

APPROVAL SHEET

Product Name : Metal Foil Low Ohm Chip Resistor_ Four Terminal
Part No. : RFL_4
Description : Size 0306~1206

For more contact information, please refer to our website: www.rideetech.com

Metal Foil Low Ohm Chip Resistor_ Four Terminal — RFL_4

■ Application

- Entertainment
- Measuring instrument
- Industrial
- Battery management system



■ Features

- Low Resistance / TCR / EMF / Inductance
- RoHs compliant and halogen free.
- Lead free.

■ Part Number Explanation

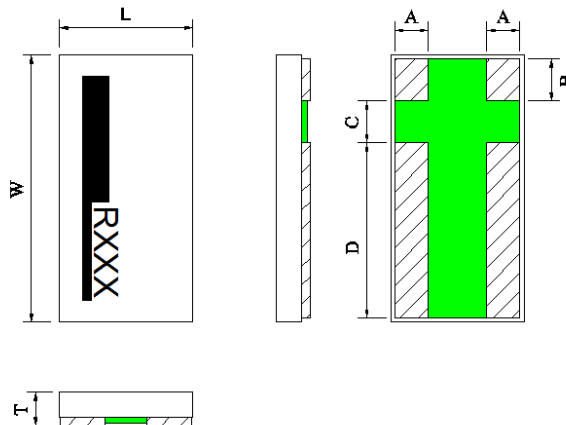
RFL	1225	20	F	R001	T	4T
Product	Size (Inch)	Rated Power	Tolerance	Resistance	Packaging	Functional
Metal Foil Low Ohm Chip Resistor_ Four Terminal	0306 0612 1225 2139 1206	03 : 0.33W 05 : 0.50W 10 : 1.00W 20 : 2.00W 40 : 4.00W	C : $\pm 0.3\%$ D : $\pm 0.5\%$ F : $\pm 1.0\%$	0M50=0.5m Ω R001=1m Ω R020=20m Ω R100=100m Ω	T= Tape & Reel	4T= Four Terminals

Standard Electrical Specifications

Type	Rating Power at 70°C	Max. Rating Current	Max. Overload Current	T.C.R. (ppm/°C)	Resistance Range (mΩ)		
					0.3% (C)	0.5% (D)	1.0% (F)
RFL0306	0.33W	18.16A	28.72A	±100	—		1~4
		8.12A	12.84A	±50	—		5~25
RFL0612	1W	44.72A	70.71A	±150	—		0.5~0.75
		31.62A	50A	±100	—		1~4
		14.14A	22.36A	±50	—	5~25	
RFL1225	2W	44.72A	70.71A	±100	—		1~4
		20A	31.62A	±50	—	5~25	
RFL2139	4W	63.24A	100A	±100	—		1~4
		28.28A	44.72A	±50	—	5~25	
RFL1206	0.5W	31.62A	50A	±100	—		0.5
		22.36A	35.35A	±75	—	1~5	
		9.12A	14.43A	±50	—	6~9	
		7.07A	11.18A	±30	10~100		—

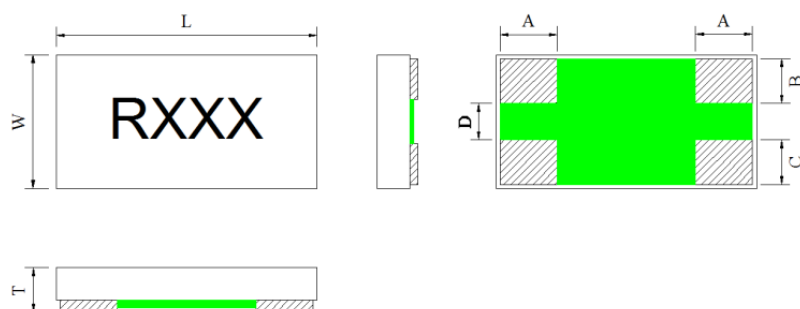
- Beyond the above specification also can meet the special requirements. For detail questions, please contact us freely.

