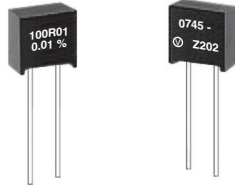


## Ultra High Precision Z-Foil Miniature Resistor with TCR of $\pm 0.05 \text{ ppm}/^\circ\text{C}$ , PCR of $5 \text{ ppm}$ at Rated Power and Tolerance to $\pm 0.01 \%$



Any value at any tolerance available with resistance range

The Z202 is a miniaturized version of the now famous Z201. It is made with a Bulk Metal® Z-Foil element so it retains all of the inherent performance of Z-Foil resistors.

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.

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):  $\pm 0.05 \text{ ppm}/^\circ\text{C}$  typical (0 °C to + 60 °C);  $\pm 0.2 \text{ ppm}/^\circ\text{C}$  typical (- 55 °C to + 125 °C, + 25 °C ref.)
- Tolerance: to  $\pm 0.01 \%$
- Power coefficient of resistance (PCR) "ΔR due to self heating":  $\pm 5 \text{ ppm}$  at rated power
- Electrostatic discharge (ESD) above 25 000 V
- Resistance range: 5 Ω to 30 kΩ (for higher or lower values, please contact us)
- Power rating: 0.25 W at + 70 °C; 0.125 W at + 125 °C
- Load life stability:  $\pm 0.01 \%$  maximum ΔR at + 70 °C at Rated power for 2000 h
- Non inductive, non capacitive design
- Current noise: - 40 dB
- Thermal EMF: < 0.1 μV/°C
- Voltage coefficient: < 0.1 ppm/V
- Non inductive: < 0.08 μH
- Non hot spot design
- Maximum working voltage: 250 V
- Terminal finishes available: lead (Pb)-free tin/lead alloy
- Any value available within resistance range (e.g. 1K234)
- Prototype samples available from 48 h. For more information, please contact [foil@vishaypg.com](mailto:foil@vishaypg.com)
- For better performances, please see Z201 datasheet



