



## Temperature Sensitive Resistors

Large  $\Delta R/\Delta T$



### FEATURES

- Custom TCR to  $\pm 2\%$  tolerance
- Absolute resistance tolerance to  $\pm 0.1\%$
- Fast thermal transition
- Physical configurations to your specifications
- Excellent TCR linearity
- Excellent repeatability

The Table below lists several common resistance-wire alloys according to the TCR. There are many alloys available with special TCRs within this range. Availability of alloys, however, does not limit the ability to obtain other special TCRs up to + 6000 ppm/°C. Intermediate values can be obtained by utilizing various manufacturing techniques and by selecting and combining resistance wires of various alloys.

Although precision wirewound resistors are usually selected for their tight tolerance and low TCR capabilities, it is sometimes necessary to use a high-TCR resistor to compensate for other circuit components which exhibit negative TC. Also, because of their high reliability and linear resistance vs. temperature characteristics, high-positive-TCR resistive devices are frequently used to measure temperature or provide temperature reference for thermocouples.

High TCR resistors are offered in our standard packages, (page 5 & 6), and special packages are available to meet your design specifications. If you have a unique application or package requirement, our applications engineering department is ready to assist in your design.

TABLE 7 - WIRE SELECTION

Wire Alloy Common Trade Name or Equivalent	Temperature Coefficient (ppm/°C)		Resistivity (Ohms/CMF)	Maximum Resistance Factor*
	- 55°C to + 25°C	+ 25°C to + 125°C		
Evanohm®	+ 5 ± 10	+ 5 ± 10	800	1.00
3520 Ni/TOPHET D®	+ 380 ± 40	+ 400 ± 40	600	0.76
90 ALLOY	+ 450 ± 50	+ 450 ± 50	90	0.11
60 ALLOY	+ 700 ± 200	+ 700 ± 200	60	0.08
316 S.S.	+ 850 ± 80	+ 850 ± 80	470	0.59
304 S.S.	+ 1000 ± 100	+ 1000 ± 100	420	0.53
30 ALLOY	+ 1400 ± 300	+ 1400 ± 300	30	0.04
42% Ni Fe	+ 2600 ± 200	+ 2600 ± 200	420	0.53
KOVAR®	+ 3500 ± 300	+ 3500 ± 300	294	0.37
BALCO®	+ 3900 ± 300	+ 4500 ± 400	120	0.15
NICKEL 270 <sup>1</sup>	+ 5000 ± 300	+ 6000 ± 300	42	0.05

**NOTE:** Special RTC's available by combining alloys

\*To obtain maximum resistance available, multiply the maximum value for the particular resistor style by the maximum resistance factor.

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### BASIC INFORMATION REQUIRED FOR DESIGN AND QUOTATION

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|----------------------|---|
| Resistor description | <ul style="list-style-type: none"> <li>• Style/size/mechanical description, if special</li> <li>• Resistance value at a given temperature</li> <li>• Tolerance at the same temperature</li> <li>• Amount of variation per °C and temperature range</li> <li>• Linearity and tolerance on TCR</li> <li>• Power rating desired</li> </ul> |
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