

# HIGH VALUE & HIGH VOLTAGE CYLINDRICAL RESISTORS

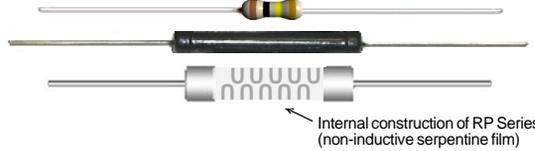
## RG SERIES - General Purpose RH SERIES - High Precision RP SERIES - Professional Grade



RESISTORS • CAPACITORS • COILS • DELAY LINES



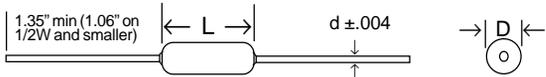
Term.W is RoHS compliant & 260°C compatible



- Industry's widest range of high value/ high voltage resistors- 1/8 ~ 20W, 1KΩ~ 10<sup>13</sup>Ω, 300V~ 90KV, TC's to ±15ppm, ±0.05%~ 10%
- Available on Tape & Reel (sizes <2.5" long)

### OPTIONS

Options include formed leads, matched sets, custom marking, burn-in, vacuum/space operation, custom sizes, etc. Opt. P = high pulse design, Opt.H = increased voltage, Opt.B = increased power, Opt.58 = hermetic seal.



RCD's high voltage thick-film resistors represent the most advanced technology in the industry. Series RG is designed for semi-precision applications, offering a low cost solution up to 15KV. Series RH features a special composition and processing to achieve improved tolerance, TC, & voltage (60KV). Series RP utilize highest grade materials enabling tightest tolerances, lowest VC's, TC's to 15ppm, and superior power/temp/voltage levels (90KV). RP utilize serpentine film pattern for lowest inductance. Units are printed or banded with resistance value and tolerance as minimum.

The ruggedness of these models enables superior long term reliability, especially in demanding applications such as military, space, and medical equipment, as well as electron microscopes, high impedance amplifiers, electrometer, radiation testers, etc.

RG Series	Wattage @ 25°C	Voltage Rating*	Dielectric Strength	Dimensions Inch [mm]			Standard Resistance Range** (K=10 <sup>3</sup> , M=10 <sup>6</sup> , G=10 <sup>9</sup> )					
				L	D	d	25ppm	50ppm	100ppm	200ppm	350ppm	
RG1/8	1/8W	300V	500V	.134 ±.04 [3.4±1.0]	.067 ±.025 [1.7 ± 0.64]	.020 [5]	N/A	1M-10M	1M-300M	1M-300M	1M-300M	1M-300M
RG1/4	1/4W	500V	500V	.256 ±.04 [6.5±1.0]	.098 ±.025 [2.5 ± 0.64]	.024 [6]	N/A	100K-50M	100K-3G	100K-3G	100K-3G	100K-3G
RG1/2	1/2W	1KV	500V	.368 ±.04 [9.4±1.0]	.134 ±.032 [3.4 ± 0.81]	.025 [6.4]	N/A	100K-50M	100K-3G	100K-3G	100K-3G	100K-3G
RG1S	1W	1.5KV	500V	.472 ±.05 [12.0±1.3]	.158 ±.032 [4.0 ± 0.81]	.028 [7]	N/A	200K-50M	200K-100M	200K-300M	200K-300M	200K-300M
RG1	1W	2KV	1KV	.581 ±.05 [14.8±1.3]	.216 ±.032 [5.5 ± 0.81]	.031 [8]	N/A	200K-50M	200K-100M	200K-500M	200K-500M	200K-500M
RG2	2W	5KV	1KV	1.06 ±.062 [26.9±1.6]	.275 ±.032 [7.0 ± 0.81]	.031 [8]	N/A	N/A	**	**	**	1M-1.5G
RG3	3W	10KV	1KV	1.67 ±.062 [42.4±1.6]	.275 ±.032 [7.0 ± 0.81]	.031 [8]	N/A	N/A	**	**	**	1M-1.5G
RG4	4W	15KV	1KV	2.05 ±.062 [52.1±1.6]	.335 ±.032 [8.5 ± 1.02]	.040 [1]	N/A	N/A	**	**	**	1M-1.5G

