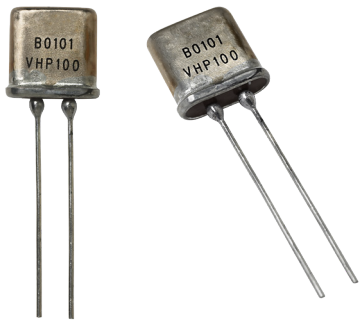
Ultra-High Precision Hermetically Sealed Bulk Metal® Foil Resistor

with Zero TCR, no Humidity Effect and 0.005% Tolerance within a Unique Construction, Minimizing the Effects of Stress Factors

FEATURES

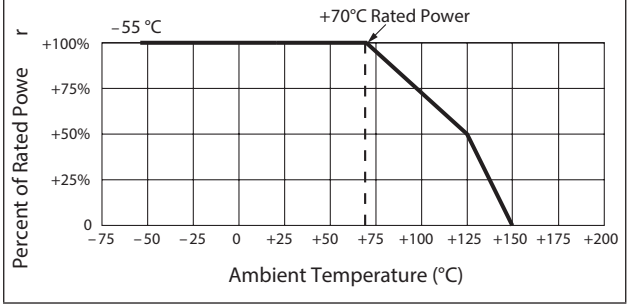
- Essentially zero TCR
- Absolute resistance change **(window)**:
  VHP100 <60 ppm (–55°C to +125°C)
  VHP101 <10 ppm (+15°C to +45°C)
- Tolerance: to ±0.005% (50 ppm)
- No humidity effect: hermetically sealed against moisture
- Load life stability: ±50 ppm typical for 2,000 h, 70°C at 0.3 W
- Resistance range: 100 Ω to 150 kΩ
- Hermeticity: 10^{-7} atmospheric cc/s max



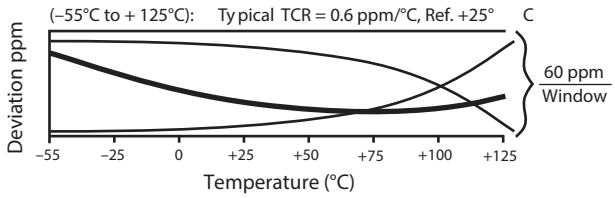
Pb-free Available

RoHS* COMPLIANT

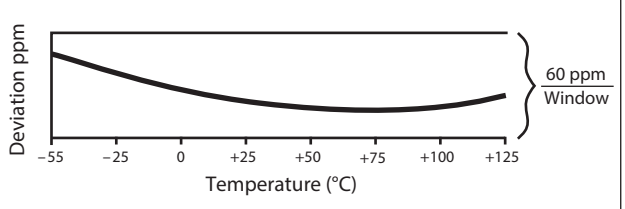
Power Derating Curve



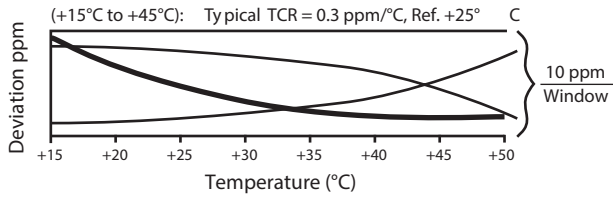
Typical Curves Within the 60 ppm Window, VHP10x TCR for Mil Range



A Typical VHP10x Resistance Temperature Curve



Typical Curves Within 10 ppm Window, VHP10x Laboratory Instrument Range



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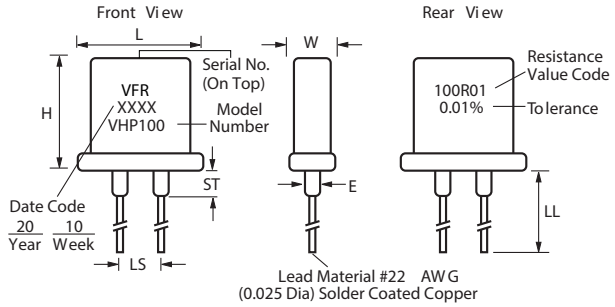
VHP10x Specifications

PARAMETER	VALUE
Resistance Range	100 Ω to 150 kΩ
Tolerance at +25°C	±0.005% to ±1.0%
Power	0.3 W at +70°C (see figure 2)
Load Life Stability[1] (for 2000 h)	0.3 W at +70°C; ±0.015% (150 ppm) maximum ΔR 0.15 W at +125°C; ±0.015% (150 ppm) maximum ΔR
Shelf-Life Stability	±0.0005% (5 ppm) Maximum ΔR after 1 yr; ±0.0010% (10 ppm) Maximum ΔR after 3 yrs
Thermal EMF Due to temperature difference between leads Due to self-heating at 0.1 W	 0.05 µV/°C 0 to 1 µV
High Frequency Operation Rise/decay time Inductance (L) Capacitance (C)	 1.0 ns for 1 kΩ without ringing 0.1 µH maximum, 0.08 µH typical 1.0 pF maximum, 0.5 pF typical
Maximum Working Voltage	300 V
Voltage Coefficient	<0.1 ppm/V
Current Noise	<0.010 µV (RMS)/V (–40 dB)
Hermeticity	10^{-7} atmospheric cc/s maximum

Note
(1) Load/life stability is considerably improved by reducing the temperature, power, or through in-house oriented tests.

