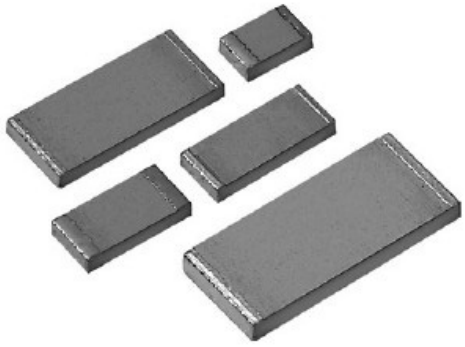
VSM Series (0805, 1206, 1506, 2010, 2512)
High Precision Foil wraparound SMD Chip Resistor with TCR of ±2 ppm/°C



FEATURES

- Temperature coefficient of resistance (TCR): ± 2.0 ppm/°C typical (- 55 °C to + 125 °C, + 25 °C ref.) (See table 1)
- Tolerance: to ±0.01 %
- Power rating: to 400 mW at + 70 °C
- Load life stability: to ±0.01 % at 70 °C, 2000 h at rated power
- Resistance range: 10 Ω to 125 kΩ (for higher and lower values, please contact us)
- Fast thermal stabilization < 1 s
- **Electrostatic discharge (ESD) up to 25 000 V**
- Short time overload: < 0.01 %
- Rise time: 1 ns effectively no ringing
- Current noise: - 42 dB
- Voltage coefficient < 0.1 ppm/V
- Non inductive: < 0.08 µH
- Terminal finishes available: lead (Pb) free, tin/lead alloy
- Compliant to RoHS directive 2002/95/EC
- Matched sets are available per request

INTRODUCTION

Bulk Metal® Foil (BMF) technology from Vishay Precision Group out-performs all other resistor technologies available today for applications that require high precision and high stability, and allows production of customer oriented products designed to satisfy challenging and specific technical requirements.

The BMF provides an inherently low and predictable Temperature Coefficient of Resistance (TCR) and excellent load life stability for high precision analog applications with tight tolerances.

TABLE 1 - TOLERANCE AND TCR VS. RESISTANCE VALUE (1)
(- 55 °C to + 125 °C, + 25 °C Ref.)

RESISTANCE VALUE (Ω)	TOLERANCE (%)	TYPICAL TCR AND MAX. SPREAD (ppm/°C)
250 to 125K	± 0.01	± 2 ± 2
100 to < 250	± 0.02	± 2 ± 3
50 to < 100	± 0.05	± 2 ± 3
25 to < 50	± 0.1	± 2 ± 4
10 to < 25	± 0.25	± 2 ± 6

FIGURE 1 - POWER DERATING CURVE

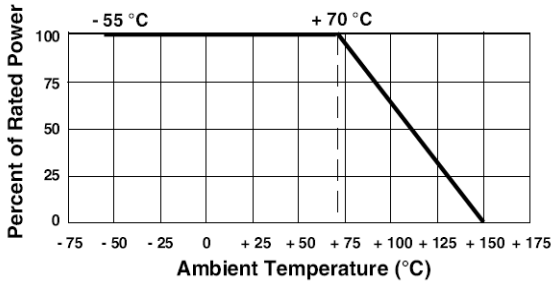
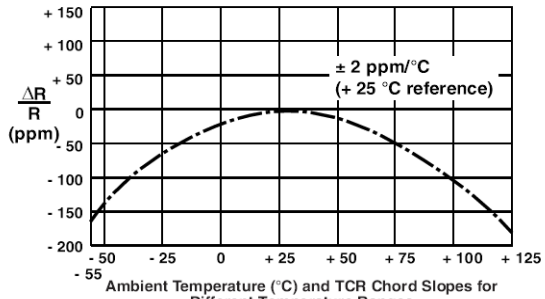


