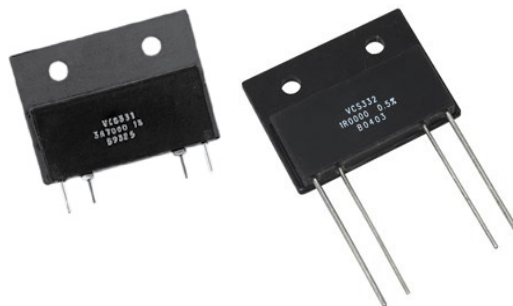


**Bulk Metal® Foil Technology High Precision 4-Terminal
Power Current Sensing Resistors**
with TCR as low as ± 1 ppm/°C Maximum, Tolerance $\pm 0.1\%$
and Rise Time 1.0 ns Effectively No Ringing

FEATURES

- Temperature coefficient of resistance (TCR): down to ± 1 ppm/°C max.
- Tolerance: to $\pm 0.1\%$
- Power rating (heat-sinked): 10 W
- Load life stability: $\pm 0.01\%$ (100 ppm) at 25°C, 2000 h at rated power
- Resistance range: 0.25 Ω to 500 Ω
- Electrostatic discharge (ESD) up to 25 000 V
- Non-inductive, non-capacitive design



Available

RoHS*
COMPLIANT**Characteristics**

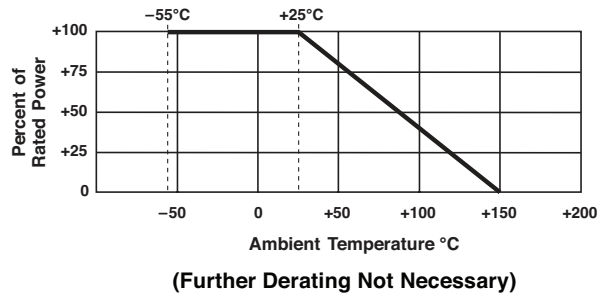
MODEL NUMBER	RESISTANCE RANGE	BEST TOLERANCE ⁽¹⁾	POWER RATING ⁽²⁾ at +25°C	MAXIMUM CURRENT ⁽²⁾
VCS331, VCS332	0.25 Ω < R < 500 Ω	$\pm 0.1\%$	10 W on heat sink ⁽³⁾ or 3 W in free air	5 A

Notes

- ⁽¹⁾ Tighter tolerance is available – for more details contact application engineering
⁽²⁾ The lower of the two limitations (power or current) is decisive
⁽³⁾ Heatsink – aluminum (6 in length × 4 in width × 2 in height × 0.04 in thick)

TCR Chart (Maximum)

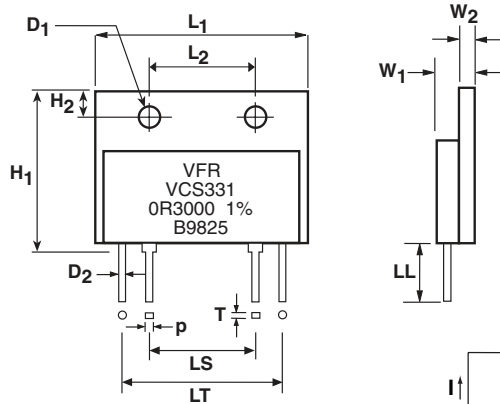
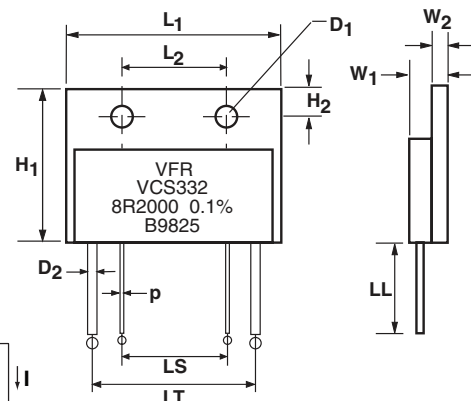
(0°C TO + 60°C)	
$\geq 0.25 \Omega$ to $< 1 \Omega$	± 3 ppm/°C
$\geq 1 \Omega$ to $< 10 \Omega$	± 2 ppm/°C
$\geq 10 \Omega$ to $< 500 \Omega$	± 1 ppm/°C

