1 Scope:

1.1 This specification is applicable to lead free and halogen free for metal alloy low-resistance resistor.

1.2 The product is for general purpose.

1.3 The available AEC-Q200 report also can provide by customer request.

2 Explanation Of Part Numbers:

LR **2512** - **2** **1** **R001** **F** **4**

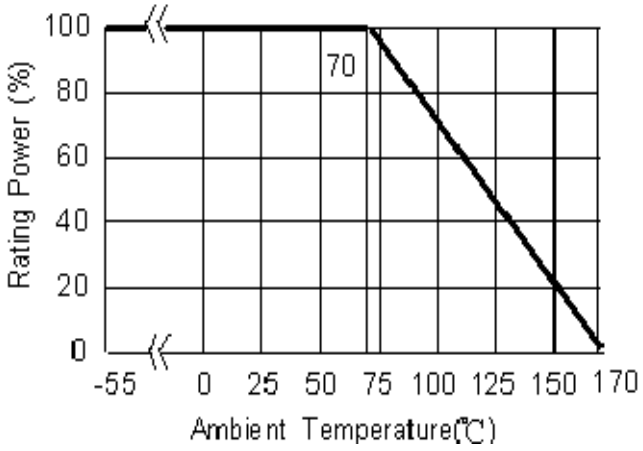
Type	Size (inch)	Number of Terminals	Rated Power	Resistance (4~6 Digits)	Tolerance	Packaging
Metal Alloy Low Resistance Resistor	● 1206 ● 2010 ● 2512 ● 2725 ● 2728 ● 4527 ● 4527S	2: 2 terminals	● C=0.5W ● 1=1.0W ● A=1.5W ● 2=2.0W ● 3=3.0W ● B=3.5W ● 4=4.0W ● 5=5.0W	EX: R001 = 1mΩ R010 = 10mΩ R100 = 100mΩ R00025 = 0.25mΩ	D=± 0.5% F=± 1.0% G=± 2.0% J=± 5.0%	A=500pcs 1=1,000pcs 2=2,000pcs 4=4,000pcs

3 Product Specifications:

Type	# of Terminals	Max. Rating Power	Max. Rating Current	Max. Overload Current	T.C.R. (ppm/°C)	Resistance Range (mΩ)		Operating Temperature Range
						D (±0.5%)	F (±1%); G (±2%); J (±5%)	
LR1206	2	0.5W	40.82A	81.64A	0.3mΩ: ≦±450 0.5~0.9mΩ: ≦±175 1.0~15.0mΩ: ≦±75 15.1~50.0mΩ: ≦±50	7.0~50.0	0.3~50.0	-55~170°C
		1W	57.74A	115.47A	0.3mΩ: ≦±450 0.5~0.9mΩ: ≦±175 1.0~15.0mΩ: ≦±75 15.1~50.0mΩ: ≦±50	7.0~50.0	0.3~50.0	
		1.5W	70.71A	141.42A	0.3mΩ: ≦±450 0.5~0.9mΩ: ≦±175 1.0mΩ: ≦±75	--	0.3~1.0	
LR2010		1W	44.72A	89.44A	0.5~0.9 mΩ: ≦±100 1.0~1.9mΩ: ≦±75 2.0~6.9mΩ: ≦±50 7.0~100mΩ: ≦±25	7.0~49	0.5~100	
LR2512		1W	57.74A	129.10A	0.3mΩ: ≦±150 0.5~1.0mΩ: ≦±75 1.1~3.0mΩ: ≦±50 3.1~100mΩ: ≦±25	7.0~50	0.3~100	
		1.5W	70.71A	158.11A				
		2W	81.65A	182.57A	0.3mΩ: ≦±150 0.5~1.0mΩ: ≦±75 1.1~3.0mΩ: ≦±50 3.1~75mΩ: ≦±25	7.0~50	0.3~75.0	
		3W	100.00A	173.21A	0.3mΩ: ≦±150 0.5~1.0mΩ: ≦±75 1.1~2.5mΩ: ≦±50 2.6~10.0mΩ: ≦±25	7.0~10.0	0.3~10.0	
LR2725		4W	126.49A	252.95A	0.20mΩ: ≦±100 0.25~3.0mΩ: ≦±50	--	0.20~3.0	
LR2728		3W	27.39A	47.43A	4.0~100mΩ: ≦±25	4.0~19.0	4.0~100	
		3.5W	29.58A	51.23A	4.0~100mΩ: ≦±25	4.0~19.0	4.0~100	
		4W	31.62A	63.25A	4.0~ 50.0mΩ: ≦±25	4.0~19.0	4.0~50.0	
LR4527S (without heat sink)	2	3W	77.5A	134A	0.5~1.0mΩ: ≦±75 1.1~20mΩ: ≦±50	7.0 ~20	0.5~20	
LR4527		5W	100A	173A	0.5~1.0mΩ: ≦±75 1.1~200mΩ: ≦±50	7.0 ~120	0.5~200	

