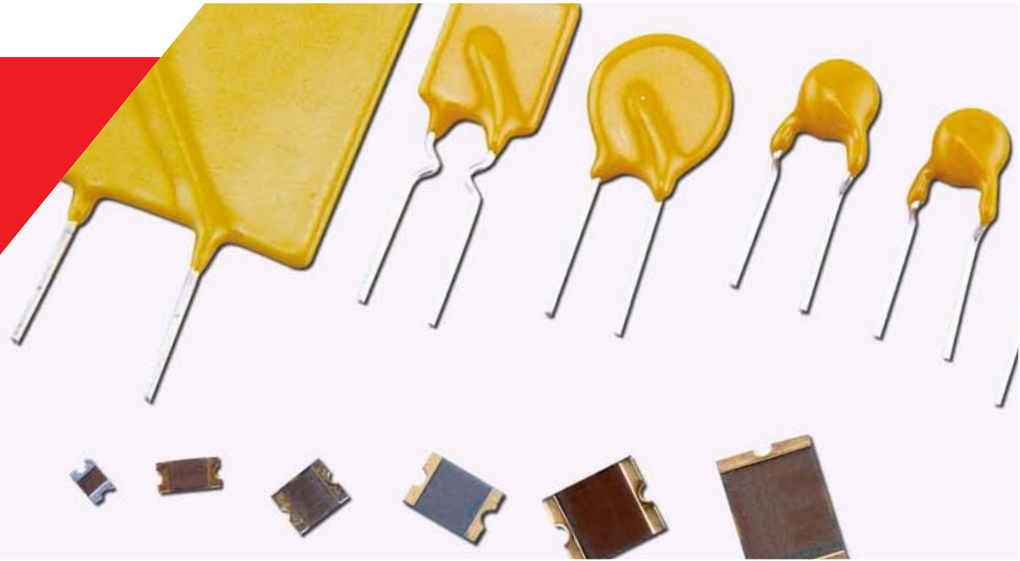


ELECTRONICS



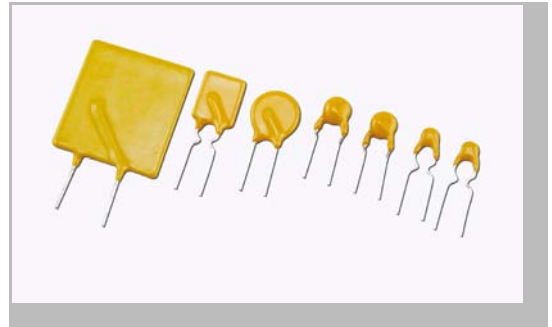
# Positive Thermal Coefficient

RL600 Series

# Positive Thermal Coefficient - RL600 Series

## Features

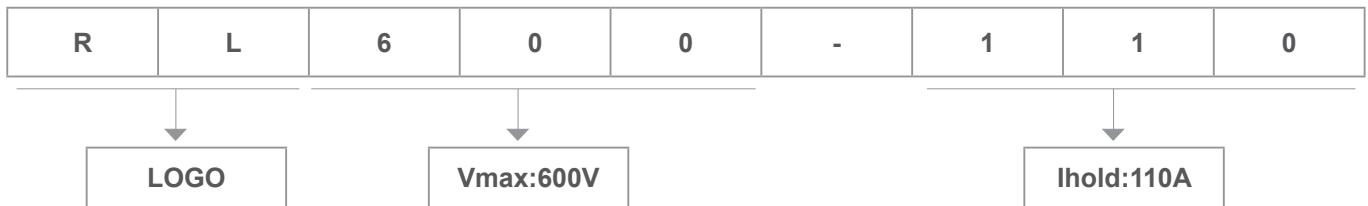
- 1. I(hold):110~160mA
- 2. 600V Operating voltages
- 3. Radial leaded devices.
- 4. Very high voltage surge capabilities.
- 5. Available in lead-free version.
- 6. Fast time-to-trip
- 7. RoHS compliant, Lead- Free and Halogen-Free



## Applications

- 1. Overcurrent and overtemperature
- 2. protection of automotive electronics
- 3. Hard disk drives
- 4. PC motherboards
- 5. PC peripherals
  - Point-of-sale (POS) equipment
  - PCMCIA cards
  - USB port protection
  - HDMI 1.4 Source protection
  - Computers & peripherals
  - General Electronics

## Product Name



# Positive Thermal Coefficient - RL600 Series

## Dimension

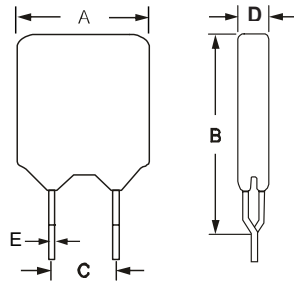


Fig.1

Type Number	Ihold	Vmax	Itrip	Ttrip		Imax	Rmax	Rmin	Package Dimensions (mm)					Circuit Figure
	A	V	A	Current A	Times S	A	Ω	Ω	A	B	C	D	E	
RL600-110	0.11	600	0.3	0.5	1.5	3	14	7	14	14	5.1	6.1	0.8	Fig.1
RL600-150	0.15	600	0.3	1.5	0.15	3	12	6	14	14	5.1	6.1	0.8	Fig.1
RL600-160	0.16	600	0.32	1.5	0.15	3	10	4	14	14	5.1	6.1	0.8	Fig.1

I hold = Hold Current. Maximum current device will not trip in 25°C still air.

