

High Precision Bulk Metal® Foil Molded Surface Mount Resistor with TCR down to ± 2 ppm/°C, Flexible Terminations, and Load Life Stability of $\pm 0.005\%$ (50 ppm)

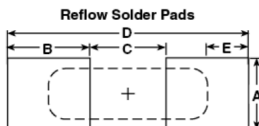
Specifications			TCR		
MODEL	DSCC	MIL SPEC	VALUE	STANDARD TOLERANCE ⁽¹⁾	TYPICAL TCR AND MAX. SPREAD ⁽¹⁾ (ppm/°C)
SMR1D	06020	MIL-PRF-55182	50 Ω to 80 k Ω	$\pm 0.01\%$	$\pm 2 \pm 3$
SMR3D	06021	MIL-PRF-55182	20 Ω to <50 Ω	$\pm 0.02\%$	$\pm 2 \pm 4$
			10 Ω to <20 Ω	$\pm 0.05\%$	$\pm 2 \pm 6$
			5 Ω to <10 Ω	$\pm 0.1\%$	$\pm 2 \pm 8$

Note⁽¹⁾ Tighter performances are available

Performance							
TEST	CONDITIONS					MAXIMUM LIMIT ⁽¹⁾	
	SMR1D		SMR3D			SMR1D	SMR3D
Resistance Range						5 Ω to 33 kΩ	5 Ω to 80 kΩ
Rated Power	5 Ω to 10 kΩ 0.250 W at 70°C 0.125 W at 125°C	10 kΩ to 33 kΩ 0.160 W at 70°C 0.08 W at 125°C	5 Ω to 30 kΩ 0.6 W at 70°C 0.3 W at 125°C	30 kΩ to 80 kΩ 0.4 W at 70°C 0.2 W at 125°C	see figure 1		
Maximum Working Voltage						73 V	180 V
Maximum Operating Temperature	+175°C (see figure 1)						
Working Temperature Range	–55°C to +125°C (MIL range)						
Thermal Shock	–65°C to +150°C; 30 min; 5 cycles					±0.01% (100 ppm)	
Short Time Overload	6.25 x rated power; 5 s					±0.01% (100 ppm)	
Low Temperature Storage	24 h at –65°C					±0.01% (100 ppm)	
Low Temperature Operation	45 min, rated power at –65°C					±0.01% (100 ppm)	
Dielectric Withstanding Voltage	atmospheric pressure; AC 200 V; 1 min					±0.01% (100 ppm)	
Insulation Resistance (MΩ)	DC 100 V; 1 min					over 10 000	
Resistance to Soldering Heat (%)	performed per MIL-PRF-55342 para. 4.8.8.1					±0.02%, ±0.01% typical	
Moisture Resistance	+65°C to –10°C; 90% to 98% RH; rated power; 240 h					±0.02% (200 ppm)	
Shock	100 G; sawtooth					±0.01% (100 ppm)	
Vibration, High Frequency	10 ~ 2000 ~ 10 Hz; 20 G; Y, Z each 4 h					±0.01% (100 ppm)	
Load Life Stability (2000 h)	0.04 W at +70°C 0.25 W at +70°C 0.125 W at +125°C		0.1 W at +70°C 0.6 W at +70°C 0.3 W at +125°C			Typical 0.005% 0.02% 0.02%	Typical 0.005% 0.015% 0.015%
High Temperature Exposure	175°C; no load 2000 h					±0.05% (500 ppm)	
Weight						0.1143 g	0.244 g
Packaging	bulk (loose) or tape and reel, per EIA-481-1						

Note⁽¹⁾ As shown $\pm 0.01 \Omega$ to allow for measurement error at low values

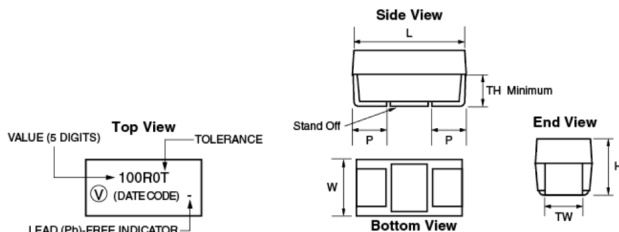
Recommended Mounting



MODEL	METHOD	A MIN.	B REF	C REF	D ±0.04 (±1.02)	E REF
SMR1D	Reflow	0.110 (2.79)	0.106 (2.69)	0.124 (3.15)	0.337 (8.55)	0.050 (1.27)
SMR3D	Reflow	0.118 (3.00)	0.106 (2.69)	0.175 (4.45)	0.388 (9.86)	0.050 (1.27)

Per IPC-SM-782 Rev. A

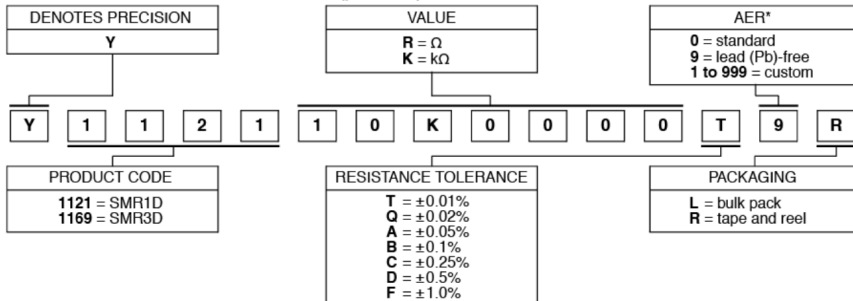
Dimensions in inches (millimeters)



MODEL	L	W	H	P	TW	TH (minimum)
SMR1D	0.236±0.012 (5.99±0.30)	0.126±0.012 (3.20±0.30)	0.098±0.012 (2.49±0.30)	0.051±0.012 (1.30±0.30)	0.087±0.004 (2.21±0.10)	0.039 (0.99)
SMR3D	0.287±0.012 (7.29±0.30)	0.170±0.012 (4.32±0.30)	0.110±0.012 (2.79±0.30)	0.051±0.012 (1.30±0.30)	0.095±0.004 (2.41 ±0.10)	0.039 (0.99)

Ordering info

NEW GLOBAL PART NUMBER: Y112110K000T9R (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y1121 10K000 T 9 R:

TYPE: SMR1D

VALUE: 10.0 kΩ

ABSOLUTE TOLERANCE: ±0.01%

TERMINATION: lead (Pb)-free

PACKAGING: tape and reel

HISTORICAL PART NUMBER: SMR1D 10K000 TCR2 T S T (will continue to be used)

SMR1D	10K000	TCR2	T	S	T
MODEL	OHMIC VALUE	TCR CHARACTERISTIC	RESISTANCE TOLERANCE	TERMINATION	PACKAGING
SMR1D SMR3D	10.0 kΩ		T = ±0.01% Q = ±0.02% A = ±0.05% B = ±0.1% C = ±0.25% D = ±0.5% F = ±1.0%	S = lead (Pb)-free B = tin/lead	B = bulk pack T = tape and reel

Note

* For non-standard requests, please contact application engineering.