3.1 Power Derating Curve: Operating Temperature Range： - 55 ~+170 ℃

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



3.2 Rating Current:

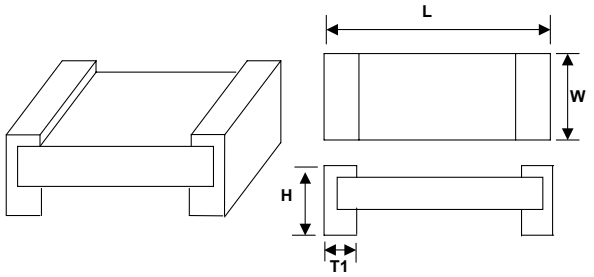
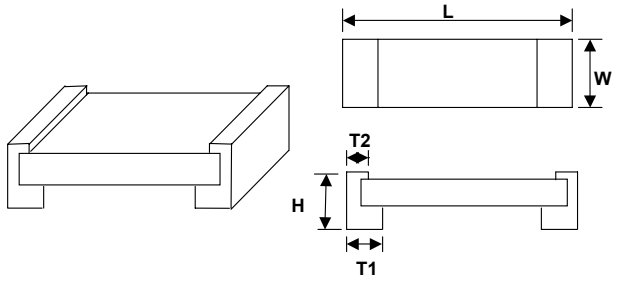
The following equation may be used to determine the DC (Direct Current) or AC (Alternating Current) currents (RMS, root mean square value) of normal rated power. However, if the result value exceeds the highest current of regulated standards, the highest normal rated power is to be used.

Remark:

a. I: Rating Current.(A)
b. P: Rating Power.(W)
c. R: Resistance.(Ω)

$$I = \sqrt{P/R}$$

4 Physical Dimensions:

1206 / 2010 / 2512 / 2725 / 2728	4527/4527S
	

Type	Maximum Power Rating (Watts)	Resistance Range (mΩ)	Dimensions - in inches (millimeters)				
			L	W	H	T1	T2
LR1206	0.5 & 1.0	0.3	0.126±0.010 (3.200±0.254)	0.063±0.010 (1.600±0.254)	0.039±0.010 (1.000±0.254)	0.022±0.010 (0.550±0.254)	
		0.5~0.6				0.029±0.010 (0.725±0.254)	
		1.0			0.025±0.010 (0.645±0.254)	0.020±0.010 (0.508±0.254)	
		2.0 ~ 4.0			0.022±0.010 (0.545±0.254)		
		5.0				0.024±0.010 (0.600±0.254)	
		6.0 ~50.0				0.020±0.010 (0.508±0.254)	
	1.5	0.3			0.039±0.010 (1.000±0.254)	0.022±0.010 (0.550±0.254)	
		0.5~0.6				0.029±0.010 (0.725±0.254)	
		1.0			0.025±0.010 (0.645±0.254)	0.020±0.010 (0.508±0.254)	
LR2010	1.0	0.5 ~ 0.9	0.200±0.010 (5.080±0.254)	0.100±0.010 (2.540±0.254)	0.031±0.010 (0.787±0.254)	0.057±0.010 (1.440±0.254)	
		1.0 ~ 3.0				0.051±0.010 (1.295±0.254)	
		3.1 ~ 4.0			0.025±0.010 (0.645±0.254)	0.031±0.010 (0.787±0.254)	
		4.1 ~100.0					
LR2512	1.0 & 1.5	0.3	0.246±0.010 (6.248±0.254)	0.126±0.010 (3.202±0.254)	0.040±0.010 (1.000±0.254)	0.079±0.010 (2.02±0.254)	
		0.5 ~ 3.0			0.031±0.010 (0.787±0.254)	0.074±0.010 (1.880±0.254)	
		3.1 ~ 4.0					
		4.1 ~75.0			0.025±0.010 (0.645±0.254)	0.044±0.010 (1.118±0.254)	
		75.1 ~ 100.0			0.025±0.010 (0.645±0.254)	0.034±0.010 (0.868±0.254)	
	2.0	0.3			0.040±0.010 (1.000±0.254)	0.079±0.010 (2.02±0.254)	
		0.5 ~ 3.0			0.031±0.010 (0.787±0.254)	0.074±0.010 (1.880±0.254)	

Type	Maximum Power Rating (Watts)	Resistance Range (mΩ)	Dimensions - in inches (millimeters)				
			L	W	H	T1	T2
LR2512	2.0	3.1 ~ 4.0	0.246±0.010 (6.248±0.254)	0.126±0.010 (3.202±0.254)	0.031±0.010 (0.787±0.254)	0.074±0.010 (1.880±0.254)	
		4.1 ~75.0			0.0254±0.010 (0.645±0.254)	0.044±0.010 (1.118±0.254)	
	3.0	0.3			0.040±0.010 (1.000±0.254)	0.079±0.010 (2.02±0.254)	
		0.5			0.031±0.010 (0.787±0.254)	0.074±0.010 (1.880±0.254)	
		0.6 ~ 2.9				0.044±0.010 (1.118±0.254)	
		3.0 ~ 4.0				0.066±0.010 (1.676±0.254)	
		4.1 ~ 10.0			0.025±0.010 (0.645±0.254)	0.044±0.010 (1.118±0.254)	
LR2725	4.0	0.20 ~ 0.50	0.268±0.010 (6.807±0.254)	0.254±0.010 (6.452±0.254)	0.039±0.010 (0.991±0.254)	0.085±0.010 (2.159±0.254)	
		0.60				0.071±0.010 (1.803±0.254)	
		1.0			0.043±0.010 (1.092±0.254)	0.085±0.010 (2.159±0.254)	
		1.5			0.039±0.010 (0.991±0.254)		
		2.0			0.035±0.010 (0.889±0.254)	0.071±0.010 (1.803±0.254)	
		2.25~2.5				0.065±0.010 (1.651±0.254)	
		3.0				0.051±0.010 (1.295±0.254)	
LR2728	3.0, 3.5 & 4.0	4.0~100.0	0.264±0.010 (6.706±0.254)	0.283±0.010 (7.188±0.254)	0.039±0.010 (0.991±0.254)	0.045±0.010 (1.143±0.254)	
LR4527S (without heat sink)	3.0	0.5	0.450±0.010 (11.430±0.254)	0.270±0.010 (6.850±0.254)	0.055±0.010 (1.400±0.254)	0.127±0.010 (3.215±0.254)	0.038±0.010 (0.965±0.254)
		0.6 ~ 3.0					
		4.0 ~ 5.0					
		5.1 ~ 20				0.071±0.010 (1.815±0.254)	
LR4527	5.0	0.5	0.450±0.010 (11.430±0.254)	0.270±0.010 (6.850±0.254)	0.059±0.010 (1.500±0.254)	0.127±0.010 (3.215±0.254)	0.038±0.010 (0.965±0.254)
		0.6 ~ 3.0					
		4.0 ~ 5.0					
		5.1 ~ 200				0.071±0.010 (1.815±0.254)	