I trip = Trip Current. Minimum current at which the device will always trip in 25°C still air.

V max = Maximum operating voltage device can withstand without damage at rated current (I max).

I max = Maximum fault current device can withstand without damage at rated voltage (V max).

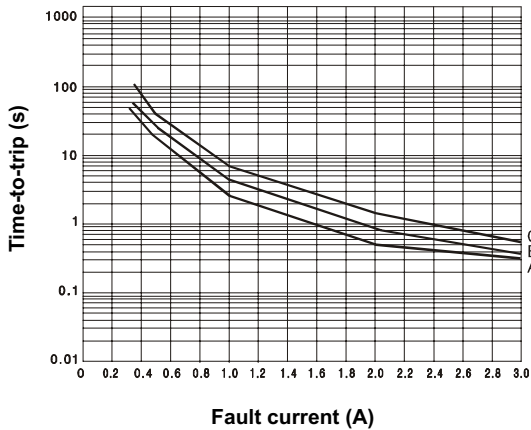
R min/max = Minimum/Maximum device resistance prior to tripping at 25°C.

## Environmental Specifications

Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs	±5% typical
Humidity aging	+85°C, 85% R.H., 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to so vent	MIL-STD-202, Method 215	Nn change
Vibration	MIL-STD-202, Method 201	Nn change
Ambient operating conditions: -40°C to +85°C		
Maximum surface temperature of the device in the tripped state is 125°C		

# Positive Thermal Coefficient - RL600 Series

## TYPICAL TIME-TO-TRIP CHARTS @ 25°C

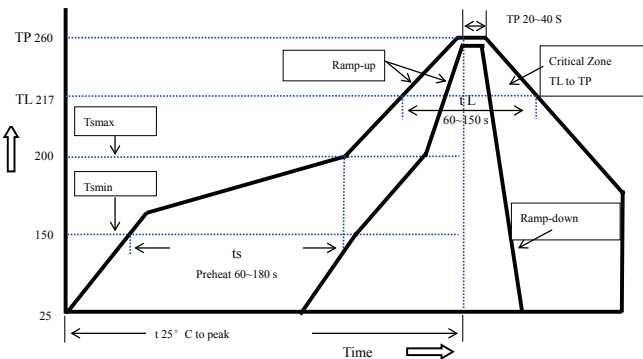


A = RL600-110  
 B = RL600-150  
 C = RL600-160

### STORAGE RECOMMENDATIONS

1. Storage Temperature : -10 °C~+40°C
2. Relative Humidity : ≤ 80%RH
3. Keep away from corrosive atmosphere and sunlight.
4. Period of Storage: 1 year.

## Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate(Ts max to T p)	3°C/second mac.
<b>Preheat</b>	
-Temperature Min(Ts min)	150°C
-Temperature Max(Ts max)	200°C
-Time(Ts min to Ts max)	60~180 seconds
<b>Time maintained above:</b>	
-Temperature(TL)	+217°C
-Time(tL)	60~150 seconds
<b>Peak Temperature(Tp)</b>	260°C
<b>Ramp-Down Rate</b>	6°C/second max.
<b>Time 25°C to Peak Temperature</b>	8 minutes max
<b>Storage Condition</b>	0°C~35°C,70%RH

Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free

Recommended maximum paste thickness is 0.25mm

Devices can be cleaned using standard industry methods and solvents.

Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

## Positive Thermal Coefficient - RL600 Series

### TEST PROCEDURES AND REQUIREMENT

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @25°C	$R_{min} \leq R \leq R_{max}$
Time to Trip	Specified current, $V_{max}$ , 25°C	$T \leq \text{max. Time to trip}(T_{trip})$
Hold Current	30 min, at $I_H$	No trip
Trip Cycle Life	$V_{max}$ , $I_{max}$ , 100 cycles	No arcing or burning
Trip Endurance	$V_{max}$ , 24hours	No arcing or burning

### Ihold Versus Temperature

Type Number	-20°C	0°C	25°C	30°C	40°C	50 °C	60°C	70°C	85°C
RL600-110	152	131	110	100	91	80	70	61	46
RL600-150	207	179	150	137	125	110	96	83	63
RL600-160	221	190	160	146	133	117	102	88	67

### Warehouse Storage Conditions of Products

- Storage Conditions:
  1. Storage Temperature: -10°C~+40°C
  2. Relative Humidity: ≤75%RH
  3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year

## RuiLongYuan Electronics Co., Ltd.

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