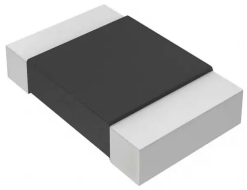
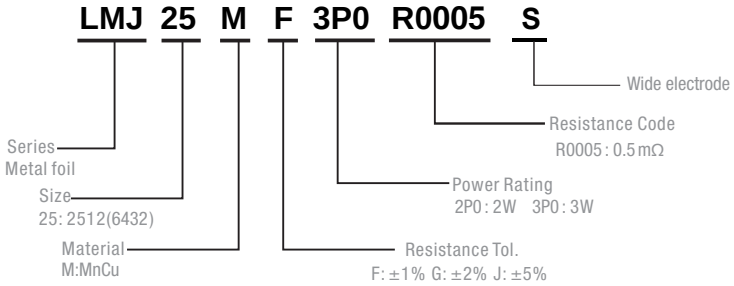
Current Sensing Resistors
LMJ25 Series

Description

- Proprietary processing technique produces extremely low resistance values
- Very low inductance
- Low thermal EMF
- Metallic Material



Part Numbering System

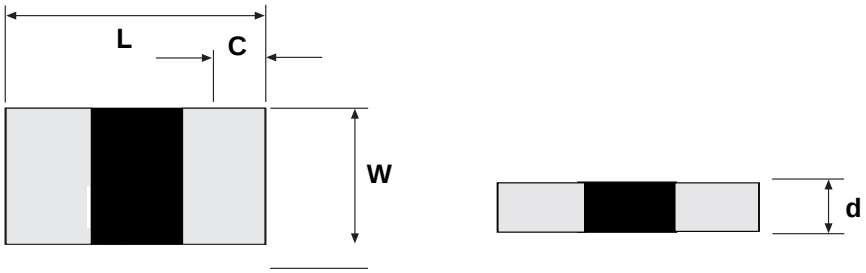


Parameter	Standard
Power Rating	2~3W
Resistance Value	0.5~0.75mΩ
Operating Temperature Range	-55 to +170°C
Component Temperature Coefficient (TCR)	± 50 ppm/°C
Maximum Working Voltage (V)	$(P \times R)^{1/2}$

Standard Electrical Specifications

Type	Rating Power at 70℃	T.C.R. (ppm/℃)	Resistance Range(mΩ ±0.5%（D） ±1.0%（F） ±2.0%（G） ±5.0%（J）	Meterial	Electrode	Operating Temperature(℃)
LMJ25	3W	50	0.5	MnCu	Wide	-55~+170°C
	2W	50	0.75			

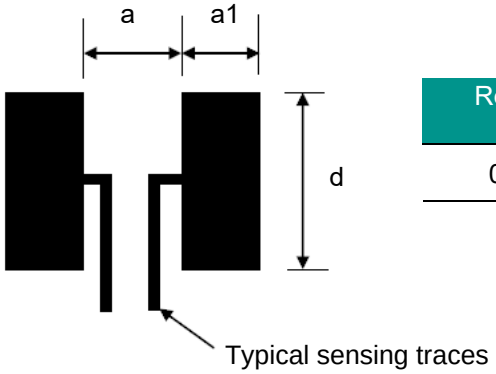
Construction



Unit: Millimeters

Style	Resistance (Ω)	L	W	C	d	Material
LMJ25	0.0005	6.4±0.2	3.2±0.2	2.5±0.2	0.9 ±0.20	MnCu
	0.00075	6.4±0.2	3.2±0.2	2.75±0.2	0.9 ±0.20	