4.1 Material of Alloy

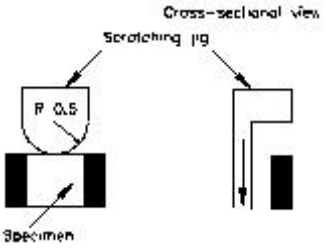
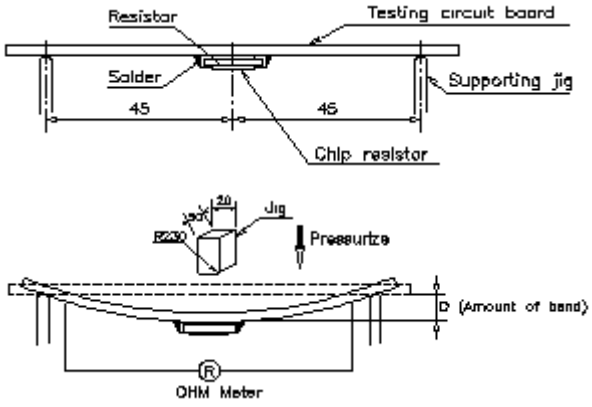
Type	Watts	Material	Resistance
1206	0.5 1.0 1.5	Copper-Manganese Alloy	≦4.0mΩ
		Iron-Chromium Aluminium Alloy	＞4.0mΩ
2010	1.0	Copper-Manganese Alloy	≦4.0mΩ
		Iron-Chromium Aluminium Alloy	＞4.0mΩ
2512	1.0 1.5 2.0	Copper-Manganese Alloy	＜3.5mΩ
		Iron-Chromium Aluminium Alloy	≧3.5mΩ
	3.0	Copper-Manganese Alloy	≦2.5mΩ
		Iron-Chromium Aluminium Alloy	≧3.0mΩ
2725	4.0	Copper-Manganese Alloy	≦0.5mΩ
		Iron-Chromium Aluminium Alloy	＞0.5mΩ
2728	3.0 3.5 4.0	Iron-Chromium Aluminium Alloy	All
4527	3.0 5.0	Copper-Manganese Alloy	≦3.0mΩ
		Iron-Chromium Aluminium Alloy	≧4.0mΩ

5 Reliability Performance:

5.1 Electrical Performance:

<table>
<tr><th>Test Item</th><th>Conditions of Test</th><th>Test Limits</th></tr>
<tr><td>Temperature Coefficient of Resistance (TCR)</td><td>● TCR (ppm/℃) = $\frac{(R2-R1)}{R1\ (T2-T1)}$ X 10^6
● R1: resistance of room temperature
● R2: resistance of 150 °C
● T1: Room temperature
● T2: Temperature at 150 °C
● Refer to JIS C 5201-1 4.8</td><td>Refer to Paragraph 3. general specifications</td></tr>
<tr><td>Short Time Overload</td><td>Applied Overload for 5 seconds and release the load for about 30 minutes, then measure its resistance variance rate. (Overload condition refer to below):
<table>
<tr><th>Type</th><th>Power (W)</th><th># of rated power</th></tr>
<tr><td rowspan="3">LR1206</td><td>0.5</td><td rowspan="4">4 times</td></tr>
<tr><td>1.0</td></tr>
<tr><td>1.5</td></tr>
<tr><td>LR2010</td><td>1.0</td></tr>
<tr><td rowspan="3">LR2512</td><td>1.0</td><td rowspan="3">5 times</td></tr>
<tr><td>1.5</td></tr>
<tr><td>2.0</td></tr>
<tr><td></td><td>3.0</td><td>3 times</td></tr>
<tr><td>LR2725</td><td>4.0</td><td>4 times</td></tr>
<tr><td rowspan="3">LR2728</td><td>3.0</td><td rowspan="4">3 times</td></tr>
<tr><td>3.5</td></tr>
<tr><td>4.0</td></tr>
<tr><td>LR4527S</td><td>3.0</td></tr>
<tr><td>LR4527</td><td>5.0</td></tr>
</table>
Refer to JIS C 5201-1 4.13</td><td>≦±0.5%
≦±2.0% (4527 & 4527S series)
No evidence of mechanical damage</td></tr>
<tr><td>Insulation Resistance</td><td>Put the resistor in the fixture, add 100 VDC in + ,- terminal for 60secs then measured the insulation resistance between electrodes and insulating enclosure or between electrodes and base material.
Refer to JIS-C5201-1 4.6</td><td>≧10^9Ω</td></tr>
<tr><td>Dielectric Withstanding Voltage</td><td>Applied 500VAC for 1 minute, and Limit surge current 50 mA (max.)
Refer to JIS-C5201-1 4.7</td><td>No short or burned on the appearance.</td></tr>
</table>