Power Derating Curve**VFR VCS331, VCS332 Performance**

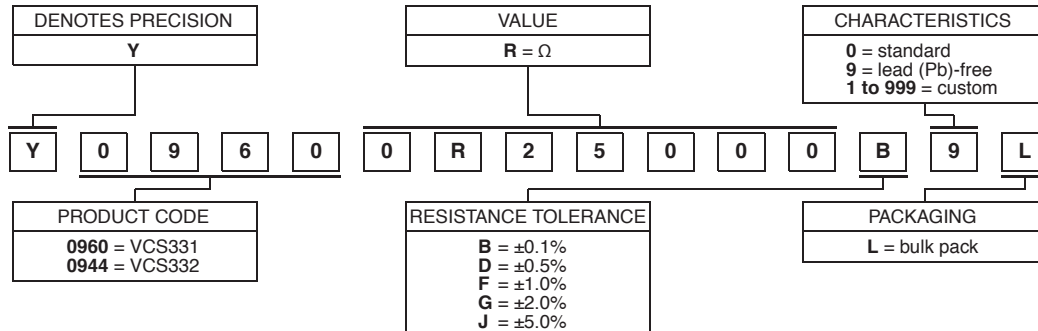
TEST OR CONDITION	VCS331, VCS332 PERFORMANCE ⁽¹⁾	
	TYPICAL ΔR LIMITS	MAXIMUM ΔR LIMITS
Thermal Shock	0.01%	0.02%
Short Time Overload (5 × Rated Power for 5 s)	0.01%	0.02%
Terminal Strength	0.02%	0.05%
High Temperature Exposure (2000 h at 150°C)	0.02%	0.05%
Moisture Resistance	0.03%	0.05%
Low Temperature Storage (24 h at -55°C)	0.005%	0.01%
Shock (Specified Pulse)	0.01%	0.02%
Vibration (High Frequency)	0.01%	0.02%
Load Life (Rated Power, +25°C, 2000 h)	0.01%	0.02%
Resistance Tolerance	0.1%	1%
Thermal EMF	0.2 $\mu V/^{\circ}C$ max. (E terminal)	
Weight	8.1 g maximum	

Notes

⁽¹⁾ ΔR 's plus additional 0.0005 Ω for measurement error

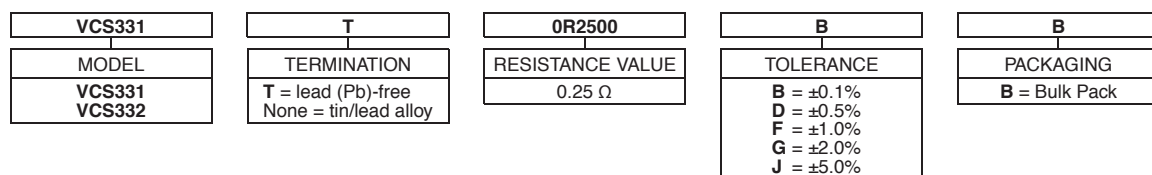
Dimensions in inches (millimeters) and Schematic**Model VCS331 (E Lead Rectangular)****Model VCS332 (round leads)**

MODEL	L_1 ± 0.008 (± 0.20)	L_2 ± 0.008 (± 0.20)	H_1 MAX	H_2 ± 0.008 (± 0.20)	W_1 MAX	W_2 MAX	LL MIN	LS ± 0.020 (± 0.51)	LT ± 0.020 (± 0.51)	D_1 NOM	D_2 NOM	P NOM	T NOM
VCS331	1.340 (34.04)	0.701 (17.81)	1.063 (27.00)	0.197 (5.00)	0.210 (5.33)	0.087 (2.21)	0.216 (5.49)	0.689 (17.50)	1.083 (27.51)	0.138 (3.51)	0.040 (1.02)	0.040 (1.02)	0.016 (0.41)
VCS332	1.340 (34.04)	0.701 (17.81)	1.024 (26.01)	0.197 (5.00)	0.210 (5.33)	0.087 (2.21)	1.000 (25.40)	0.689 (17.50)	1.083 (27.51)	0.138 (3.51)	0.040 (1.02)	0.032 (0.81)	—

Global Part Number Information⁽¹⁾**NEW GLOBAL PART NUMBER: Y09600R25000B9L (preferred part number format)**

FOR EXAMPLE: ABOVE GLOBAL ORDER Y0960 0R25000 B 9 L:

TYPE: VCS331
 VALUE: 0.25 Ω
 ABSOLUTE TOLERANCE: $\pm 0.1\%$
 TERMINATION: lead (Pb)-free
 PACKAGING: bulk

HISTORICAL PART NUMBER: VCS331T 0R2500 B B (will continue to be used)**Note**⁽¹⁾ For non-standard requests, please contact application engineering.