Type TF Low TC Ultra-Precision Film Resistors

Absolute TC to 5 ppm/°C, Values from 1 Kohm to 125 Megohms, Absolute Tolerance to ±0.01%

Type TF precision resistors employ the Caddock Tetrinox® resistance films - the resistance system that sets a new standard for high value, ultra-stable precision resistors that provide an exceptional combination of performance characteristics:

- **Ultra-Precision** - Five standard resistance tolerances from ±1% to ±0.01%.
- **A Wide Range of Resistance Values** - from 1 Kohm to 125 Megohms.
- **Low Temperature Coefficient** - 5 ppm/°C, 10 ppm/°C, or 15 ppm/°C.
- **Long-Term Stability** - to 0.01% per 1,000 hours.

This approach to quantity production of ultra-precision discrete resistors is the result of combining our unique complex oxide resistance film technology with an advanced high thru-put laser manufacturing capability.

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### Type TF - Standard Resistance Range - 1 Kohm to 10 Megohms

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Axial Leads</th>
<th>Radial Leads</th>
<th>Wattage @ +70°C</th>
<th>Maximum Continuous Oper. Voltage</th>
<th>Resistance</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF020N</td>
<td>TF020R</td>
<td>0.33</td>
<td>300</td>
<td>1 K</td>
<td>100 ±.020</td>
<td>750 ±.020</td>
</tr>
<tr>
<td>TF050N</td>
<td>TF050R</td>
<td>0.75</td>
<td>1,400</td>
<td>10 K</td>
<td>1,000 ±.020</td>
<td>1,500 ±.020</td>
</tr>
</tbody>
</table>

**Shelf Life:** Typically 0.0025% per year

### Type TF - Extended Resistance Range - 2 Megohms to 125 Megohms

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Axial Leads</th>
<th>Radial Leads</th>
<th>Wattage @ +70°C</th>
<th>Maximum Continuous Oper. Voltage</th>
<th>Resistance</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF626N</td>
<td>TF626R</td>
<td>0.33</td>
<td>300</td>
<td>2.01 Meg</td>
<td>35 Meg</td>
<td>750 ±.020</td>
</tr>
<tr>
<td>TF656N</td>
<td>TF656R</td>
<td>0.75</td>
<td>1,400</td>
<td>10.01 Meg</td>
<td>125 Meg</td>
<td>1,500 ±.020</td>
</tr>
</tbody>
</table>

**Shelf Life:** Typically 0.005% per year

### Specifications:
- **Apply to all Type TF resistor models.**
- **Absolute Temperature Coefficient:** 5 ppm/°C, 10 ppm/°C, or 15 ppm/°C referenced to +25°C, δR taken at -15°C and +105°C.
- **Resistance Tolerance:** ±0.01%, ±0.025%, ±0.05%, ±0.10%, or ±0.1%.
- **Load Life:** For ±0.10% or tighter tolerance, 1,000 hours at +70°C. Load stability versus applied power is shown in the load stability curve on this page.
- **Storage Temperature:** -55°C to +105°C.
- **Leadwire:** Tin-Per Copper.
- **Derating Curve:**

### Ordering Information:

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Tolerance</th>
<th>Resistor Value</th>
<th>Temperature Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF050R</td>
<td>0.01%</td>
<td>10.0 Meg</td>
<td>10 ppm/°C</td>
</tr>
</tbody>
</table>

And for special requirements, custom Type TF resistors are available with:
- **TC of 5 ppm/°C, 10 ppm/°C, 15 ppm/°C, 20 ppm/°C, or 25 ppm/°C.**
- **Shelf stability of 0.0025% per year.**

Type TF resistors can also be produced with custom-spaced radial leads that will plug directly into your existing circuit layout.

**Additional cost savings can be realized when your high volume ultra-precision Type TF resistor is optimized for:**
- Lightning transient capability
- Voltage rating
- Power rating
- Mechanical configuration
- Ratio matched sets