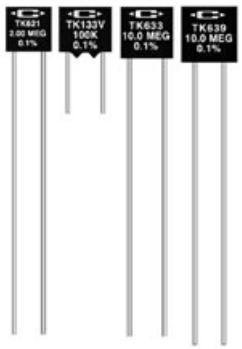
Type TK Low TC Precision Radial-Lead Film Resistors

Low TC of 5 ppm/°C, 10 ppm/°C, or 20 ppm/°C and Resistance Range from 1 Kohm to 10 Megs

Type TK Low TC Precision Radial-Lead Resistors with the Tetrinox® resistance system solve the reliability problems related to other low TC precision resistor technologies. The robust construction of Caddock's Type TK Resistors provides reliable operation even in harsh temperature cycling and/or power cycling environments.

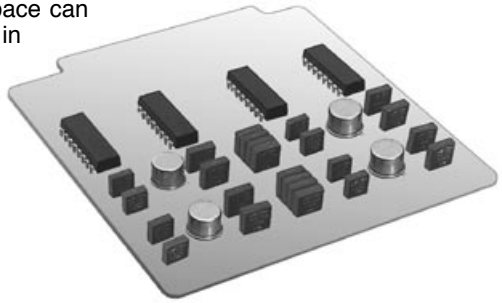
Type TK Low TC Precision Radial-Lead Film Resistors provide a combination of performance advantages never before available in a resistive component:

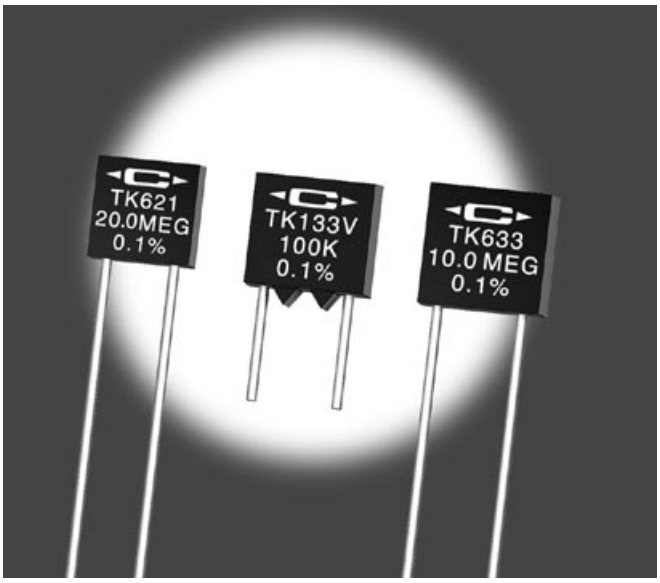
- **Low Temperature Coefficient** - better than 5 ppm/°C, 10 ppm/°C, or 20 ppm/°C over the entire temperature range from -55°C to +125°C!
- **Long-Term Absolute Stability** - typically better than ±0.05% per 2,000 hours of operation.
- **Extended Resistance Range** - from 1 K ohm to 10 Megohm.
- **Precision Tolerances** - ±0.1% is standard, and tolerances of ±1% and ±0.05% are available.
- **Wide Operating Temperature Range** - from -55°C to +175°C.
- **Small Size** - with four miniature rectangular cases for maximum packaging density and minimum mounting area.
- **High Power Density** - with power ratings of 0.2 Watt and 0.3 Watt in molded cases, the largest of which is a standard CK06 package.



(Photos show resistors full size)

- **Caddock's Non-Inductive Performance** - provides faster settling times and minimum distortion in all types of high frequency circuits.
- **High Density Packaging** - the radial-lead mounting and small rectangular case of the Type TK resistors permit high packaging densities in low profile circuitry. Because the four models of the Type TK resistors are available in an exceptionally wide range of resistance values, lead spacing and mounting space can be standardized in a larger number of designs.





Building on over 30 years of experience with our unique complex oxide technology, Caddock has perfected the Tetrinox® resistance system - the first high resistance system to provide a TC that is well within 10 ppm/°C and that is also essentially linear over the entire temperature range from -55°C to +125°C.