RH Series	Wattage @ 25°C	Voltage Rating*	Dielectric Strength	Dimensions Inch [mm]			Standard Resistance Range** (K=10 <sup>3</sup> , M=10 <sup>6</sup> , G=10 <sup>9</sup> , T=10 <sup>12</sup> )				
				L	D	d	25ppm	50ppm	100ppm	200ppm	≥400ppm
RH1/8	1/8W	500V	500V	.240±.04 [6.1±1.0]	.085±.025 [2.16±0.6]	0.024 [6]	100K-50M	50K-100M	10K-100M	10K-500M	500M-4G
RH1/4	1/4W	750V	500V	.354±.04 [9.0±1.0]	.118±.04 [3.00±1.0]	0.024 [6]	100K-100M	100K-100M	10K-300M	10K-1G	1G-5G
RH1/2	1/2W	1500V	500V	.500±.04 [12.7±1.0]	.180±.04 [4.57±1.0]	0.031 [8]	100K-100M	100K-100M	100K-1G	100K-5G	1G-5G
RH1	1W	2000V	1KV	.571±.04 [14.5±1.0]	.180±.04 [4.57±1.0]	0.031 [8]	100K-100M	100K-500M	100K-2G	100K-15G	15G-50G
RH2	2W	5000V	1KV	1.00±.08 [25.4±2.0]	.265±.05 [6.73±1.3]	.031/0.04 [8/1]	100K-100M	100K-500M	100K-2G	100K-100G	100G-3T <sup>1</sup>
RH3	3W	10KV	1KV	1.65±.08 [41.9±2.0]	.265±.05 [6.73±1.3]	.031/0.04 [8/1]	100K-100M	100K-500M	100K-2G	100K-100G	100G-10T <sup>2</sup>
RH4	4W	15KV	1KV	2.05±.08 [52.1±2.0]	.320±.05 [8.13±1.3]	.031/0.04 [8/1]	-	100K-500M	100K-2G	100K-10G	-
RH6	6W	20KV	1KV	3.03±.08 [77.2±2.0]	.320±.05 [8.13±1.3]	.031/0.04 [8/1]	-	500K-500M	500K-2G	100K-10G	-
RH10	10W	35KV	1KV	4.70±.12 [119.4±3.1]	.320±.05 [8.13±1.3]	.031/0.04 [8/1]	-	1M-500M	1M-2G	100K-10G	-
RH16	16W	60KV	1KV	7.48±.12 [190±3.1]	.320±.05 [8.13±1.3]	0.04 [1.0]	-	1M-500M	1M-2G	100K-10G	-

<sup>1</sup> RH2 is available in 400ppm TCR from 100G to 300G, 300G-600G is 1000ppm, 600G-3T is 1500ppm <sup>2</sup> RH3 is available in 400ppm TCR from 100G-600G, 600G-1T is 1000ppm, 1T-10T is 1500ppm

RP Series	Wattage @ 40°C	Voltage Rating*	Dielectric Strength	Dimensions Inch [mm]			Standard Resistance Range** (K=10 <sup>3</sup> , M=10 <sup>6</sup> , G=10 <sup>9</sup> )				
				L	D	d	15ppm	25ppm	50ppm	100ppm	200ppm
RP4	3.8W	15KV	1KV	1.063±.04 [27.0±1.0]	.315 ±.025 [8.0±.64]	.031 [7.9]	1K - 1G	1K - 10G	1K - 10G	1K - 10G	1K - 10G
RP5	5W	21KV	1KV	1.457±.04 [37.0±1.0]	.315 ±.025 [8.0±.64]	.031 [7.9]	1K - 1G	1K - 15G	1K - 15G	1K - 15G	1K - 15G
RP8	7.5W	30KV	1KV	2.047±.05 [52.0±1.3]	.315 ±.025 [8.0±.64]	.031 [7.9]	1K - 1G	1K - 20G	1K - 20G	1K - 20G	1K - 20G
RP10	10W	45KV	1KV	3.071±.06 [78.0±1.5]	.315 ±.025 [8.0±.64]	.031 [7.9]	1K - 1G	1K - 30G	1K - 30G	1K - 30G	1K - 30G
RP14	13.5W	60KV	1KV	4.000±.06 [101.6±1.5]	.315 ±.025 [8.0±.64]	.031 [7.9]	1K - 1G	1K - 40G	1K - 40G	1K - 40G	1K - 40G
RP16	16W	72KV	1KV	4.800±.06 [121.9±1.5]	.315 ±.025 [8.0±.64]	.031 [7.9]	1K - 1G	1K - 50G	1K - 50G	1K - 50G	1K - 50G
RP20	20W	90KV	1KV	5.984±.06 [152.0±1.5]	.315 ±.025 [8.0±.64]	.031 [7.9]	1K - 1G	1K - 60G	1K - 60G	1K - 60G	1K - 60G

