

Two-Terminal Surface Mount Resistor

WLTM Series

HF **RoHS** **Pb**


Description

Littelfuse WLTM Series low ohm current sense resistor is designed with long term stability in mind. This series is durable, excels at heat dissipation. The small package is optimal for most applications.

Features

- Low TCR
- Optimal linearity in I / V conversion
- Ceramic substrate

Benefits

- Small size
- High voltage

Application

- Power management
- Low ESL

Additional Information


[Resources](#)

[Accessories](#)

[Samples](#)

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Electrical Specifications

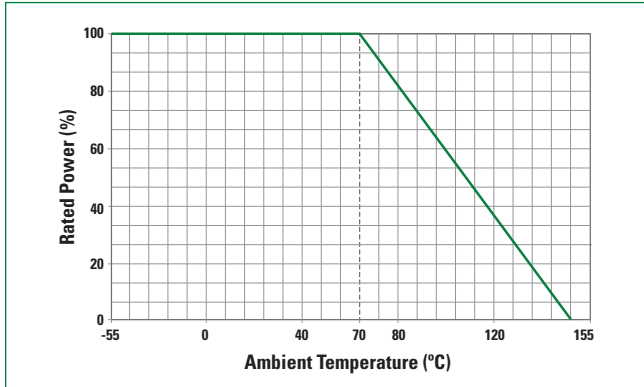
Part Number	Size		Resistance Value		Power Rating (W)	TCR (ppm / °C)	Standard Package Quantity
	Inch	mm	Ro (mΩ)	Rt (%)			
WLTM0508QLR010FNR	0508	1220	10	±1.0%	1	±50	5000
WLTM0508QLR012FNR	0508	1220	12	±1.0%	1	±50	5000
WLTM0508QLR020FNR	0508	1220	20	±1.0%	1	±50	5000
WLTM0508RLR005FNR	0508	1220	5	±1.0%	1	±100	5000
WLTM0612QLR005FNR	0612	1632	5	±1.0%	1.5	±100	5000
WLTM0612QLR006FNR	0612	1632	6	±1.0%	1.5	±100	5000
WLTM0612QLR007FNR	0612	1632	7	±1.0%	1.5	±100	5000
WLTM0612QLR010FNR	0612	1632	10	±1.0%	1.5	±50	5000
WLTM0612QLR012FNR	0612	1632	12	±1.0%	1.5	±50	5000
WLTM0612QLR015FNR	0612	1632	15	±1.0%	1.5	±50	5000
WLTM0612QLR016FNR	0612	1632	16	±1.0%	1.5	±50	5000
WLTM0612QLR020FNR	0612	1632	20	±1.0%	1.5	±50	5000
WLTM0612QLR039FNR	0612	1632	39	±1.0%	1.5	±50	5000
WLTM0612QLR100FNR	0612	1632	100	±1.0%	1.5	±50	5000
WLTM0815QLR010FYR	0815	2238	10	±1.0%	2	±50	4000
WLTM0815RLR005FYR	0815	2238	5	±1.0%	2	±100	4000
WLTM0815RLR006FYR	0815	2238	6	±1.0%	2	±100	4000
WLTM1020QLR010FYR	1020	2550	10	±1.0%	2	±50	4000
WLTM1225QLR010FYR	1225	3264	10	±1.0%	3	±50	4000
WLTM1225QLR015FYR	1225	3264	15	±1.0%	3	±50	4000
WLTM1225QLR020FYR	1225	3264	20	±1.0%	3	±50	4000
WLTM1225QLR022FYR	1225	3264	22	±1.0%	3	±50	4000
WLTM1225QLR030FYR	1225	3264	30	±1.0%	3	±50	4000
WLTM1225QLR039FYR	1225	3264	39	±1.0%	3	±50	4000
WLTM1225QLR100FYR	1225	3264	100	±1.0%	3	±50	4000
WLTM1225RLR002FYR	1225	3264	2	±1.0%	3	±100	4000
WLTM1225RLR004FYR	1225	3264	4	±1.0%	3	±100	4000
WLTM1225RLR006FYR	1225	3264	6	±1.0%	3	±100	4000
WLTM1225RLR007FYR	1225	3264	7	±1.0%	3	±100	4000
WLTM1225RLR008FYR	1225	3264	8	±1.0%	3	±100	4000

Note: Resistors are available in steps of 1mΩ. Ratings not indicated in the above table may be available on request.

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Temperature De-rating Curve



Storage / Environment Conditions

Products should be stored under the following environmental conditions.

