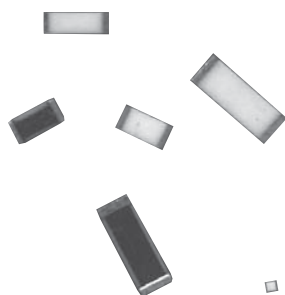


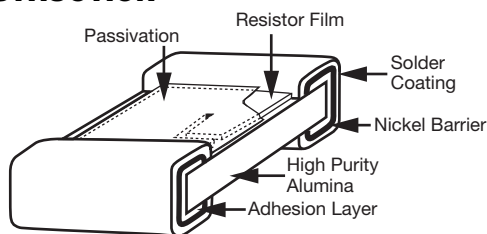
Low Value (0.03 Ω to 10 Ω) Thin Film Resistor, Surface Mount Chip



Actual Size
0805

With extremely low resistances and high power capabilities, Vishay's proven and unique ultra-low value resistors can be used in your hybrid or surface-mount applications. These resistors are available with solderable or weldable terminations.

CONSTRUCTION



FEATURES

- Homogeneous **nickel alloy film**
- No inductance for high-frequency applications
- Alumina substrates for high power handling capability (2 W maximum power rating)
- Pre-soldered or gold terminations
- Epoxy bondable termination available
- Sulfur resistant (per ASTM B809-95 humid vapor test)
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



RoHS*
Available

**HALOGEN
FREE**
Available

**GREEN
(5-2008)**
Available

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.

TYPICAL PERFORMANCE

	ABSOLUTE
TCR	300
TOL.	1.0

VALUE AND MINIMUM TOLERANCE

VALUE (Ω)	MINIMUM TOLERANCE
0.1	± 2.0 %
0.25	± 1.0 %
0.5	± 1.0 %
1.0	± 1.0 %
2.0	± 1.0 %
10.0	± 1.0 %
< 0.1	20 %

STANDARD ELECTRICAL SPECIFICATIONS

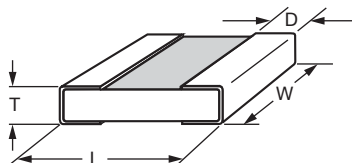
TEST	SPECIFICATIONS	CONDITIONS
Material	Nickel alloy	-
Resistance Range	0.03 Ω to 10 Ω	-
TCR: Absolute	± 300 ppm/ $^{\circ}$ C	-55 $^{\circ}$ C to +125 $^{\circ}$ C
Tolerance: Absolute	1 % to 20 % (value dependent)	-
Stability: Absolute	-	-
Stability: Ratio	-	-
Voltage Coefficient	-	-
Working Voltage	$\sqrt{P \times R}$	-
Operating Temperature Range	-55 $^{\circ}$ C to +155 $^{\circ}$ C	-
Storage Temperature Range	-55 $^{\circ}$ C to +155 $^{\circ}$ C	-
Noise	< -35 dB (typical)	-
Shelf Life Stability: Absolute	-	-

COMPONENT RATINGS

CASE SIZE ⁽¹⁾	POWER RATING (mW)	RESISTANCE RANGE (Ω)
0505	125	0.05 to 5.0
0508	400	0.03 to 2.0
0603	125	0.10 to 5.0
0612	500	0.05 to 2.5
0705/0805	200	0.10 to 6.0
1005	250	0.15 to 10.0
1020	1000	0.03 to 3.0
1206	330	0.10 to 10.0
1225	2000	0.03 to 2.6
1505	500	0.25 to 10.0
2010	1000	0.17 to 10.0
2512	2000	0.18 to 10.0

Notes

- Resistor values beyond ranges shall be reviewed by the factory
- (1) 0705 and 0805 are the same (only use 0805 when ordering)

