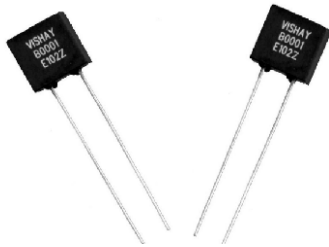


## Ultra High Precision Bulk Metal<sup>®</sup> Z-Foil Extended Value Range Resistor, with TCR of 0.2 ppm/°C, PCR of 5 ppm Rated Power, Tolerance to 0.005 %, and Power Rated at 0.6 W



### 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.

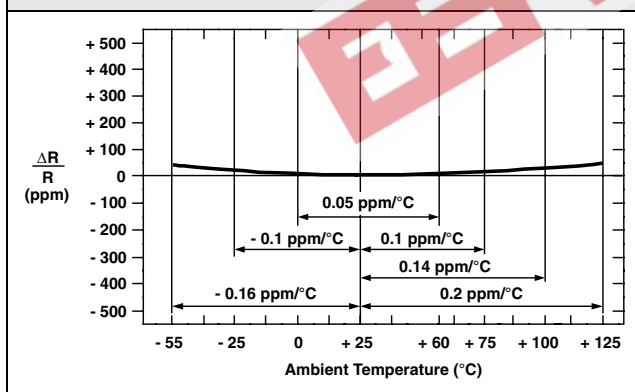
The E102Z (0.150" lead spacing) and E102JZ (0.200" lead spacing) extends the range of the ultra high precision Z201 and Z201L.

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

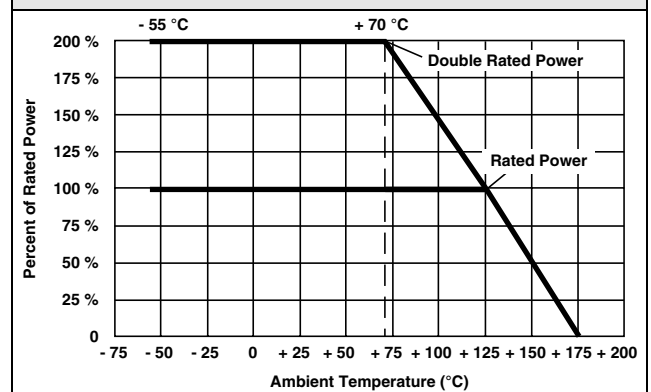
### FEATURES

- 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: ± 0.005 %
- Load life stability: to ± 0.005 % at 70 °C, 2000 h at rated power
- Resistance range: 100 kΩ to 250 kΩ (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 μV/°C typical
- Voltage coefficient < 0.1 ppm/V
- Low inductance: < 0.08 μH 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**



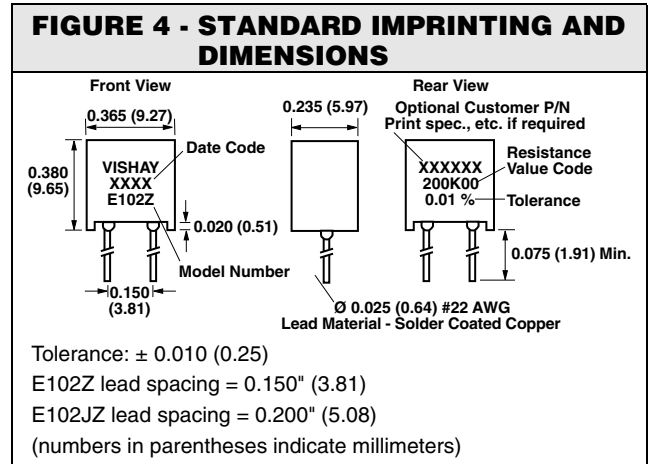
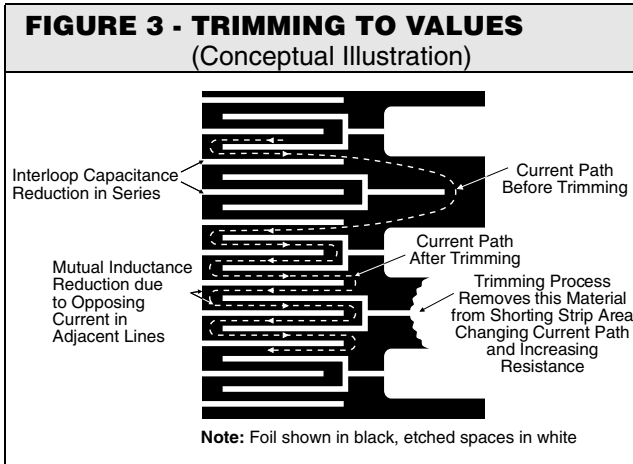
**TABLE 1 - E102Z SPECIFICATIONS**

