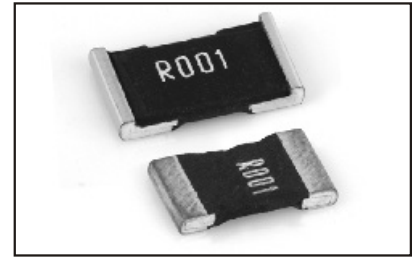


Metal Alloy Low-Value Resistors

- Proprietary processing technique produces extremely low Resistance values.
- LR4527 : Ultra-Low and stable T.C.R. ($\leq \pm 50 \text{ppm}/^\circ\text{C}$).
- Robust metal alloy able to withstand high temperature and current.
- Specially stabilized materials allow for high temperature derating to $+170^\circ\text{C}$
- Pure Tin plating provides compatibility with lead (Pb) free and lead containing soldering processes.
- Compatible with "Restriction of the use of Hazardous Substances" (RoHS) directive 2002/95/EC (issue 2004).
- PFOS, PFOA, PAHs, Halogen free and REACH compliant.
- Excellent stability ($|\Delta R/R1| \leq \pm 2.0\%$ for 1,000 h at 70°C) different environmental conditions.
- Suitable for high precision current sensing circuit protection and voltage division applications.
- High volume product suitable for commercial and special applications.
- Miniature size suitable for compact Print Circuit Boards of high-precision electronic products.
- Applications include : Power Supply, Battery Pack, DIY Tools, Inverter/Converter(AC/DC, DC/DC, DC/AC), Measurable Instrument, Consumer Electrics, Note Book, PC Power Pack, LED Driver and Others (Auto Tronics...etc.).



GENERAL SPECIFICATIONS

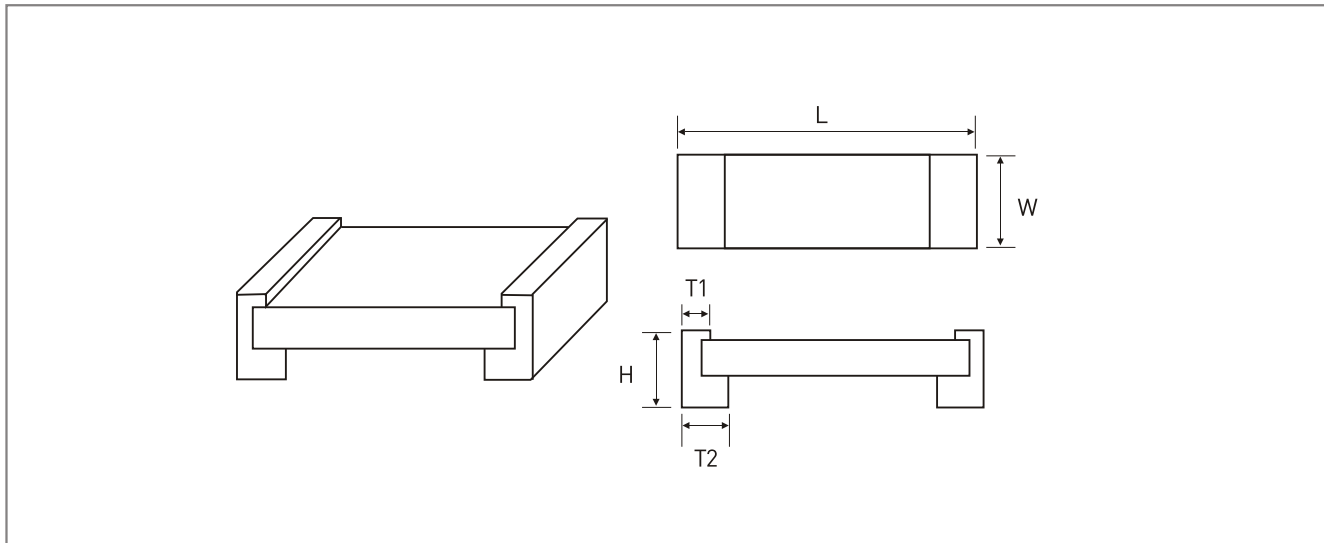
Model	Maximum Rating Power at 70°C [W]	Maximum Rating Current	Maximum Overload Current	TCR [ppm/°C]	Resistance Range[mΩ]		Operating Temperature Range
					$\pm 0.5\%$ (D)	$\pm 1.0\%$ (F) $\pm 2.0\%$ (G) $\pm 5.0\%$ (J)	
LR1206	0.5W	22.36A	44.72A	1~4 $\leq \pm 50$	7~50	1~50	-55°C ~ +170°C
	1.0W	31.62A	63.25A	4.1~15 $\leq \pm 25$ 15.1~50 $\leq \pm 15$			
LR2010	1W	31.62A	63.25A	1~3m $\leq \pm 50$ 3.1~6.9 $\leq \pm 25$ 7~100m $\leq \pm 15$	7~100	1~100	
	1W	44.72A	100A	0.5~3m $\leq \pm 50$ 3.1~6.9 $\leq \pm 25$ 7~100m $\leq \pm 15$			
LR2512	1.5W	54.77A	122.48A	0.5~3m $\leq \pm 50$ 3.1~6.9 $\leq \pm 25$ 7~100m $\leq \pm 15$	7~100	0.5~100	
	2W	63.25A	141.42A	1~3m $\leq \pm 50$ 3.1~6.9 $\leq \pm 25$ 7~75m $\leq \pm 15$			
	3W	77.46A	134.16A	0.5~2.5m $\leq \pm 50$ 2.6~10m $\leq \pm 25$			
LR2725	4W	126.49A	252.95A	0.25~0.9m $\leq \pm 50$ 1~3 $\leq \pm 25$	-	0.25~3	
LR2728	3W	27.39A	47.43A	4~7m $\leq \pm 25$	4~100	4~100	
	3.5W	29.58A	51.23A	7.1~100m $\leq \pm 15$			
	4W	31.62A	63.25A	4~7m $\leq \pm 25$ 7.1~100m $\leq \pm 15$			
LR4527	5W	44.72A	100A	$\leq \pm 50$	-	0.5~100	