DIMENSIONS in inches and millimeters


CASE SIZE	SIZE							
	L		W		T		D	
	INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS
	+ 0.010/- 0.005	+ 0.25/- 0.13	± 0.005	± 0.13	MAX.		+ 0.010/- 0.005	+ 0.25/- 0.13
0505	0.050	1.27	0.050	1.27	0.020	0.51	0.016	0.41
0508	0.047	1.19	0.081	2.06	0.020	0.51	0.015	0.38
0603	0.064	1.65	0.032	0.81	0.020	0.51	0.012	0.30
0612	0.063	1.60	0.126	3.20	0.020	0.51	0.015	0.38
0705, 0805 ⁽¹⁾	0.075	1.91	0.050	1.27	0.020	0.51	0.021	0.53
1005	0.100	2.54	0.050	1.27	0.030	0.76	0.021	0.53
1020	0.100	2.54	0.200	5.08	0.030	0.76	0.015	0.38
1206	0.126	3.20	0.063	1.60	0.030	0.76	0.020	0.51
1225	0.126	3.20	0.252	5.59	0.020	0.51	0.020	0.51
1505	0.150	3.81	0.050	1.27	0.030	0.76	0.021	0.53
2010	0.200	5.08	0.100	2.54	0.030	0.76	0.019	0.48
2512	0.250	6.35	0.125	3.18	0.030	0.76	0.019	0.48

Note
⁽¹⁾ 0705 and 0805 are the same (only use 0805 when ordering)

MECHANICAL SPECIFICATIONS

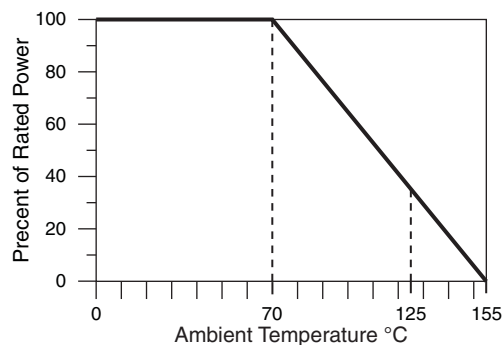
Resistive Element	Nickel alloy
Substrate Material	Alumina
Terminals	Pre-soldered or gold
Lead (Pb)-free Option	96.5 % Sn, 3.0 % Ag, 0.5 % Cu
Tin/Lead Option	Sn63
Lead (Pb)-free Finish and Tin/Lead	Hot solder dip

ENVIRONMENTAL TESTS

ENVIRONMENTAL TEST	LIMITS ⁽¹⁾ $\Delta R \pm \%$	TYPICAL $1 \Omega \Delta R \pm \%$
STO ⁽²⁾	0.5	- 0.19
LTO	0.1	- 0.03
RSH	0.5	- 0.14
Moisture	0.5	0.07
HTE	1.0	0.02
Load Life (2000 h at +70 °C)	0.5	0.20
TCR (ppm)	± 300	+ 150

Notes
⁽¹⁾ 0.01 Ω additional allowed for measurement error

⁽²⁾ Testing conducted at 2.0 x working voltage on 2512 case size all other 2.5 x

DERATING CURVE




GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: L-1206M1R00GBT1

L	-	1	2	0	6	M	1	R	0	0	G	B	T	1
GLOBAL MODEL	CASE SIZE	TCR CHARACTERISTICS		OHMIC VALUE		TOLERANCE		TERMINATION			PACKAGING			
L- = Low value wraparound chip resistor	0505 0508 0603 0612 0805 (1) 1005 1020 1206 1225 1505 2010 2512	M = 300 ppm/°C N = 350 ppm/°C O = 400 ppm/°C P = 500 ppm/°C		First 3 digits are significant figures and the last digit specifies the number of zeros to follow. "R" designates the decimal point. Example: R100 = 0.1 Ω 1R60 = 1.6 Ω		F = 1 % G = 2 % H = 3 % J = 5 % K = 10 % L = 20 %		B = Wraparound Sn/Pb solder 63 % Sn/37 % Pb w/ nickel barrier G = Wraparound Au over Ni (gold) termination epoxy bondable RoHS compliant - e4 W = Top side wire bondable Au (gold) RoHS compliant - e4 S = Wraparound lead (Pb)-free solder 96.5 % Sn/3.0 % Ag/ 0.5 % Cu RoHS compliant - e1			BS = BULK 100 min., 1 mult WS = WAFFLE 100 min., 1 mult TAPE AND REEL T0 = 100 min., 100 mult T1 = 1000 min., 1000 mult (1) T3 = 300 min., 300 mult T5 = 500 min., 500 mult TF = Full reel TI = 100 min., 1 mult (item single lot date code) TP = 100 min., 1 mult (package unit single lot date code) TS = 100 min., 1 mult			

Historical Part Number Example: L1206M1R00HBT (for reference purposes only)

L	1206	M	1R00	H	B	T
STYLE	CASE SIZE	TCR CHARACTERISTICS	OHMIC VALUE	TOLERANCE	TERMINATION	PACKAGING

Note

⁽¹⁾ Preferred packaging code



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.