Dimension



Unit : mm

Type	Power Rating	Resistance Range	W	L	A	B	C	D	T
RFL0306	0.33W	1~25mΩ	1.60±0.20	0.80±0.15	0.18±0.10	0.23±0.10	0.40±0.10	0.93±0.20	0.55±0.10
RFL0612	1W	0.5~25mΩ	3.20±0.20	1.60±0.20	0.41±0.20	0.46±0.20	0.50±0.20	2.16±0.20	0.50±0.20
RFL1225	2W	1~25mΩ	6.40±0.20	3.20±0.20	0.50±0.20	0.62±0.20	0.50±0.20	5.12±0.20	0.60±0.20
RFL2139	4W	1~25mΩ	11.0±0.30	5.00±0.30	0.70±0.20	1.40±0.20	1.05±0.20	8.50±0.30	0.60±0.20

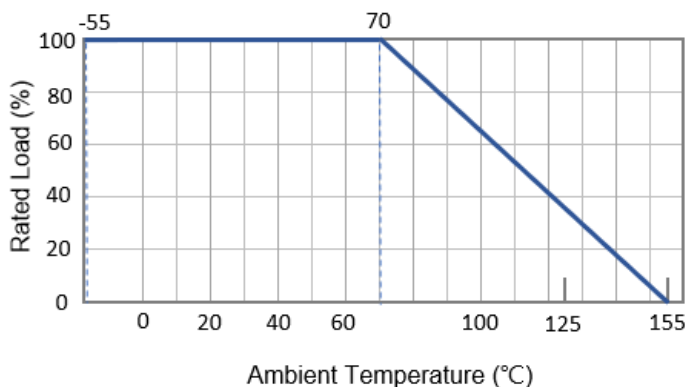


Unit : mm

Type	Power Rating	Resistance Range	W	L	A	B	C	D	T
RFL1206	0.5W	0.5~100mΩ	1.60±0.20	3.20±0.20	0.60±0.20	0.55±0.20	0.55±0.20	0.50±0.20	0.60±0.20

Derating Curve

Operating Temperature Range: -55°C to +155°C



Voltage Rating or Current Rating

The direct or alternating voltage for the rated power can be calculated from the following formula but must not exceed the maximum voltage.

$$V = \sqrt{P \times R}$$

V = Rated Voltage(V)
 P = Rated Power(W)
 R = Rated Resistance(Ω)

■ Recommended Customer Soldering Parameters

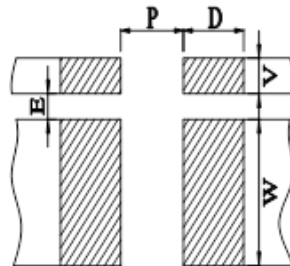
■ Recommended IR Reflow Soldering Conditions

Preliminary heating: 150°C~200°C, 180s max

Soldering: 220°C, 60s max

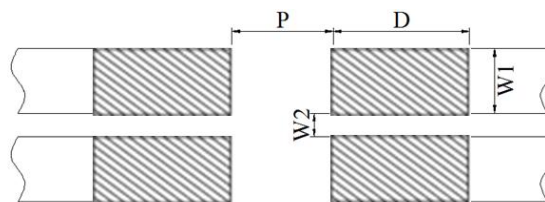
Peak temperature: 245°C, 15s max

■ Recommend Land Pattern Design



Unit : mm

TYPE	Resistance Range	P	W	D	V	E
RFL0306 – 0.33W	1mΩ~25mΩ	0.35	1.30	0.40	0.40	0.20
RFL0612 – 1W	0.5mΩ~25mΩ	0.762	2.29	1.014	0.762	0.381
RFL1225 – 2W	1mΩ~25mΩ	2.00	5.10	1.00	0.70	0.50
RFL2139– 4W	1mΩ~25mΩ	3.30	8.90	1.50	1.70	0.80



