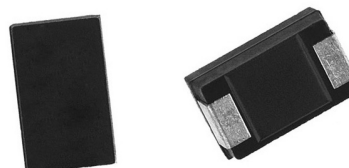


Ultra High Precision Z-Foil Molded Surface Mount Resistor

with TCR down to ± 0.2 ppm/°C, PCR of ± 5 ppm at Rated Power,
Flexible Terminations, and Load-Life Stability of ± 0.005 % (50 ppm)

FEATURES

- Temperature coefficient of resistance (TCR): ± 0.2 ppm/°C typical (-55°C to $+125^{\circ}\text{C}$, $+25^{\circ}\text{C}$ ref.)
- Tolerance: to $\pm 0.01\%$
- Power coefficient of resistance (PCR) “ ΔR due to self heating”: 5 ppm at rated power
- Flexible Terminations ensure minimal stress transference from the PCB due to a difference in thermal coefficient of expansions (TCE)
- Load-life stability: $\pm 0.005\%$ (70°C , 2000 h)
- Resistance range: 5 Ω to 80 k Ω
- Power rating: to 600 mW at $+70^{\circ}\text{C}$



RoHS*
COMPLIANT

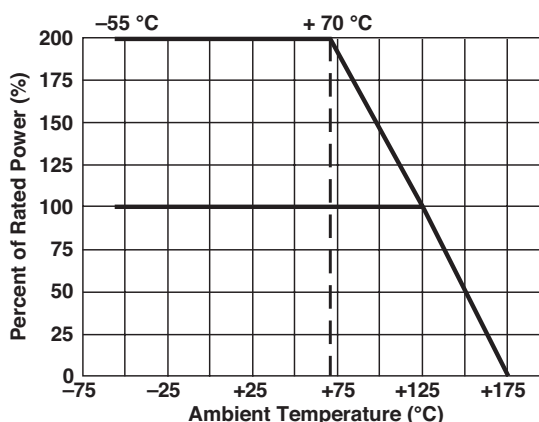
Tolerance and TCR vs. Resistance Value (-55°C to $+125^{\circ}\text{C}$, $+25^{\circ}\text{C}$ Ref.)

Value (Ω)	Standard Tolerance ⁽¹⁾ (%)	Typical TCR and Max. Spread ⁽¹⁾ (ppm/°C)
50 Ω to 80 k Ω	$\pm 0.01\%$	$\pm 0.2 \pm 1.8$
20 Ω to <50 Ω	$\pm 0.02\%$	$\pm 0.2 \pm 2.8$
10 Ω to <20 Ω	$\pm 0.05\%$	$\pm 0.2 \pm 4.8$
5 Ω to <10 Ω	$\pm 0.1\%$	$\pm 0.2 \pm 6.8$

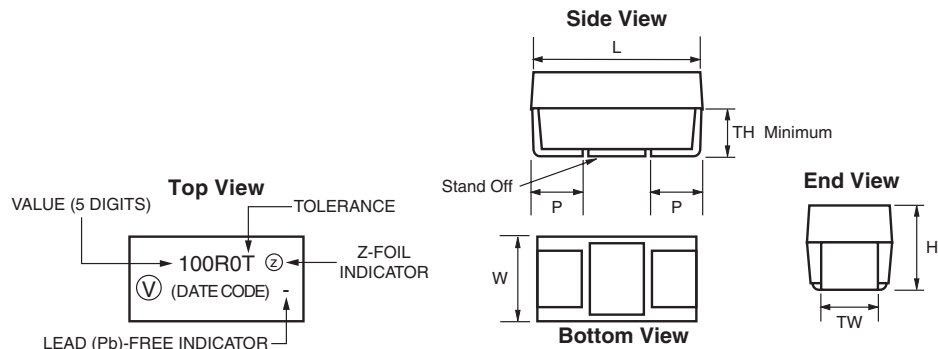
Note

⁽¹⁾ For values <5 Ω and tighter performance, contact us.

