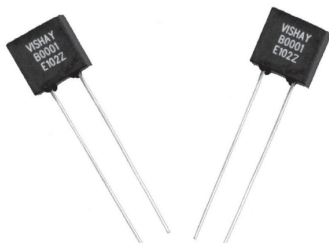


# Ultra High Precision Bulk Metal® Z-Foil Extended Value Range Resistor, with TCR of 0.2 ppm/°C, PCR of 5 ppm Rated Power, Tolerance to 0.005 %, and Power Rated at 0.6 W



## Any value available within resistance range

The Z-foil technology provides a significant reduction of the resistive component's sensitivity to ambient temperature variations (TCR) and applied power changes (PCR).

Designers can now guarantee a high degree of stability and accuracy in fixed-resistor applications using solutions based on Vishay's revolutionary Z-foil technology.

The E102Z (0.150" lead spacing) and E102JZ (0.200" lead spacing) extends the range of the ultra high precision Z201 and Z201L.

Our application engineering department is available to advise and to make recommendations. For non-standard technical requirements and special applications, please contact us.

## FEATURES

- Temperature coefficient of resistance (TCR):  
- 55 °C to + 125 °C, + 25 °C ref.  
0.2 ppm/°C typical
- Rated power: to 0.3 W at + 125 °C, 0.6 W at + 70 °C
- Tolerance:  $\pm 0.005 \%$
- Load life stability: to  $\pm 0.005 \%$  at 70 °C, 2000 h at rated power
- Resistance range: 100 k $\Omega$  to 250 k $\Omega$  (higher and lower values of resistance are available)
- Electrostatic discharge (ESD) above 25 000 V
- Non inductive, non capacitive design
- Rise time: 1 ns without ringing
- Current noise: < - 40 dB
- Thermal EMF: 0.05  $\mu\text{V}/^\circ\text{C}$  typical
- Voltage coefficient < 0.1 ppm/V
- Low inductance: < 0.08  $\mu\text{H}$  typical
- Non hot spot design
- Terminal finishes available: lead (Pb)-free  
tin/lead alloy
- Matched sets are available on request  
(TCR tracking: to 0.5 ppm/°C)

FIGURE 1 - TYPICAL TCR CURVE Z-FOIL

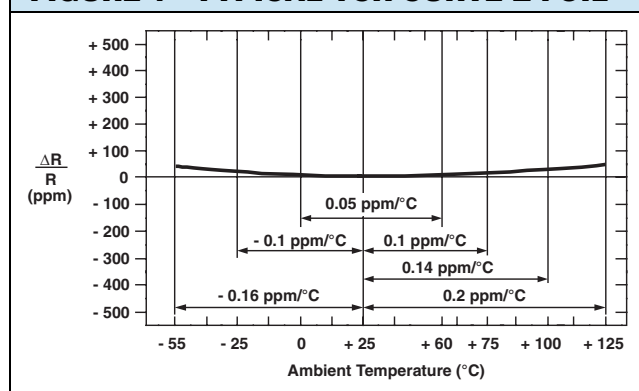


FIGURE 2 - POWER DERATING CURVE

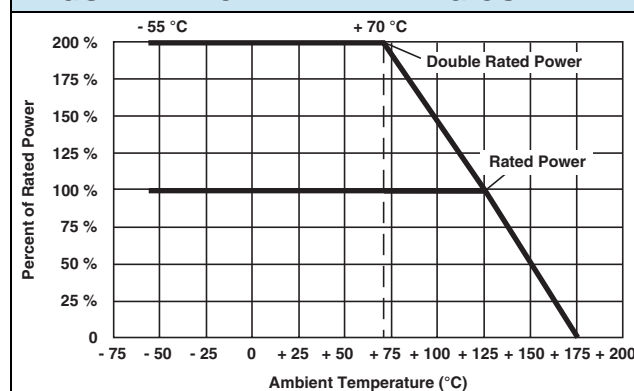
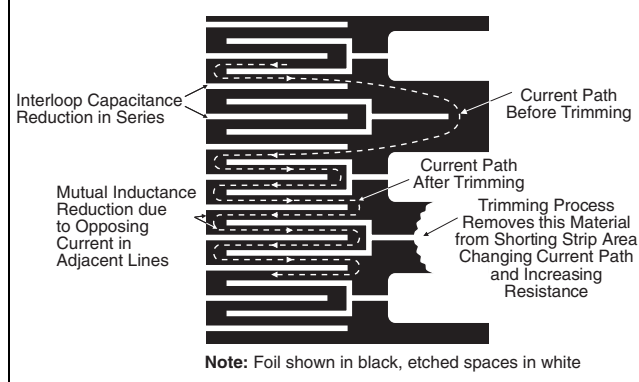
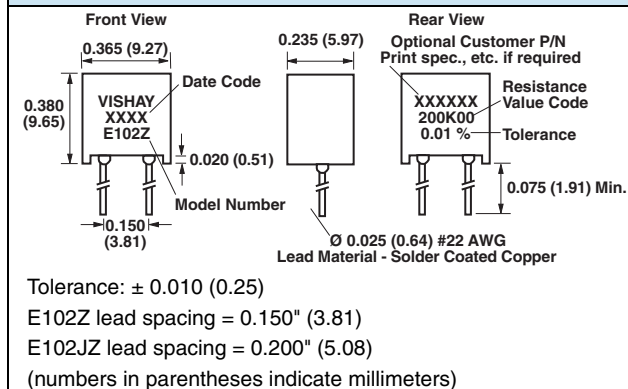
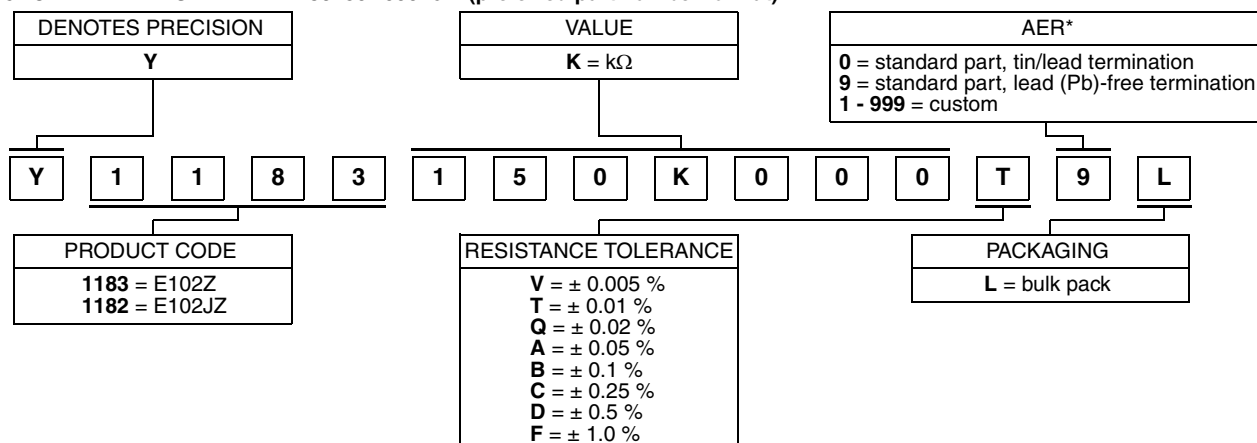