5.2 Mechanical /Constructional Performance:

Test Item	Conditions of Test	Test Limits
Resistance to Solder Heat	The tested resistor be immersed 25 mm/sec into molten solder of 260±5℃ for 10±1secs. Then the resistor is left in the room for 1 hour, and measured its resistance variance rate. Refer to JIS-C5201-1 4.18	≦±0.5% No evidence of mechanical damage
Solderability	Add flux into tested resistors, immersion into solder bath in temperature 245±5℃ for 3±0.5secs. Refer to JIS-C5201-1 4.17	Solder coverage over 95%
Core Body Strength	Applied R0.5 test probe at its central part then pushing 5N force on the sample for 10 sec. Refer to JIS-C5201-1 4.15	≦±0.5% No evidence of mechanical damage
Joint Strength of Solder	Preconditioning Put tested resistor in the apparatus of PCT, at a temperature of 105℃, humidity of 100% RH, and pressure of 1.22×105 Pa for a duration of 4 hours. Then after left the specimen in a temperature for 2 hours or more. Test method: ◎Test item 1 (Adhesion): A static load using a R0.5 scratch tool shall be applied on the core of the component and in the direction of the arrow and held for 10 seconds and under load measured its resistance variance rate. Load:17.7N  Refer to JIS-C5201-1 4.32	Test item 1: (1).≦±0.5% (2).No evidence of mechanical damage. No terminal peeling off. Test item 2: (1).≦±0.5% (2).No evidence of mechanical damage. No terminal peeling off and core body cracked.
	◎Test item 2 (Bending Strength): Solder tested resistor on to PC board add force in the middle down, and under load measured its resistance variance rate. D:2mm  Refer to JIS-C5201-1 4.33	

Test Item	Conditions of Test	Test Limits
Resistance to solvent	The tested resistor be immersed into isopropyl alcohol of 20~25℃ for 60secs, then the resistor is left in the room for 48 hrs. Refer to JIS-C5201-1 4.29	≦±0.5% No evidence of mechanical damage
Vibration	The resistor shall be mounted by its terminal leads to the supporting terminals on the solid table. The entire frequency range :from 10 Hz to 55 Hz and return to 10 Hz, shall be transferred in 1 min. Amplitude : 1.5mm This motion shall be applied for a period of 4 hours in each 3 mutually perpendicular directions (a total of 12hrs) Refer to JIS-C5201-1 4.22	≦±0.5% No evidence of mechanical damage

5.3 Environmental Performance:

Test Item	Conditions of Test	Test Limits
Low Temperature Exposure (Storage)	Put the tested resistor in chamber under temperature -55±2℃ for 1,000 hours. Then leaving the tested resistor in room temperature for 60 minutes, and measure its resistance variance rate. Refer to JIS-C5201-1 4.23.4	≦±0.5% No evidence of mechanical damage
High Temperature Exposure (Storage)	Put tested resistor in chamber under temperature 170±5℃ for 1,000 hours. Then leaving the tested resistor in room temperature for 60 minutes , and measure its resistance variance rate. Refer to JIS-C5201-1 4.23.2	≦±1.0% No evidence of mechanical damage
Temperature Cycling (Rapid Temperature Change)	Put the tested resistor in the chamber under the temperature cycling which shown in the following table shall be repeated 1,000 times consecutively. Then leaving the tested resistor in the room temperature for 60 minutes, and measure its resistance variance rate. Refer to JIS-C5201-1 4.19	≦±0.5% No evidence of mechanical damage

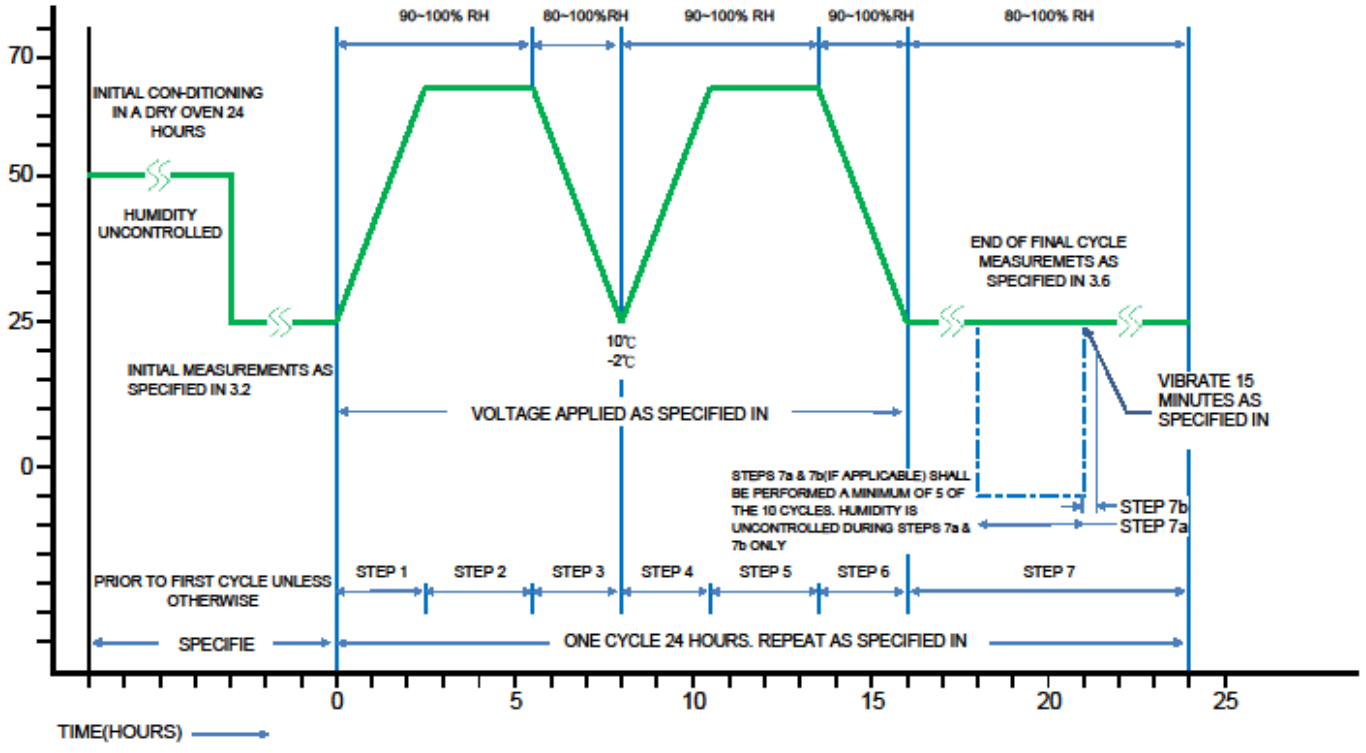
	Testing Condition
Lowest Temperature	-55 +0/-10℃
Highest Temperature	150 +10/-0℃