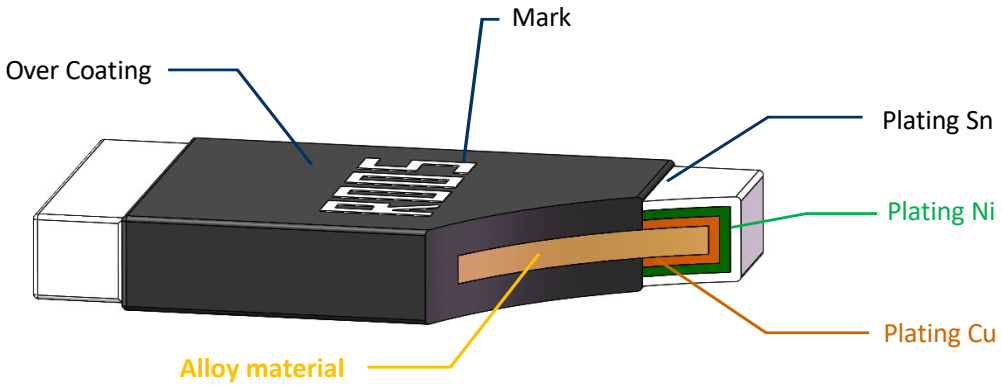
Recommended land pattern



Unit: Millimeters

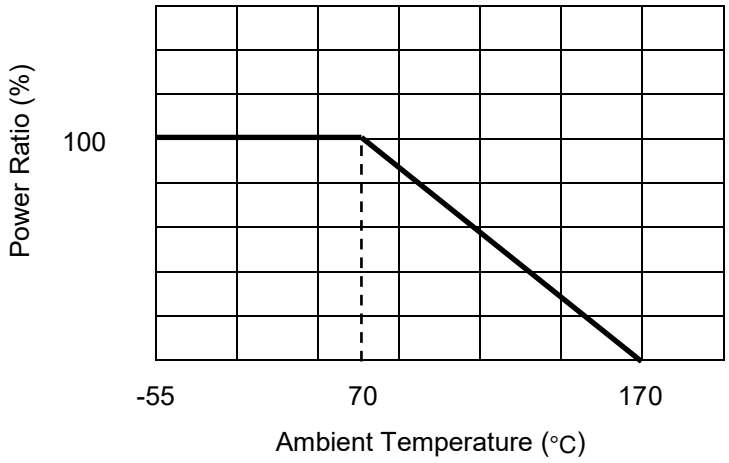
Resistance Range (Ω)	a	a1	d
0.0005~0.00075	1.3±0.1	3.1±0.1	4.0±0.1

Product structure diagram

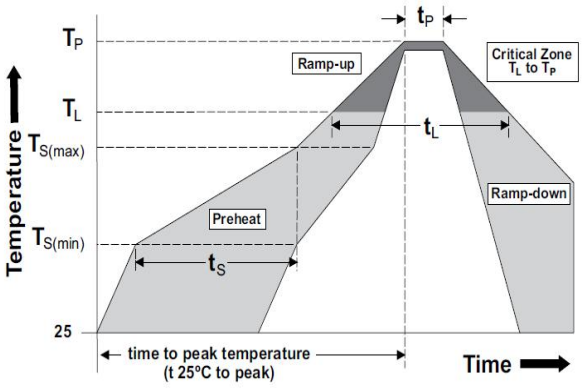


Power Derating Curve

For resistors operated in ambient temperatures 70°C, power rating shall be derated inaccording with the curve below:



Recommended Solder Curve

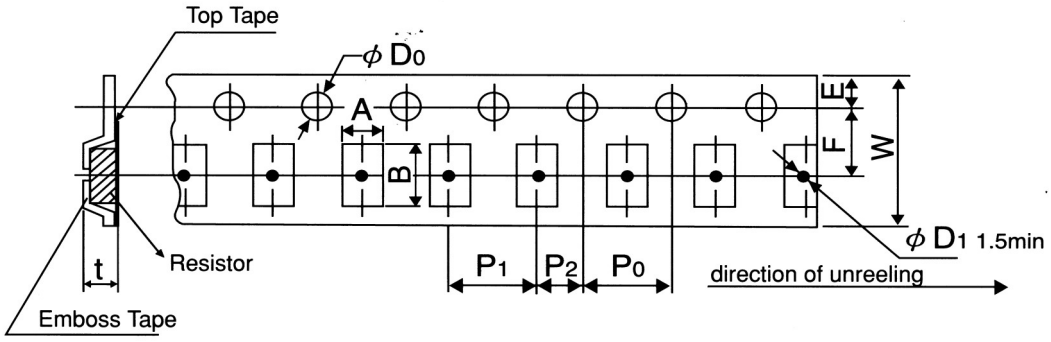


Reflow Condition		Pb – Free assembly
Pre heat	- Temperature Min (Ts(min))	150°C
	- Temperature Max (Ts(max))	200°C
	- Time (Min to Max) (ts)	60 – 120 secs
Average ramp up rate (Liquidus Temp (TL) to peak		5°C/second max
TS(max) to TL - Ramp-up Rate		5°C/second max
Reflow	- Temperature (TL) (Liquidus)	217°C
	- Temperature (tL)	60 – 150 seconds
Peak Temperature (TP)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (TP)		8 minutes Max.
Wave Soldering		260°C, 10 seconds max.
Hand Soldering		350°C, 5 seconds max.

