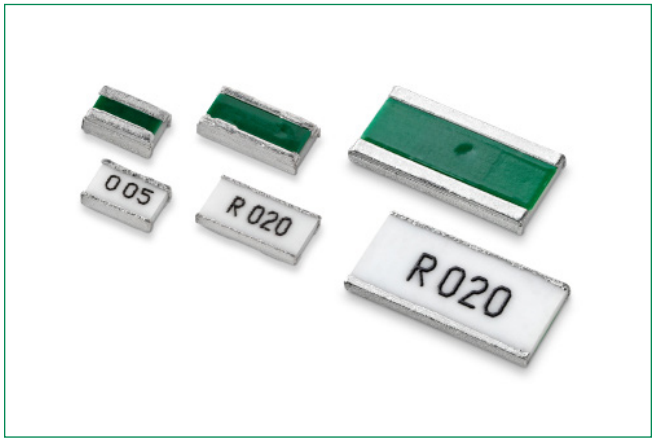
WLTM Series

Two-Terminal Surface Mount Resistor

HF RoHS



Additional Information

Resources | Accessories | Samples

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 & Benefits

- Low TCR
- Optimal linearity in I / V conversion
- Ceramic substrate
- Small size
- High voltage

Application

- Power management
- Low ESL

Revised: GD. 06/02/23

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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 1mOhm. Ratings not indicated in the above table may be available on request.

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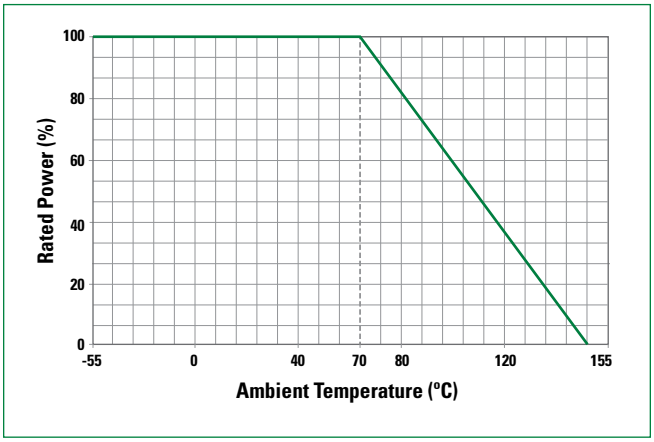
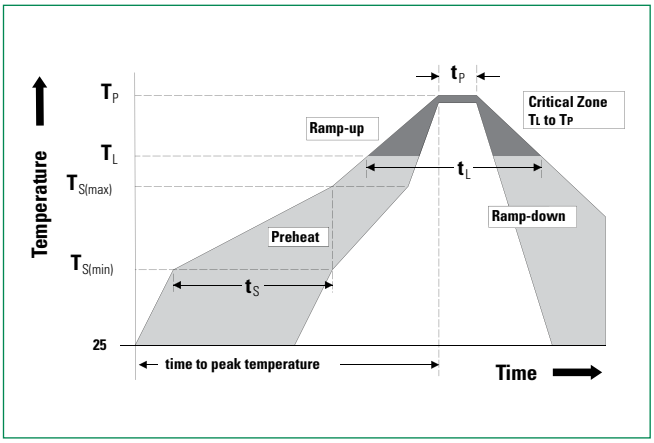
Temperature De-rating Curve



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 (Ts_{max} to Tp)	3 °C / second max
Preheat Temperature Minimum (Ts_{min})	150 °C
Temperature Maximum (Ts_{max})	200 °C
Time (Ts_{min} to (Ts_{max})	60–180 seconds
Time maintained above Temperature Minimum (T_L) Time (t_L)	217 °C 60–150 seconds
Peak Temperature (T_P)	260 +0 °C
Time within 5 °C of Actual Peak Temperature (tp)	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
ESD	HBM, 100pF, 1.5k ohms Repetition: 5 times Component Classification: 5C (25KV)	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Load Life (Operational Life)	Test Temperature: 125°C Applied voltage: rated power (derated Power will be required if temp exceeds the derating point of part) Test Period: 1,000 hours (condition D)	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Biased Humidity	Test conditions: 85°C and 85% RH 10% of rated power Test Period 1,000 hours	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Temp. Cycling (Thermal Shock)	Repeat 1,000 cycles as follows: -55°C for 30 minutes 125°C for 30 minutes Transition time of 1 minute max	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
High Temp. Exposure (Storage)	Test Temp 125°C Test Period: 1,000 hours No Electrical Load	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Resistance to soldering heat	Condition B (Solder dip, no pre-heat) 260°C	±1.0% Parts must meet initial electrical specs.
Resistance to Solvents	3 minute soak 2-3 ounce force 10 strokes/repetition 3 repetitions	Appearance: Without distinct damage, and the marking shall be legible.
Terminal Strength (SMD)	Applied force based on part size	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Flammability	UL-94 V-0 or V-1 are acceptable Electrical test not required	V-0 burning less that 10 seconds V-1 burning less than 30 seconds
Flame Retardance	Mounted parts subjected to voltages from 9.0 to 32 VDC (current clamped up to 500A)	No flame when full automotive battery potential is applied.
Vibration	Frequency: 10-2,000 Hz Acceleration: 5G Test duration: 20 minutes, 12 cycles	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Mechanical Shock	Force: 100G peak Test duration: 6 ms Half-sine waveform Velocity: 12.3ft/sec	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Board Flex	90 mm span between fulcrums 2 mm bend 60 seconds minimum holding time	±1.0% Appearance: Without distinct damage, and the marking shall be legible.
Solderability	Non-activated flux dip: 5-10 seconds SAC solder dip: 5 seconds at 245°C	A new solder shall cover minimum of 95%.

