



炬鹿科技有限公司
RiDEE TECH COMPANY LIMITED

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APPROVAL SHEET

Product Name : Metal Foil Low Resistance Chip Resistor
Part No. : RFL
Description : Size 0402~2512

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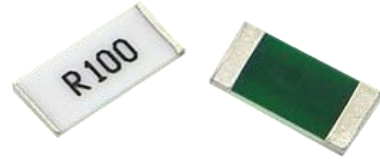
RiDEE TECH COMPANY LIMITED

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

Metal Foil Low Resistance Chip Resistor – RFL Series

■ Applications

- Power Supply
- Entertainment
- Measuring instrument
- Industrial
- Battery management system



■ Features

- Low Resistance / TCR / EMF (only for MnCu)/Inductance
- Excellent long term stability
- RoHS compliant & Halogen Free
- Lead free
- High precision current sensing and voltage division.

■ Part Number Explanation

RFL	2512	20	F	R005	T	P	S
Product	Size (Inch)	Rated Power	Tolerance	Resistance	Packaging	TCR	Functional
Metal Foil Low Resistance Chip Resistor	0402 0603 0805 1206 2512	03=0.33W 05=0.50W 07=0.75W 10=1.00W 20=2.00W	D : ±0.5% F : ±1.0% J : ±5.0%	2M50=2.5mR R005=5.0mR R020=020mR R150=150mR	T=Tape & Reel	P= 50ppm N= 100ppm	S= Standard



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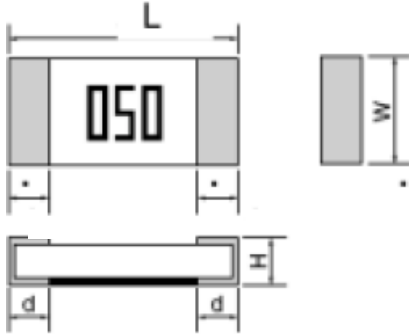
Standard Electrical Specifications

Type	Rating Power at 70°C	T.C.R. (ppm/°C)	Resistance Range (mΩ)		
			0.5% (D)	1.0% (F)	5.0% (J)
RFL0402	0.33W	±100	5~25		
		±50	-		
RFL0603	0.5W	±100	5~9		
		±50	10~75		
RFL0805	0.75W	±100	3~9		
		±50	10~500		
RFL1206	1W	±100	3~9		
		±50	10~700		
RFL2512	2W	±100	2~9		
		±50	10~700		

Notes:

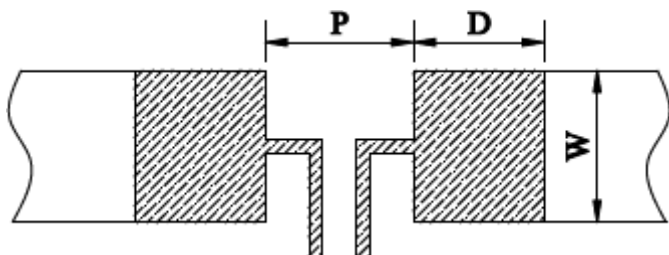
1. Operating Temperature Range: -55°C ~ +155°C
2. Resistance Tolerance: ±5%, ±1%, ±0.5% (only for TC50)
3. Beyond the above specification also can meet the special requirements. For detail questions, please contact us freely.

■ Mechanical Data



Type	Size (inch)	R-value	L (mm)	W (mm)	H (mm)	d (mm)
RFL25	2512	R002	6.4±0.30	3.2±0.30	0.65±0.20	2.8±0.30
		R003	6.4±0.30	3.2±0.30	0.65±0.20	2.6±0.30
		R004-R009	6.4±0.30	3.2±0.30	0.65±0.20	1.05±0.30
		R010-R049	6.4±0.30	3.2±0.30	0.65±0.20	1.05±0.30
		R050-R700	6.4±0.30	3.2±0.30	0.65±0.20	1.05±0.30
RFL06	1206	R003	3.3±0.20	1.7±0.20	0.65±0.20	1.20±0.30
		R004-R008	3.3±0.20	1.7±0.20	0.65±0.20	0.68±0.30
		R009-R049	3.3±0.20	1.7±0.20	0.65±0.20	0.68±0.30
		R050-R700	3.3±0.20	1.7±0.20	0.65±0.20	0.68±0.30
RFL05	0805	R003	2.10±0.20	1.35±0.20	0.65±0.20	0.65±0.20
		R004	2.10±0.20	1.35±0.20	0.65±0.20	0.50±0.20
		R005-R007	2.10±0.20	1.35±0.20	0.65±0.20	0.50±0.20
		R008-R049	2.10±0.20	1.35±0.20	0.65±0.20	0.50±0.20
		R050-R500	2.10±0.20	1.35±0.20	0.65±0.20	0.5±0.20
RFL03	0603	R005	1.7±0.20	0.9±0.20	0.65±0.20	0.50±0.20
		R006-R009	1.7±0.20	0.9±0.20	0.65±0.20	0.40±0.20
		R010-R049	1.7±0.20	0.9±0.20	0.65±0.20	0.40±0.20
		R050-R075	1.7±0.20	0.9±0.20	0.65±0.20	0.40±0.20
RFL02	0402	R005-R025	1.0±0.10	0.55±0.10	0.30±0.05	0.23±0.10

