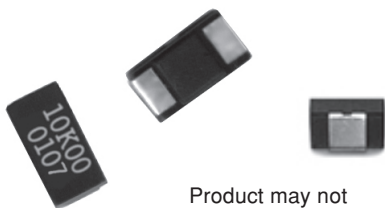


Bulk Metal[®] Foil Technology Surface Mount Precision Resistor

SURFACE MOUNT



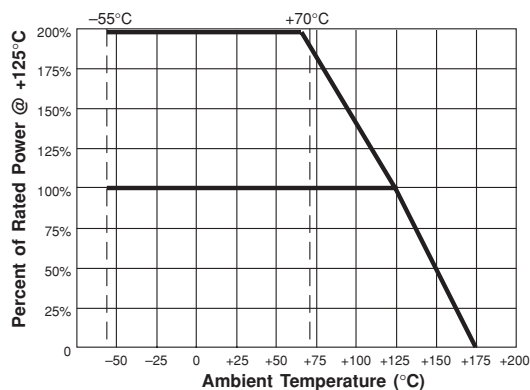
Product may not
be to scale

The SMRC1D is a truly precision molded surface mountable resistor. It utilizes the Bulk Metal[®] Foil technology for the resistive element with its inherent low TCR and long term stability. This surface mountable product affords similar performance to the time tested VSR molded through hole product.

Voltage division with tight tracking < 5ppm/°C can be achieved with 2 randomly selected units even with a large ratio between the two values.

The molded SMRC1D, while slightly larger and heavier than the Bulk Metal[®] Foil VSM surface mountable chip resistor, has a rugged construction capable of withstanding significant thermal cycling and allows for board installation without concern for tolerance shifts due to manufacturing processes or mechanical stresses.

FIGURE 1 - POWER DERATING CURVE



FEATURES

- Small footprint
- Temperature Coefficient of Resistance: $\pm 4\text{ppm}/^\circ\text{C}$ (0°C to $+60^\circ\text{C}$)
- Value Range: 5Ω to $33\text{K}\Omega$
- Tight Tolerances available to ± 0.01 percent
- Power: 0.25 watts @ $+70^\circ\text{C}$
- Excellent Long Term Stability: better than $\pm 0.02\%$ maximum
- Low Thermal EMF: $0.1\text{mV}/^\circ\text{C}$ maximum
- Low Noise, High Frequency Operation
- Matched Sets Available

FIGURE 2 - TEMPERATURE COEFFICIENT OF RESISTANCE CURVE (0°C TO $+60^\circ\text{C}$)

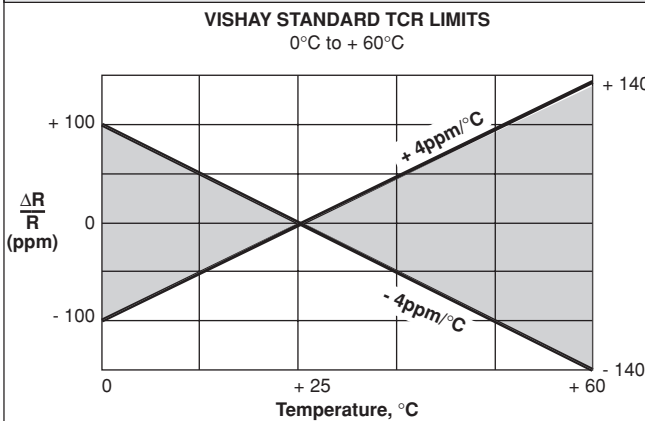
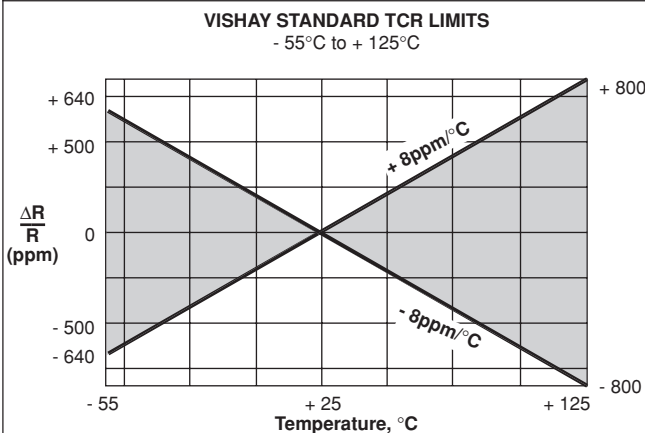


FIGURE 3 - TEMPERATURE COEFFICIENT OF RESISTANCE CURVE (55°C TO $+125^\circ\text{C}$)