The exceptional performance of Type TK resistors can achieve improvements in many circuit applications:

Low TC "Matched-Pair" Voltage Dividers can be Assembled Without Pre-Selection of Resistors.

An important application for Type TK resistors is in "matched-pair" voltage dividers where the low 5 ppm/°C temperature coefficient provides ratio tracking of less than 10 ppm/°C without resistor pre-selection or special testing.

With factory selection, Type TK resistor pairs can be matched to within 1 ppm/°C.

Extended Resistance Range Reduces Power Requirements

Because the Type TK resistors provide resistance values as high as 10 Megohms - values that are up to 100 times higher than other types of ultra-low TC resistors - engineers can now design precision circuits with lower current drain and lower power requirements.

Ordering Information:

TK633 - 10.0 Meg - 0.1% - 10 ppm/°C

- TK633 - Model Number
- 10.0 Meg - Resistor Value
- 0.1% - Tolerance
- 10 ppm/°C - Temperature Coefficient

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Type TK Low TC Precision Radial-Lead Film Resistors

Type TK Low TC Precision Radial-Lead Film Resistors - Standard Resistance Range

Model No.	Temperature Coefficient ppm/°C	Wattage @ +125°C	Max. Working Voltage	Dielect. Strength	Resistance Min.	Resistance Max.	Dimensions	Encap-sulation	Leadwire	Comments
TK121	5, 10, or 20	0.2	200	300	1 K	500 K	Ref. Case "A" Dwg.	Transfer Molded	Tinned Copper	————
TK133	5, 10, or 20	0.3	300	400	1 K	1.5 Meg	Ref. Case "B" Dwg.	Transfer Molded	Tinned Copper	————
TK133V	5, 10, or 20	0.3	300	400	1 K	1.5 Meg	Ref. Case "D" Dwg.	Transfer Molded	Tinned Copper	With Standoff
TK134	5, 10, or 20	0.3	300	400	1 K	1.5 Meg	Ref. Case "E" Dwg.	Transfer Molded	Gold Plated	————
TK139	5, 10, or 20	0.3	300	400	1 K	1.5 Meg	Ref. Case "C" Dwg.	Transfer Molded	Tinned Copper	————

Temperature Coefficient identified with color stripe on the top edge of the part:
5 ppm/°C White Stripe
10 ppm/°C No Stripe
20 ppm/°C Green Stripe

Resistance Tolerance: ±0.1% (tolerances of ±1% and ±0.05% on special order).
Operating Temperature: -55°C to +175°C.
TC Temperature Range: -55°C to +125°C.
Overload*: 6.25 times rated power for 5 seconds at voltage not to exceed 1.5 times maximum rated working voltage, ΔR less than 0.05%.

Thermal Shock: Mil-Std-202, Method 107, Cond. B, ΔR less than 0.05%.
Low Temperature Operation*: ΔR less than 0.02%.
Dielectric Withstanding Voltage*: ΔR less than 0.02%.
Moisture Resistance*: Mil-Std-202, Method 106, 1K to 500K ΔR less than 0.05%, 500.1K to 1.5 Meg ΔR less than 0.10%.

Load Life*: 2,000 hours at +125°C, 1K to 500K ΔR less than 0.07%, 500.1K to 1.5 Meg. ΔR less than 0.10%.
Shelf Life (Typical): 25 ppm/year.
Insulation Resistance: 10,000 Megohms.
Vibration*: ΔR less than 0.03%.
Shock*: ΔR less than 0.05%.
*Test methods per procedures of Mil-PRF-55182/9.

Type TK Low TC Precision Radial-Lead Film Resistors - Extended Resistance Range

Model No.	Temperature Coefficient ppm/°C	Wattage @ +125°C	Max. Working Voltage	Dielect. Strength	Resistance Min.	Resistance Max.	Dimensions	Encap-sulation	Leadwire	Comments
TK621	5, 10 or 20	Limited by Maximum Working Voltage	200	300	501 K	2 Meg	Ref. Case "A" Dwg.	Transfer Molded	Tinned Copper	————
TK633	5, 10 or 20		300	400	1.51 Meg	10 Meg	Ref. Case "B" Dwg.	Transfer Molded	Tinned Copper	————
TK633V	5, 10 or 20		300	400	1.51 Meg	10 Meg	Ref. Case "D" Dwg.	Transfer Molded	Tinned Copper	With Standoff
TK634	5, 10 or 20		300	400	1.51 Meg	10 Meg	Ref. Case "E" Dwg.	Transfer Molded	Gold Plated	————
TK639	5, 10 or 20		300	400	1.51 Meg	10 Meg	Ref. Case "C" Dwg.	Transfer Molded	Tinned Copper	————

