

# PRECISION HIGH-VOLTAGE THICK FILM RESISTORS

ISO-9001 Registered



## CGH SERIES

- 1/4 watt to 5 watt
- 100K ohm to 2000 megohm range
- $\pm 0.5\%$ ,  $\pm 1\%$ ,  $\pm 2\%$  or  $\pm 5\%$  tolerance
- TCR of  $\pm 50$  or  $\pm 100$  ppm/ $^{\circ}\text{C}$



### SPECIFICATIONS:

IRC Type	Power Rating @ 70°C (watts) <sup>1</sup>	Voltage Rating (volts) <sup>2</sup>	Resistance Range (ohms) <sup>3</sup>	Tol ( $\pm\%$ ) <sup>4</sup>	Maximum TCR ( $\pm$ ppm/ $^{\circ}\text{C}$ ) <sup>4</sup>	VCR (ppm/V) <sup>5</sup>
CGH-1/4	1/4	750	100K-100M	.5, 1, 2, 5	50, 100	0 to -5
CGH-1/2	1/2	1,500	100K-500M	.5, 1, 2, 5	50, 100	0 to -5
CGH-1	1	3,000	50K-750M	.5, 1, 2, 5	50, 100	0 to -5
CGH-2	2	5,000	100K-1500M	.5, 1, 2, 5	50, 100	0 to -5
CGH-3	3	10,000	200K-2000M	.5, 1, 2, 5	50, 100	0 to -5
CGH-5	5	20,000	300K-2000M	.5, 1, 2, 5	50, 100	0 to -5

### NOTES:

1. For power rating above 70°C, see derating curve.
2. Voltage rating shown is the rated DC continuous working voltage or the sine-wave RMS absolute maximum voltage at commercial line frequency. For DC applications the absolute maximum permissible voltage is 1.5 times the value shown for low repetition short-time-overload or pulse conditions of 10 seconds or less duration.
3. Contact factory for higher resistance values.
4. For CGH-1 and 2 above 500 meg and CGH-3 and 5 above 1000M only 2 and 5% tolerance and 100 ppm/ $^{\circ}\text{C}$  TCR available.
5. Typical voltage coefficient of resistance is -1 to -2 ppm/V measured at full rated voltage and 10% rated voltage.

### DIMENSIONS (Inches and (mm)):

IRC Type	Body Length - BL	Body Diameter - BD	Clean Lead to Clean Lead - CL
CGH-1/4	0.275 $\pm$ 0.031 (6.98 $\pm$ 0.79)	0.088 $\pm$ 0.010 (2.22 $\pm$ 0.25)	0.400 (10.16)
CGH-1/2	0.400 $\pm$ 0.031 (10.16 $\pm$ 0.79)	0.138 $\pm$ 0.016 (3.51 $\pm$ 0.41)	0.525 (13.34)
CGH-1	0.690 $\pm$ 0.062 (17.53 $\pm$ 1.57)	0.297 $\pm$ 0.031 (7.54 $\pm$ 0.79)	0.900 (22.86)
CGH-2	1.062 $\pm$ 0.062 (26.97 $\pm$ 1.57)	0.297 $\pm$ 0.031 (7.54 $\pm$ 0.79)	1.250 (31.75)
CGH-3	2.062 $\pm$ 0.062 (52.37 $\pm$ 1.57)	0.297 $\pm$ 0.031 (7.54 $\pm$ 0.79)	2.250 (57.15)
CGH-5	3.062 $\pm$ 0.062 (77.77 $\pm$ 1.57)	0.297 $\pm$ 0.031 (7.54 $\pm$ 0.79)	3.250 (82.55)

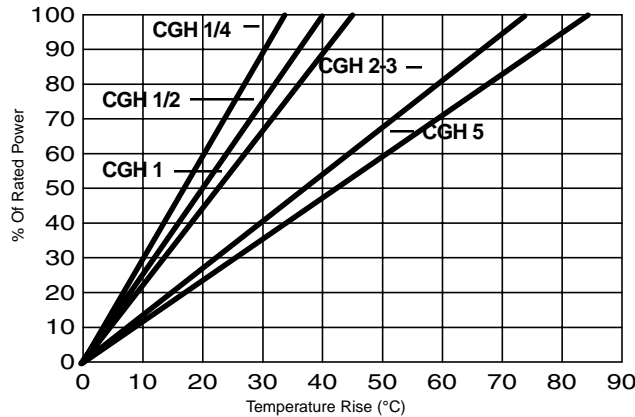
**CGH ENVIRONMENTAL PERFORMANCE:**

TEST CONDITION <sup>1</sup>	Maximum ΔR (±3σ)	Typical <sup>2</sup> ΔR
Temperature Shock	±0.25%	±0.10%
Short-Time Overload (1.5 times rated V for 10 sec)	±0.20%	±0.10%
Solder Effect	±0.015%	±0.05%
Terminal Strength	±0.20%	±0.05%
Moisture Resistance (no load or polar)	±0.50%	±0.20%
Load Life (1000 Hours at 70°C)	±1.00%	±0.25%
Shelf Life (1 year at 25°C)	±0.10%	±0.03%
High -Temperature Exposure (150°C for 2000 Hours) (175°C for 2000 Hours)	±0.75%	±0.30%
	±1.0%	±0.40%
Dielectric Breakdown <sup>3</sup> (1/4 and 1/2 watt size) (1 watt through 5 watt size)	2000 VDC, 1500 VAC	
	3500 VDC, 2500 VAC	
Dielectric Strength <sup>4</sup>	±0.15%	±0.05%
Insulation Resistance at 500 VDC	10 <sup>9</sup> ohms min.	10 <sup>11</sup> ohms typ.

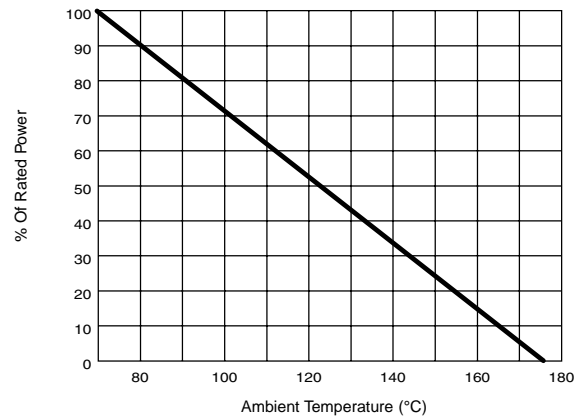
**NOTES:**

1. Test method per MIL-STD-202 unless otherwise indicated
2. Typical defined as that percent change which will include a minimum of 50% of the measured changes in resistance from a variety of lots representing various unit sizes and ranges
3. Values shown are the maximum safe dielectric voltage applied from a V block or foil wrapping which extends the complete body length of the resistor under test
4. Percent change after the maximum safe dielectric voltage is applied for 1 minute

**TEMPERATURE RISE:**



**POWER DERATING:**



**HOW TO ORDER:**

Sample Part No.: **CGH 3 - 50ppm/°C - 2205 (22M) - 1%**

**IRC Type** \_\_\_\_\_  
CGH 1/4, CGH 1/2, CGH 1, CGH 2, CGH 3, CGH 5

**Temperature Coefficient** \_\_\_\_\_  
±100 ppm/°C, ±50 ppm/°C

**Resistance** \_\_\_\_\_  
Standard EIA/MIL values for metal film resistors. See specification chart on back inside cover for range.

**Tolerance** \_\_\_\_\_  
±0.5%, ±1%, ±2%, ±5%

**WIREWOUND AND FILM TECHNOLOGIES DIVISION**