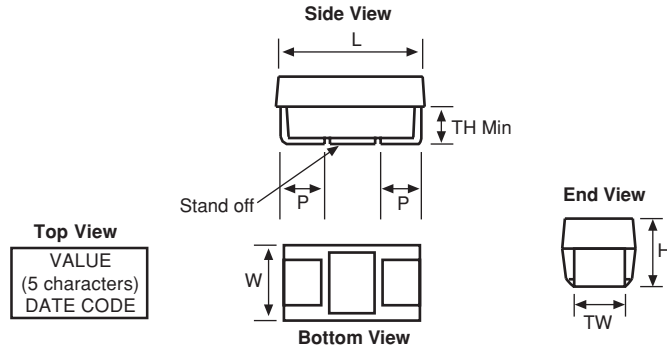
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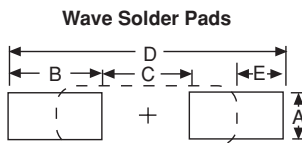
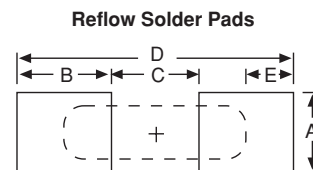
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**TABLE 1 - MODEL SMRC1D SPECIFICATIONS**

TEST	CONDITIONS	MAXIMUM. LIMIT
Resistance Range		5Ω to 33KΩ
Resistance Tolerance	100Ω to 33KΩ 20Ω to < 100Ω 10Ω to < 20Ω 5Ω to < 10Ω	± 0.01% ± 0.02% ± 0.05% ± 0.10%
TCR	0°C to + 25°C + 25°C to + 60°C – 55°C to + 25°C + 25°C to + 125°C	See Figures 2 and 3
Rated Power	0.250 watts @ 70°C 0.125 watts @ 125°C	See Figure 1
Maximum Working Voltage		54 volts
Maximum Operating Temperature	+ 125°C	
Working Temperature Range	– 65°C to + 125°C	
Thermal Shock	– 65°C to + 175°C; 30 minutes; 5 cycles	± 0.01%
Overload	2.5 x Rated Voltage; 5 seconds	± 0.01%
Low Temperature Operation	– 65°C; 45 minutes @ Rated Power	± 0.01%
Dielectric Withstanding Voltage	Atmospheric Pressure; AC 200V; 1 minute	± 0.01%
Insulation Resistance (MΩ)	DC 100V; 1 minute	over 10,000
Resistance to Soldering Heat	260°C; 10 seconds	± 0.03%, ± 0.01% Typical
Moisture Resistance	+ 65°C to – 10°C; 90 to 98% RH; Rated Power; 240 hours	± 0.05%
Shock	100G; Sawtooth	± 0.01%
Vibration, High Frequency	10 ~ 2,000 ~ 10Hz; 20 G; X, Y, Z each 2.5 hours	± 0.01%
Load Life Stability Order of Magnitude better than Thin Film Technology	0.125 watts @ 125°C 2,000 hours. 0.25 watts @ 70°C 2,000 hours. 0.04 watts @ 70°C 2,000 hours.	± 0.02% ± 0.02% ± 0.005%
High Temperature Exposure	+ 175°C; No Load 2,000 hours	± 0.05%
Shelf Life	15°C to 35°C; 15°C to 75% RH; No Load; 10,000 hours	± 0.0025% (1 year) ± 0.005% (3 years)
Weight		0.1143 grams
Packaging	Bulk (Loose) or Tape & Reel	

FIGURE 4 - MODEL SMRC1D DIMENSIONS in inches (millimeters)

MODEL	L	W	H
SMRC1D	0.236 ±0.012 (6.0 ±0.30)	0.126 ±0.012 (3.2 ±0.30)	0.098 ±0.012 (2.5 ±0.30)
MODEL	P	TW	TH (MINIMUM)
SMRC1D	0.051 ±0.012 (1.3 ±0.30)	0.087 ±0.004 (2.2 ±0.10)	0.039 (1.0)

FIGURE 5 - RECOMMENDED MOUNTING PAD GEOMETRIES in inches (millimeters)

METHOD	A MINIMUM	B REFERENCE	C REFERENCE	D ± 0.04 (± 1.0)	E REFERENCE
Wave	0.061 (1.55)	0.106 (2.70)	0.124 (3.15)	0.337 (8.55)	0.050 (1.28)
Reflow	0.110 (2.79)	0.106 (2.70)	0.124 (3.15)	0.337 (8.55)	0.050 (1.28)

Per IPC-SM-782

TABLE 2 - ORDERING INFORMATION

MODEL	RESISTANCE RANGE	RESISTANCE VALUE		TOLERANCE
		LETTER DESIGNATOR	MULTIPLIER FACTOR	
SMRC1D	5Ω to < 1KΩ Example: 100.01Ω = 100R01	R	x 1.0	T = ± 0.01% Q = ± 0.02% A = ± 0.05% B = ± 0.1% C = ± 0.25% D = ± 0.5% F = ± 1.0%
	1KΩ to 33KΩ Example: 15,231Ω = 15K231	K	x 10 ³	

Delivery: Stock to 8 weeks.

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