SOLDER PAD DIMENSIONS

Model	Max. Power Rating[W]	Resistance Range [mΩ]	SOLDER PAD Dimension in inches (millimertes)			*Solder pad trace size
			a	b	i	
LR1206	0.5&1	1~50	0.063(1.6)	0.086(2.18)	0.026(0.66)	100mm ²
LR2010	1	1~3	0.071(1.8)	0.115(2.92)	0.048(1.22)	100mm ²
		3.1~100	0.090(2.29)		0.095(2.41)	
LR2512	1&1.5	0.5~4	0.120(3.05)	0.145(3.68)	0.050(1.27)	100mm ²
		4.1~100	0.083(2.11)		0.125(3.18)	200mm ²
	0.5~4	0.120(3.05)	0.050(1.27)		300mm ²	
	4.1~75	0.083(2.11)	0.125(3.18)		400mm ²	
	0.5~1.5	0.120(3.05)	0.050(1.27)			
3	1.6~10	0.083(2.11)	0.125(3.18)			
LR2725	4	0.25~3	0.125(3.18)	0.27(6.86)	0.052(1.32)	400mm ²
LR2728	3	4~100	0.108(2.75)	0.308(7.82)	0.138(3.51)	3W: 300mm ²
	3.5					3.5W: 350mm ²
	4					4W: 400mm ²
LR4527	5	0.5~3.0	0.189(4.80)	0.344(8.74)	0.217(5.51)	625mm ²
		3.1~100	0.134(3.40)			

* Remark : "*" is recommended the total solder pad trace size.