Moisture Resistance (Climatic Sequence)	Put the tested resistor in chamber and subject to 10 cycles of damp heat and without power. Each one of which consists of the steps 1 to 7 (Figure 1). Then leaving the tested resistor in room temperature for 24 hr, and measure its resistance variance rate. Refer to MIL-STD 202 Method 106	≦±0.5% No evidence of mechanical damage
Bias Humidity	Put the tested resistor in chamber under 85± 5℃and 85± 5%RH with 10% bias and load the rated current for 90 minutes on, 30 minutes off, total 1,000 hours. Then leaving the tested resistor in room temperature for 60 minutes, and measure its resistance variance rate. Refer to JIS-C5201-1 4.24	≦±0.5% No evidence of mechanical damage

Test Item	Conditions of Test	Test Limits
Whisker Test	◎Test item (Thermal Shock test): Testing Condition Minimum storage temperature: -55+0/-10℃ Maximum storage temperature: 85+10/-0℃ Temperature-retaining time: 10 min. Number of temperature cycles: 1,500 ◎Inspection: Inspect for whisker formation on specimens that underwent the acceleration test specified in subciause 4.2, with a magnifier (stereo microscope) of about 40 or higher magnification. If judgment is hard in this method, use a scanning electron microscope (SEM) of about 1,000 or higher magnification. By JESD Standard NO.22A121 class 2.	Max. 50 μ m

5.4 Operational Life Endurance:

Test Item	Conditions of Test	Test Limits
Load Life	Put the tested resistor in chamber under temperature 70± 2℃ and load the rated current for 90 minutes on 30 minutes off, total 1000 hours. Then leaving the tested resistor in room temperature for 60 minutes, and measure its resistance variance rate. Refer to JIS-C5201-1 4.25	≦±1.0% ≦±2.0% (4527 & 4527Sseries) No evidence of mechanical damage



6 Marking Format: (All the products marking are 4 digits)

6.1 Product resistance is indicated by using two marking notation styles:

a. "**R**" designates the decimal location in ohms, e.g.

- For 1mΩ the product marking is R001;
- For 25mΩ the product marking is R025;
- For 100mΩ the product marking is R100.

b. "**m**" designates the decimal location in milliohms, e.g.

- For 0.25mΩ the product marking is 0m25;
- For 0.5mΩ the product marking is 0m50;
- For 5.5mΩ the product marking is 5m50;
- For 25.5mΩ the product marking is 25m5.

6.2 LR1206 series:

6.2.1 Above 1.0mΩ& 0.3 mΩ:

→ Ex. Resistance 10mΩ (for all LR1206 products)

6.2.2 0.5~0.6 mΩ:(Square marking)

Recogize Top/Bottom side.

6.3 LR2010 series:

→ Ex. Resistance 0.5mΩ (when resistance below than 1mΩ)

→ Ex. Resistance 2mΩ (when resistance below or equal than 3mΩ)

→ Ex. Resistance 5mΩ (when resistance greater than 3mΩ)

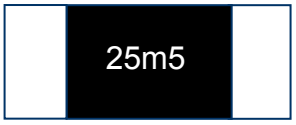
6.4 LR2512 series:

→ Ex. Resistance 0.5mΩ (when resistance below than 1mΩ)

→ Ex. Resistance 3mΩ (when resistance below or equal than 4mΩ)

→ Ex. Resistance 5mΩ (when resistance greater than 4mΩ)

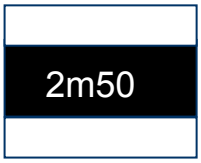
→ Ex. Resistance 5.25mΩ (when resistance greater than 4mΩ)



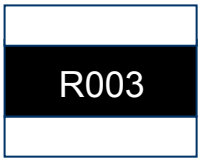
→ Ex. Resistance 25.5mΩ (when resistance greater than 4mΩ)

6.5 LR2725 series:

→ Ex. Resistance 0.25mΩ (or 0.25mΩ only)

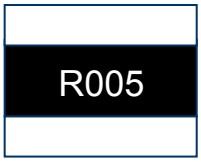


→ Ex. Resistance 2.5mΩ (for 1.5mΩ and 2.5mΩ only)



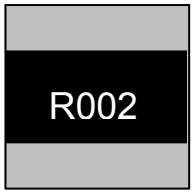
→ Ex. Resistance 3mΩ (for 1m、2m and 3mΩ only)

6.6 LR2728 series:

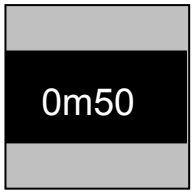


→ Ex. Resistance 5mΩ (for all LR2728 products)

6.7 LR4527 series:

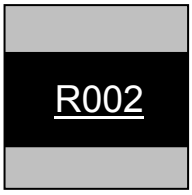


→ Ex: Resistance 2mΩ.