RoHS\*  
COMPLIANT

FIGURE 1 - IMPRINTING AND DIMENSIONS

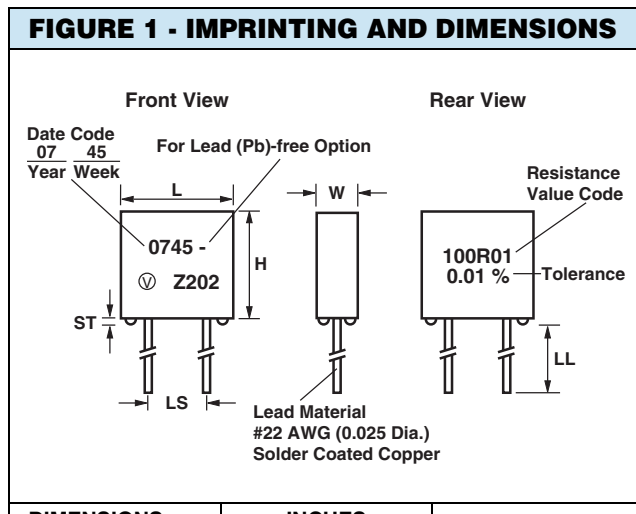


FIGURE 2 - POWER DERATING CURVE

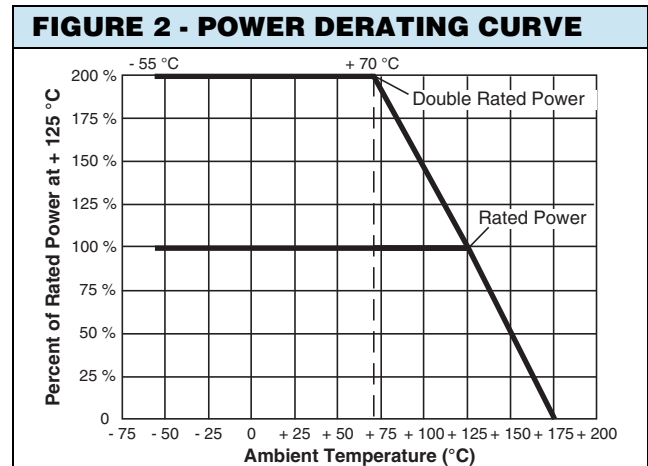
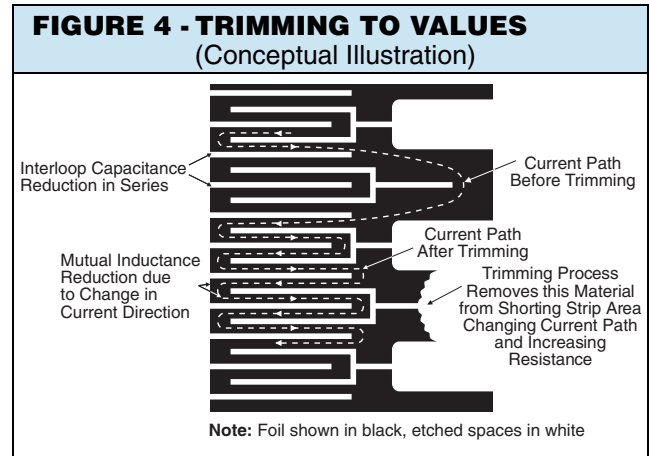
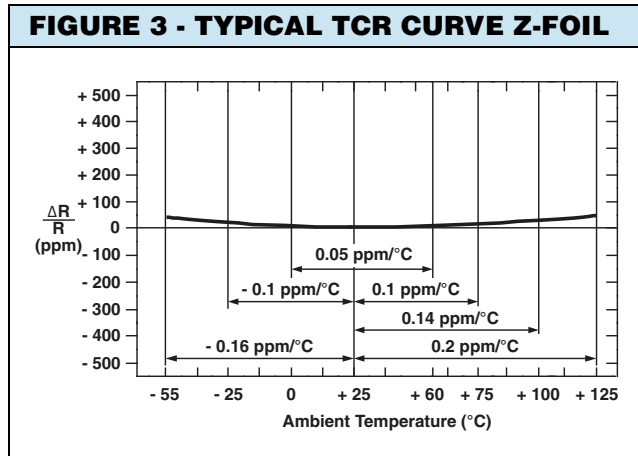


TABLE 1 - TOLERANCE AND TCR VERSUS

VALUE	STANDARD TOLERANCE	TYPICAL TCR AND MAXIMUM SPREAD - 55 °C to + 125 °C (+ 25 °C Ref.)
50 Ω to 30 kΩ	± 0.01 %	± 0.2 ± 1.8
20 Ω to < 50 Ω	± 0.02 %	± 0.2 ± 2.8
10 Ω to < 20 Ω	± 0.05 %	± 0.2 ± 4.8
5 Ω to < 10 Ω	± 0.1 %	± 0.2 ± 6.8

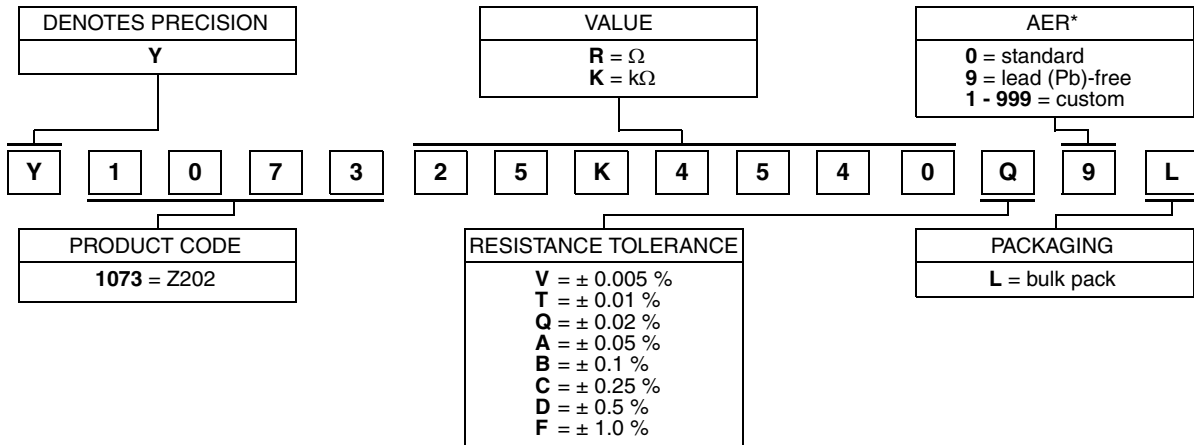
\* Pb containing terminations are not RoHS compliant, exemptions may apply



