

AXIAL LEADED CEMENTED COATING POWER RESISTORS BR4, BR6, BR9, BR12

Features and Applications

General purpose, high power dissipation in small design, non-flammable coating conforming to UL 94 V-0, excellent pulse load capability, non-inductive (N) version available

Material categorization for definitions of compliance low cost and the industry's broad selection, tolerance to $\pm 1.0\%$, TCR to ± 5 ppm/ $^{\circ}\text{C}$, and wide resistance range covers 0.047 Ω to 110k Ω and rated power of 3W to 18W.

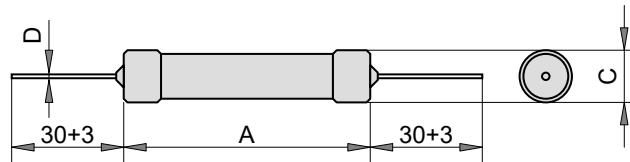
BR series resistors are designed for general purpose and semi-precision power applications. The fireproof ceramic construction provides excellent thermal conductivity and resistance to moisture & solvents.

Temperature Rise Power resistors reach elevated temperatures (typically 380 $^{\circ}\text{C}$)

when operated at full wattage, so when utilizing above 50% power rating, the bodies should be mounted off the PCB with adequate clearance from heat sensitive components.

Applications included automotive electronics, industrial electronics, power supplies, white goods and pre-charged resistors.

Dimensions and Materials



Wire leads: Matte tinned copper

Type	Wattage (W)		Resistance Range (Ω)	Resistance Tolerance (%)	Temperature Coefficient (ppm/ $^{\circ}\text{C}$)	Dimensions		
	at 40 $^{\circ}\text{C}$	at 70 $^{\circ}\text{C}$				A	C max.	D ± 0.1
BR4-12	3	2.5	R15 - 5K6	K, J, G, F	+100	11.8	4.8	0.8
BR6-16	4	3.5	R03 - 10K	K, J, G, F	+100	18.0	6.0	0.8
BR6-23	5.5	5	R047 - 18K	K, J, G, F	+100	22.5	6.0	0.8
BR9-20	7	6	R10 - 33K	K, J, G, F	+100	21.6	10.0	0.8
BR9-32	10	9	R20 - 51K	K, J, G, F	+100	32.0	10.0	0.8
BR9-50	15	13.5	R24 - 82K	K, J, G, F	+100	50.0	10.0	0.8
BR12-52	18	16	R33 - 110K	K, J, G, F	+100	52.0	12.0	1.0

Resistance tolerance: K($\pm 10\%$), J($\pm 5\%$), G($\pm 2\%$), F($\pm 1\%$)

Non-inductive resistors "NI" requested.

Type	Periodical impulse power (W) at 70 $^{\circ}\text{C}$	Impulse power by switch on (W) at 70 $^{\circ}\text{C}$	Periodical impulse voltage (V) at 70 $^{\circ}\text{C}$	Impulse voltage (V)	Surface Temp. Limit ($^{\circ}\text{C}$)	Smallest Raster Size (mm)
BR4-12	5	31	140	280	270	20.0
BR6-16	7	44	200	400	270	22.5
BR6-23	10	62.5	285	570	270	27.5
BR9-20	12	75	440	640	270	27.5
BR9-32	18	112	700	1000	350	37.5
BR9-50	27	170	985	1720	350	57.5
BR12-52	32	200	1225	1740	370	57.5

Limiting voltage is determined by $E = \sqrt{PR}$.

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Ordering Information

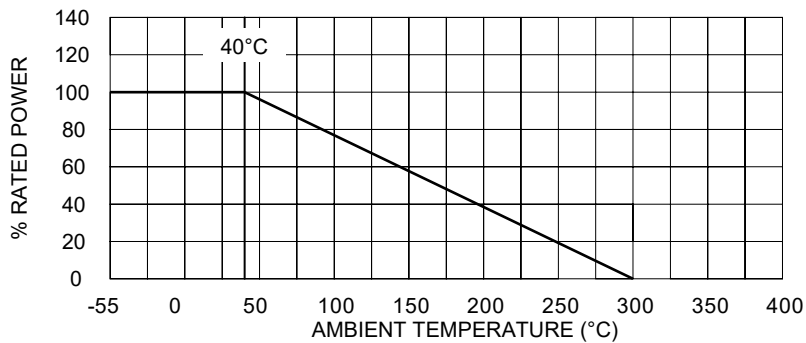
Type BR12-52	Inductive NI	Resistance 10K	Tolerance J	Remarks
BR4-12	-	Any value	F (+/-1%)	
BR6-16	NI		G (+/-2%)	
BR6-23		J (+/-5%)		
BR9-20		K (+/-10%)		
BR9-32				
BR9-50				
BR12-52				

Performance

	F (1%), G (2%)	J (5%), K (10%)	Test Conditions
Load Life at Rated Power	+/- (2%+r)	+/- (5%+r)	1000hours, at 40°C
Load Life at 0.7 Rated Power,	+/- (1%+r)	+/- (5%+r)	1000hours, at 40°C
Load Life at 0.2 Rated Power,	+/- (0.2%+r)	+/- (5%+r)	1000hours, at 40°C
Short Time Overload	+/- (2%+r)	+/- (5%+r)	6.25 rated power, 5s on-45s off, 50cycles
Shelf Life Stability	+/- (2%+r)	+/- (5%+r)	Rated power application, 40°C-93%RH, 56days
Temperature Cycle	+/- (2%+r)	+/- (5%+r)	5 cycles, -55°C and +155°C
Wire Leads Strength, Pull	+/- (2%+r)	+/- (5%+r)	5N(BR4-12), 10N(BR6-16, BR6-23),
Wire Leads Strength, Pull	+/- (2%+r)	+/- (5%+r)	20N(BR9-20, BR9-32, BR9-50, BR12-52)
Wire Leads Strength, Bending	+/- (2%+r)	+/- (5%+r)	2 times bend 90°
Wire Leads Strength, Torsional	+/- (2%+r)	+/- (5%+r)	2 times round 180°

r = 0.0002 Ω for R<1Ω, r = 0.02 Ω for 1Ω<=R<10Ω, r = 0.05 Ω for 10Ω<=R<=25Ω, r = 0.002 Ω for >=25Ω
BR resistors can be loaded with single impulse of very high voltage (standard impulse 1.2/50 acc to IEC115)

Derating



Temperature Rise