DIMENSIONS



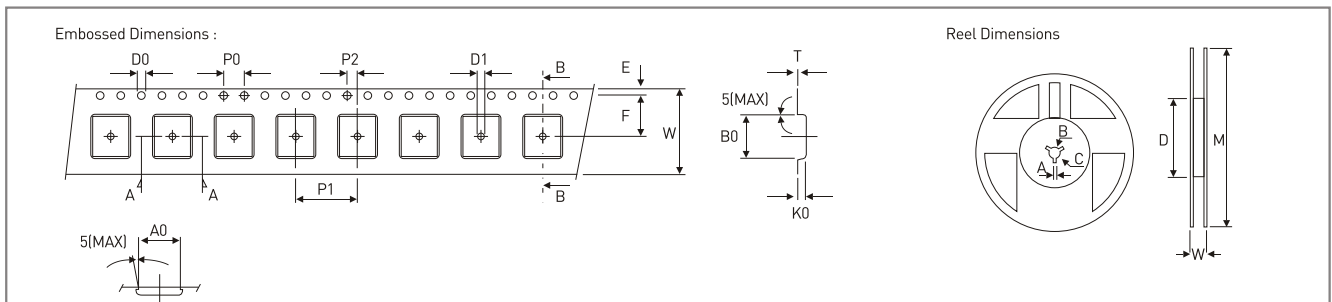
Model	Maximum Power Rating[W]	Resistance Range[mΩ]	Dimensions - in inches (millimeters)				
			L	W	H	T	
						T1	T2
LR1206	0.5 & 1	1~50	0.126±0.01 (3.2±0.254)	0.063±0.01 (1.6±0.254)	0.0254±0.01 (0.645±0.254)	0.02±0.01 (0.508±0.254)	
LR2010	1	1~3	0.2±0.01 (5.08±0.254)	0.1±0.01 (2.54±0.254)	0.031±0.01 (0.787±0.254)	0.051±0.01 (1.295±0.254)	
		3.1~100			0.0254±0.01 (0.645±0.254)	0.031±0.01 (0.787±0.254)	
LR2512	1&1.5	0.5~4	0.246±0.01 (6.248±0.254)	0.13±0.01 (3.202±0.254)	0.031±0.01 (0.787±0.254)	0.074±0.01 (1.88±0.254)	
		4.1~75			0.0254±0.01 (0.645±0.254)	0.044±0.01 (1.118±0.254)	
		75.1~100			0.031±0.01 (0.787±0.254)	0.034±0.01 (0.868±0.254)	
	2	0.5~4			0.031±0.01 (0.787±0.254)	0.074±0.01 (1.88±0.254)	
		4.1~75			0.0254±0.01 (0.645±0.254)	0.044±0.01 (1.118±0.254)	
	3	0.5			0.031±0.01 (0.787±0.254)	0.074±0.01 (1.88±0.254)	
0.6~2.9 4.1~10		0.031±0.01 (0.787±0.254)	0.044±0.01 (1.118±0.254)				
3~4		0.031±0.01 (0.787±0.254)	0.066±0.01 (1.676±0.254)				
LR2725	4	0.25, 0.5	0.268±0.01 (6.807±0.254)	0.254±0.01 (6.452±0.254)	0.039±0.01 (0.991±0.254)	0.085±0.01 (2.159±0.254)	
		1			0.043±0.01 (1.092±0.254)		
		1.5			0.039±0.01 (0.991±0.254)		
		2			0.035±0.01 (0.889±0.254)	0.071±0.01 (1.803±0.254)	
		2.5				0.065±0.01 (1.651±0.254)	
		3				0.051±0.01 (1.295±0.54)	
LR2728	3 & 3.5 & 4	4~100	0.264±0.01 (6.706±0.254)	0.28±0.01 (7.188±0.254)	0.039±0.01 (0.991±0.254)	0.045±0.01 (1.143±0.254)	
LR4527	5	0.5 ~ 3.0	0.45±0.01 (11.43±0.254)	0.27±0.01 (6.85±0.254)	0.059±0.01 (1.5±0.254)	0.038±0.01 (0.965±0.254)	0.127±0.01 (3.215±0.254)
		3.1 ~ 100					0.071±0.01 (1.815±0.254)

