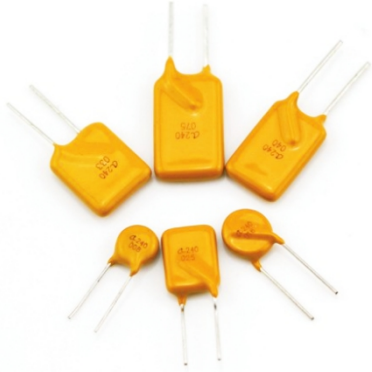


240R Series

Radial Leaded
Resettable PPTC Devices



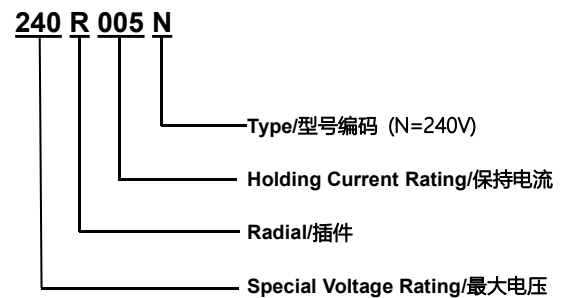
Features/特征

- Radial Leaded resettable fuse
- Current rating from 0.05A to 2A
- 240V Operating voltages
- Fast time-to-trip
- Meets all USB protection requirements
- RoHS compliant, lead-free and halogen-free

Applications/应用

- Customer Premises Equipment
- LAN/WAN equipment
- Access equipment
- Motor protection
- General Electronics

Part Number System/产品编号



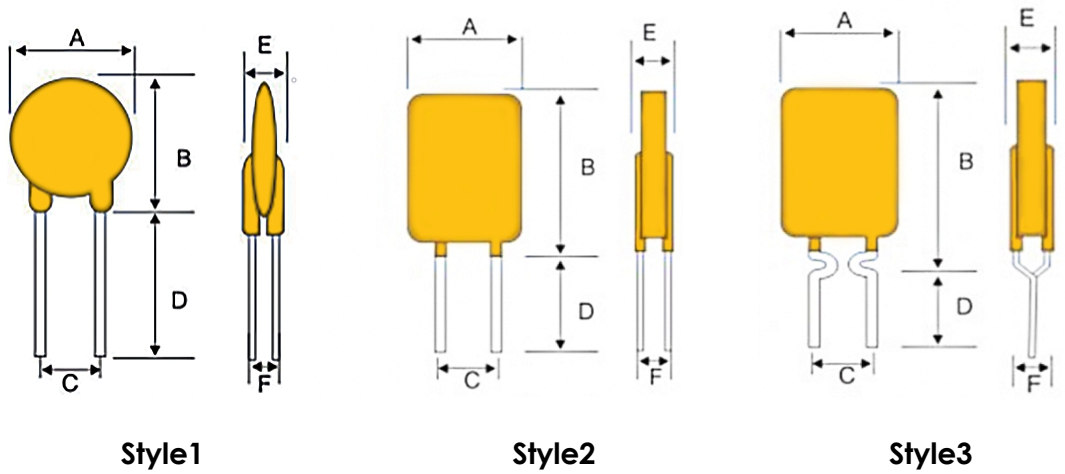
Electrical Characteristics (25°C)/电性参数

Part Number	I _{hold} (A)	I _{trip} (A)	V _{max} (V ac/dc)	V _r (V)	I _{max} (A)	P _d typ. (W)	Time to Trip (Max.)		Resistance		
							Current (A)	Time (Sec)	R _{min} (Ω)	R _{max} (Ω)	R _{1max} (Ω)
240R005N	0.05	0.12	240	60-120	3.0	0.30	0.25	15.0	18	31	50
240R008N	0.08	0.19	240	60-120	3.0	0.51	0.40	15.0	7.4	12	20
240R012N	0.12	0.30	240	60-120	3.0	0.60	0.60	15.0	3.0	6.5	12
240R016N	0.16	0.37	240	60-120	3.0	0.52	0.80	15.0	2.5	4.1	7.8
240R025N	0.25	0.56	240	60-120	3.0	0.52	1.25	18.5	1.3	2.1	4.0
240R033N	0.33	0.74	240	60-120	3.0	0.59	1.65	21.0	1.2	2.0	3.5
240R040N	0.40	0.90	240	60-120	3.0	0.66	2.00	24.0	0.81	1.5	2.5
240R055N	0.55	1.25	240	60-120	3.0	0.80	2.75	26.0	0.45	0.73	1.45
240R075N	0.75	1.50	120	60-120	3.0	0.90	3.75	14.0	0.4	0.68	1.1
240R100N	1.00	2.00	120	60-120	10.0	0.95	5.00	13.6	0.2	0.334	0.6