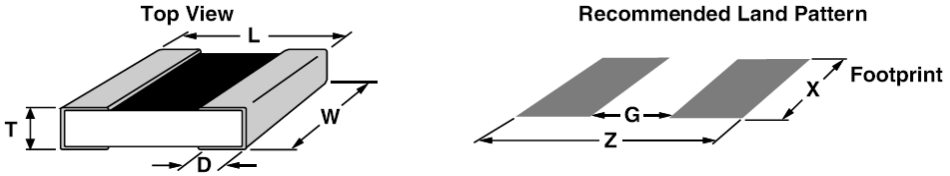
FIGURE 3 - TYPICAL RESISTANCE/ TEMPERATURE CURVE
(For more Details, see Table 1)



Note

- The TCR values for < 100 Ω are influenced by the termination composition and result in deviation from this curve.

TABLE 2 - DIMENSIONS AND LAND PATTERN in Inches (Millimeters)



CHIP SIZE	L ± 0.005 (0.13)	W ± 0.005 (0.13)	THICKNESS MAXIMUM	D ± 0.005 (0.13)	Z (1)	G (1)	X (1)
0805	0.080 (2.03)	0.050 (1.27)	0.025 (0.64)	0.015 (0.38)	0.122 (3.10)	0.028 (0.71)	0.050 (1.27)
1206	0.126 (3.20)	0.062 (1.57)	0.025 (0.64)	0.020 (0.51)	0.175 (4.45)	0.059 (1.50)	0.071 (1.80)
1506	0.150 (3.81)	0.062 (1.57)	0.025 (0.64)	0.020 (0.51)	0.199 (5.05)	0.083 (2.11)	0.071 (1.80)
2010	0.198 (5.03)	0.097 (2.46)	0.025 (0.64)	0.025 (0.64)	0.247 (6.27)	0.115 (2.92)	0.103 (2.62)
2512	0.249 (6.32)	0.127 (3.23)	0.025 (0.64)	0.032 (0.81)	0.291 (7.39)	0.150 (3.81)	0.127 (3.23)

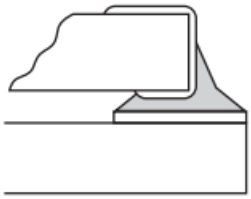
Note
(1) Land pattern dimensions are per IPC-7351A

TABLE 3 - SPECIFICATIONS

CHIP SIZE	RATED POWER (mW) at + 70 °C	MAX. WORKING VOLTAGE ($\leq \sqrt{P \times R}$)	RESISTANCE RANGE (Ω)	MAXIMUM WEIGHT (mg)
0805	100	28 V	10 to 8K	6
1206	150	61 V	10 to 25K	11
1506	200	78 V	10 to 30K	12
2010	300	145 V	10 to 70K	27
2512	400	220 V	10 to 125K	40

FIGURE 4 - RECOMMENDED MOUNTING

Notes
(1) IR and vapor phase reflow are recommended.
(2) Avoid the use of cleaning agents which could attack epoxy resins, which form part of the resistor construction
(3) Vacuum pick up is recommended for handling
(4) In case of using soldering iron, precaution measures should be taken to avoid damaging the resistor



HOW TO ORDER

VSM 1506	12K756	T	S	W
I	I	I	I	I
MODEL	**RESISTANCE VALUE**	**TOLERANCE**	**TERMINATION**	**PACKAGING**
VSM 0805	12.756 kΩ	**T** = ± 0.01 %	**S** = lead (Pb)-free	**T** = tape and reel
VSM 1206		**Q** = ± 0.02 %	**B** = tin/lead	**W** = waffle pack
VSM 1506		**A** = ± 0.05 %		
VSM 2010		**B** = ± 0.10 %		
VSM 2512		**C** = ± 0.25 %		
		D = ± 0.5 %		
		F = ± 1.0 %		

Wilbrecht LEDCO, Inc. is a Vishay Precision Group approved Precision Center with a QPL certified manufacturing facility in Huron, SD