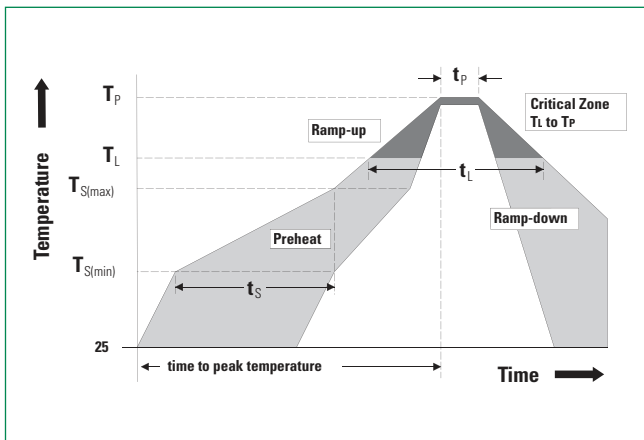
Temperature:	+5 to +35 °C
Humidity:	45 to 85% relative humidity
Moisture Sensitivity Level:	1, J-STD-020

Do not keep products in environments where they may be subject to particulate contamination or harmful gases such as sulfuric acid or hydrogen chloride as it may cause oxidization on electrodes, resulting poor solderability.

Products should be stored in a space that does not expose to high temperatures, vibration, or direct sunlight.

Products should be stored in the original airtight packaging until use.

Soldering Parameters–Wave Soldering



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate ($T_{S(max)}$ to T_p)	3 °C / second max
Preheat	
Temperature Minimum ($T_{S(min)}$)	150 °C
Temperature Maximum ($T_{S(max)}$)	200 °C
Time ($T_{S(min)}$ to $T_{S(max)}$)	60–180 seconds
Time maintained above	
Temperature Minimum (T_l)	217 °C
Time (t_l)	60–150 seconds
Peak Temperature (T_p)	260 +0 °C
Time within 5 °C of Actual Peak Temperature (t_p)	20–40 seconds
Ramp-Down Rate	6 °C / second Maximum
Time 25 °C to Peak Temperature	8 minutes Maximum

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Reliability Specifications

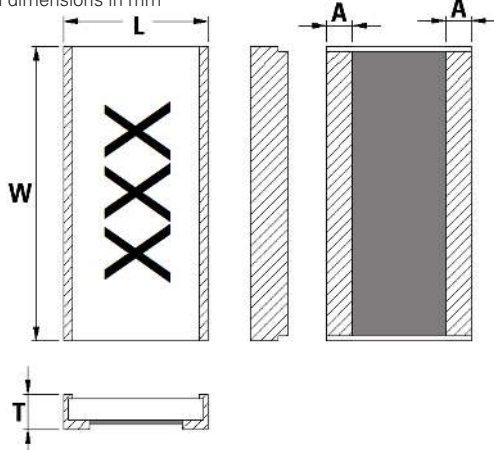
Test	Procedure	Specifications
Resistance Data	Resistance data at 25 °C	Must meet datasheet requirements
TCR Data	TCR data at 25 °C and 125 °C	Must meet datasheet requirements
Dimensional Data	Measure all dimensions specified in datasheet	Must meet datasheet requirements
Short Time Overload JIS-C-5201, 4.13	Applied voltage: 2.5X rated power. Test duration: 5 seconds	±1.0%
Load Life (1) JIS-C-5201-1, 4.25	Test Temperature: 70 °C ±3 °C Applied voltage: rated voltage Test period: 1,000 hours with power cycling as follows: 90 min. power ON / 30 min. power OFF	±1.0%
Moisture Resistance (1) JIS-C-5201-1, 4.24	Test Condition: 40 °C ±3 °C / 90-95% RH Test period: 1,000 hours	±1.0%
Temperature Cycle (1) (Thermal Shock) JESD22-A-104	Repeat 1,000 cycles as follows: -55 ±3 °C (30 min.) / +155 ±3 °C (30 min.) Transition time of 1 minute maximum	±1.0%
Resistance To Solder Heat #1 J-STD-020	One reflow cycle according to JEDEC J-STD-020, cool down then parts are immersed into a molten solder bath with a temperature of 260 °C for a period of 10 ±1 seconds.	Part must meet initial specifications following testing
Resistance To Solder Heat #2 J-STD-020	Per component MSL classification per J-STD-020 3 reflow cycles	±1.0%
High Temperature Exposure (1) MIL-STD-202, Method 108, Condition D	Test Temperature: Maximum rated operational temperature Test period: 1,000 hours No electrical load	±1.0%
HAST (1) (Highly Accelerated Stress Test - Autoclave)	Test Temperature: 121 °C ± 2 °C Test Pressure: 30 PSIA Test period: 48 hours No electrical load	±1.0%
Terminal Strength AEC-Q200-006	Test Force: 17.7N (derated for size) Duration: 60 ±1 seconds Parts must be soldered onto a PCB to perform test	±0.5%
Vibration (1) MIL-STD-202, Method 204, Condition B	Frequency: 10–2,000 Hz Acceleration: 15 ±1.5 gs Test Duration: 20 mins / 12 Cycles	±1.0%
Mechanical Shock (1) MIL-STD-202, Method 213, Condition A	Force: 50 ±5gs Test Duration: 11 ±1 milliseconds	±1.0%
Solderability MIL-STD-202, Method 208H, Category 3	Dipped into molten solder for 3 ±1 seconds at 245 ±5 °C Flux activity type R0	New solder coverage of 90% minimum
Pre-Conditioning	Per component MSL classification per J-STD-020 3 reflow cycles	N/A

