RoHS

HALOGEN

FREE

GREEN

(5-2008)



SMD Wraparound Ultra Low Value Thin Film Resistors



DESIGN SUPPORT TOOLS

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

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 50 ppm/°C
- Power rating: Up to 2 W at +70 °C
- Withstand AEC-Q200 humidity test
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

STANDARD ELECTRICAL SPECIFICATIONS						
MODEL	SIZE	RESISTANCE RANGE Ω	RATED POWER P _{70 °C} W	LIMITING ELEMENT VOLTAGE V	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C
L0603	0603	0.1 to 9.99	0.125	50	1, 2, 3, 5, 10	50, 100, 200, 300
L0805	0805	0.1 to 9.99	0.2	50	1, 2, 3, 5, 10	50, 100, 200, 300
L1206	1206	0.1 to 9.99	0.33	50	1, 2, 3, 5, 10	50, 100, 200, 300
L1505	1505	0.1 to 9.99	0.5	50	1, 2, 3, 5, 10	50, 100, 200, 300
L2010	2010	0.1 to 9.99	1.0	50	1, 2, 3, 5, 10	50, 100, 200, 300
L2512	2512	0.1 to 9.99	2.0 (1)	50	1, 2, 3, 5, 10	50, 100, 200, 300

Note

(1) With special assembly care

CLIMATIC SPECIFICATIONS				
Operating temperature range	-55 °C; +155 °C			

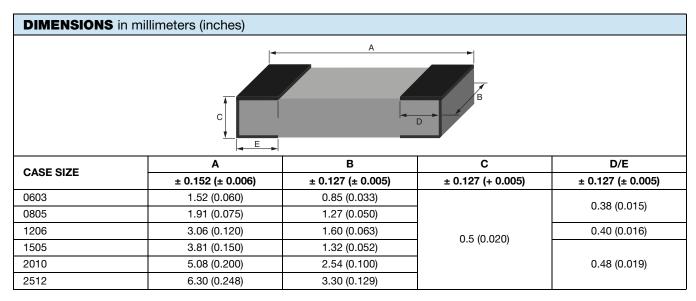
MECHANICAL SPECIFICATIONS				
Substrate	Alumina			
Technology	NiCr + Ta ₂ O ₅			
Coating	Silicone			
Terminations	Solderable B type: SnPb over nickel barrier N type: SnAg over nickel barrier G type: Gold over nickel barrier			

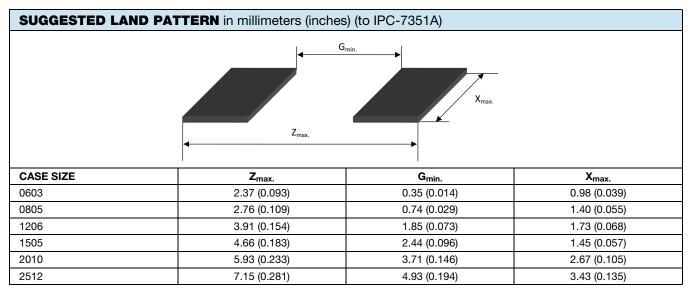
Note

 Refer to Application Note "Guidelines for Vishay Sfernice Resistive and Inductive Components" (document number: 52029) for recommended reflow profile. Profile #3 applies

TOLERANCE AND TCR VS. OHMIC VALUE			
OHMIC VALUE RANGE in Ω	TIGHTEST TOLERANCE (%)	BEST TCR (ppm/°C)	TERMINATIONS
0R1 < 0R25	1	300	N or B
0R25 < 0R5	1	200	N or B
0R5 < 2R5	1	100	N or B
2R5 < 9R99	1	50	N or B
0R1 < 0R25	5	300	G
0R25 < 0R5	5	200	G
0R < 1R	5	100	G
1R < 2R5	3	100	G
2R5 to 9R99	3	50	G







Option: Enlarged Terminations: 0063

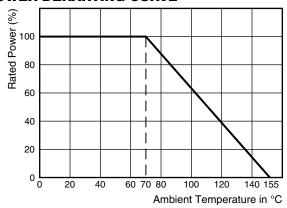
For stringent and special power dissipation requirements, the thermal resistance between the resistive layer and the solder joint can be reduced using enlarged terminations chip resistors which are soldered on large and thick copper pads acting as heat sinks (see application note: "Power Dissipation in High Precision Vishay Sfernice Chip Resistors and Arrays (P Thin Film, PRA Arrays, CHP Thick Film)": www.vishav.com/doc?53048).

