

**RUILON**  
RL72 Series  
Electronic  
Components



# RUILON RL72 Series Electronic Components Owner's Manual

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**RUILON RL72 Series Electronic Components**



## Description

Positive Thermal Coefficient devices (PTC), provide over-current protection for electrical and electronic devices. They function using conducting strips of metal embedded inside polymers. Under normal conditions, the device resistance is near zero, but over-current conditions will heat the PTC and expand the polymer, increasing the impedance. When the current returns to normal, the components cool down, returning to their original shape and very low levels of resistance.

## Features

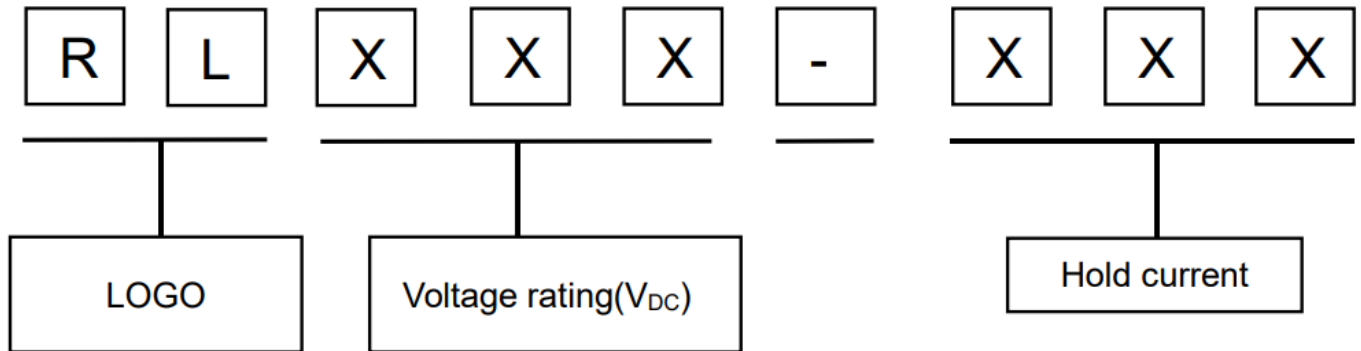
- $I(\text{hold})$ : 0.2~5.0A
- 72V Operating voltages
- Radial leaded devices.
- Over-current protection
- Very high voltage surge capabilities.
- Available in lead-free version.
- Fast time-to-trip
- RoHS-compliant, Lead-Free and Halogen-Free

## Applications

- Over-current and over-temperature protection of automotive electronics
- Hard disk drives
- PC motherboards
- Point-of-sale (POS) equipment
- PCMCIA cards
- USB port protection – USB 2.0, 3.0 & OTG

- HDMI 1.4 Source protection
- Computers & peripherals
- Industrial control
- Security systems

#### Part Number Code



#### Environmental Specifications

Test	Conditions	Resistance change
Passive aging	+85°C,1000hrs	±8% typical
Humidity aging	+85°C 85%R.H.1000hrs	±8% typical
Thermal shock	+125°C to -55°C 10times	±12% typical
Resistance to solvent	MIL-STD-202 Method 215	No change
Vibration	MIL-STD-202 Method 201	No change

- Specifications are subject to change without notice.
- Please refer to <http://www.ruilon.com.cn> for current information.

