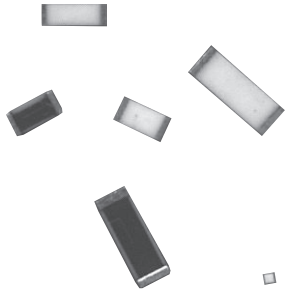
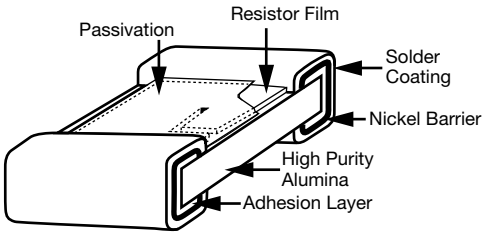
Low Value (0.03 Ω to 10 Ω)
Thin Film Resistor, Surface Mount Chip



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 application
- 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)
- Compliant to RoHS Directive 2002/95/EC

Pb-free Available

RoHS* COMPLIANT

GREEN (5-2008)** Available

Notes

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

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

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/°C	- 55 °C to + 125 °C
Tolerance: Absolute	1 % to 20 % (value dependent)	-
Stability: Absolute	-	-
Stability: Ratio	-	-
Voltage Coefficient	-	-
Working Voltage	-	-
Operating Temperature Range	- 55 °C to + 125 °C	-
Storage Temperature Range	- 55 °C to + 150 °C	-
Noise	< - 35 dB (typical)	-
Shelf Life Stability: Absolute	-	-

COMPONENT RATINGS

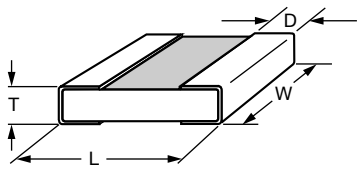
CASE SIZE (1)	POWER RATING (mW)	RESISTANCE RANGE (Ω)
0505	125	0.05 to 5.0
0603	125	0.10 to 5.0
0705	200	0.10 to 6.0
0805	200	0.10 to 6.0
1005	250	0.15 to 10.0
1020	1000	0.03 to 3.0
1206	330	0.10 to 10.0
1505	500	0.25 to 10.0
2010	1000	0.17 to 10.0
2512	2000	0.18 to 10.0

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
0603	0.064	1.65	0.032	0.81	0.020	0.51	0.012	0.30
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
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)

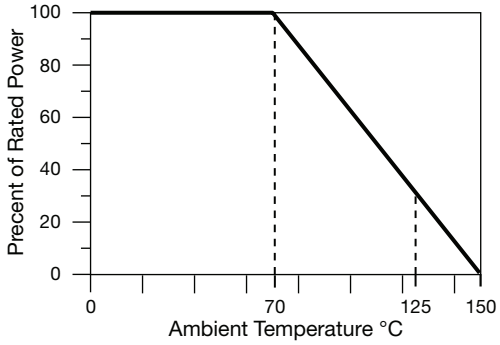
MECHANICAL SPECIFICATIONS

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	1 Ω ΔR ± %
Thermal Shock	0.06
Short Term Overload	0.06
Low Temperature Operation	0.03
Resistance to Solder Heat	0.05
Moisture Resistance	0.35
High Temp. Exposure	0.35
Load Life (2000 h at + 70 °C)	0.40
TCR	± 235 ppm/°C

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** **0603** **0805** (1) **1005** **1020** **1206** **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: 0R10 = 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 **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

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Material Category Policy

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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.