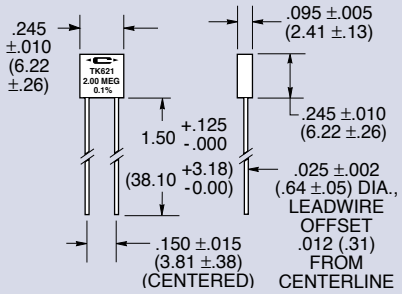
Temperature Coefficient identified with color stripe on the top edge of the part:
5 ppm/°C White Stripe
10 ppm/ °C No Stripe
20 ppm/ °C Green Stripe

Resistance Tolerance: ±0.1% (tolerances of ±1% and ±0.05% on special order).
Operating Temperature: -55°C to +175°C.
TC Temperature Range: -55°C to +125°C.
Overload*: 1.5 times rated working voltage for 5 seconds, ΔR less than 0.2%.

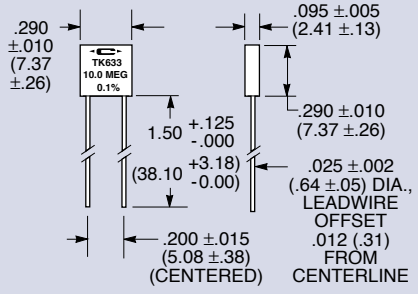
Thermal Shock: Mil-Std-202, Method 107, Cond. B, ΔR less than 0.1%.
Low Temperature Operation*: ΔR less than 0.05%.
Dielectric Withstanding Voltage*: ΔR less than 0.05%.
Moisture Resistance*: Mil-Std-202, Method 106, ΔR less than 0.10%.

Load Life*: 2,000 hours at +125°C, ΔR less than 0.2%.
Shelf Life (Typical): 50 ppm/year.
Insulation Resistance: 10,000 Megohms.
Vibration*: ΔR less than 0.05%.
Shock*: ΔR less than 0.05%.
*Test methods per procedures of Mil-PRF-55182/9.

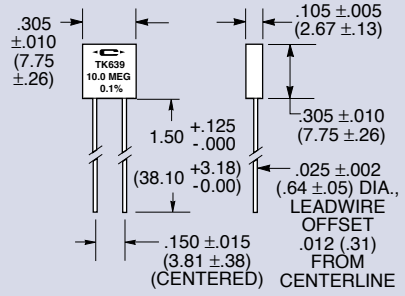
Case "A"
Model TK121 and TK621



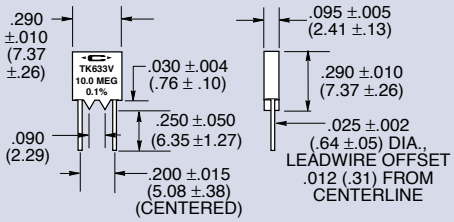
Case "B"
Model TK133 and TK633



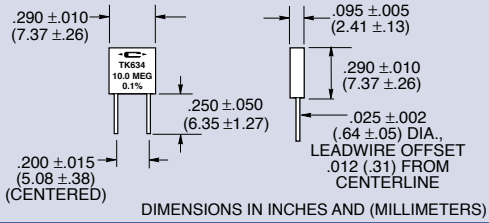
Case "C"
Model TK139 and TK639



Case "D"
Model TK133V and TK633V

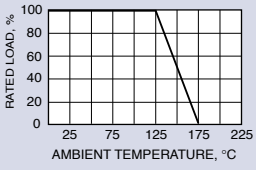


Case "E"
Model TK134 and TK634



DIMENSIONS IN INCHES AND (MILLIMETERS)

Derating Curve:



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