#### Electrical Characteristic

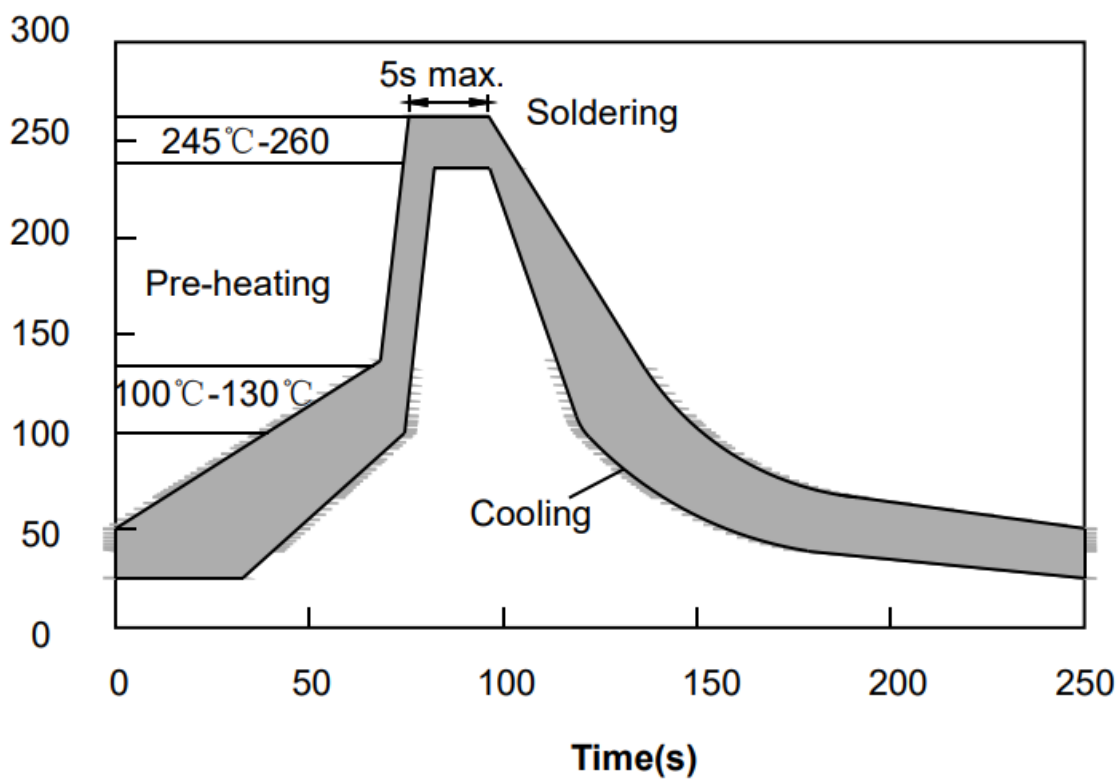
Model	I hold A	IT (A)	Vmax V	Maximum Time to Trip		Imax A	Pd typ W	Resistance(Ω)		
				Current(A)	Time(S)			Riminii	R1max	
RL72-020	0.20	0.4	72	1.0	3.6	40	0.52	1.50	4.49	
RL72-025	0.25	0.5	72	1.25	3.2	40	0.52	1.00	3.00	
RL72-030	0.30	0.6	72	1.5	3.0	40	0.59	0.76	2.20	
RL72-040	0.40	0.8	72	2.0	3.8	40	0.66	0.45	1.40	
RL72-050	0.50	1.0	72	2.5	4.0	40	0.80	0.40	1.20	
RL72-065	0.65	1.3	72	3.25	5.3	40	0.90	0.27	0.74	
RL72-075	0.75	1.5	72	3.75	6.3	40	0.95	0.18	0.62	
RL72-090	0.90	1.8	72	4.5	7.2	40	1.0	0.14	0.49	
RL72-110	1.10	2.2	72	5.5	8.2	40	1.51	0.14	0.40	
RL72-135	1.35	2.7	72	6.75	9.6	40	1.71	0.12	0.32	
RL72-160	1.60	3.2	72	8.0	11.4	40	1.98	0.09	0.24	
RL72-185	1.85	3.7	72	9.25	12.6	40	2.1	0.08	0.21	
RL72-250	2.50	5.0	72	12.5	15.6	40	2.5	0.05	0.15	
RL72-300	3.00	6.0	72	15.0	19.8	40	2.8	0.04	0.12	
RL72-375	3.75	7.5	72	18.75	24.0	40	3.2	0.03	0.10	
RL72-500	5.00	10.0	72	25.0	23.0	40	3.2	0.015	0.08	

- IH=Hold current: maximum current at which the device will not trip at 25°C still air.
- IT=Trip current: minimum current at which the device will always 25°C still air.
- V max=Maximum voltage device can withstand without damage at rated current.
- Maximum fault current device can withstand without damage at rated voltage.
- T trip=Maximum time to trip(s) at assigned current.