Recommend Land Pattern Design Dimension



Type	R-value	P (mm)	W (mm)	D (mm)
RFL25	R002	0.60	3.57	4.35
	R003	0.90	3.57	4.20
	R004-R009	3.10	3.57	3.10
	R010-R700	3.10	3.57	3.10
RFL06	R003	0.60	1.84	2.10
	R004-R008	1.20	1.84	1.80
	R009-R700	1.20	1.84	1.80
RFL05	R003	0.50	1.44	1.55
	R004-R007	0.80	1.44	1.40
	R008-R500	0.80	1.44	1.40
RFL03	R005	0.50	0.92	1.35
	R006-R009	0.60	0.92	1.30
	R010-R075	0.60	0.92	1.30
RFL02	R005-R025	0.40	0.60	0.60

Marking

2512/1206: 4 digits marking

0805: 3 digits marking

0603: 2 digits marking

0402: no marking

Example:

Type	RFL2512 / RFL1206	RFL0805	RFL0603	RFL0402
Resistance	0.02Ω	0.02Ω	0.02Ω	0.02Ω
Digits Code	R020	020	20	no marking

■ Functional Description

■ Derating curve

The power that the resistor can dissipate depends on the ambient temperature.

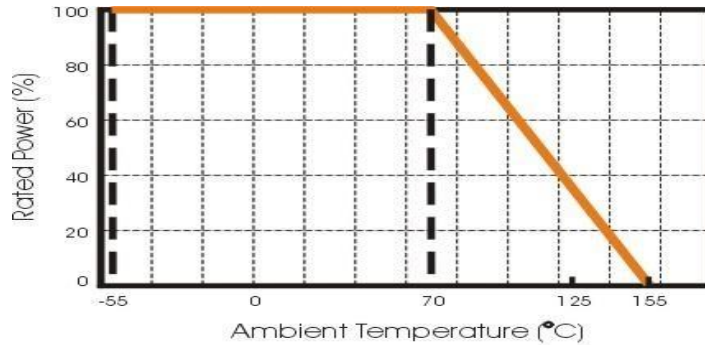


Fig.2 Maximum dissipation in percentage of rated power As a function of the ambient temperature

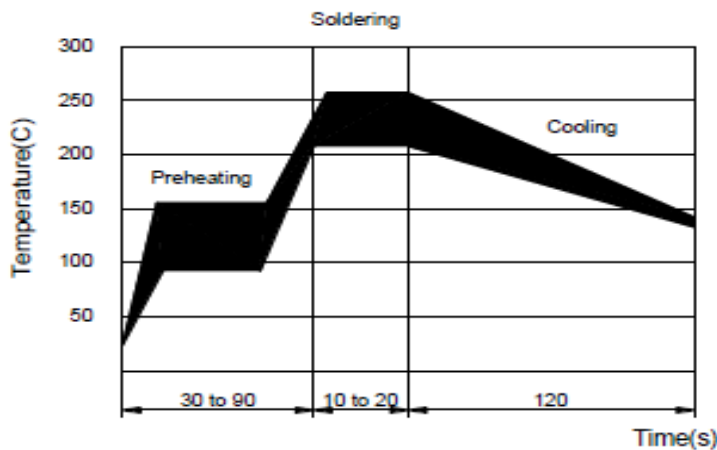
■ STORAGE CONDITIONS

Under airtight in temperature +10°C ~ 40°C、relative humidity ≤75% can store 2 years.
 Without dew in temperature +10°C ~60°C、relative humidity be 95% maximum value for 30days.

