Type TG Low TC Precision High Voltage Resistors

TC of ±25 ppm/°C from -55°C to +125°C, Resistance Range from 25 Kohm to 1,000 Megohm

To meet the precision temperature stability requirements of high accuracy, high voltage systems, Caddock offers the Type TG Low TC Precision High Voltage Resistors. These resistors utilize our proven Tetrinox® resistance film system to achieve the unique combination of low temperature coefficient with high stability performance at high operating voltages.

The Type TG Low TC Precision High Voltage Resistors are designed to meet the demanding stability requirements of TWT power supplies, electron microscopes, semiconductor process equipment, spectrographic equipment, X-ray systems, high stability electron beam equipment, geophysical instruments, HV precision dividers, and HV precision probes.

The performance features of the Type TG Low TC Precision High Voltage Resistors are:

- Temperature Coefficient: ±25 ppm/°C from -55°C to +125°C, referenced to +25°C.
- Load Life Stability of 0.25% per 1,000 hours at +125°C.
- Resistance Tolerance from ±1% to ±0.1%.
- Resistance Range from 25 Kohm to 1,000 Megohms.
- The low temperature coefficient minimizes the self-drift due to power dissipation warm-up.

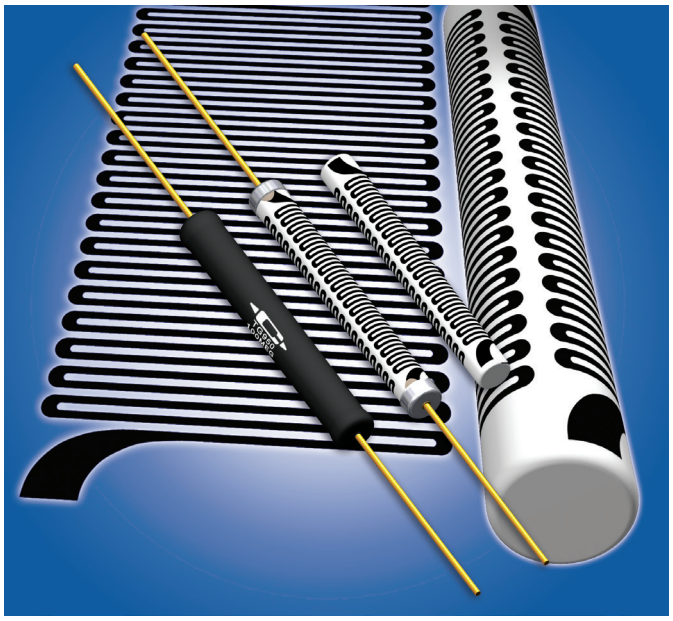
Tetrinox® Resistance Films

Type TG Low Temperature Coefficient and High Stability Performance is based upon Caddock's unique Tetrinox® resistance film system, produced exclusively by Caddock Electronics. These proven complex metal oxide films have been used reliably for over 40 years in Caddock's Low TC Precision High Voltage Resistor products, as well as in Resistor Networks with Low Ratio TC and in Low Absolute TC discrete Resistors.

Tetrinox® Low TC Resistance Films are deposited directly onto the solid ceramic core of the Type TG Resistor and fired at temperatures above 1400°F (760°C) to achieve the excellent Low TC performance.

"-15" Extended Max. Continuous Operating Voltage

Extended maximum continuous operating voltages, at +85°C, of up to 60% higher than the standard maximum voltage ratings listed in the table, can be achieved through special factory conditioning. To specify the extended maximum continuous operating voltage add a "-15" to the model number (Example: TG950-15-200M-1%). The Resistance range for the "-15%" voltage rating is listed in the table from "-15 Min." to "Std. Max." Note that the standard overload and overvoltage ratings do not apply to the "-15" resistors.



Caddock's Uniform Serpentine Film Pattern is uniquely used by Caddock to manufacture High Performance axial lead resistor products, including the Type TG Low TC Precision High Voltage Resistors.

Discrete Type TG and Type USG High Voltage Resistors with Very Low Absolute TC

Type TG Low TC Precision High Voltage Resistors can be manufactured with a very low absolute temperature coeffient of **±15 ppm/°C, -40°C to +85°C, referenced to +25°C.** Contact Applications Engineering.

Type USG Ultra-Stable High Voltage Resistors are available with an absolute temperature coefficient of **±10 ppm/°C, -40°C to +85°C, referenced to +25°C,** in standard resistance values of 50 Meg, 75 Meg, 100 Meg, 150 Meg, or 200 Meg. See the Type USG datasheet.

