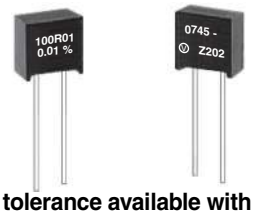
Ultra High Precision Z-Foil Miniature Resistor with TCR of ± 0.05 ppm/°C, PCR of 5 ppm at Rated Power and Tolerance to ± 0.01 %



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.

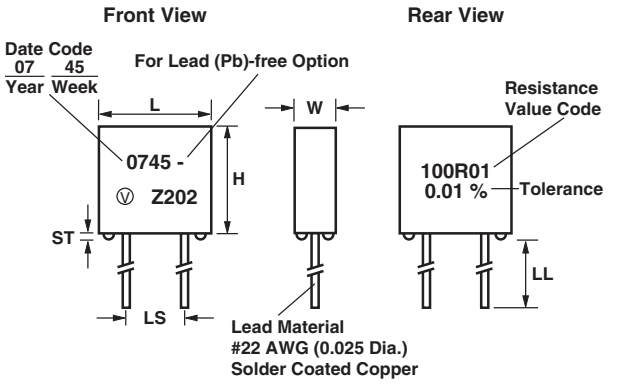
FEATURES

Pb-free Available

RoHS* COMPLIANT

- Temperature coefficient of resistance (TCR): ± 0.05 ppm/°C typical (0 °C to + 60 °C); ± 0.2 ppm/°C typical (- 55 °C to + 125 °C, + 25 °C ref.)
- Tolerance: to ± 0.01 %
- Power coefficient of resistance (PCR) "ΔR due to self heating": ± 5 ppm at rated rower
- 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: ± 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
- For better performances, please see Z201 datasheet

FIGURE 1 - IMPRINTING AND DIMENSIONS



DIMENSIONS	INCHES	mm
L:	0.250 ± 0.010	6.35 ± 0.25
H:	0.250 ± 0.010	6.35 ± 0.25
W:	0.125 ± 0.010	3.18 ± 0.25
ST:	0.020 ± 0.010	0.51 ± 0.25
LL:	0.750 minimum	19.05 minimum
LS:	0.125 ± 0.005	3.18 ± 0.13

FIGURE 2 - POWER DERATING CURVE

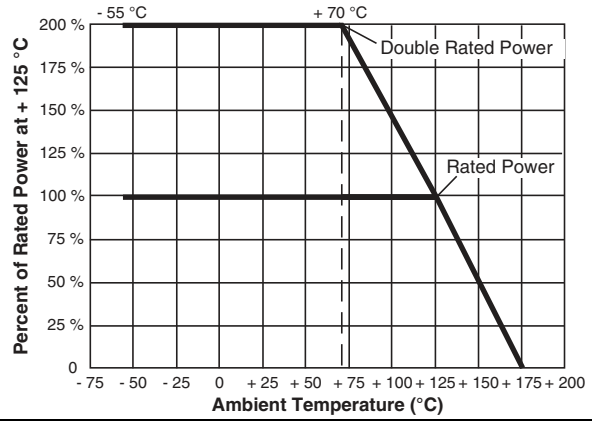


TABLE 1 - TOLERANCE AND TCR VERSUS

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

FIGURE 3 - TYPICAL TCR CURVE Z-FOIL

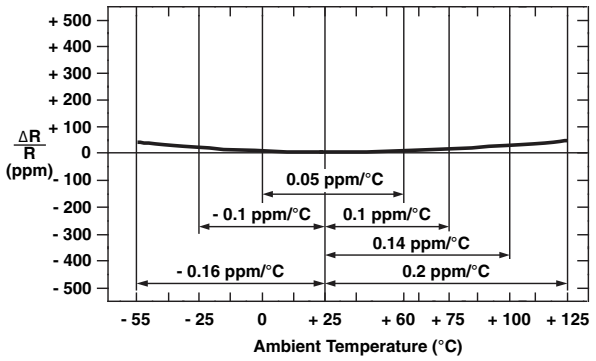
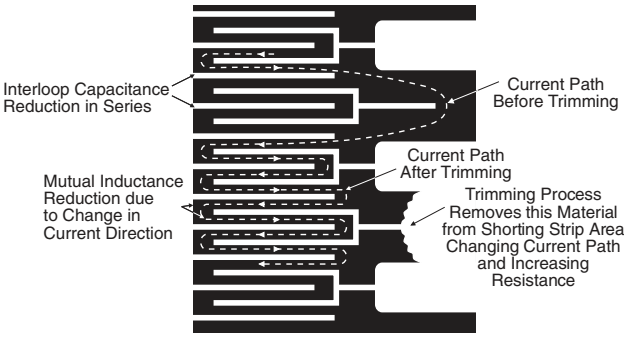