Part Number	I _{hold} (A)	I _{trip} (A)	V _{max} (Vdc)	V _{OP} (V)	I _{max} (A)	P _d typ. (W)	Time to Trip (Max.)		Resistance		
							Current (A)	Time (Sec)	R _{min} (Ω)	R _{max} (Ω)	R _{1max} (Ω)
240R125N	1.25	2.50	120	60-120	10.0	1.00	6.25	18.0	0.12	0.18	0.32
240R135N	1.35	2.70	120	60-120	10.0	1.51	6.75	20.0	0.10	0.15	0.3
240R200N	2.00	4.20	240	60-120	10.0	1.71	10.0	36.0	0.089	0.131	0.22

I_{hold} = Hold current: maximum current device will pass without tripping in 25°C still air. 保持电流=在 25°C 静止空气环境中,元件不动作的最大电流。
 I_{trip} = Trip current: minimum current at which the device will trip in 25°C still air. 动作电流=在 25°C 静止空气环境中,元件的最小动作电流。
 V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max}). 最大电压=元件在额定电流下能承受的最大电压。
 V_{op} = The device regular operation voltage. 元件正常工作电压
 I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max}). 最大电流=元件在额定电压下能承受的最大电流。
 P_{d typ.} = Typical power dissipated from device when in the tripped state at 25°C still air. 动作功率=在 25°C 静止空气环境中,元件动作状态下的消耗功率。
 T_{trip} = Maximum time to trip(s) at assigned current reflow soldering of 260°C for 20 sec. 动作时间=5 倍保持电流下的最大动作时间。
 R_{min} = Minimum resistance of device in initial (un-soldered) state. 初始最小电阻=元件焊接前的初始最小阻值。
 R_{max} = Maximum resistance of device in initial (un-soldered) state. 初始最大电阻=元件焊接前的初始最大阻值。
 R_{1max} = Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec. 焊后最大电阻=元件焊接 1 小时后的最大阻值。
Caution : Operation beyond the specified rating may result in damage and possible arcing and flame. 注意: 超出指定额定值的操作, 可能会导致损伤并可能产生电弧和火焰。

Product Dimensions (mm)/产品尺寸



PHYSICAL SPECIFICATIONS :

Lead Solderability : MIL-STD-202, Method 208E

Device Labeling : Device is marked with Logo, amperage rating , voltage rating & date code.

Part Number	Reel QTY	Bag QTY	A Max.	B Max.	C		D Min.	E Max.	F Typ.	Lead ϕ	Style
					Min.	Max.					
240R005N	2000	500	8.30	10.7	4.3	5.8	7.6	3.8	1.2	0.5	1
240R008N	2000	500	8.30	10.7	4.3	5.8	7.6	3.8	1.2	0.5	1
240R012N	2000	500	8.30	10.7	4.3	5.8	7.6	3.8	1.2	0.5	1
240R016N	2000	500	9.90	13.8	4.3	5.8	7.6	3.8	1.2	0.6	1
240R025N	2000	500	9.60	18.8	4.3	5.8	7.6	3.8	3.4	0.6	3
240R033N	2000	500	12.5	19.0	4.3	5.8	7.6	3.8	3.4	0.8	2
240R040N	2000	500	11.5	20.9	4.3	5.8	7.6	3.8	3.4	0.8	2
240R055N	2000	500	14.0	21.7	4.3	5.8	7.6	4.1	3.4	0.8	2
240R075N	2000	500	12.0	22.0	4.3	5.8	7.6	4.8	3.4	0.8	2
240R100N	2000	500	14.5	19.0	9.4	10.9	7.6	4.1	3.4	0.8	1
240R125N	2000	500	14.0	21.7	4.3	5.8	7.6	4.1	3.4	0.8	2
240R135N	2000	500	16.3	21.7	4.3	5.8	7.6	4.1	3.4	0.8	2
240R200N	2000	500	23.5	31.8	9.4	10.9	7.6	4.1	3.4	0.8	2