Selected Resistor Sets with Ultra Low Absolute TC

Type USGS Selected Resistor Sets are available with Absolute Temperature Coefficient of **±5 ppm/°C, +10°C to +50°C, ref. to +25°C.**

Type USFS Selected Resistor Sets are available with Absolute Temperature Coefficient of **±2 ppm/°C, +10°C to +50°C, ref. to +25°C.**

Type TG Resistors can be matched to achieve Low Ratio Temperature Coefficient Tracking

Ratio Temperature Coefficient of 10 ppm/°C, -40°C to +85°C, referenced to +25°C can be achieved by TC matching one larger Type TG Low TC Precision High Voltage Resistor (up to Model TG980, 15kV) with one small body Type TG resistor (Example: TG913). The low, essentially linear, absolute temperature coefficient of the Type TG resistors will minimize ratio drift during warm up, while maintaining the tight Ratio TC Tracking after warm-up.

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For Caddock Distributors listed by country see caddock.com/contact/dist.html

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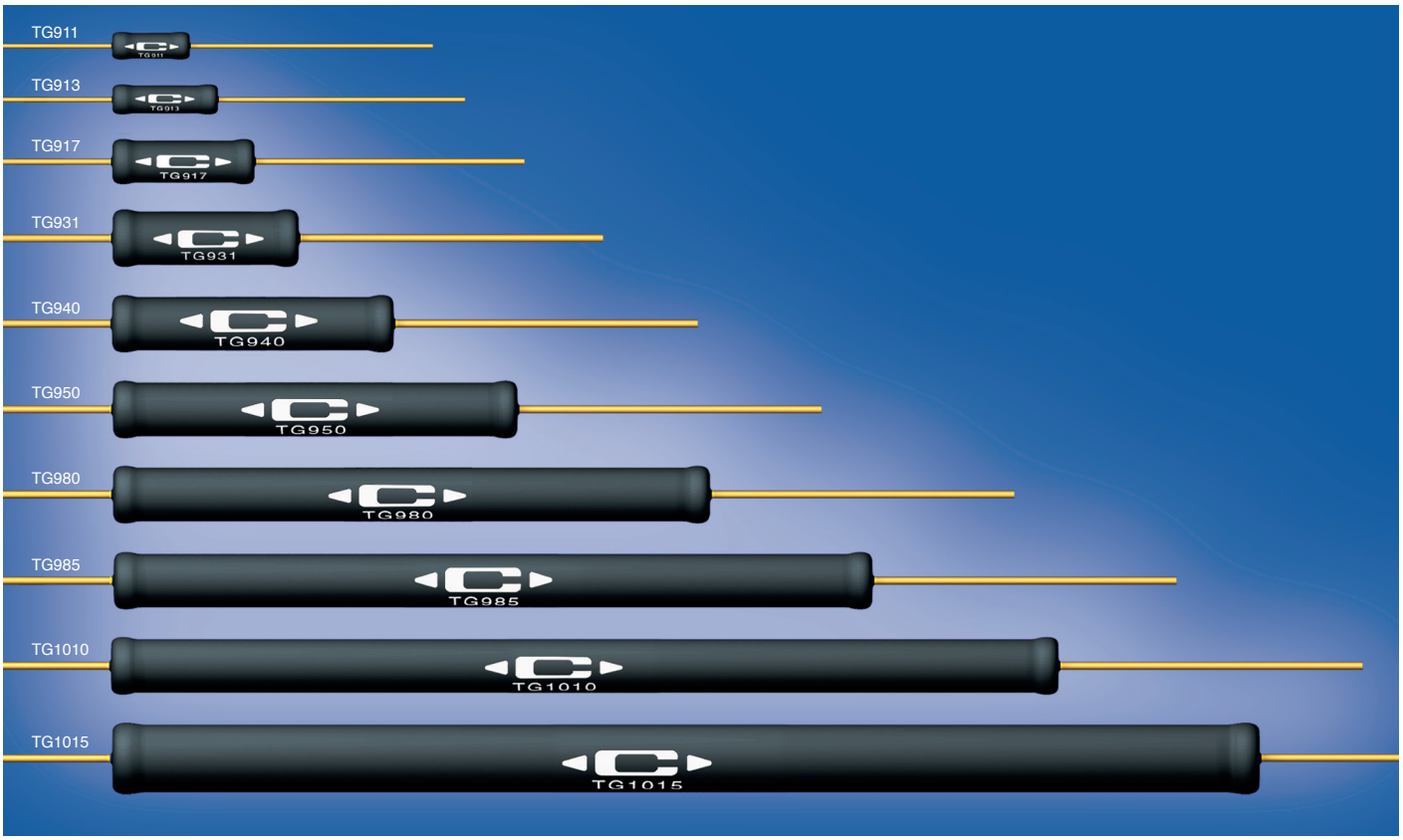


