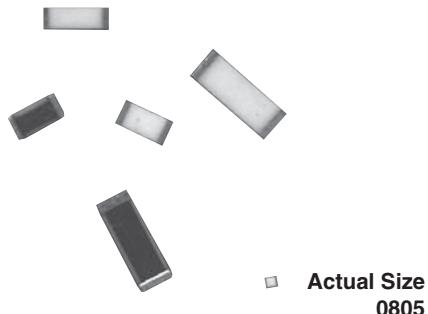
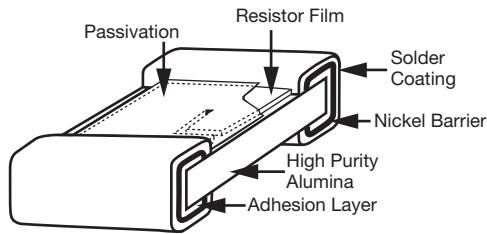


## Low Value (0.03 Ω to 10 Ω) Thin Film Resistor, Surface Mount Chip



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
- Compliant to RoHS Directive 2002/95/EC



### 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

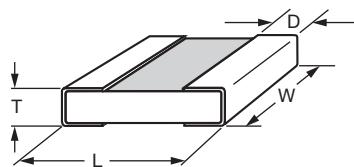
CASE SIZE <sup>(1)</sup>	POWER RATING (mW)	RESISTANCE RANGE (Ω)
0505	125	0.05 to 5.0
0603	125	0.10 to 5.0
0705	200	0.10 to 6.0
0805	200	0.10 to 6.0
1005	250	0.15 to 10.0
1020	1000	0.03 to 3.0
1206	330	0.10 to 10.0
1505	500	0.25 to 10.0
2010	1000	0.17 to 10.0
2512	2000	0.18 to 10.0

#### Notes

- Resistor values beyond ranges shall be reviewed by the factory

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

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

**DIMENSIONS** in inches and millimeters

CASE SIZE	SIZE							
	L		W		T		D	
	INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS
	$+ 0.010/- 0.005$		$+ 0.25/- 0.13$		$\pm 0.005$		$\pm 0.13$	
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 <sup>(1)</sup>	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**

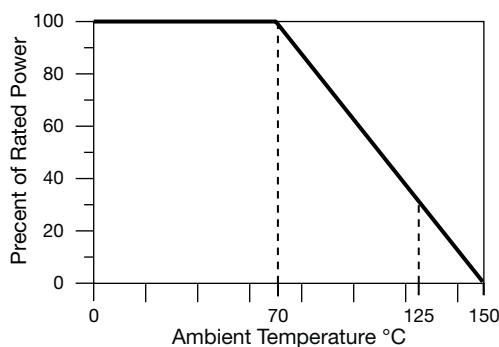
<sup>(1)</sup> 0705 and 0805 are the same (only use 0805 when ordering)

**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	$1 \Omega \Delta R \pm \%$
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	$\pm 235 \text{ ppm}/\text{°C}$

**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
<b>GLOBAL MODEL</b>														
<b>L-</b> = Low value wraparound chip resistor	0505	CASE SIZE	TCR CHARACTERISTICS	OHMIC VALUE	TOLERANCE	TERMINATION	PACKAGING							
	0603		M = 300 ppm/°C	First 3 digits are significant figures and the last digit specifies the number of zeros to follow. "R" designates the decimal point.	F = 1 % G = 2 % H = 3 % J = 5 % K = 10 % L = 20 %	<b>B</b> = Wraparound Sn/Pb solder 63 % Sn/37 % Pb w/ nickel barrier <b>G</b> = Wraparound Au over Ni (gold) termination epoxy bondable RoHS compliant - e4 <b>W</b> = Top side wire bondable Au (gold) RoHS compliant - e4 <b>S</b> = Wraparound lead (Pb)-free solder 96.5 % Sn/3.0 % Ag/ 0.5 % Cu RoHS compliant - e1	<b>BS</b> = BULK 100 min., 1 mult <b>WS</b> = WAFFLE 100 min., 1 mult							
	0805 (1)		N = 350 ppm/°C				TAPE AND REEL							
	1005		O = 400 ppm/°C				<b>T0</b> = 100 min., 100 mult							
	1020		P = 500 ppm/°C				<b>T1</b> = 1000 min., 1000 mult (1)							
	1206						<b>T3</b> = 300 min., 300 mult							
	1505						<b>T5</b> = 500 min., 500 mult							
	2010						<b>TF</b> = Full reel							
	2512						<b>TS</b> = 100 min., 1 mult							
<b>Historical Part Number Example: L1206M1R00HBT (for reference purposes only)</b>														
L	1206	M	1R00	H	B	T								
STYLE	CASE SIZE	TCR CHARACTERISTICS	OHMIC VALUE	TOLERANCE	TERMINATION	PACKAGING								

**Note**
<sup>(1)</sup> Preferred packaging code

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