FIGURE 4 - TRIMMING TO VALUES
(Conceptual Illustration)



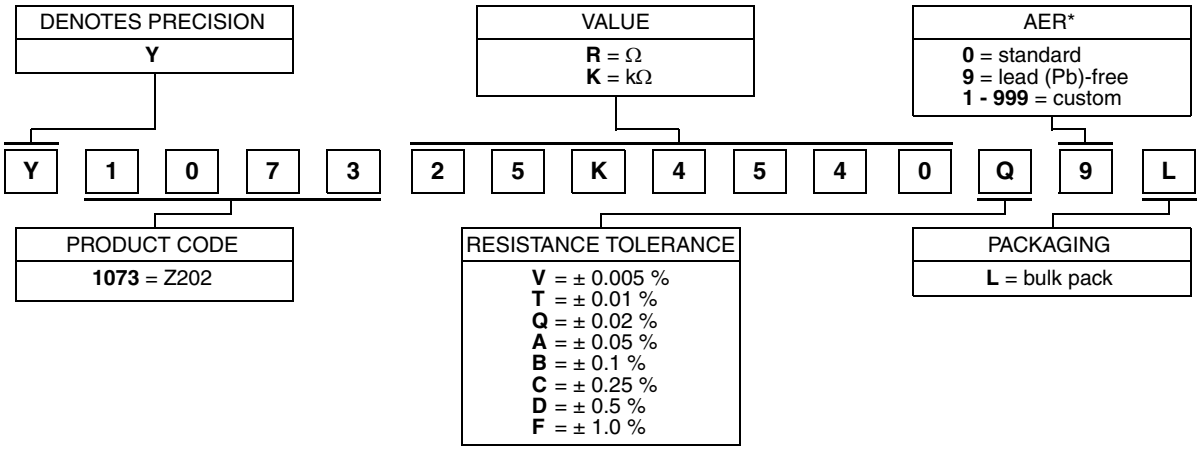
Note: Foil shown in black, etched spaces in white

TABLE 2 - ENVIRONMENTAL PERFORMANCE COMPARISON

	MIL-PRF-55182 CHAR J	Z202	
		MAXIMUM ΔR	TYPICAL ΔR
Test Group I			
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_{nom} x 5 s)	± 0.2 %	± 0.01 % (100 ppm)	± 0.005 % (50 ppm)
Test Group II			
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)
Test Group III			
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)
Test Group IV			
Shock	± 0.2 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
Vibration	± 0.2 %	± 0.01 % (100 ppm)	± 0.002 % (20 ppm)
Test Group V			
Life test at 0.125 W, 125 °C for 2000 h	± 0.5 %	± 0.025 % (250 ppm)	± 0.01 % (100 ppm)
Test Group Va			
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)
Test Group VI			
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)

Z202	T	25K454	Q	B
MODEL	TERMINATION	OHMIC VALUE	RESISTANCE TOLERANCE	PACKAGING
Z202	**T** = lead (Pb)-free None = tin/lead alloy	25.454 kΩ	**V** = ± 0.005 % **T** = ± 0.01 % **Q** = ± 0.02 % **A** = ± 0.05 % **B** = ± 0.1 % **C** = ± 0.25 % **D** = ± 0.5 % **F** = ± 1.0 %	**B** = bulk pack

Note

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

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