Specifications:

Resistance Tolerance:

Resistance Range	Tolerance
Standard	±1%; also ±0.1%, ±0.25%, ±0.5%
With "-15" rating	±1%

Temperature Coefficient: ±25 ppm/°C referenced to +25°C, ΔR at -55°C and +125°C

Voltage Coefficient: Low Voltage Coefficient, Contact Caddock Applications Engineering

Overload/Overvoltage: 5 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds, DC Voltage or VAC_{rms}

Resistance Range	Overload/Overvoltage, ΔR
With standard ratings	0.2% max.
With "-15" rating	N/A

Load Life: 1,000 hours at rated voltage, not to exceed rated power.

Resistance Range	Load Life, ΔR
With standard ratings	0.25% max. at +125°C
With "-15" rating	0.40% max. at +85°C

Extended Life Stability: 0.03% maximum per 1,000 hours at +125°C (standard ratings).

Thermal Shock: Mil-Std-202, Method 107, Cond. B, ΔR 0.20% max.

Moisture Resistance: Mil-Std-202, Method 106, ΔR 0.20% max.

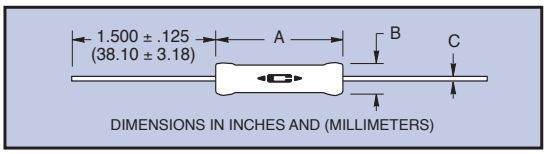
Insulation Resistance: 10,000 Megohms, min.

Lead Finish: Solderable. Thin gold plate over thick nickel layer on copper core.

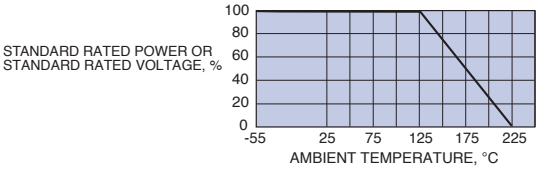
Encapsulation: High Temperature Silicone Conformal.

Operating Temperature Range: For standard power and voltage ratings: -55°C to +225°C. For "-15" voltage ratings: -40°C to +85°C.

Model No.	Wattage	Std. Max. Continuous Oper. Volt. (DC or ACrms)	Coating Dielectric Strength (ACrms)	TC ppm/°C	Resistance Range			Dimensions in inches and (millimeters)		
					Std. Min.	-15 Min.	Std. Max.	A	B	C
TG911	0.2	400	500	25	25 K	N/A	1 Meg	0.400 ±.060 (10.16 ±1.52)	.140 ±.030 (3.56 ±.76)	.025 ±.002 (.64 ±.05)
TG913	0.4	600	500	25	100 K	N/A	3 Meg	0.562 ±.060 (14.27 ±1.52)	.150 ±.030 (3.81 ±.76)	.032 ±.002 (.81 ±.05)
TG917	0.6	1,000	750	25	200 K	N/A	10 Meg	0.710 ±.050 (18.03 ±1.27)	.240 ±.030 (6.10 ±.0.76)	.040 ±.002 (1.02 ±.05)
TG931	1.0	4,000	750	25	1 Meg	40 Meg	50 Meg	1.000 ±.060 (25.40 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
TG940	1.5	6,000	750	25	1.5 Meg	64 Meg	100 Meg	1.500 ±.060 (38.10 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
TG950	2.0	10,000	1,000	25	2 Meg	128 Meg	200 Meg	2.125 ±.060 (53.98 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
TG980	3.0	15,000	1,000	25	3 Meg	192 Meg	300 Meg	3.125 ±.060 (79.38 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
TG985	4.0	20,000	1,000	25	4 Meg	320 Meg	400 Meg	4.000 ±.120 (101.60 ±3.05)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
TG1010	5.0	25,000	1,000	25	5 Meg	400 Meg	500 Meg	5.000 ±.120 (127.00 ±3.05)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
TG1015	6.0	30,000	1,000	25	6 Meg	384 Meg	1000 Meg	6.000 ±.120 (152.40 ±3.05)	.350 ±.040 (8.89 ±1.02)	.040 ±.002 (1.02 ±.05)



Derating Curve (applies to the ratings listed in the table):



Ordering Information:

TG950 -100M - 1%

Model Number:

Resistor Value:

Tolerance