\* Maximum working voltage is DC or AC RMS (50-60Hz sinusoidal) and is determined by E= (PR)<sup>1/2</sup>, E, N to not exceed value listed in column above. \*\* Consult factory for res. values outside the standard range

### CUSTOM DESIGNS

**Increased Ratings** - increased power and voltage ratings are available with special processing. By specifying Opt.H on RG series, voltage ratings are increased by 100% (by 50% on sizes 2W-4W).

**Matched Sets and Networks** - cost savings up to 50% can often be achieved by specifying tight matching requirements instead of tight tol. and TC reqs. Resistance matching to 0.02% and TC tracking to 5ppm is available.

**Threaded Terminations** - resistors are available with tapped end caps for series combination into virtually any voltage or resis. value.

**Hermetic-Sealed Construction (Opt. 58)** - Available on RH1, RH2, & RH3 for use in harshest environments. Add .08" to dia. & .18" to length.

### P/N DESIGNATION:

RCD Type **RH2** □ - **1005 - FT 50 W**

Options: P, H, B, 58, etc. (leave blank if std)

**4-Digit Resis. Code 0.1%-1%:** 1001=1K, 1002=10K, 1003=100K, 1004=1M, 1005=10M, 1006=100M, 1G00=1GΩ, 10G0=10G, 100G=100G, 1T00=1TΩ, 10T0=10T

**3-Digit Resis. Code 2%-10%:** 102=1K, 103=10K, 104=100K, 105=1M, 106=10M, 107=100M, 1G0=1G, 10G=10G, 100G=100G, 1T0=1TΩ, 10T=10T

**Tolerance:** J=5%, G=2%, F=1%, D=.5%, C=.25%, B=.1%, A=.05%

**Packaging:** B = Bulk, T = Tape & Reel

**TC:** 15=15ppm, 25=25ppm, 50=50ppm, 80=80ppm, 101=100ppm, 201=200ppm, 351=350ppm, 401=400ppm, 102=1000ppm, 152=1500ppm

**Termination:** W= Lead-free, Q= Tin/Lead (leave blank if either is acceptable)

### SPECIFICATIONS (Typ.)

	RG Series	RH Series	RP Series
Operating Temp. Range	-55 to +155°C*	-55 to +155°C*	-55 to +225°C*
Tolerances	1%-10%, 0.1% avail	0.1%-5%	0.05%-5%
Coating	Epoxy	Epoxy	Silicone
Inductance	Low	Low	Non-Inductive
Overload (1.5xW, 5S, nte 1.5xV)	±1% ΔR	±0.5% ΔR	±0.25% ΔR
Load Life (1000 hours)	±2% ΔR	±0.5% ΔR	±0.4% ΔR
Moisture Resistance	±2% ΔR	±0.5% ΔR	±0.25% ΔR
Voltage Coefficient (VC = ppm/V)	<1GΩ	-10ppm/V	-5ppm/V
	1GΩ - 10GΩ	-30ppm/V	-20ppm/V
	10G - 7TΩ	N/A	-100ppm/V
			-1.5ppm/V
			-2ppm/V

\* Extended temperature range available \*\* Tinned copper leads avail. on Series RP (specify Opt.25)

### DERATING

