

SMD Wraparound Ultra Low Value Thin Film Resistors



FEATURES

- NiCr + Ta₂O₅ resistive layer
- Pre-soldered or gold terminations
- No inductance for high frequency applications
- Alumina substrates for high power handling capability
- Resistance range: 0.1 Ω to 9.99 Ω
- TCR down to 100 ppm/°C
- Power rating: Up to 1 W at + 70 °C

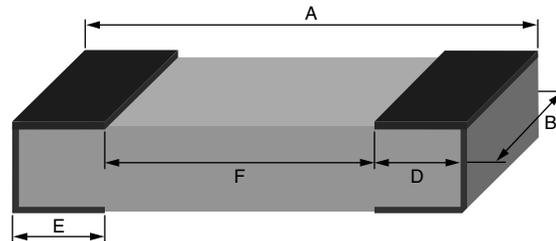


RoHS*
COMPLIANT

GREEN
(5-2008)**
Available

With extremely low resistance and high power capabilities, these ultra low value resistors are available with solderable or weldable terminations.

DIMENSIONS in millimeters [inches]



CASE SIZE	A		B		D/E		F			POWER RATING mW	LIMITING ELEMENT VOLTAGE V	RESISTANCE RANGE (1)	
	MAX. TOL. + 0.152 (+ 0.006)	MIN. TOL. - 0.152 (- 0.006)	MAX. TOL. + 0.127 (+ 0.005)	MIN. TOL. - 0.127 (- 0.005)	NOM.	TOL.	NOM.	MIN.	MAX.				
	NOM.	NOM.	NOM.	TOL.									
0603	1.52 (0.060)		0.85 (0.033)		0.38 (0.015)		0.76 (0.030)	0.35 (0.014)	1.17 (0.046)	125	50	0.1 Ω to 9.99 Ω	
0705 0805	1.91 (0.075)		1.27 (0.050)				1.15 (0.045)	0.74 (0.029)	1.56 (0.061)				200
1206	3.06 (0.120)		1.60 (0.063)		0.40 (0.016)	0.13 (0.005)	2.26 (0.089)	1.85 (0.073)	2.67 (0.105)	330	50	0.1 Ω to 9.99 Ω	
1505	3.81 (0.150)		1.32 (0.052)				2.85 (0.112)	2.44 (0.096)	3.26 (0.128)				500
2010	5.08 (0.200)		2.54 (0.100)				4.12 (0.162)	3.71 (0.146)	4.53 (0.178)				1000

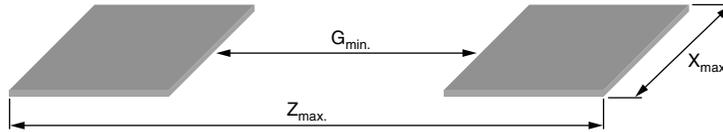
Notes

(1) To be read in conjunction with table "Tolerance and TCR vs. Ohmic Value"

- Size 2512 under development

* Pb containing terminations are not RoHS compliant, exemptions may apply

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

SUGGESTED LAND PATTERN (to IPC-7351A)

CHIP SIZE	DIMENSIONS (in millimeter)		
	Z _{max.}	G _{min.}	X _{max.}
0603	2.37	0.35	0.98
0705/0805	2.76	0.74	1.40
1206	3.91	1.85	1.73
1505	4.66	2.44	1.45
2010	5.93	3.71	2.67

Note

- Size 2512 under development

Option: Enlarged Terminations

For stringent and special power dissipation requirements, the thermal resistance between the resistive layer and the solder joint can be reduced using enlarged terminations chip resistors which are soldered on large and thick copper pads acting as heat sinks (see application note:

“Power Dissipation in High Precision Vishay Sfernice Chip Resistors and Arrays (P Thin Film, PRA Arrays, CHP Thick Film)”: www.vishay.com/doc?53048).

For enlarged terminations: Please consult Vishay Sfernice.

ELECTRICAL SPECIFICATIONS

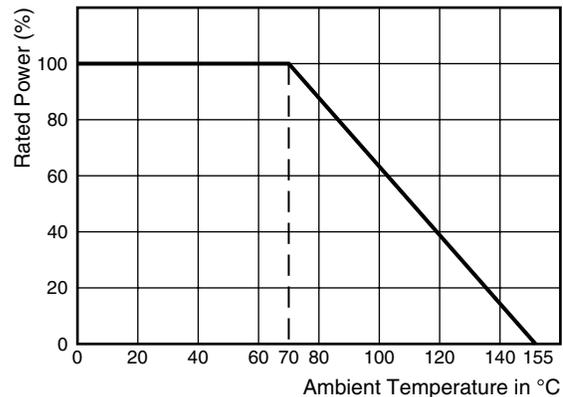
Resistance range: 0.1 Ω to 9.99 Ω
Resistance tolerance: ± 1 % to ± 10 %
Power dissipation: 0.125 mW to 1 W at + 70 °C
Temperature coefficient: Down to 100 ppm/°C