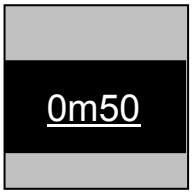


→ Ex: Resistance 0.5mΩ.

6.8 LR4527S series:



→ Ex: Resistance 2mΩ.



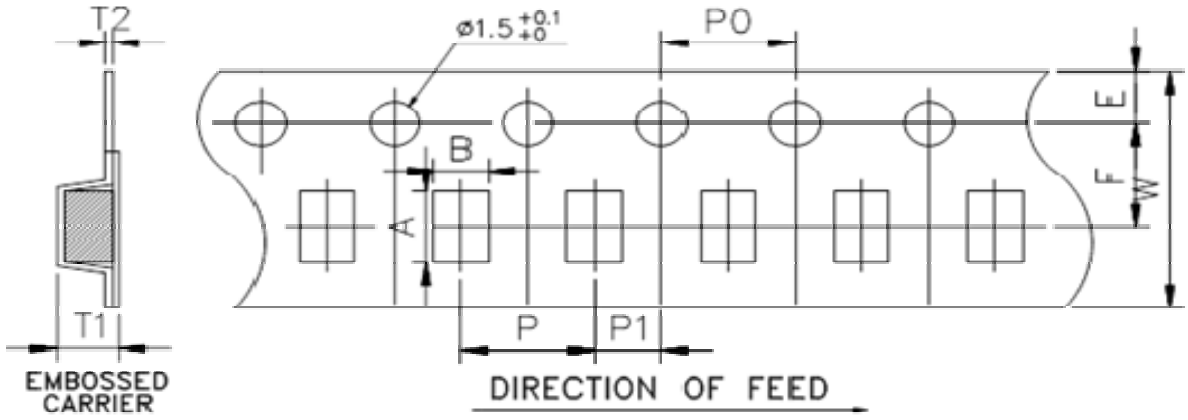
→ Ex: Resistance 0.5mΩ.

6.9 Marking Style:

Type \ Marking	R	m	1	2	3	4	5	6	7	8	9	0
LR1206 LR2010 LR2512 LR2725 LR2728 LR4527 LR4527S												

7 Taping specifications:

7.1 Tape Dimensions:



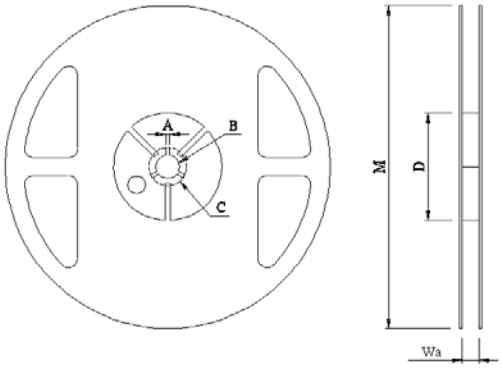
Unit: mm

DIM / Item	A	B	W	E	F	T1	T2	P	P0	10*P0	P1
LR1206 (0.3~0.6mΩ)	3.50±0.10	1.90±0.10	8.0±0.15	1.75±0.10	3.5±0.10	1.27±0.10	0.23±01.0	4.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR1206 (≥1.0mΩ)	3.48±0.10	1.83±0.10	8.0±0.15	1.75±0.10	3.5±0.10	1.10±0.10	0.20±0.05	4.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR2010	5.45±0.10	2.90±0.10	12.0±0.15	1.75±0.10	5.5±0.10	1.33±0.10	0.23±0.05	4.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR2512 (0.3mΩ)	6.74±0.10	3.50±0.10	12.0±0.15	1.75±0.10	5.5±0.10	1.60±0.10	0.24±0.05	8.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR2512	6.75±0.10	3.50±0.10	12.0±0.15	1.75±0.10	5.5±0.10	1.30±0.10	0.20±0.05	4.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR2725	7.15±0.10	6.75±0.10	12.0±0.15	1.75±0.10	5.5±0.10	1.95±0.10	0.25±0.05	8.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR2728	7.15±0.10	7.70±0.10	12.0±0.15	1.75±0.10	5.5±0.10	1.45±0.10	0.25±0.05	12.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR4527	11.80±0.10	7.20±0.10	24.0±0.15	1.75±0.10	11.5±0.10	2.00±0.10	0.30±0.10	12.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10
LR4527S	11.80±0.10	7.20±0.10	24.0±0.15	1.75±0.10	11.5±0.10	2.00±0.10	0.30±0.10	12.0±0.10	4.0±0.10	40.0±0.20	2.0±0.10

7.2 Packaging model:

Type	Tape width	Max. Packaging Quantity (pcs/reel)		
		Embossed Plastic Type		
		4mm pitch	8mm pitch	12mm pitch
LR1206(0.3~0.6mΩ)	8mm	2,000pcs	--	--
LR1206(≥1.0mΩ)		4,000pcs		
LR2010	12mm	2,000pcs	--	--
LR2512(0.3mΩ)		--	1,000pcs	--
LR2512		4,000pcs	--	--
LR2725		--	1,000pcs	--
LR2728		--	--	1,000pcs
LR4527 LR4527S	24mm	--	--	500pcs

