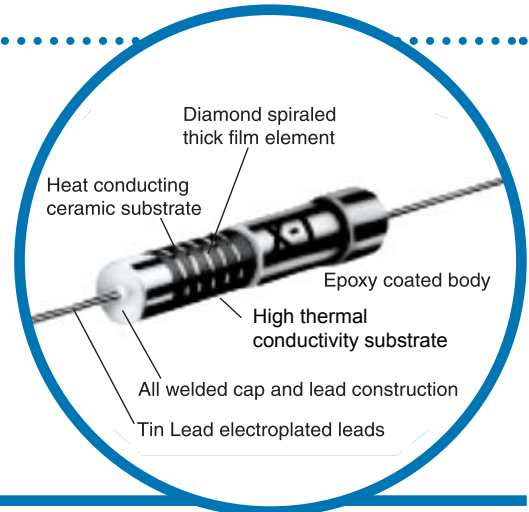


# Precision High-Voltage Thick Film Resistors

## CGH Series

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



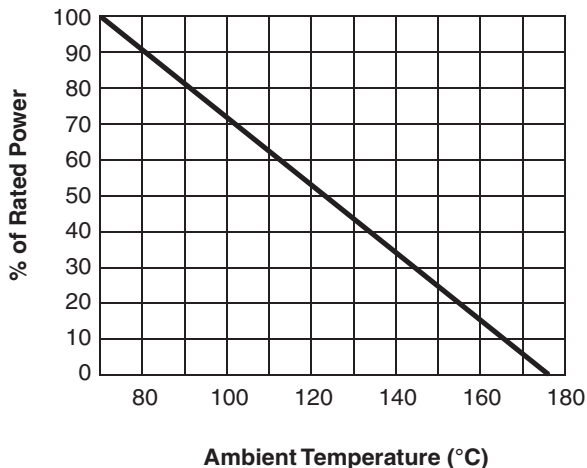
## Electrical Data

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

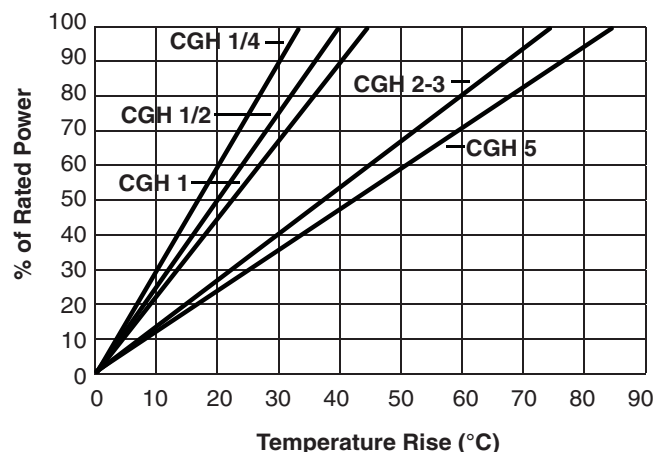
### Notes:

1. For power rating above 70 $^{\circ}\text{C}$ , 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.

## Power Derating Curve



## Temperature Rise Chart



### General Note

TT electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT electronics' own data and is considered accurate at time of going to print.

## Environmental Data

Test Condition <sup>1</sup>	Maximum $\Delta R$ ( $\pm 3\sigma$ )	Typical <sup>2</sup> $\Delta R$
Temperature Shock	$\pm 0.25\%$	$\pm 0.10\%$
Short-Time Overload (1.5 times rated V for 10 sec)	$\pm 0.20\%$	$\pm 0.10\%$
Solder Effect	$\pm 0.015\%$	$\pm 0.05\%$
Terminal Strength	$\pm 0.20\%$	$\pm 0.05\%$
Moisture Resistance (no load or polar)	$\pm 0.50\%$	$\pm 0.20\%$
Load Life (1000 hours at 70°C)	$\pm 1.00\%$	$\pm 0.25\%$
Shelf Life (1 year at 25°C)	$\pm 0.10\%$	$\pm 0.03\%$
High-Temperature Exposure (150°C for 2000 hours) (175°C for 2000 hours)	$\pm 0.75\%$	$\pm 0.30\%$
	$\pm 0.01\%$	$\pm 0.40\%$
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>	$\pm 0.15\%$	$\pm 0.05\%$
Insulation Resistance at 500 VDC	10 <sup>9</sup> ohms typ.	10 <sup>11</sup> ohms typ.

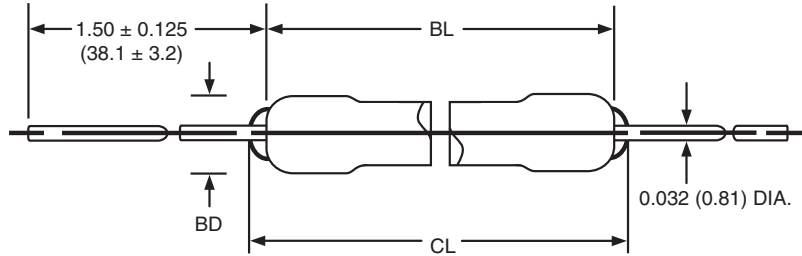
**Notes:**

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.

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## Physical Data



Dimensions (Inches and (mm))

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

## Ordering Data

Sample Part No. .... **CGH 3** - **100** - **2205** - **F** - **LF**

**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** .....

**Tolerance** .....  
D = ±0.5%  
F = ±1%  
G = ±2%  
J = ±5%

**RoHS Indicator** .....  
LF indicates RoHS compliance

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