Standard Printing



TOLERANCE	RESISTANCE SPECIFIED IN SIGNIFICANT DIGITS
±1.0%	3
±0.1%	4
±0.01%	5
±0.005%	6

VHP10x Series Dimensions

		INCHES	mm
VHP10x	W	0.162±0.020	4.70±0.51
	L	0.415±0.020	11.05±0.51
	H	0.430±0.020	10.92±0.51
	LL	1.000±0.125	25.4±3.18
	LS[1]	0.150±0.010	3.81±0.25
	ST	0.100 maximum	2.54 maximum
	E	0.070 maximum	1.78 maximum

Note
(1) For 0.200 lead spacing, specify **VHP102 (60 ppm)** or **VHP103 (10 ppm)**.

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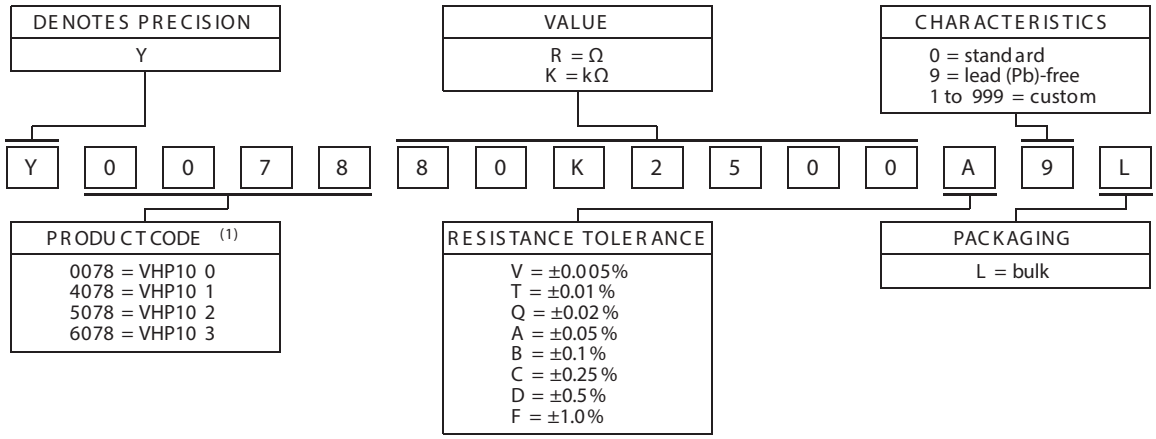
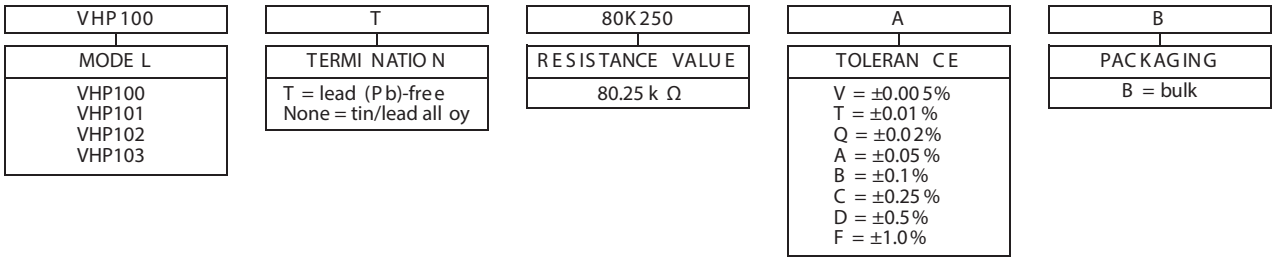
Global Part Number Information[2]

NEW GLO BAL PART NUMBER : Y007880K25 00A9 L (pre ferre d pa rt number format)



FOR EXAMPLE: ABOVE GLOB AL OR DE R Y0078 80K250 0 A 9 L:
TYPE: VHP100
VALUE: 80.25 k Ω
ABS OLUTE TOLERAN CE: ±0.05%
TERMI NATION: lead (Pb)-fr ee
PACKA GING: bulk

HIS TORIC AL PART NUMBE R: VHP100 T 80K25 0 A B (will conti nue to be us ed)



Note

(1) For 0.200 lead spacing, specify **VHP102 (60 ppm)** or **VHP103 (10 ppm)**.

(2) For non-standard requests, please contact foil@vpgsensors.com .

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