■ Soldering Conditions

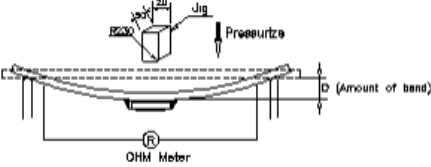
The robust construction of chip resistors allows them to be completely immersed in a solder bath of 260 °C for max.10 seconds. Therefore, it is possible to mount Surface Mount Resistors on one side of a PCB and other discrete components on the reverse (mixed PCBs)

Typical examples of soldering processes that provide reliable joints without any damage are given below.



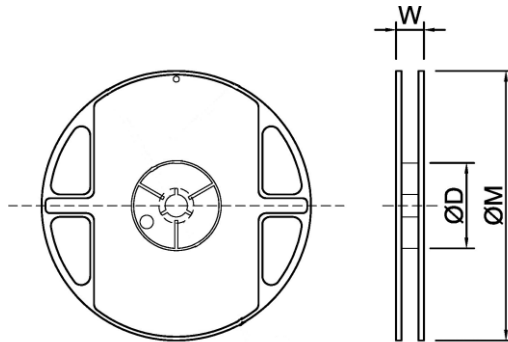
Infrared soldering profile for Chip Resistors

Reliability Test and Requirement

Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (T.C.R)	JIS C 5201-1 4.8	$T.C.R. (ppm/^{\circ}C) = \frac{(R2-R1)}{R1(T2-T1)} \times 10^6$ R1: resistance at room temperature (T1) R2: resistance at 125°C (T2)	Refer to Ratings
Short Time Overload	IEC60115-1 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	IEC60115-1 4.25	1,000hrs at + 170°C±2°C	±(1.0%+0.5mΩ)
Low Temp. Storage	IEC60115-1 4.25	1,000hrs at -55 °C±2°C	±(1.0%+0.5mΩ)
Soldering Heat	IEC60115-1 4.18	275±5°C for 20±1 seconds.	±(1.0%+0.5mΩ)
Moisture Load Life	IEC60115-1 4.25	T=60±2°C, RH=95% ,Load with Rated Current 1.5hrs "ON", 0.5hrs "OFF", 1000h	±(2.0%+0.5mΩ)
Temperature Cycling	IEC60115-1 4.19	-55°C to +155°C, 100 cycles	±(1.0%+0.5mΩ)
Load Life	IEC60115-1 4.25	T=70±2 °C, Load with Rated Current 1.5hrs "ON", 0.5hrs "OFF" , 1000h	±(2.0%+0.5mΩ)
Solderability	IEC60115-1 4.17	245±5°C for 3±0.5secs	The covered area >95%
Mechanical Shock	IEC60115-1 4.21	a =100G , t =11ms, 5 times shock	±(1.0%+0.5mΩ)
Substrate Bending	IEC60115-1 4.33	Span between fulcrums : 90mm Bend Width : 2mm 	±(1.0%+0.5mΩ)

Appendix For SMD Chip Resistor

Packaging Information

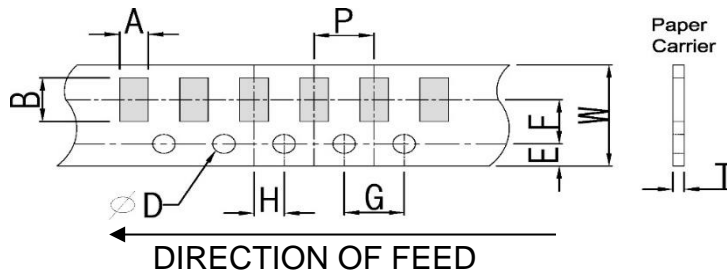


Dimension

Unit : mm

Symbol	ϕD	W	ϕM
(unit : mm)	60 ± 1.0	9.0 ± 1	180 ± 1.5

Tapping Specification



Dimension

Unit : mm

Type	A	B	W	E	F	G	H	T	ψD	P
0402	0.75 ± 0.2	1.25 ± 0.2	8.00 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.50 ± 0.05	$1.50^{+0.10}_{-0}$	4.0 ± 0.1
0603	1.18 ± 0.2	1.98 ± 0.2	8.00 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	1.0 max.		
0805	1.68 ± 0.2	2.38 ± 0.2	8.00 ± 0.3	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	1.0 max.		
1206	2.05 ± 0.2	3.65 ± 0.2	8.00 ± 0.3	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	1.0 max.		
2512	3.40 ± 0.2	6.75 ± 0.2	8.00 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	1.3 max.		

Taping Quantity

0402 Reeled tape packaging : 8mm width paper taping 10,000pcs per reel.

1206/ 0805/ 0603 Reeled tape packaging : 8mm width paper taping 5,000pcs per reel.

2512 Reeled tape packaging : 8mm width PC taping 4,000pcs per reel.