TABLE 1 - E102Z SPECIFICATIONS

Temperature Coefficient of Resistance (TCR) - 55 °C to + 125 °C, + 25 °C ref.	0.2 ppm/°C typical, 0.8 ppm/°C maximum
Stability Load life at 2000 h Load life at 10 000 h	$\pm 0.005 \%$ maximum $\Delta R$ at 0.1 W/+ 70 °C $\pm 0.015 \%$ maximum $\Delta R$ at 0.3 W/+ 125 °C $\pm 0.01 \%$ maximum $\Delta R$ at 0.05 W/+ 125 °C $\pm 0.05 \%$ maximum $\Delta R$ at 0.3 W/+ 125 °C
Current Noise	< - 40 dB
High Frequency Operation Rise time Inductance (L) Capacitance (C)	1.0 ns 0.1 $\mu\text{H}$ maximum; 0.08 $\mu\text{H}$ typical 1.0 pF maximum; 0.5 pF typical
Voltage Coefficient	< 0.1 ppm/V
Thermal EMF	0.1 $\mu\text{V}/^\circ\text{C}$ maximum; 0.05 $\mu\text{V}/^\circ\text{C}$ typical

**FIGURE 3 - TRIMMING TO VALUES**  
 (Conceptual Illustration)

**FIGURE 4 - STANDARD IMPRINTING AND DIMENSIONS**

**TABLE 2 - GLOBAL PART NUMBER INFORMATION**
**NEW GLOBAL PART NUMBER: Y1183150K000T9L (preferred part number format)**


FOR EXAMPLE: ABOVE GLOBAL ORDER Y1183 150K000 T 9 L:

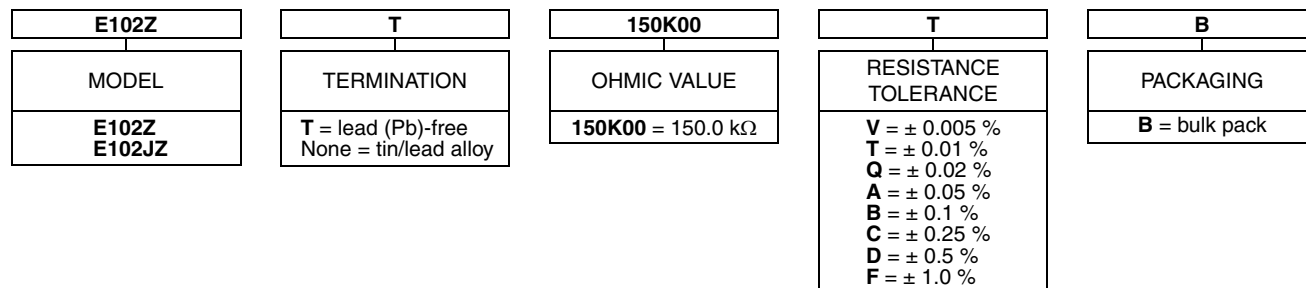
TYPE: E102Z

VALUE: 150.0 kΩ

 ABSOLUTE TOLERANCE:  $\pm 0.01$  %

TERMINATION: lead (Pb)-free

PACKAGING: bulk pack

**HISTORICAL PART NUMBER: E102Z T 150K00 T B (will continue to be used)**

**Note**

\* Application engineering release: for non-standard requests, please contact application engineering.

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