<b>Temperature Coefficient of Resistance (TCR)</b> -55 °C to +125 °C, +25 °C ref.	0.2 ppm/°C typical, 0.8 ppm/°C maximum
<b>Stability</b> Load life at 2000 h Load life at 10 000 h	± 0.005 % maximum ΔR at 0.1 W/+70 °C ± 0.015 % maximum ΔR at 0.3 W/+125 °C ± 0.01 % maximum ΔR at 0.05 W/+125 °C ± 0.05 % maximum ΔR at 0.3 W/+125 °C
<b>Current Noise</b>	< -40 dB
<b>High Frequency Operation</b> Rise time Inductance (L) Capacitance (C)	1.0 ns 0.1 μH maximum; 0.08 μH typical 1.0 pF maximum; 0.5 pF typical
<b>Voltage Coefficient</b>	< 0.1 ppm/V
<b>Thermal EMF</b>	0.1 μV/°C maximum; 0.05 μV/°C typical

# E102Z



Vishay Foil Resistors Ultra High Precision Bulk Metal® Z-Foil Extended Value Range Resistor, with TCR of  $0.2 \text{ ppm}/^\circ\text{C}$ , PCR of 5 ppm Rated Power, Tolerance to  $0.005 \%$ , and Power Rated at  $0.6 \text{ W}$



**TABLE 2 - GLOBAL PART NUMBER INFORMATION**

NEW GLOBAL PART NUMBER: Y1183150K00T9L (preferred part number format)

DENOTES PRECISION <b>Y</b>	VALUE <b>K = kΩ</b>	AER* 0 = standard part, tin/lead termination 9 = standard part, lead (Pb)-free termination 1 - 999 = custom
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Y 1 1 8 3 1 5 0 K 0 0 0 T 9 L

PRODUCT CODE 1183 = E102Z 1182 = E102JZ	RESISTANCE TOLERANCE V = $\pm 0.005 \%$ T = $\pm 0.01 \%$ Q = $\pm 0.02 \%$ A = $\pm 0.05 \%$ B = $\pm 0.1 \%$ C = $\pm 0.25 \%$ D = $\pm 0.5 \%$ F = $\pm 1.0 \%$	PACKAGING L = bulk pack
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FOR EXAMPLE: ABOVE GLOBAL ORDER Y1183 150K00 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)

<b>E102Z</b>	<b>T</b>	<b>150K00</b>	<b>T</b>	<b>B</b>
MODEL	TERMINATION	OHMIC VALUE	RESISTANCE TOLERANCE	PACKAGING
E102Z E102JZ	T = lead (Pb)-free None = tin/lead alloy	150K00 = 150.0 kΩ	V = $\pm 0.005 \%$ T = $\pm 0.01 \%$ Q = $\pm 0.02 \%$ A = $\pm 0.05 \%$ B = $\pm 0.1 \%$ C = $\pm 0.25 \%$ D = $\pm 0.5 \%$ F = $\pm 1.0 \%$	B = bulk pack

**Note**

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



### Disclaimer

All product specifications and data are subject to change without notice.

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