	MIL-PRF-55182 CHAR J	Z202	
		MAXIMUM ΔR	TYPICAL ΔR
<b>Test Group I</b>			
Thermal shock (5 x - 65 °C to + 150 °C)	± 0.2 %	± 0.01 % (100 ppm)	± 0.005 % (50 ppm)
Short time overload (6.25 x P <sub>nom</sub> x 5 s)	± 0.2 %	± 0.01 % (100 ppm)	± 0.005 % (50 ppm)
<b>Test Group II</b>			
Resistance temperature characteristic	± 25 ppm/°C	See table 1	± 0.05 ppm/°C (0 °C to + 60 °C)
Low temperature storage	± 0.15 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
Low temperature operation	± 0.15 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
Terminal strength	± 0.2 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
<b>Test Group III</b>			
DWV	± 0.15 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
Resistance to soldering heat	± 0.1 %	± 0.01 % (100 ppm)	± 0.005 % (50 ppm)
Moisture resistance	± 0.4 %	± 0.05 % (500 ppm)	± 0.01 % (100 ppm)
<b>Test Group IV</b>			
Shock	± 0.2 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
Vibration	± 0.2 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
<b>Test Group V</b>			
Life test at 0.125 W, 125 °C for 2000 h	± 0.5 %	± 0.025 % (250 ppm)	± 0.01 % (100 ppm)
<b>Test Group Va</b>			
Life test at 0.25 W (2 x rated power), 70 °C for 2000 h	± 0.5 %	± 0.02 % (200 ppm)	± 0.01 % (100 ppm)
<b>Test Group VI</b>			
High temperature exposure	± 2.0 %	± 0.1 % (1000 ppm)	± 0.05 % (500 ppm)

**TABLE 3 - GLOBAL PART NUMBER INFORMATION**

NEW GLOBAL PART NUMBER: Y107325K4540Q9L (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y1073 25K4540 Q 9 L:

TYPE: Z202

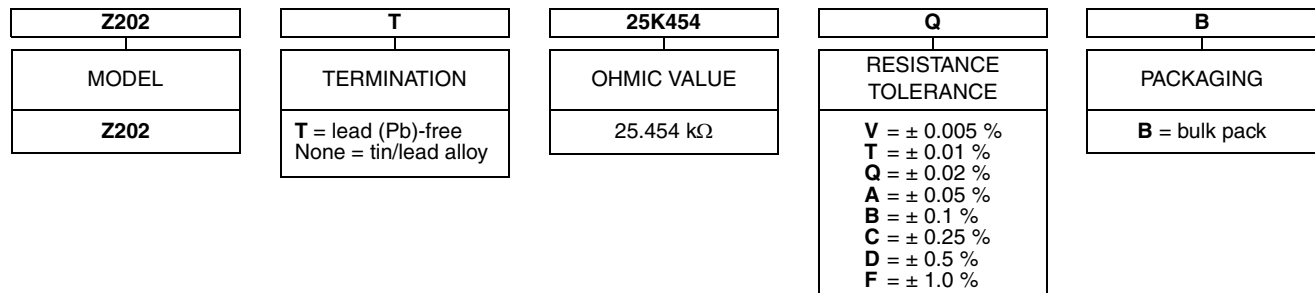
VALUE: 25.454 kΩ

ABSOLUTE TOLERANCE: ± 0.02 %

TERMINATION: lead (Pb)-free

PACKAGING: bulk pack

HISTORICAL PART NUMBER EXAMPLE: Z202T 25K454 Q B (will continue to be used)



**Note**

\* For non-standard requests, please contact Application Engineering.

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