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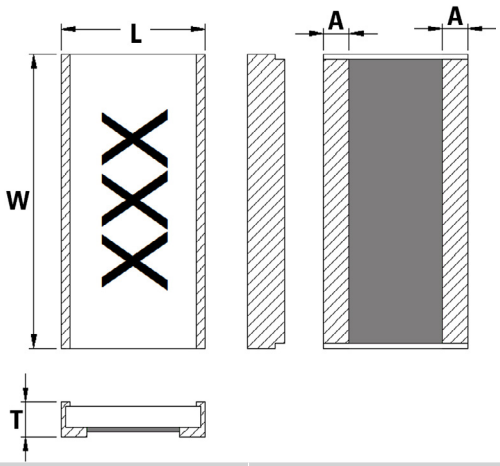
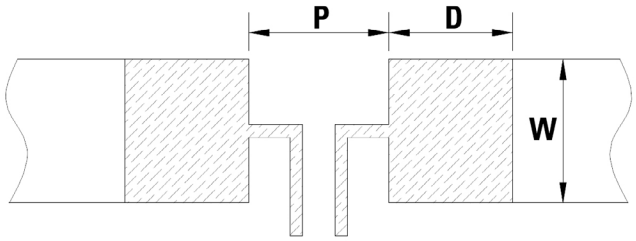
Dimensions
All dimensions in mm



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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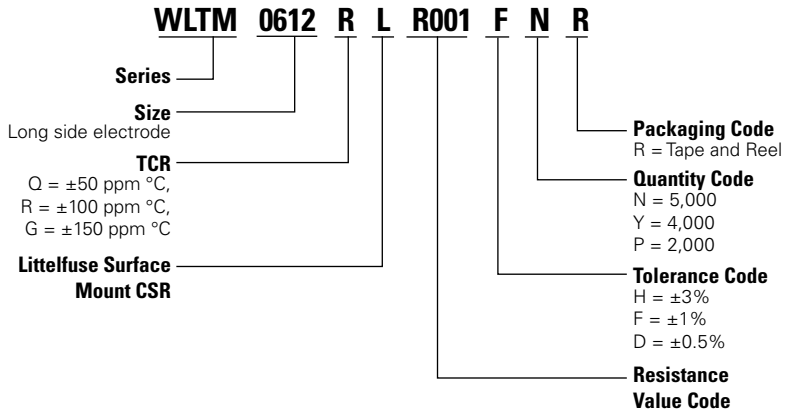
Packaging

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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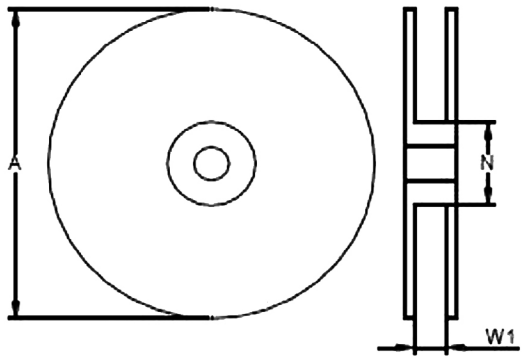
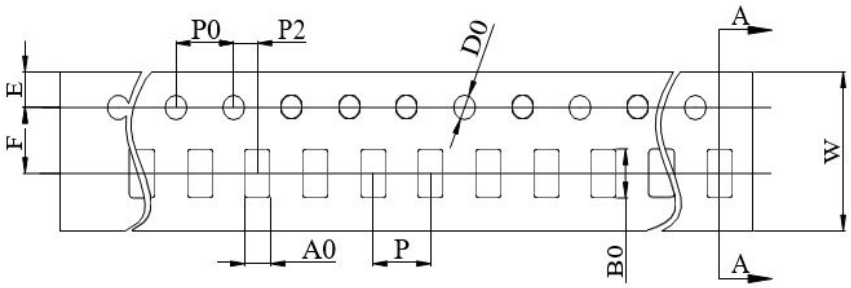
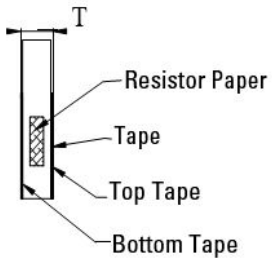
Tape and Reel Specifications

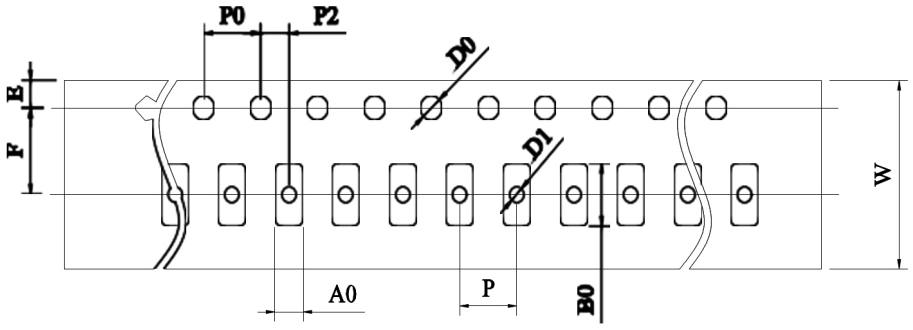


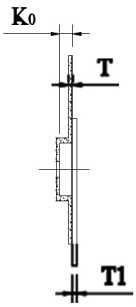
Part Number	A±5 (mm)	N±2 (mm)	W1±1 (mm)
WLTM0508	178	60	9.0
WLTM0612	178	60	9.0
WLTM0815	178	60	13
WLTM1020	178	60	13
WLTM1225	178	60	13





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±.010	/	/





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. 0.10	0.75±0.20
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	0.80±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	1.00±0.20