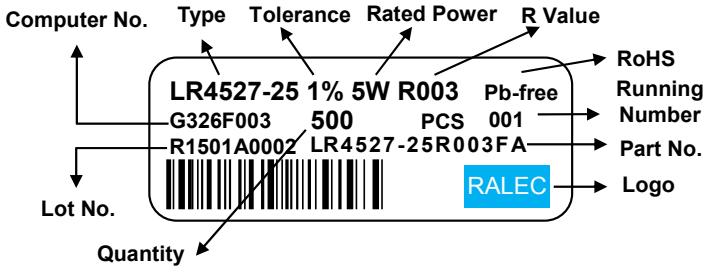
7.3 Reel Dimensions:

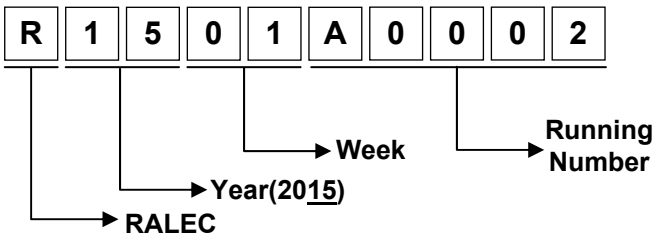


Unit: mm

Reel Type / Tape	W	M	A	B	C	D
7” reel for 8 mm tape	9.0 ± 0.5	178 ± 2.0	2.0 ± 0.5	13.5 ± 0.5	21.0 ± 0.5	60.0 ± 1.0
7” reel for 12 mm tape	13.8 ± 0.5					80.0 ± 1.0
7” reel for 24 mm tape	25.0 ± 1.0			13.2 ± 0.5	17.7 ± 0.5	60.0 ± 1.0

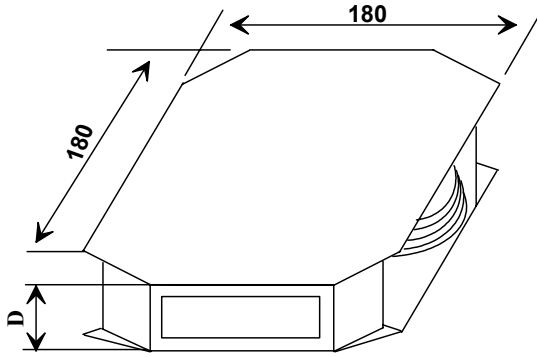
7.4 Label:





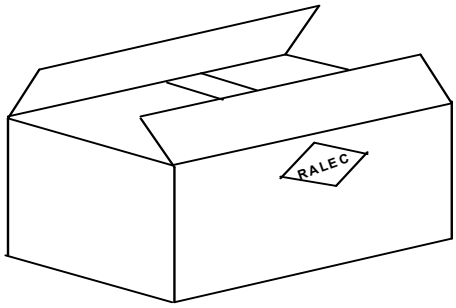
7.5 Inner Box:

Reel Number (for 8 mm tape)	Reel Number (for 12 mm tape)	Reel Number (for 24 mm tape)	D Dimension (mm)
1	-	-	12
2	1	-	24
3	2	1	36
4	-	-	48
5	3	2	60
6	4	-	72
7	-	3	84
8	-	-	96
9	-	-	108
10	-	4	120



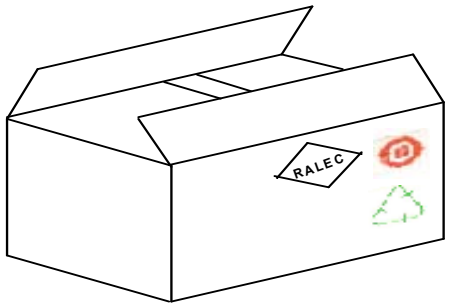
7.6 Box:

10R Inner Box Number	L(mm)	W(mm)	D(mm)
2	272	205	210
4	375	280	210
8	544	380	210



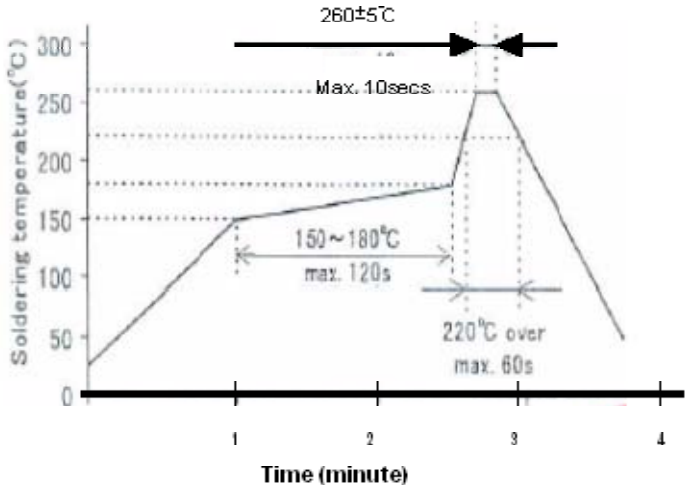
7.7 Box(For China):

10R Inner Box Number	L(mm)	W(mm)	D(mm)
2	272	205	210
4	375	280	210
8	544	380	210

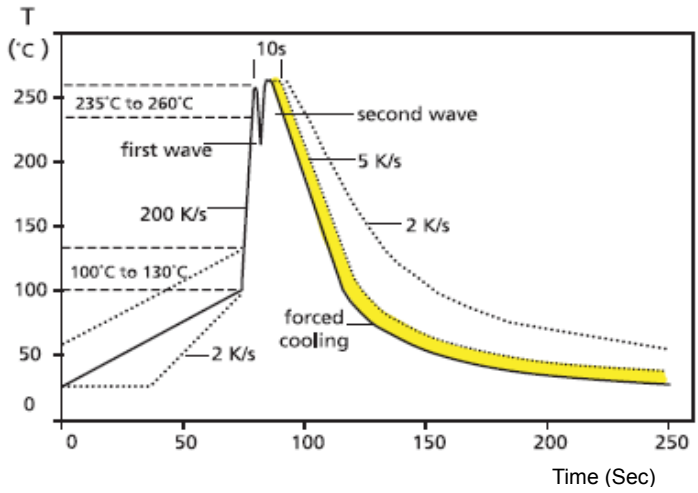


8 Technical note (This is for recommendation, please customer perform adjustment according to actual application)

8.1 Surface-mount components are tested for solderability at a temperature of 245 °C for 3 seconds. Typical examples of soldering processes that provide reliable joints without any damage are given in below:

