

# VPG Foil Resistors

Vishay Foil Resistors • Alpha Electronics • Powertron

VPG Foil Resistors stands for unparalleled precision, stability and reliability. Our resistor portfolio encompasses a wide variety of configurations and packages designed to surpass the requirements of even the most demanding applications.

Represented by the premier brands Vishay Foil Resistors, Alpha Electronics, and Powertron, our unique Bulk Metal® Foil technology outperforms all other resistor technologies. Continuously refined since its introduction in 1962, this ultra-precision technology is the solution of choice due to a distinct technical advantage over other options — the ability to deliver a completely customizable solution for any application.

To complement our extensive portfolio of high-performance foil resistors, we also offer decade boxes, standard resistors, exceptional precision thin film and power resistors including special construction configurations to meet the requirements of high temperature applications.

## Portfolio Performance Highlights

- Extremely low TCR: 0.2 ppm/°C typical
- TCR tracking available to 0.1 ppm/°C
- Excellent load-life stability/ratio stability:  
±0.002% max  $\Delta R$  per MIL standard;  
ultra long term stability: <1 ppm/year
- Very low resistance values from 0.0005  $\Omega$
- Any 6-digit value in the resistance range available at no additional cost with any tolerance (to 0.001%)
- High power up to 2500 W
- Shelf life: 2 ppm over more than six years
- Rapid thermal stabilization: <1 s
- Thermal EMF: 0.05  $\mu V/^\circ C$
- Electrostatic discharge (ESD): to at least 25 kV
- Non-inductive: < 0.08  $\mu H$
- Certification to NIST standards
- Special design to meet high temperature application requirements up to +240°C ambient temperature



# About Our Brands



**Vishay Foil Resistors** Bulk Metal® Foil resistors provide extremely low temperature coefficient of resistance (TCR) and exceptional long-term stability through temperature extremes. The Vishay Foil Resistors portfolio includes discrete resistors and resistor networks in surface-mount and through-hole (leaded) configurations, precision trimming potentiometers, and discrete chips for use in hybrid circuits, with customized chip resistor networks and arrays available. We continue to develop, manufacture and market new types of Bulk Metal Foil resistors, including military-established-reliability components (EEE-INST-002, DLA, CECC, ESA, ER, QPL, etc).



**Alpha Electronics** has been supplying ultra-precision Bulk Metal® Foil resistors to engineers from Japan with "Stability, Accuracy, and Reliability" since 1978. The resistance stability of Alpha foil resistor technology against changes in temperature and over time makes the devices excellent metrological standard resistors as well. Without needing the oil baths required by conventional standard resistors, they are a popular choice by national standard institutes and local calibration laboratories for primary and secondary standards. Alpha's standard resistors are available in a variety of models to fit a wide range of applications. Our ultra-precision thermosensitive resistor features a resistivity that varies linearly with temperature change, and is ideally designed for temperature detection and compensation applications with small size and rapid response.



**Powertron** is dedicated to the development, manufacturing and marketing of high-precision Bulk Metal® Foil, current sense and thick film resistors for use in diverse applications. Made in Germany, with local customer service and technical support, we offer a full complement of resistors for accurate, precise and high-power circuits (up to 2500 W), with full customization capabilities to support virtually any package type. We focus on delivering solutions with the best combination of power ratings, TCR and resistance ranges. As a result, our products are used throughout the world in high-precision medical, aerospace, military and industrial applications.

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