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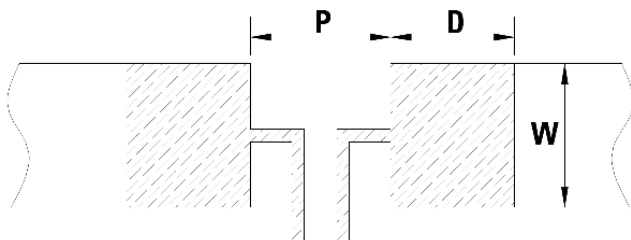
Dimensions

All dimensions in mm



Part Number	W	L	T	A
WLTM0508 R001~R100	2.10±0.20	1.35±0.20	0.65±0.20	0.43±0.20
WLTM0612 R001	3.30±0.20	1.70±0.20	0.65±0.20	0.55±0.30
WLTM0612 R002~R100	3.30±0.20	1.70±0.20	0.65±0.20	0.40±0.20
WLTM0815 R001~R100	3.80±0.20	2.20±0.20	0.65±0.20	0.61±0.20
WLTM1020 0M50	5.10±0.20	2.60±0.20	0.65±0.20	0.95±0.20
WLTM1020 R001~R100	5.10±0.20	2.60±0.20	0.65±0.20	0.65±0.20
WLTM1225 R001~R100	6.40±0.30	3.20±0.30	0.65±0.20	0.60±0.20

Recommended Land Pattern



Part Number	P	W	D	Loading
WLTM0508 R001~R100	0.60 mm	2.30 mm	1.10 mm	1.0 W
WLTM0612 R001	0.50 mm	3.68 mm	1.35 mm	1.5 W
WLTM0612 R002~R100	0.60 mm	3.68 mm	1.30 mm	1.5 W
WLTM0815 R001~R100	0.70 mm	4.26 mm	1.45 mm	2.0 W
WLTM1020 0M50	0.55 mm	5.75 mm	2.48 mm	2.0 W
WLTM1020 R001~R100	1.00 mm	5.75 mm	2.25 mm	2.0 W
WLTM1225 R001~R100	1.40 mm	7.25 mm	2.35 mm	3.0 W

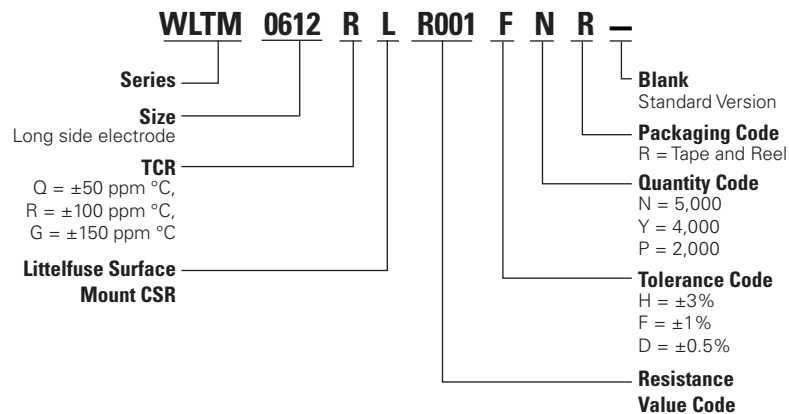
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Packaging

Part Number	Halogen Free	Packaging Option	Quantity	Quantity & Packaging Codes
WLTM0508	Yes	Tape and Reel	5000	NR
WLTM0612	Yes	Tape and Reel	5000	NR
WLTM0815	Yes	Tape and Reel	4000	YR
WLTM1020	Yes	Tape and Reel	4000	YR
WLTM1225	Yes	Tape and Reel	4000	YR