CLIMATIC SPECIFICATIONS

Operating temp. range: - 55 °C to + 155 °C

MECHANICAL SPECIFICATIONS

Substrate: Alumina
Resistive layer: NiCr + Ta₂O₅
Coating: Silicone
Terminations: Solderable
B type: SnPb over nickel barrier
N type: SnAg over nickel barrier
G type: Gold over nickel barrier

POWER DERATING CURVE**TOLERANCE AND TCR VS. OHMIC VALUE**

VALUE RANGE	TIGHTEST TOLERANCE (%)	BEST TCR (ppm/°C)	TERMINATIONS
0R1 < 0R25	1	300	N or B
0R25 < 0R5	1	200	N or B
0R5 < 9R99	1	100	N or B
0R1 < 0R5	10	300	G
0R5 < 9R99	5	200	G



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Thin Film Resistors

Vishay Sfernice

PACKAGING

Several types of packaging are proposed: waffle-pack and tape and reel

SIZE	MOQ	NUMBER OF PIECES PER PACKAGE			TAPE WIDTH
		WAFFLE PACK 2" x 2"	TAPE AND REEL		
			MIN.	MAX.	
0402	100	100	100	4000	8 mm
0603					
0805					
0705					
1206		140	2000	8 mm ⁽¹⁾	
1505		60			
2010					

Note

- ⁽¹⁾ 12 mm on request
- Size 2512 under development

PACKAGING RULES

Waffle Pack

Can be filled up to maximum quantity indicated in the table here above, taking into account the minimum order quantity. When quantity ordered exceeds maximum quantity of a single waffle pack, the waffle packs are stacked up on the top of each other and closed by one single cover.

To get “not stacked up” waffle pack in case of ordered quantity > maximum number of pieces per package: Please consult Vishay/Sfernice for specific ordering code

Tape and Reel

Can be filled up to maximum quantity indicated in the table here above, taking into account the minimum order quantity. When quantity ordered is between the MOQ and the maximum reel capacity, only one reel is provided.

When several reels are needed for ordered quantity within MOQ and maximum reel capacity: Please consult Vishay Sfernice for specific ordering code

PERFORMANCE			
TESTS	CONDITIONS	VALUES AND DRIFT	
		MIL-R-55342 REQUIREMENTS	TYPICAL PERFORMANCES
Thermal shock	MIL-R-55342 C MIL-STD-702-Method 107	± 0.25 %	± 0.02 %
Short time overload	MIL-R-55342 C PARA 3.10.4.7.5	± 0.10 %	± 0.01 %
Low temperature operation	MIL-R-55342 C PARA 3.9 and 4.7.4	± 0.25 %	± 0.01 %
Resistance to solder heat	MIL-R-55342 C PARA 3.12, 4.7.7, 4.7.1.2	± 0.25 %	± 0.04 %
Moisture resistance	MIL-R-55342 C PARA 3.13 and 4.7.8 MIL-STD-202-Method 106	± 0.40 %	± 0.01 %
High temperature	MIL-R-55342 C PARA 3.11 and 4.7.6	± 0.20 %	± 0.075 %
Load life	MIL-R-55342 C 2000 h Pn at 70 °C MIL-STD-202-Method 108	± 0.50 %	± 0.15 %



GLOBAL PART NUMBER INFORMATION																
New Global Part Numbering: L0805K1R00F0BT0046																
L	0	8	0	5	K	1	R	0	0	F	B	T	0	0	4	6
GLOBAL MODEL	SIZE		TCR		VALUE		TOLERANCE		TERMINATION		PACKAGING ⁽¹⁾		OPTION			
L	0603 0705 0805 1206 1505 2010		H = ± 50 ppm K = ± 100 ppm L = ± 200 ppm M = ± 300 ppm		R designated decimal point For values under 1R if 3 significant digits: Rxxx if 2 significant digits: xRxx		F = ± 1 % G = ± 2 % H = ± 3 % J = ± 5 % K = ± 10 %		B: SnPb over nickel barrier N: SnAg over nickel barrier G: gold over nickel barrier		Blank: Waffle pack T: Tape and reel B: Lead bearing version N and G: Lead (Pb)-free/ RoHS version		Leave blank if no option			
Historical Part Number example: L 0805 K 1R00 1 % B T R0046																
L	0805	K	1R00	1 %	B	T	R0046									
MODEL	SIZE	TCR	VALUE	TOLERANCE	TERMINATION	PACKAGING ⁽¹⁾	OPTION									

Note

- ⁽¹⁾ For specific quantity of parts per packaging please consult Vishay Sfernice
- Size 2512 under development



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