Product Characteristics

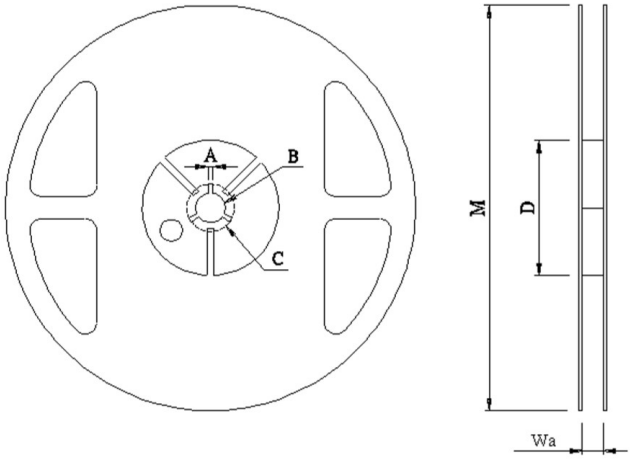
Item	Test condition/ Methods	Limited	Standard
Resistance	Measuring resistance value at room temperature 25℃±5℃	Refer to Spec	IEC60115-1 4.5
Temperature coefficient of resistance	$TCR = (R-R_0)/R_0(T2-T1) \times 10^6$ (T1: T2) R_0: resistance of room temperature R: resistance of 125℃ T1: Room temperature T2: Temperature at 125℃	Refer to Spec	MIL-STD-202 Method 304
Short time Overload	Apply overload for 5 seconds and measure the resistance change rate after standing for 24 hours. 5 times the rated power for 5 seconds	≤±0.5%	MIL-R-26E
Resistance to Soldering Heat	260℃± 5℃ time：10sec± 1sec	≤±0.5%	MIL-STD-202 Method 210
Temperature Cycling	-55℃ (15min)/+125℃(15min), 1000 cycles	≤±1%	MIL-STD-202 Method107G
Low temperature Storage	-55℃ for 1000hours, No power	≤±0.5%	MIL-STD-26E
High Temperature Storage	170℃ for 1000hours, No power	≤±1%	IEC6011501-4.25
Bias Humidity	+85℃，85% RH，10%bias, 1000hours	≤±0.5%	MIL-STD-202 Method103
Mechanical shock	Condition C ,100 g's ,6 msec, 3 mutually perpendicular axes, in 6 directions, three impacts each for a total of 18 times 18 shocks.	≤±0.5%	MIL-STD-202 Method 213
Solderability	245±5℃, 2±0.5sec	At least 95% of surface area of electrode shall be covered with new solder	IEC60115-1-4.17 JIS-C5201-4.17
Operational life	70℃± 2℃, 1000 hours, at rated power 1.5 hours "ON", 0.5 hours "OFF"	≤±1%	MIL-STD-202 Method 108
Insulation Resistance	100V DC for 1 minute	>100 MΩ	IEC60115-1-4.6 JIS-C5201-4.6

Tapping & Package



	Pack	A ±0.2	B ±0.2	D0 +0.5-0	E ±0.1	F ±0.05	P0 ±0.1	P1 ±0.1	P2 ±0.1	W ±0.2	D1 ±0.05	T ±0.15
2512	Emboss	3.60	6.90	1.50	1.75	5.50	4.00	4.00	2.00	12.00	1.50	1.20

Reel Specification



Type	A	B	C	D	M	W
2512	2.00±0.5	13.50±0.5	21.00±0.5	80.00±1.0	178.00±2.0	13.80±0.5

Packaging

Quantity: 4, 000pcs

8mm wide tape on 178mm(7 inch) diameter reel -specification EIA Standard 481.