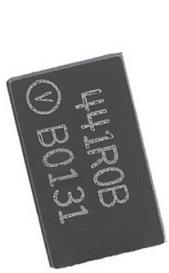
High Precision Bulk Metal® Foil Molded Surface Mount Resistor

with TCR down to ±2 ppm/°C, Flexible Terminations, and Load Life Stability of ±0.005% (50 ppm)

FEATURES

- Temperature coefficient of resistance (TCR): ±2 ppm°C typical (–55°C to +125°C, +25°C ref.)
- Tolerance: to ±0.01%
- Flexible terminations ensure minimal stress transference from the PCB due to a difference in thermal coefficient of expansions (TCE)
- Load life stability: ±0.005% (70°C, 2000 h at rated power)
- Resistance range: 5 Ω to 80 kΩ
- Power rating: to 600 mW at 70°C
- Non inductive, non capacitive design





Pb-free Available

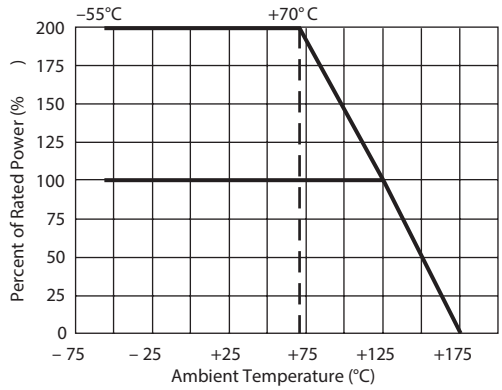
RoHS* COMPLIANT

Tolerance and TCR Vs. Resistance Value
(–55°C to +125°C, +25°C Ref.)

VALUE	STANDARD TOLERANCE(1)	TYPICAL TCR AND MAX. SPREAD(1) (ppm/°C)
50 Ω to 80 kΩ	±0.01%	±2±3
20 Ω to <50 Ω	±0.02%	±2±4
10 Ω to <20 Ω	±0.05%	±2±6
5 Ω to <10 Ω	±0.1%	±2±8

Note
(1) Tighter performances are available

Power Derating Curve



The SMRXD Series is Listed in the Following DSCC Specifications

MODEL	DSCC	MIL SPEC
SMR1D	06020	MIL-PRF-55182
SMR3D	06021	MIL-PRF-55182

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Performance Specifications

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		
Maximum Working Voltage					73 V	180 V
Maximum Operating Temperature	+175°C					
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 (%)	260°C; 10 s				±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					

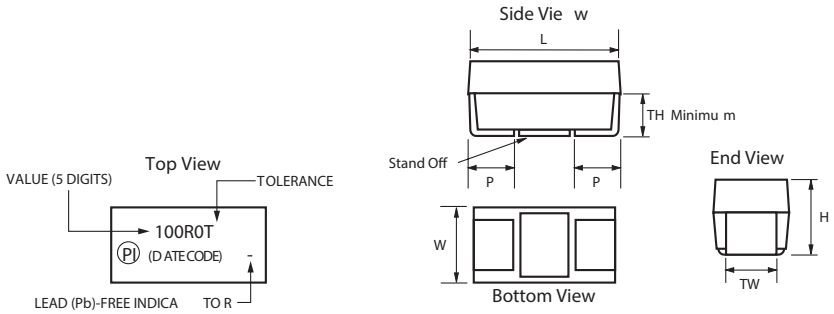
Note

[1] As shown +0.01 Ω to allow for measurement error at low values

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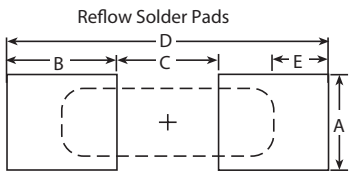
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Dimensions in inches (millimeters)



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)

Recommended Mounting Pad Geometries in inches (millimeters)



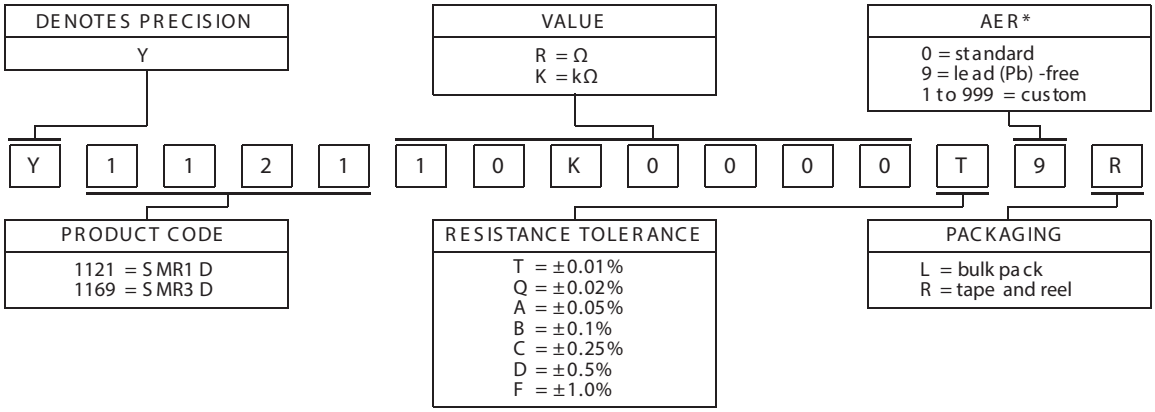
MODEL	METHOD	A MIN.	B REF	C REF	D ±0.04 (±1.02)	E REF
SMR1D	Reflow	0.110 (2.79)	0.106 (2.69)	0.124 (3.15)	0.337 (8.55)	0.050 (1.27)
SMR3D	Reflow	0.118 (3.00)	0.106 (2.69)	0.175 (4.45)	0.388 (9.86)	0.050 (1.27)
Per IPC-SM-782 Rev. A						

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Global Part Number Information

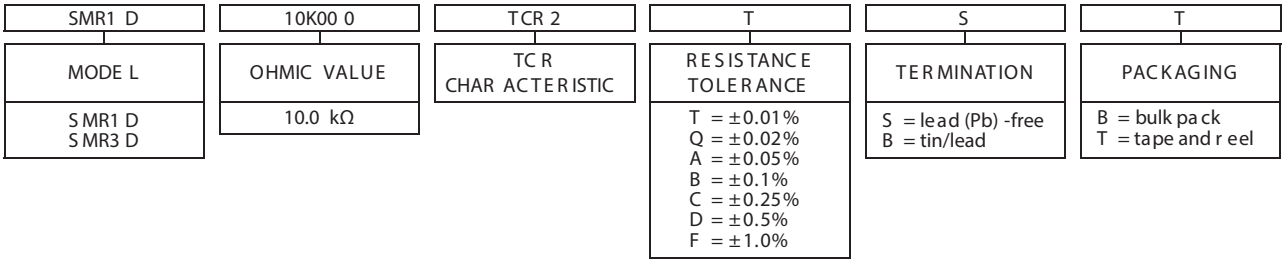
NEW GLOBAL PART NUMBER : Y112110K0000T9R (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y1121 10K0000T 9R:

TYPE: SMR1D
VALUE: 10.0kΩ
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)



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

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