L	AlN	15	5	-55 to +150	1, 2, 5
		0.1 to 10M	F	BeO	15	6	-55 to +150	1, 2, 5
B-RD0603	0603	10 to 6K	L	AlN	15	2.5	-55 to +150	1, 2, 5
		0.1 to 10M	F	BeO	15	3.5	-55 to +150	1, 2, 5
B-RD0805	0805	10 to 6K	M	AlN	25	8	-55 to +150	1, 2, 5
		0.1 to 10M	G	BeO	25	10	-55 to +150	1, 2, 5
B-RD1005	1005	10 to 6K	M	AlN	25	10	-55 to +150	1, 2, 5
		0.1 to 10M	G	BeO	25	12	-55 to +150	1, 2, 5
B-RD1206	1206	10 to 6K	M	AlN	25	12	-55 to +150	1, 2, 5
		0.1 to 10M	G	BeO	25	16	-55 to +150	1, 2, 5

DIMENSIONS



MODEL	SIZE	RESISTANCE RANGE Ω	SUBSTRATE CODE	A INCH (mm)	B INCH (mm)	C INCH (mm)	D INCH (mm)	E INCH (mm)
B-RD0402	0402	10 to 6K	L	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.011 (0.28)	0.011 (0.28)
		0.1 to 10M	F	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.011 (0.28)	0.011 (0.28)
B-RD0505	0505	10 to 6K	L	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.016 (0.41)	0.016 (0.41)
		0.1 to 10M	F	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.016 (0.41)	0.016 (0.41)
B-RD0603	0603	10 to 6K	L	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.020 (0.51)	0.020 (0.51)
		0.1 to 10M	F	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.020 (0.51)	0.020 (0.51)
B-RD0805	0805	10 to 6K	L	0.075 (1.91)	0.050 (1.27)	0.015 (0.38)	0.028 (0.70)	0.027 (0.69)
		0.1 to 10M	F	0.075 (1.91)	0.050 (1.27)	0.015 (0.38)	0.028 (0.70)	0.027 (0.69)
B-RD1005	1005	10 to 6K	L	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.038 (0.96)	0.038 (0.96)
		0.1 to 10M	F	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.038 (0.96)	0.038 (0.96)
B-RD1206	1206	10 to 6K	L	0.120 (3.05)	0.062 (1.57)	0.015 (0.38)	0.048 (1.21)	0.047 (1.19)
		0.1 to 10M	F	0.120 (3.05)	0.062 (1.57)	0.015 (0.38)	0.048 (1.21)	0.047 (1.19)

Note

- Tolerance is $\pm 0.005"$ (0.127 mm) unless otherwise stated

PERFORMANCE

TESTS	CONDITIONS	RESULTS
Short time overload	Apply 1.1 x rated power for 5 s	≤ 5.0 % resistance shift
Rated load life	Apply 1/2 power under $40^\circ\text{C} \pm 2^\circ\text{C}$, 90 min on / 30 min off, repeat for 100 h	≤ 5.0 % resistance shift
Moisture resistance	MIL-PRF-55342 paragraph 4.8.9, 95 % RH, 25°C to 65°C	≤ 5.0 % resistance shift
Resistance to soldering heat	MIL-STD-202 method 210 and MIL-PRF-55342 paragraph 4.8.8.1	≤ 5.0 % resistance shift
Resistance to bonding exposure	MIL-PRF-55342 paragraph 4.8.8.2	≤ 5.0 % resistance shift
Solderability	MIL-PRF-55342 paragraph 4.8.12	> 95 % covered
High temperature storage	$125^\circ\text{C} \pm 2^\circ\text{C}$ for 500 h	1) ≤ 5.0 % resistance shift 2) No significant abnormality (visual)
Thermal shock	-65°C to $+150^\circ\text{C}$, 30 minutes dwell, 5 cycles	1) ≤ 5.0 % resistance shift 2) No significant abnormality (visual)

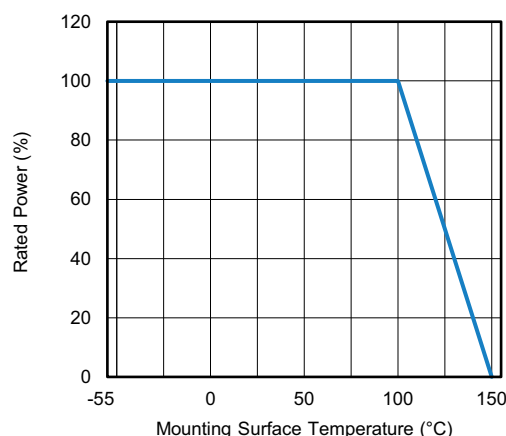
**GLOBAL PART NUMBER INFORMATION**

Part Number Example: B-RD1206T50R0GF00B

B-	RD	1206	T	50R0	G	F	00	B
0	1	2	3	4	5	6	7	8
0	VISHAY BARRY PREFIX							
1	PRODUCT FAMILY		RD = high power SMD wraparound resistor					
2	SIZE, mil							
3	TERMINAL METALLIZATION		B = tin / lead over nickel over silver T = tin over nickel over silver					
4	RESISTANCE		Examples: 1R10 = 1.1 Ω 1R00 = 1 Ω 10R0 = 10 Ω 1000 = 100 Ω 1001 = 1 kΩ 1002 = 10 kΩ 1004 = 1 MΩ					
5	TOLERANCE		F = 1 % G = 2 % J = 5 %					
6	MATERIAL AND THICKNESS		F = 0.015" BeO L = 0.015" AlN G = 0.025" BeO M = 0.025" AlN					
7	OPTION CODE		00 = standard option Other = assigned by Vishay					
8	PACKAGING		B = tape and reel, 1000 min. / 1000 mult. / 1000 max. per reel					

TERMINAL METALLIZATION

CODE	METALLIZATION	RoHS-COMPLIANT	BeO	AlN	NON-MAGNETIC	SOLDER	EPOXY	WIREBOND
B	Sn62 over nickel over silver	No	Yes	Yes	No	Yes	No	No
T	100 % matte tin over nickel over silver	Yes	Yes	Yes	No	Yes	No	No

POWER DERATING CURVE



PACKAGING OPTIONS						
MODEL	SIZE	PACKAGING OPTIONS	TAPE AND REEL QUANTITY			TAPE WIDTH
			MIN.	MAX.	MULT.	
B-RD0402	0402	Tape and reel	1000	1000	1000	8 mm
B-RD0505	0505	Tape and reel	1000	1000	1000	8 mm
B-RD0603	0603	Tape and reel	1000	1000	1000	8 mm
B-RD0805	0805	Tape and reel	1000	1000	1000	8 mm
B-RD1005	1005	Tape and reel	1000	1000	1000	8 mm
B-RD1010	1010	Tape and reel	1000	1000	1000	8 mm
B-RD1206	1206	Tape and reel	1000	1000	1000	8 mm



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