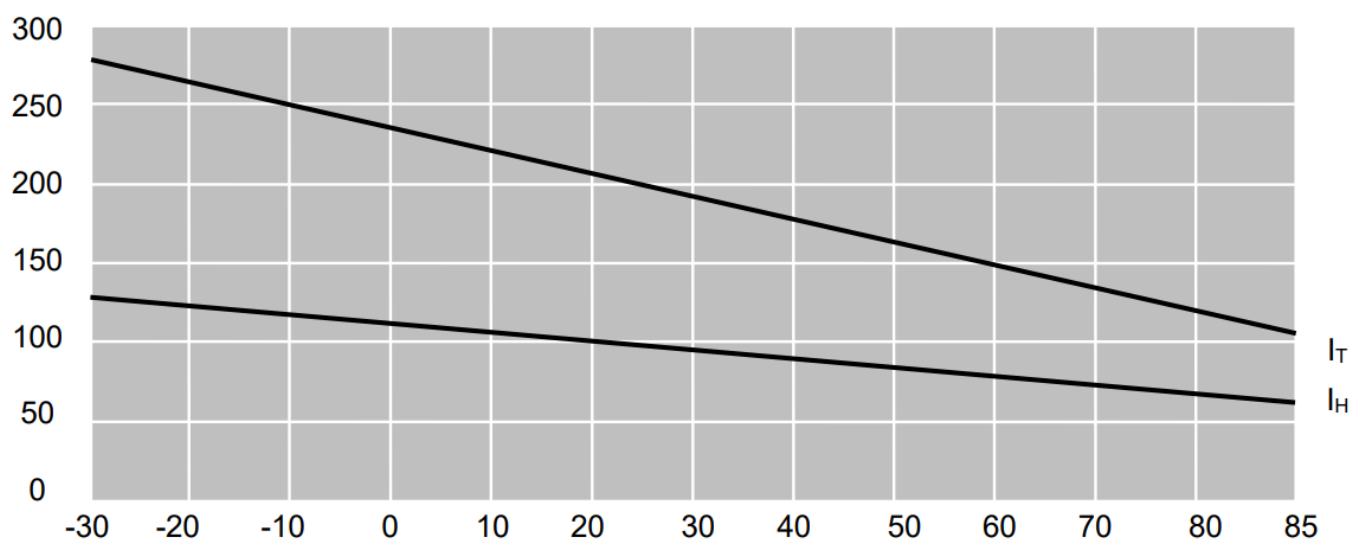
- Pd=Typical power dissipation: the typical amount of power dissipated by the device when in a state air environment. Ri min=Minimum device resistance at 25°C before tripping.
- R1 max=Maximum device resistance is measured one-hour post reflow.

**Solder reflow conditions**

<b>Wave Soldering</b>
Soldering Temperature:260°C~270°C
Soldering Time:≤3sec.
Soldering Position: Resettable fuse wire and the bottom ≥ 6mm
<b>Manual soldering</b>
Soldering Temperature:250°C~280°C
Soldering Time:≤3sec.
Soldering Position: Resettable fuse wire and the bottom ≥ 6mm



**Environmental temperature and IH, IT**



## Product Dimensions

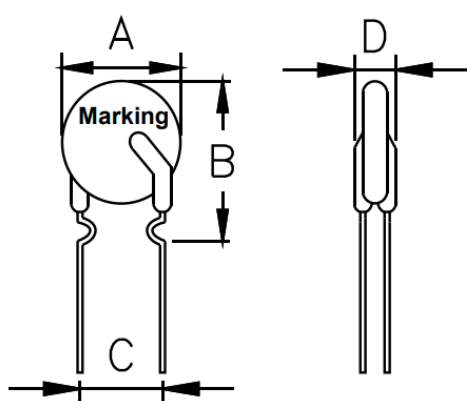


fig.1

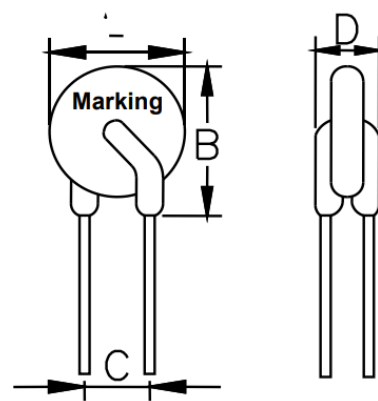


fig.2

Type Number	Dimensions mm					Dimensions in					Shape
	A(max )	B(max )	C(Typ )	D(max )	Lead $\Phi$ (type)	A(max )	B(max )	C(Typ )	D(max )	Lead $\Phi$ (type)	Fig

