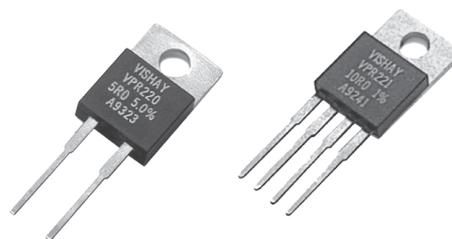


Bulk Metal® Foil Technology Precision Foil Power Resistors in TO-220 Configuration

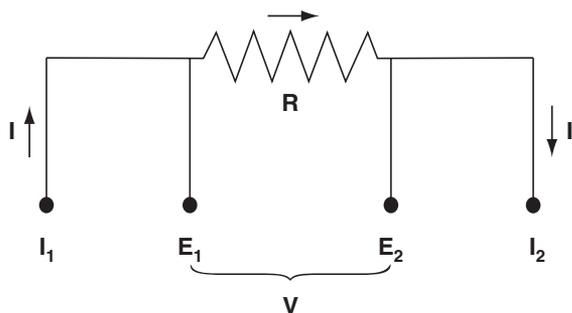
with TCR of ± 2 ppm/°C, Tolerance of to $\pm 0.01\%$ and Power Rating to 8 W

FEATURES

- Temperature coefficient of resistance (TCR): ± 2 ppm/°C typical (-55°C to $+125^\circ\text{C}$, $+25^\circ\text{C}$ ref.)
- Tolerance: to $\pm 0.01\%$
- Electrostatic discharge (ESD): up to 25 000 V
- Load life stability: $\pm 0.005\%$ (25°C , 2000 h at rated power)
- Resistance range: 0.5Ω to $10 \text{ k}\Omega$
- Power rating: 8 W chassis mounted (per MIL-PRF-39009)
- Non-inductive, non-capacitive design



Available
RoHS*
COMPLIANT



VPR220			
RESISTANCE RANGE ⁽¹⁾ (Ω)	TIGHTEST TOLERANCE	TYPICAL TCR ⁽²⁾	MAXIMUM TCR ⁽²⁾
50 to 10K	$\pm 0.01\%$	± 2	± 5 ppm/°C
25 to <50	$\pm 0.02\%$	± 2	± 7 ppm/°C
10 to <25	$\pm 0.05\%$	± 2	± 10 ppm/°C
5 to <10	$\pm 0.1\%$	± 2	± 13 ppm/°C

Weight = 1 g maximum

VPR221			
RESISTANCE RANGE ⁽¹⁾ (Ω)	TIGHTEST TOLERANCE	TYPICAL TCR ⁽²⁾	MAXIMUM TCR ⁽²⁾
10 to <500	$\pm 0.01\%$	± 2 ppm/°C	± 5 ppm/°C
1 to <10	$\pm 0.02\%$	± 2 ppm/°C	± 5 ppm/°C
0.5 to <1	$\pm 0.05\%$	± 2 ppm/°C	± 5 ppm/°C

Weight = 1.2 g maximum

Notes

* This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS compliant. Please see the information/tables in this datasheet for details.

⁽¹⁾ Lower or high values available upon request

⁽²⁾ -55°C to $+125^\circ\text{C}$, $+25^\circ\text{C}$ ref.

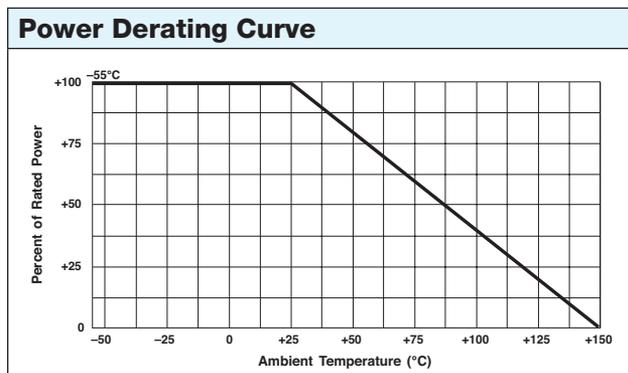
Specifications	
Load Life Stability at 2000 h	±0.05% max. ΔR under full rated power at +25°C
Power Rating at +25°C	8 W or 3 A ⁽¹⁾ on heat sink ⁽²⁾
	1.5 W or 3 A ⁽¹⁾ in free air
	Further derating not necessary
Current Noise	<0.010 μV _{RMS} /V of applied voltage (-40 dB)
High Frequency Operation Rise time Inductance ⁽³⁾ (L) Capacitance (C)	1 ns without ringing 0.1 μH maximum: 0.03 μH typical 1.0 pF maximum: 0.5 pF typical
Voltage Coefficient ⁽⁴⁾	<0.1 ppm/V
Operating Temperature Range	-55°C to +150°C
Maximum Working Voltage	300 V. Not to exceed power rating
Thermal EMF ⁽⁵⁾	0.15 μV/°C maximum (lead effect)