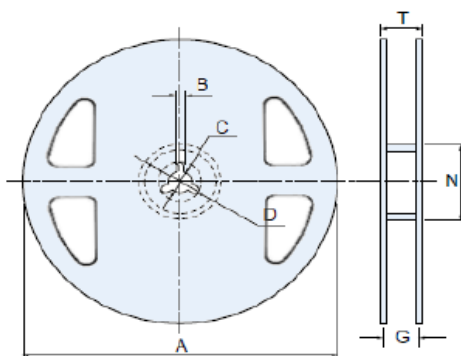
Unit : mm

TYPE	Resistance Range	P	D	W1	W2
RFL1206 – 0.5W	0.5mΩ~100mΩ	1.20	1.80	1.10	0.30

■ Reliability Test and Requirement

Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (T.C.R)	JIS C 5201-1 clause 4.8	$\text{T.C.R. (ppm/}^{\circ}\text{C)} = \frac{(R2-R1)}{R1(T2-T1)} \times 10^6$ R1: resistance at room temperature (T1) R2: resistance at 125°C (T2)	Refer to Ratings
Short Time Overload	JIS C 5201-1 clause 4.13	The number of rated power are as follows: 2.5 times of rated power Rating power duration: 5secs	±1.0%+0.5mΩ
High Temperature Exposure	JIS C 5201-1 clause 4.23.2	1,000hrs at + 155 °C±2°C	±1.0%+0.5mΩ
Low Temp. Storage	JIS C 5201-1 clause 4.23.4	1,000hrs at -55 °C±2°C	±1.0%+0.5mΩ
Soldering Heat	JIS C 5201-1 clause 4.18	260±5°C for 10±1 seconds.	±1.0%+0.5mΩ
Moisture Load Life	JIS C 5201-1 clause 4.24	T=40±2°C, RH=90~95% ,Load with Rated Current 1.5hrs "ON", 0.5hrs "OFF", 1000h	±2.0%+0.5mΩ
Temperature Cycling	JIS C 5201-1 clause 4.19	-55°C to +155°C, 100 cycles	±1.0%+0.5mΩ
Load Life	JIS C 5201-1 clause 4.25	T=70±2 °C, Load with Rated Current 1.5hrs "ON", 0.5hrs "OFF", 1000h	±2.0%+0.5mΩ
Solderability	JIS C 5201-1 clause 4.17	245±5°C for 3±0.5secs	The covered area >95%
Mechanical Shock	JIS C 5202 clause 6.7	a =50G , t =11ms, 5 times shock	±1.0%+0.5mΩ
Substrate Bending	JIS-C5201-1 clause 4.33	Span between fulcrums : 90mm Bend Width : 2mm	±1.0%+0.5mΩ

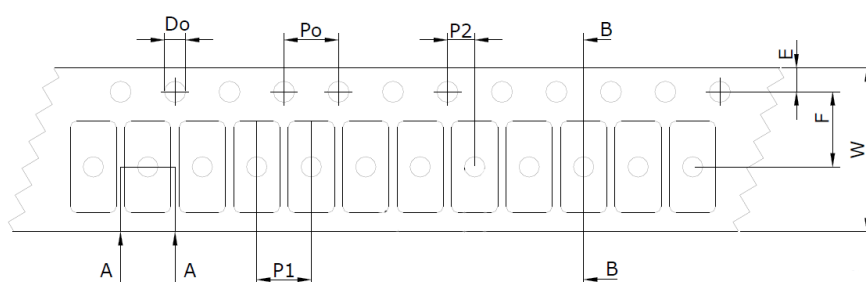
■ Packaging Information



Unit : mm

Type	Packaging Q'ty	N	G	A
RFL0306	5kpcs/Reel	60.0±0.5	10.0±1.5	178.0±2.0
RFL0612 / RFL1206	5kpcs/Reel	60.0±0.5	10.0±1.5	178.0±2.0
RFL1225	4kpcs/Reel	60.0±0.5	13.8±1.5	178.0±2.0
RFL2139	2kpcs/Reel	60.0±0.5	24.5±1	178.0±2.0

■ Tapping Specification



Unit : mm

Size	A	B	W	F	E	P1	P2	P0	D
0306	1.10±0.20	1.90±0.20	8.00±0.30	3.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
0612	2.00±0.20	3.60±0.20	8.00±0.30	3.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
1206	2.00±0.20	3.60±0.20	8.00±0.30	3.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
1225	3.50±0.20	6.70±0.20	12.00±0.30	5.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
2139	5.50±0.20	11.50±0.20	24.0±0.30	11.50±0.10	1.75±0.10	8.0±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0

■ Marking

- 4 digits marking for 1225/2139/1206/2512/3921

Example:

Resistance	1mΩ
Digits Code	R001

- No marking for 0306/0612