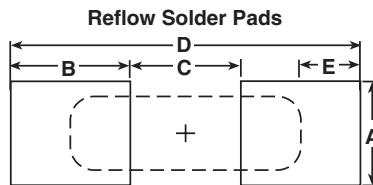
Power Derating Curve



Performance Specifications						
Parameters	Specifications				Maximum Limit ⁽¹⁾	
	SMR1DZ		SMR3DZ		SMR1DZ	SMR3DZ
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	Per Power Derating Curve	
Weight	0.1143 g		0.244 g			
Packaging	Bulk (loose) or tape and reel, per EIA-481-1					
Test	Conditions				Maximum Limit ⁽¹⁾	
Max. Working Voltage	73 V		180 V		—	
Max. 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				R >100 Ω: ±0.02% (200 ppm) R ≤100 Ω: ±0.03% (300 ppm)	
Short Time Overload	6.25 x rated power; 5 s				±0.01% (100 ppm)	
Low Temperature Operation	–65°C, 24 h (no load); 45 min at rated power				±0.01% (100 ppm)	
Dielectric Withstanding Voltage	Atmospheric pressure; AC 200 V; 1 min				±0.01% (100 ppm)	
Insulation Resistance	DC 100 V; 1 min				over 10 000 MΩ	
Resistance to Soldering Heat	260°C for 10 s				±0.03%	
Moisture Resistance	+65°C to –10°C; 90% to 98% RH; rated power; 240 h				±0.03% (300 ppm)	
Shock	100 G; Sawtooth				±0.01% (100 ppm)	
Vibration, High Frequency	10~2000~10 Hz; 20 G; X, Y, Z each 2.5 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% 0.05% max	Typical 0.005% 0.015% 0.05% max
High Temperature Exposure	175°C; no load 2000 h				±0.1% (1000 ppm)	
Note						
⁽¹⁾ As shown +0.01 Ω to allow for measurement errors at low values.						

Dimensions in Inches (Millimeters)

Model	L	W	H	P	TW	TH (Minimum)
SMR1DZ	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)
SMR3DZ	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)

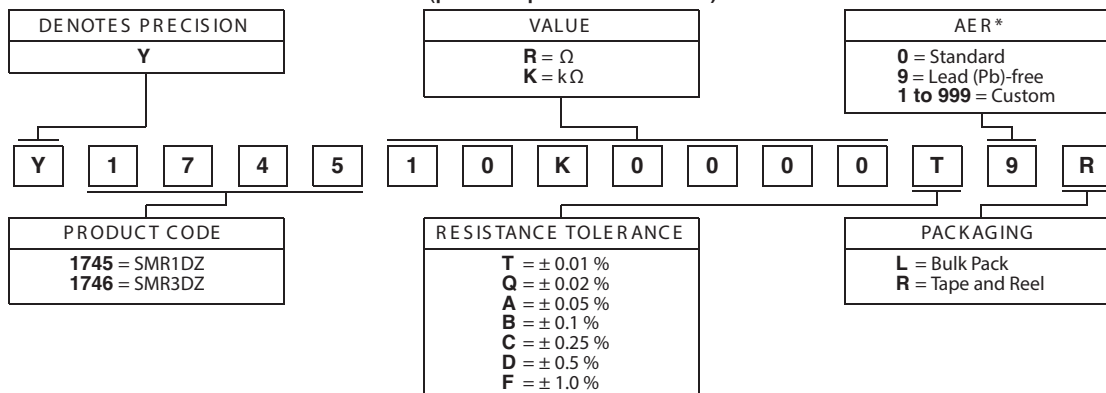
Recommended Mounting Pad Geometries in Inches (Millimeters)

Model	Method	A Min	B Ref	C Ref	D ±0.04 (±1.02)	E Ref
SMR1DZ	Reflow	0.110 (2.79)	0.106 (2.69)	0.124 (3.15)	0.337 (8.55)	0.050 (1.27)
SMR3DZ		0.118 (3.00)		0.175 (4.45)	0.388 (9.86)	

Per IPC-SM-782 Rev A

Part Number Information

NEW GLOBAL PART NUMBER: Y174510K0000T9R (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y1745 10K0000 T 9 R:

TYPE: SMR1DZ

VALUE: 10.0 k Ω ABSOLUTE TOLERANCE: $\pm 0.01\%$

TERMINATION: Lead (Pb)-free

PACKAGING: Tape and Reel

HISTORICAL PART NUMBER: SMR1DZ 10K000 TCR0.2 T S T (will continue to be used)