Notes

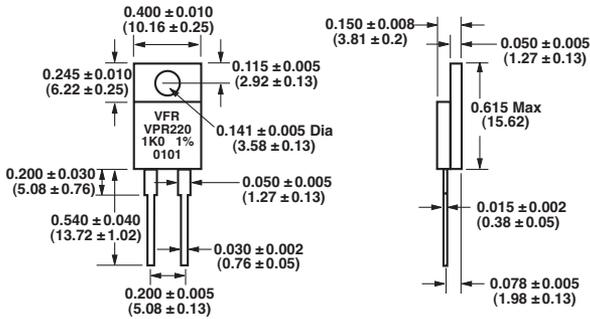
- (1) Whichever is lower
- (2) Heat sink chassis dimensions and requirements per MIL-R-39009/1B:

	INCHES	MILLIMETERS
L	6.00	152.4
W	4.00	101.6
H	2.00	50.8
T	0.04	1.0

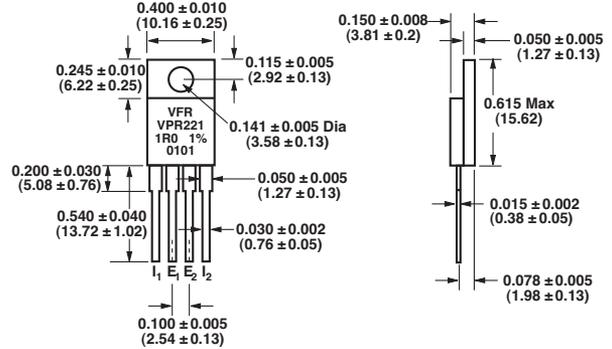
- (3) Inductance (L) due mainly to the leads
- (4) The resolution limit of existing test equipment (within the measurement capability of the equipment, or “essentially zero”)
- (5) μV/°C relates to EMF due to lead temperature difference



VPR220 Dimensions in inches (millimeters)



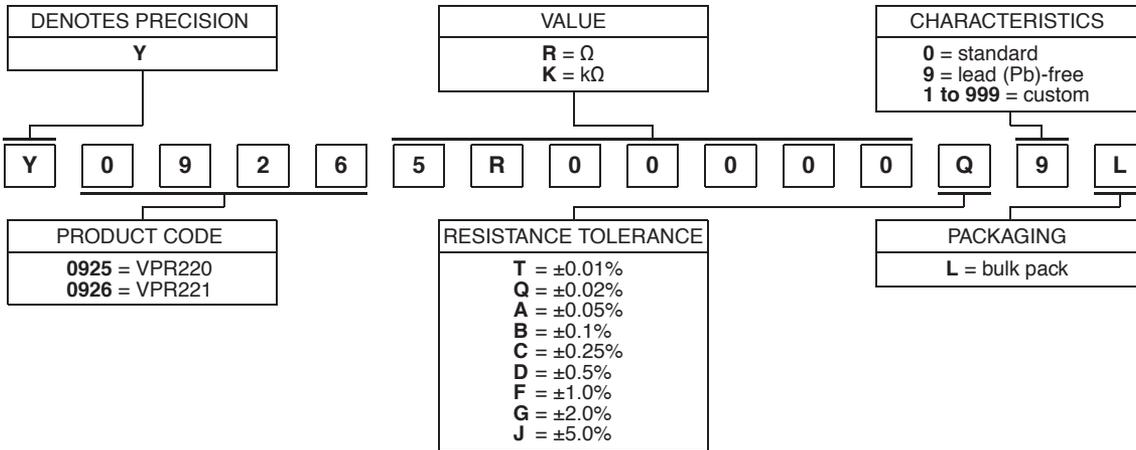
VPR221 Dimensions in inches (millimeters)



Surface mount versions of these products are available.

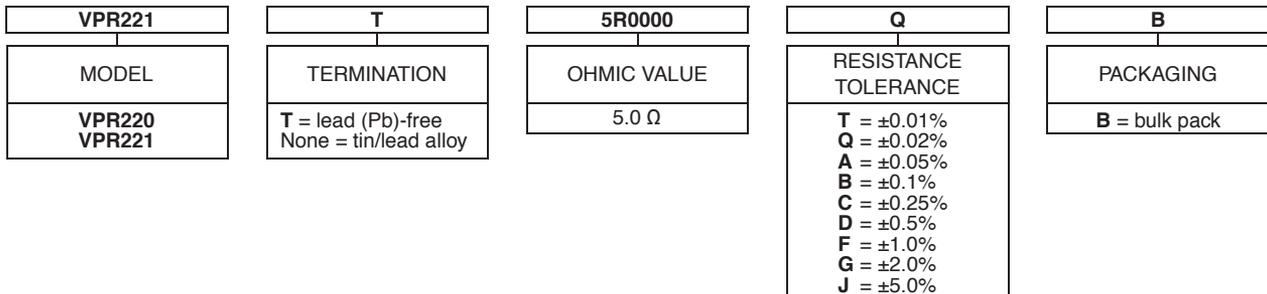
Global Part Number Information⁽¹⁾

NEW GLOBAL PART NUMBER: Y09265R0000Q9L (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y0926 5R0000 Q 9 L:
 TYPE: VPR221
 VALUE: 5.0 Ω
 ABSOLUTE TOLERANCE: ±0.02%
 TERMINATION: lead (Pb)-free
 PACKAGING: bulk

HISTORICAL PART NUMBER: VPR221T 5R0000 Q B (will continue to be used)



Note

⁽¹⁾ For non-standard requests, please contact application engineering.