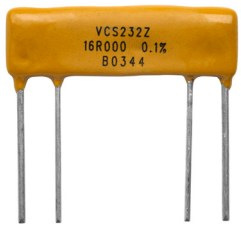
Ultra High Precision Z-Foil Power Current Sensing Resistor

with Absolute TCR of ±0.05 ppm/°C, ESD Immunity up to 25 kV and Tolerance of ±0.02%, Power Rating up to 2 W

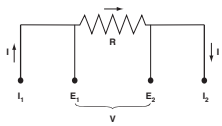
FEATURES

- 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.)
- Power coefficient "ΔR due to self heating":
  4 ppm/W typical
- Power rating at +25°C: 2 W (free air)
- Tolerance: to ±0.02%
- Load life stability: to ±0.005%,
  25°C for 2000 h at rated power
- Maximum current: 3 A
- Resistance range: 0.25 Ω to 500 Ω



Pb-free Available

RoHS* COMPLIANT



Tolerance and TCR

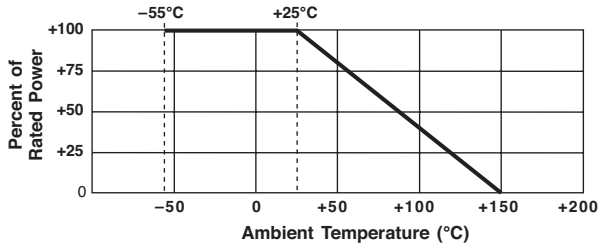
RESISTANCE RANGE (Ω)	TIGHTEST RESISTANCE TOLERANCE	TYPICAL TCR AND MAX. SPREAD (ppm/°C)(1)
0.25 to <10	±0.05%	±0.2±2.8
10 to 500	±0.02%	±0.2±1.8

Notes

(1) –55°C to +125°C, +25°C ref.

- Contact applications engineering for other available values

Power Derating Curve

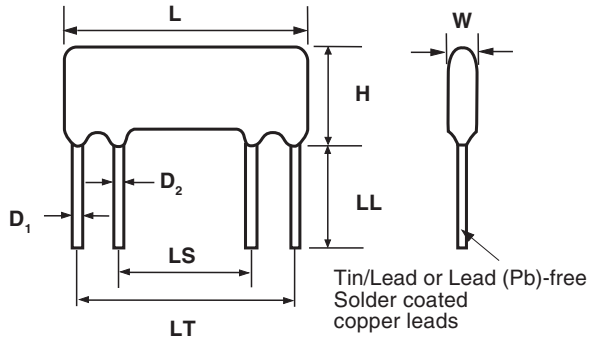


(Further Derating Not Necessary)

VCS232Z Performance Specifications

TEST (Conditions per MIL-PRF-49465)	CONDITIONS	MIL-PRF-49465C ΔR LIMITS	TYPICAL ΔR LIMITS	MAXIMUM ΔR LIMITS
Thermal Shock	–55°C to +125°C, 5 cycles	±(0.5%+0.0005R)	±0.01%	±0.02%
Short Time Overload	5 × rated power for 5 s	±(0.5%+0.0005R)	±0.005%	±0.01%
Resistance to Soldering Heat	10 s to 12 s at +260°C	±(0.25%+0.0005R)	±0.01%	±0.02%
Terminal Strength	Pull test at 5 lb	±(1.0%+0.0005R)	±0.002%	±0.005%
High Temperature Exposure	2000 h, +150°C	±(1.0%+0.0005R)	±0.01%	±0.02%
Low Temperature Storage	MIL-PRF-49465, 24 h at –55°C	±(0.5%+0.0005R)	±0.002%	±0.005%
Moisture Resistance	MIL-STD-202, method 106, +65°C to –10°C, 90% to 98% RH, rated power, 240 h	±(0.5%+0.0005R)	±0.01%	±0.02%
Shock (Specified Pulse)	100 g, 6 ms	±(0.1%+0.0005R)	±0.01%	±0.02%
Vibration (High Frequency)	(10 Hz to 2000 Hz) 20 g	±(0.1%+0.0005R)	±0.01%	±0.02%
Load Life Stability	2000 h, +25°C at rated power	±(1.0%+0.0005R)	±0.005%	±0.02%
Solderability	MIL-STD-202	95% coverage	–	–

Dimensions in inches (millimeters)



MODEL	L MAX.	H MAX.	W MAX.	LL MIN.	LS ±0.20 (±0.5)	LT ±0.20 (±0.5)	D1 NOM.	D2 NOM.
VCS232Z	1.240 (31.50)	0.512 (13.00)	0.177 (4.50)	0.500 (12.70)	0.688 (17.48)	1.083 (27.51)	0.040 (1.02)	0.032 (0.81)

Global Part Number Information[1]

NEW GLOBAL PART NUMBER: Y160845R2361Q9L (preferred part number format)

DENOTES PRECISION	VALUE	CHARACTERISTICS
Y	**R** = Ω	**0** = standard **9** = lead (Pb)-free **1 to 999** = custom

Y	1	6	0	8	4	5	R	2	3	6	1	Q	9	L

PRODUCT CODE	RESISTANCE TOLERANCE	PACKAGING
1608 = VCS232Z	**Q** = ±0.02% **A** = ±0.05% **B** = ±0.1% **D** = ±0.5% **F** = ±1.0% **G** = ±2.0% **J** = ±5.0%	**L** = bulk

FOR EXAMPLE: ABOVE GLOBAL ORDER Y1608 45R2361 Q 9 L:

TYPE: VCS232Z
VALUES: 45.2361 Ω
ABSOLUTE TOLERANCE: ±0.02%
TERMINATION: lead (Pb)-free
PACKAGING: bulk pack

HISTORICAL PART NUMBER: VCS232ZT 45R2361 TCR0.2 Q B (will continue to be used)

VCS232Z	T	45R2361	TCR0.2	Q	B
MODEL	TERMINATION	OHMIC VALUE	TCR CHARACTERISTIC	ABSOLUTE TOLERANCE	PACKAGING
VCS232Z	**T** = lead (Pb)-free None = tin/lead	45.2361 Ω		**Q** = ±0.02% **A** = ±0.05% **B** = ±0.1% **D** = ±0.5% **F** = ±1.0% **G** = ±2.0% **J** = ±5.0%	**B** = bulk

Note
[1] For non-standard requests, please contact application engineering.