

# RC Series — Carbon Composition Resistors

## Features

- Non-inductive design
- Molded body for package uniformity
- Ideal for pulse-load handling characteristics
- Cut and formed product is available on select sizes; contact factory for details
- 1W now available
- RoHS compliant/ lead-free



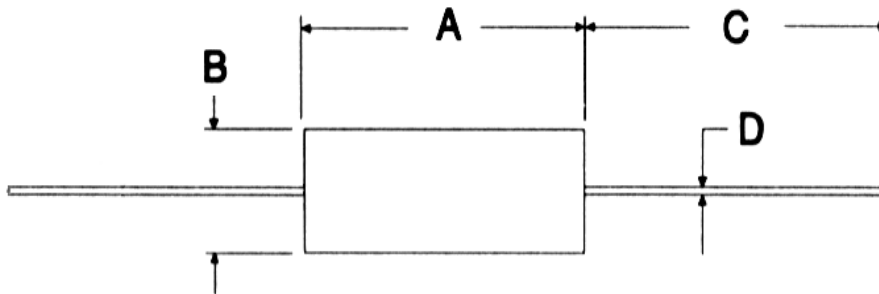
## Electrical Specifications

Type / Code	Power Rating (Watts) @ 70°C	Maximum Continuous Working Voltage*	Maximum Pulse Voltage	Dielectric Withstanding Voltage	Ohmic Range and Tolerance	
					10%	5%
RC 1/4	0.25W	250V	400V	500V	1Ω – 5.6MΩ	2.2Ω – 5.6MΩ
RC 1/2	0.50W	350V	700V	700V	1Ω – 22MΩ	1Ω – 22MΩ
RC 1	1.00W	500V	1,000V	1,000V	2.2Ω – 1.0MΩ	–

\* Lesser of  $\sqrt{PR}$  or maximum working voltage.

## Mechanical Specifications

Type / Code	A Body Length	B Body Diameter	C Lead Length (Bulk)	D Lead Diameter	Units
RC 1/4	0.248 ± 0.028	0.094 ± 0.004	1.18 ± 0.12	0.0236 ± 0.0020	inches
	6.30 ± 0.70	2.40 ± 0.10	30.0 ± 3.0	0.60 ± 0.05	mm
RC 1/2	0.374 + 0.031/-0.028	0.142 ± 0.008	1.10 ± 0.12	0.0275 + 0.0028/-0.0020	inches
	9.50 + 0.8/-0.70	3.60 ± 0.20	28.0 ± 3.0	0.70 + 0.07/-0.05	mm
RC 1	0.56 ± 0.03	0.22 ± 0.01	1.02 ± 0.12	0.04 ± 0.002	inches
	14.3 ± 0.70	5.70 ± 0.30	26.0 ± 3.0	0.90 ± 0.05	mm



## How to Order

RC	1/2	5.6M	5%	R		
SEI Type	Code	Nominal Resistance	Tolerance	Packaging		
	Code	Tolerance	SEI Types	Pkg Qty	Description	Code
	1/4	5%	1/4, 1/2	5,000	Tape	R
	1/2	10%	All	1,000	Bulk	A
	1	E24				
		E12				

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## Resistance Temperature Characteristics

	Resistance Range	-55°C	+105°C
Maximum % resistance change from room temperature (+25°C) value	under 1K 1K to 9.1K 10K to 91K 100K to 910K 1 Mg to 10 Mg	+2.0 to +5.0 +5.0 to +9.0 +8.0 to +11.0 +10.0 to +14.0 +13.0 to +20.0	-4.0 to -2.0 -5.0 to -3.0 -7.0 to -5.0 -9.0 to -7.0 -14.0 to -9.0

## Performance Characteristics (JISC 5201 - 1:1998)

Test	Test Results	Test Method
Voltage Proof	No breakdown or flashover	V-block method RC 1/4 100 VAC, 60 seconds RC 1/2 500 VAC, 60 seconds
Overload	±2% +0.05Ω No visible damage, legible markings	2.5 times the rated voltage or twice the limiting element voltage, whichever is less. Severe, 5 seconds
Termination Strength	Tensile: ±2% +0.05Ω, No visible damage Bending: ±2% +0.05Ω, No visible damage Torsion: ±2% +0.05Ω, No visible damage	10N for 5 – 10 seconds 5N, twice 180°C, two rotations
Solderability	In accordance with Clause 4.17.4.5	235°C, 5 seconds
Resistance to Soldering Heat	±3% +0.05Ω No visible damage, legible markings	After immersion into flux, the immersion into solder shall be carried out 4mm from the body at 350°C for 3.5 seconds
Temperature Shock	±2% +0.05Ω No visible damage	5 cycles between -55°C to 125°C
Climatic Sequence	±10% +0.5Ω Insulation resistance: R ≥100M ohm. No visible damage	Dry/Damp heat: 12 +12 hour cycle, first cycle Cold/Damp heat: 12 +12 hour cycle, remaining cycle D.C. load
Damp Test, Steady State	±10% +0.5Ω Insulation resistance: R ≥100M ohm. No visible damage, legible marking	40°C 95% relative humidity for 56 days, test a, b, and c of Clause 4.24.2.1
Endurance @ 70°C	±10% +0.5Ω Insulation resistance: R ≥1G ohm. No visible damage	Rated voltage, 1.5 hours On, 0.5 hours Off at 70°C, 1,000 hours
Endurance @ 125°C	±10% +0.5Ω Insulation resistance: R ≥1G ohm. No visible damage	125°C, no load, 1,000 hours
Operating Temperature Range	-55°C to + 125°C	

## Reliability Test - Load Life in Moisture

Criterion (%)	Load Ratio P/Pn (%)	Total Testing Time (Hrs)	Number of Fractures (pcs)	Failure Ratio		Average Lifetime (60% reliability level) (Hrs)	
				λ	λ CL (60%)		
Δ R/R	±5	0	2.984 x 10 <sup>6</sup>	6	0.201	0.244	4.098 x 10 <sup>5</sup>
		20	2.990 x 10 <sup>6</sup>	4	0.134	0.176	5.682 x 10 <sup>5</sup>
		60	2.997 x 10 <sup>6</sup>	2	0.067	0.104	9.615 x 10 <sup>5</sup>
		100	2.992 x 10 <sup>6</sup>	3	0.100	0.139	7.194 x 10 <sup>5</sup>
		Total	1.196 x 10 <sup>7</sup>	15	0.125	0.138	7.209 x 10 <sup>5</sup>
	±10	Total	1.20 x 10 <sup>7</sup>	0	0.0055	0.0077	1.299 x 10 <sup>7</sup>