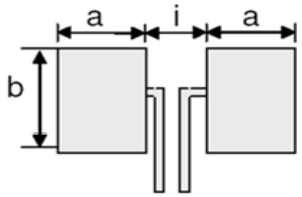


Recommended IR Reflow Soldering Profile



Recommended double-wave Soldering Profile
Typical values (solid line)
Process limits (dotted line)

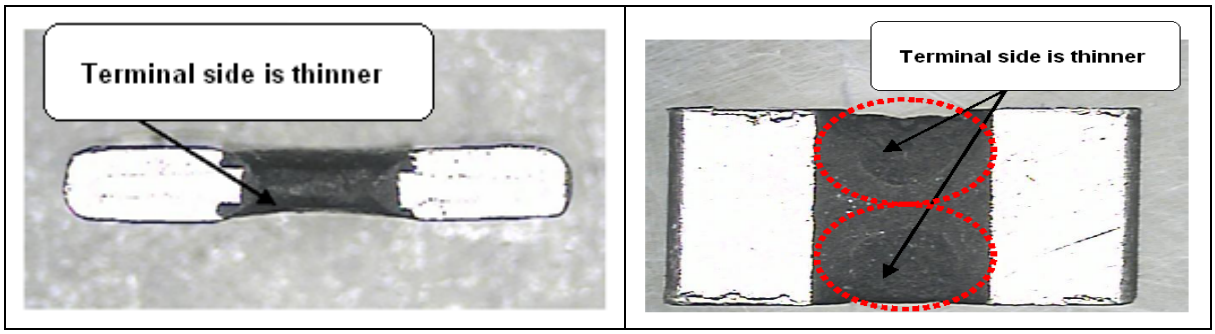
8.2 Recommend Land Pattern:



Type	Maximum Power Rating (Watts)	Resistance Range (mΩ)	Dimensions - in millimeters		
			a	b	i
LR1206	0.5 & 1.0 & 1.5	0.3~0.6	1.65	2.18	0.90
		1.0 ~ 50.0	1.60		1.00
LR2010	1.0	0.5 ~ 3.0	2.89	2.92	1.22
		3.1 ~ 100.0	2.29		2.41
LR2512	1.0 & 1.5	0.3 ~ 4.0	3.05	3.68	1.27
		4.1 ~ 100.0	2.11		3.18
	2.0	0.3 ~ 4.0	3.05		1.27
		4.1 ~ 75.0	2.11		3.18
	3.0	0.3~0.5	3.05		1.27
		0.6~2.9 & 4.1 ~ 10.0	2.19		3.00
		3.0 ~ 4.0	2.79		1.80
LR2725	4.0	0.20 ~ 3.0	3.18	6.86	1.32
LR2728	3.0 & 3.5 & 4.0	4.0 ~ 100.0	2.75	7.82	3.51
LR4527S	3.0	0.5 ~ 5.0	4.80	8.74	5.51
		5.1 ~ 20.0	3.40		8.31
LR4527	5.0	0.5 ~ 5.0	4.80	8.74	5.51
		5.1 ~ 200.0	3.40		8.31

8.3 Recommend dispensing method

8.3.1 The structure of RALEC metal alloy resistor that both side of main body would be thinner due to process factor (as the photo below).



8.3.2 When customer performs wave solder process shall take note on the dispensing gap. If the gap between two dispensing is over, the red-glue will not adhesive the resistor body and be dropped out (as photo 1). Therefore, we suggest customer to narrow down the dispenser gap (as photo 2), or dispenser on the body center (as photo 3)

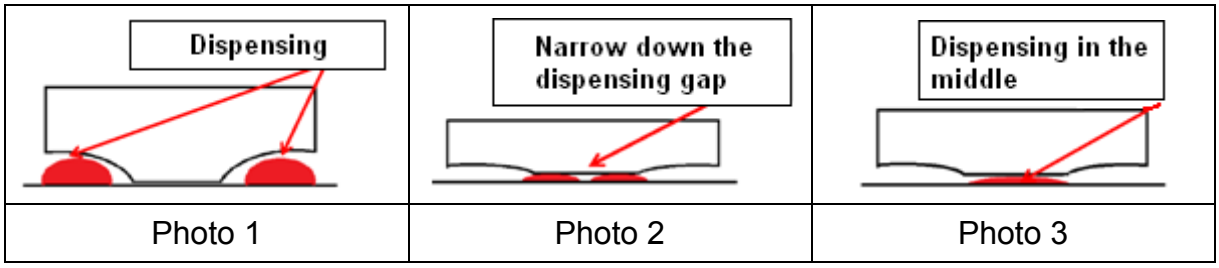


Photo 1	Photo 2	Photo 3

9 Stock period:

9.1 The temperature condition must be controlled at 25±5℃, the R.H. must be controlled at 60±15%. The stock can maintain quality level in two years.

10 Attachments

10.1 Document Revise Record (QA-QR-027)