CHARACTERISTICS

Temperature Coefficient of Resistance	$\leq \pm 50 \text{ppm}/^\circ\text{C}$	JIS C 5201 4.8 Method; $\text{TCR}(\text{ppm}/^\circ\text{C}) = \{[R2-R1]/R1(T2-T1)\} \times 10^6$ R1 : Resistance of room temperature(T1), R2 : Resistance of 150°C(T2)
Short Time Overload	LR4527 : $(\Delta R/R1) \leq \pm 2.0\%$ Others : $(\Delta R/R1) \leq \pm 0.5\%$	LR2512(3W)/2728(3W,3.5W) : 4 x Power rating, 5seconds LR1206/2010/2725/2728(4W)/4527 : 4 x Power rating, 5seconds LR2512(1W-2W) : 5 x Power rating, 5seconds
Insulation Resistance	$\geq 10^9 \Omega$	JIS C 5201 4.6 Method; DC100±15V for 1minute
Dielectric Withstanding Voltage	Without break down	JIS C 5201 4.7 Method; Applied AC500V for 1minute Limit surge current maximum 50mA
Resistance to Solder Heat	$\leq \pm 0.5\%$	JIS C 5201 4.18 Method; Solder temperature/immersion time : 260±5°C 10±1seconds and 350±10°C, 3.5±0.5 seconds
Solderability test	95% coverage	JIS C 5201 4.17 Method; Specimen prep. : 4hours±15 minutes Steam Aging : Solder Bath/Dip and Look Test, 245±5°C, 3±1seconds
Resistance to solvent	$\leq \pm 0.5\%$	JIS C 5201 4.29, 4.30 Method : Immersion time : 60±5 seconds @20°C-25°C
Low Temperature Exposure(Storage)	$\leq \pm 0.5\%$	JIS C 5201 4.23.4 Method : 1,000hours, @-55°C
High Temperature Exposure(Storage)	$\leq \pm 1.0\%$	JIS C 5201 4.23.2 Method : 1,000hours, +170°C
Temperature Cycling (Rapid Temp. Change)	$\leq \pm 0.5\%$	JIS C 5201 4.19 Method : Air to air, -55°C to +150°C, 1,000cycles, 15minutes at each extreme, transition time 2 to 3 minutes
Moisture Resistance (Climatic Sequence)	$\leq \pm 0.5\%$	JIS C 5201 4.23 Method : Mil-STD-202, Method 106 0% power, 7a and 7b not required, t=24 hours/cycle, 10cycles, Unpowered
Bias Humidity	$\leq \pm 0.5\%$	JIS C 5201 4.24 Method : +85°C, 85% RH, 10% Bias 1.5 hours on, 0.5 hours off, Extended Life Test : 1,000 hours
Load Life	$\leq \pm 1.0\%$	JIS C 5201 4.25.1 Method : Test temperature 70°C Rated working voltage 1.5hours on, 0.5hours off, Extended Life Test : 1,000 hours

* Remark: $\Delta R = (\text{resistance after stress} - \text{resistance before stress})$; R1 means resistance before stress

PACKAGING [mm]



Packaging	Symbol	Model					
		LR1206	LR2010	LR2512	LR2725	LR2728	LR4527
Embossed Dimensions	A0	1.83±0.10	2.90±0.10	3.90±0.10	6.75±0.10	7.70±0.10	7.20±0.10
	B0	3.48±0.10	5.45±0.10	6.74±0.10	7.15±0.10	7.15±0.10	11.80±0.10
	K0	0.90±0.10	1.10±0.10	1.08±0.10	1.7±0.10	1.2±0.10	1.70±0.10
	P0	4.0±0.10	4.0±0.10	4.0±0.10	4.0±0.10	4.0±0.10	4.0±0.10
	P1	4.0±0.10	4.0±0.10	4.0±0.10	4.0±0.10	8.0±0.10	12.0±0.10
	P2	2.0±0.10	2.0±0.10	2.0±0.10	2.0±0.10	2.0±0.10	2.0±0.10
	T	0.20±0.05	0.23±0.05	0.24±0.05	0.25±0.05	0.25±0.05	0.30±0.10
	E	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
	F	3.50±0.10	5.50±0.10	5.50±0.10	5.50±0.10	5.50±0.10	11.5±0.10
	D0	1.50±0.05	1.50±0.05	1.55±0.05	1.50±0.05	1.55±0.05	1.55±0.05
	D1	1.00±0.10	1.50±0.10	1.50±0.10	1.50±0.10	1.55±0.10	1.50±0.10
W	8.0±0.15	12.0±0.15	12.0±0.15	12.0±0.15	12.0±0.15	24.0±0.30	
10P0	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20	
Reel Dimensions	Reel Type/Tape	7" reel for 8mm Tape	7" reel for 12mm Tape	7" reel for 12mm Tape	7" reel for 12mm Tape	7" reel for 12mm Tape	7" reel for 24mm Tape
	W	12.0±0.5	16.2±0.5	16.2±0.5	16.2±0.5	16.2±0.5	24.4+2/-0
	M	178±1.0	178±1.0	178±1.0	178±1.0	178±1.0	178±1.0
	A	2.0±0.5	2.5±0.5	2.5±0.5	2.5±0.5	2.5±0.5	2.0±0.5
	B	13.2±0.5	13.5±0.5	13.5±0.5	13.5±0.5	13.5±0.5	13.2±0.5
	C	17.7±0.5	17.7±0.5	17.7±0.5	17.7±0.5	17.7±0.5	17.7±0.5
D	60.0±0.5	60.0±0.5	60.0±0.5	60.0±0.5	60.0±0.5	60.0±0.5	