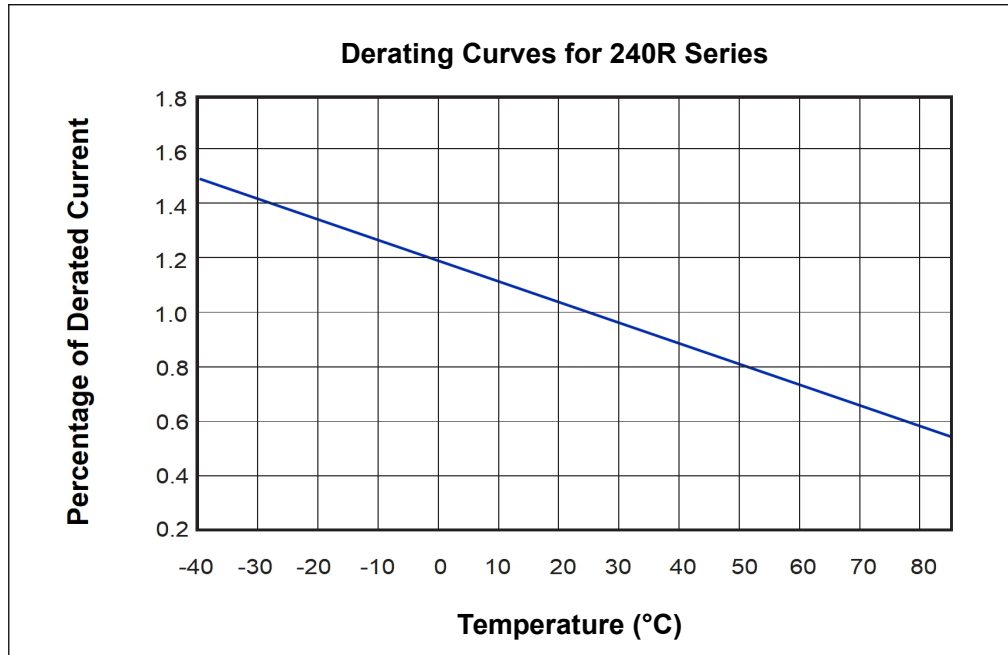
Environmental Specifications/环境规范

Test 测试项目	Conditions 条件	Resistance change 电阻变化
Passive aging 被动老化	+85°C, 1000 hours	±5% typical
Humidity aging 湿热老化	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock 冷热冲击	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent 抗溶剂性能	MIL-STD-202, Method 215	No change
Vibration 抗震性	MIL-STD-202, Method 201	No change
Ambient operating conditions : - 40 °C to +85 °C 工作环境温度		
Maximum surface temperature of the device in the tripped state is 125°C. 保护状态下的元件表面最高温度为 125°C		

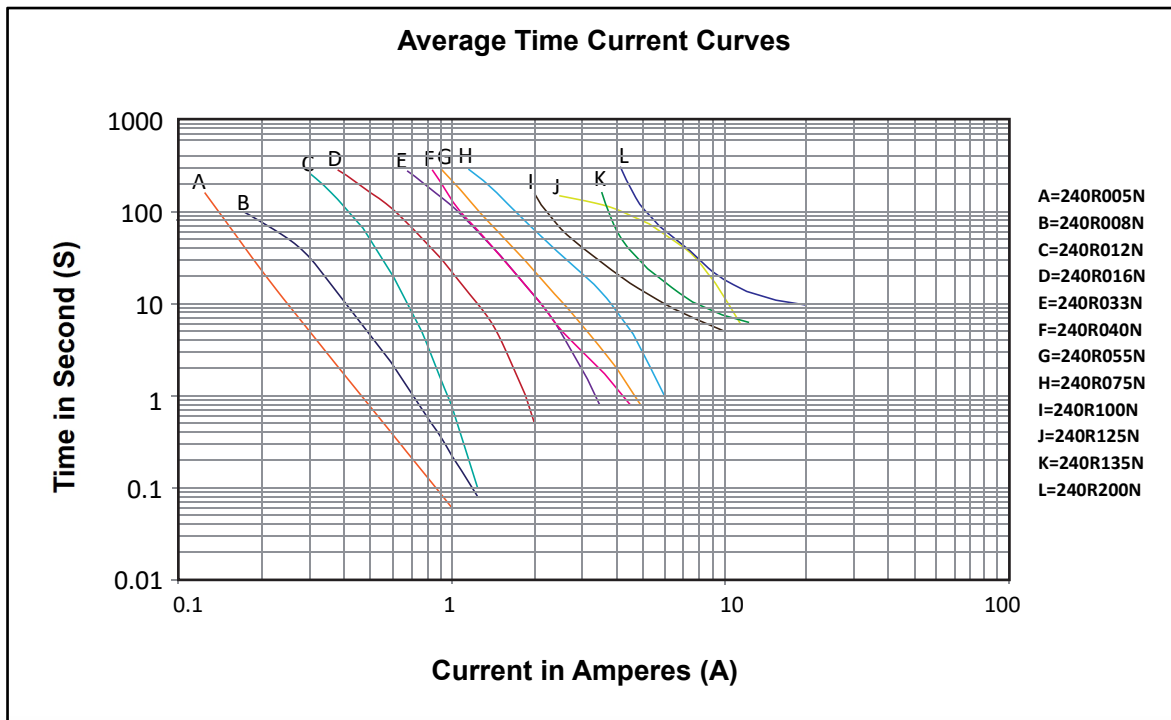
Temperature Derating/不同环境温度下的 I_{hold} 值