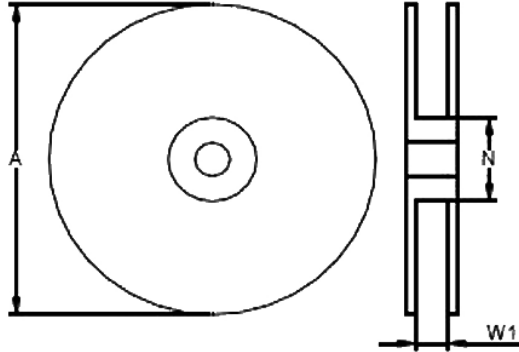
Part Numbering System



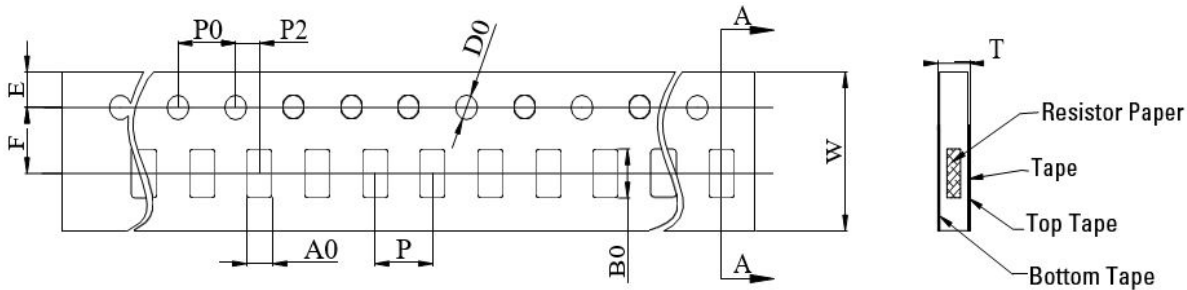
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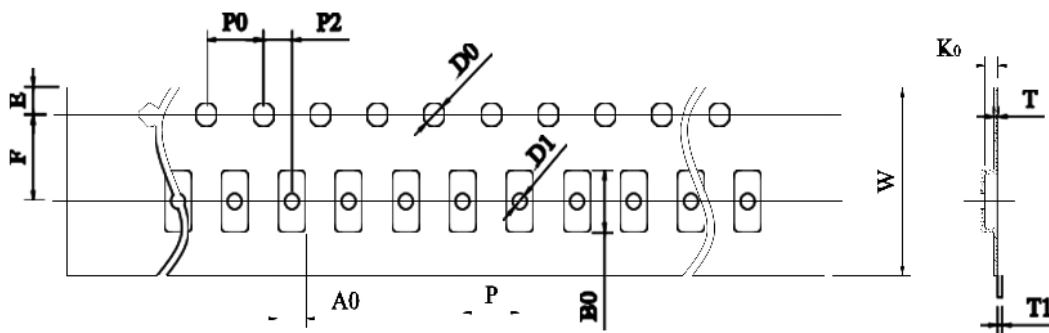
Tape and Reel Specifications



Part Number	A±5 (mm)	N±2 (mm)	W1±1 (mm)
WLTM0508	178	60	9.0
WLTM0612	178	60	9.0
WLTM0815	178	60	13
WLTM1020	178	60	13
WLTM1225	178	60	13



Part Number	W	P0	P	P2	A0	B0	D0	F	E	T	T1	K0
WLTM0508	8.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	1.55±0.10	2.30±0.10	1.50±0.10	3.50±0.10	1.75±0.10	0.87±0.10	/	/
WLTM0612	8.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	2.05±0.20	3.65±0.20	1.50±0.10	3.50±0.10	1.75±0.10	0.87±0.10	/	/



Part Number	W	P0	P	P2	A0	B0	D0	F	E	T	T1	K0
WLTM0815	12.00±0.40	4.00±0.10	4.00±0.10	2.00±0.10	2.30±0.20	4.10±0.20	1.50±0.10	5.50±0.10	1.75±0.10	0.25±0.10	Max. 0.1	0.30±0.05
WLTM1020	12.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	2.85±0.20	5.45±0.20	1.50±0.10	5.50±0.10	1.75±0.10	0.25±0.10	Max 0.10	0.75±0.20
WLTM1225	12.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	3.40±0.20	6.75±0.20	1.50±0.10	5.50±0.10	1.75±0.10	0.25±0.10	Max 0.10	0.80±0.20

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