RL72-020	7.4	12.7	5.1	3.1	0.5	0.291	0.500	0.201	0.122	0.02	1
RL72-025	7.4	12.7	5.1	3.1	0.5	0.291	0.500	0.201	0.122	0.02	1
RL72-030	7.4	13.0	5.1	3.1	0.5	0.291	0.512	0.201	0.122	0.02	1
RL72-040	7.8	16.2	5.1	3.1	0.5	0.307	0.638	0.201	0.122	0.02	1
RL72-050	7.9	16.2	5.1	3.1	0.5	0.311	0.638	0.201	0.122	0.02	1
RL72-065	9.7	17.8	5.1	3.1	0.6	0.382	0.701	0.201	0.122	0.024	1
RL72-075	10.4	18.4	5.1	3.1	0.6	0.409	0.724	0.201	0.122	0.024	1
RL72-090	11.7	18.4	5.1	3.1	0.6	0.461	0.724	0.201	0.122	0.024	1
RL72-110	13.0	18.0	5.1	3.1	0.8	0.512	0.709	0.201	0.122	0.031	2
RL72-135	14.5	19.6	5.1	3.1	0.8	0.571	0.772	0.201	0.122	0.031	2
RL72-160	16.3	21.3	5.1	3.1	0.8	0.642	0.839	0.201	0.122	0.031	2
RL72-185	17.8	22.9	5.1	3.1	0.8	0.701	0.902	0.201	0.122	0.031	2
RL72-250	21.3	26.4	10.2	3.1	0.8	0.839	1.039	0.402	0.122	0.031	2
RL72-300	23.9	28.6	10.2	3.1	0.8	0.941	1.126	0.402	0.122	0.031	2
RL72-375	28.5	33.5	10.2	3.1	0.8	1.122	1.319	0.402	0.122	0.031	2
RL72-500	29.5	32.5	10.7	3.1	0.8	1.161	1.280	0.421	0.122	0.031	2

## Packaging

### Part Number

- RL72-020~RL72-185
- RL72-250~RL72-500

### Quantity

- 1000pcs/bag
- 500pcs/bag

## **Positive Thermal Coefficient (PTC)**

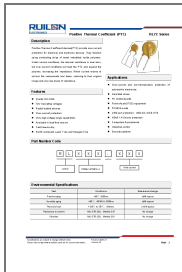
1. Operation beyond the maximum voltage or current may result in device damage PTC arcing, resistance increasing, and even bumping.
2. The Hold current specified at different temperatures in the datasheet is the conventional performance after one wave-soldering or manual soldering. PTC can hold 1 hour at the current corresponding to different temperatures. But this current is not the condition that PTC can charge or discharge current for a long time.
3. All resistance and the electronic characteristics specified in the datasheet are based on the test tested on Ruilongyuan Lab. The applicability needs to be verified because the above parameters may be attenuated if the customer has other processes, like twice soldering or injection. Customer needs to independently evaluate and test to select appropriate products for their applications.
4. PTC is a thermal sensitive device. It is recommended that no heat source devices be designed around to reduce the outside heat source impact.
5. Wave Soldering or Hand Soldering is recommended for R-line PTC. Please refer to the Ruilongyuan recommended soldering curve. If the soldering temperature exceeds the recommended value, the PTC might be damaged.
6. When assembling and applying PTC, the material mark and application parameters ( Temperature, Time, etc.) of all injection or plastic materials, like adhesives, silica gel, etc.. should be verified to ensure the consistency between the products and the processing technology. Only if it is confirmed that would not influent PTC then can be used.
7. When assembling and applying PTC, it is not recommended to use washer water or other cleaner to clean PTC. If it is required, it is necessary to verify the applicability of various cleaners, washer water, and solvents, it is also confirmed that they will not affect the PTC performance. Chemicals that are known to have an effect on PTC include but are not limited to, highly solubility and destructive organic compounds such as ethers, benzenes, ketones, and lipids. Place the product in an open environment for at least 24 hours to volatilize the residual solvents.
8. Please do not smash, clamp, pull, dent, twist, and etc. To PTC during the assembling process to avoid performance degradation.
9. PTC is a secondary protector, which is only can be used aforsporadic, accidental over-current,, or over-temperature, continuous or repeated failure can not be PTC.
10. PTC idoesnot recommend installation in space-constrained environments, which can inhibit its performance.
11. When the product is finally discarded, it can be treated as general electronic waste and raw material compositions of PPTC can be referred to as Mas SDS.

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## **Documents / Resources**





**[RUILON RL72 Series Electronic Components](#) [pdf] Owner's Manual**  
RL72-020, RL72-025, RL72-030, RL72-040, RL72-050, RL72-065, RL72-075, RL72-090, RL72-110, RL72-135, RL72-160, RL72-185, RL72-250, RL72-300, RL72-375, RL72-500, RL72 Series Electronic Components, RL72 Series, Electronic Components, Components

## References

- [User Manual](#)

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