For enlarged terminations: Please consult Vishay Sfernice.

Option: AEC-Q200 withstanding

Please order option 0058.

POWER DERARTING CURVE



www.vishay.com

PACKAGING

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

		NUMBER OF PIECES PER PACKAGE			TAPE
SIZE	MOQ	WAFFLE PACK 2" × 2"	TAPE AND REEL		WIDTH
			MIN.	MAX.	
0603		100		5000	
0805		100			
1206	100	140	100	4000	8 mm
1505	100	60	100	2000	0 111111
2010		00			
2512		50		2000	

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.

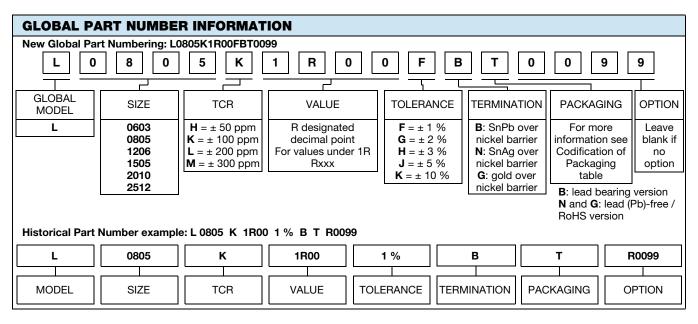
Tape and Reel

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				
		VALUES AND DRIFT		
TESTS	CONDITIONS	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 %	
Moisture resistance	AEC-Q200 85 °C / 85 % RH / 0.1 Pn 1000 h	-	Max. < 0.5 % + 0.05 Ω	
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 %		





CODIFICATION OF PACKAGING			
CODE 18	PACKAGING		
WAFFLE PACK			
W	100 min., 1 mult		
WA	100 min., 100 mult (available only in size 1206)		
PLASTIC TAPE (Standard for all sizes)			
Т	100 min., 1 mult		
TA	100 min., 100 mult		
ТВ	250 min., 250 mult		
TC	500 min., 500 mult		
TD	1000 min., 1000 mult		
TE	2500min., 2500 mult		
TF	Full tape (quantity depending on size of chips)		
PAPER TAPE (Available for 0603, 0805, and 1206. Please consult Vishay Sfernice for other sizes)			
PT	100 min., 1 mult		
PA	100 min., 100 mult		
РВ	250 min., 250 mult		
PC	500 min., 500 mult		
PD	1000 min., 1000 mult		
PE	2500min., 2500 mult		
PF	Full tape (quantity depending on size of chips)		



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L1206H10R0FBW L1206MR120JBW L1206MR300KBT L1206M1R80JBT L0603K10R0FBT L0805M5R00FGW L0805K2R20HBW L2512MR250FBT L-1206M1R00JBWS L1206MR100LBT L1505M2R00FBW L-1206M1R00JBT1 L0805K2R20HBT L0805M2R43FBW L0805M4R70FBT L0805MR100GBW L1020M1R00KBW L1206M1R50JBT L1206M2R00FBT L1206M4R99FBW L1206MR300KBW L1206MR300KGW L1505MR750FBT L2512MR180GBT L1206MR100MBT L2010K6R20GBW L2010K7R50GBW L0805M7R50FBT L1206MR100MST L0805M10R0FBT L2512M10R0FBW L2512M10R0FBT L1505K3R01GBT L-0805MR100GBWS L-0805M2R43FBWS L-0805M5R00FGWS L-1206MR300KGWS L-0805M4R70FBTS L-1206M1R80JBT1 L1206MR100FBT L-1206M2R00FBT0 L-1206MR120JBWS L-2512M10R0FBWS L-1020M1R00KBWS L-1206M4R99FBWS L-1206MR300KBWS L0603MR100KNT L0805M4R70FBTS L-1206MR100LBT1 L-2512MR180GBT1 L-1206MR300KBWS L0603MR100KNT L0805M4R75FBT