Part Number	Ambient operating temperature hold current (I_{hold})								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
240R005N	0.073	0.065	0.060	0.050	0.044	0.040	0.036	0.033	0.028
240R008N	0.116	0.104	0.096	0.080	0.070	0.064	0.057	0.053	0.045
240R012N	0.174	0.156	0.144	0.120	0.106	0.096	0.085	0.079	0.067
240R016N	0.232	0.208	0.192	0.160	0.141	0.128	0.114	0.106	0.090
240R025N	0.363	0.325	0.300	0.250	0.220	0.200	0.178	0.165	0.140
240R033N	0.479	0.429	0.396	0.330	0.290	0.264	0.234	0.218	0.185
240R040N	0.580	0.520	0.480	0.400	0.352	0.320	0.284	0.264	0.224
240R055N	0.798	0.715	0.660	0.550	0.484	0.440	0.391	0.363	0.308
240R075N	1.088	0.975	0.900	0.750	0.660	0.600	0.533	0.495	0.420
240R100N	1.450	1.300	1.200	1.000	0.880	0.800	0.710	0.660	0.560
240R125N	1.813	1.625	1.500	1.250	1.100	1.000	0.888	0.825	0.700
240R135N	1.958	1.755	1.620	1.350	1.188	1.080	0.959	0.891	0.756
240R200N	2.900	2.600	2.400	2.000	1.760	1.600	1.420	1.320	1.120

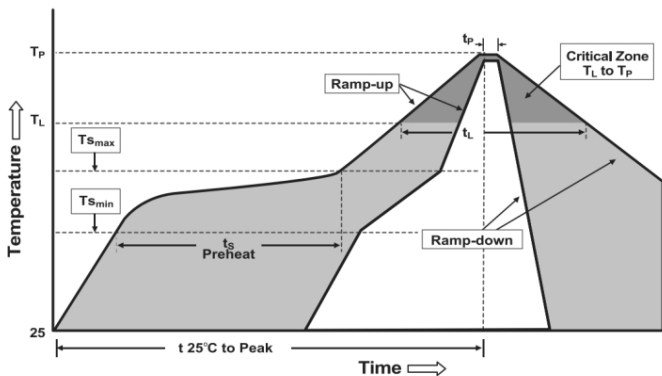
Thermal Derating Curve/环境温度与工作电流关系特性图



Typical Time-to-Trip at 25°C/25°C跳闸保护时间曲线表



Soldering Parameters/焊接参数



- Recommended reflow methods: IR, vapor phase oven, hot air oven, N₂ environment for lead-free;
推荐的回流方法：红外光谱，气相炉，热空气炉中，氮气环境，无铅焊接；
 - Recommended maximum paste thickness is 0.25mm;
推荐刷锡厚度最大为 0.25mm；
 - Devices can be cleaned using standard industry methods and solvents;
产品可以使用行业标准的方法和溶剂清洗；
- Note 1:** All temperature refer to topside of the package, measured on the package body surface;
注 1: 所有的温度是在焊接时，在产品上所测量出来；
- Note 2:** If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
注 2: 如果回流温度超过推荐参数要求，产品可能无法满足性能要求。

Profile Feature 特征	Pb-Free Assembly 无铅焊锡	
Average Ramp-Up Rate (T_{s(max)} to T_p) 平均升温速度	3°C/second max	
Preheat 预热	-Temperature Min(T_{s(min)}) 最低温度	150°C
	-Temperature Max(T_{s(max)}) 最高温度	200°C
	-Time(T_{s(min)} to T_{s(max)}) 预热时间	60~180 seconds
Time maintained above: 保持时间	-Temperature(T_L) 温度	217°C
	-Time(t_L) 时间	60~150 seconds
Peak Temperature (T_p) 峰值温度	260°C	
Ramp-Down Rate 降温	6°C/second max	
Time 25°C to Peak Temperature 从 25°C到峰值温度时间	8 minutes max	
Storage Condition 储存条件	0°C~30°C 30%-60%RH	

WARNING

- Users shall independently assess the suitability of these devices for each of their applications.
- Users shall independently assess the suitability of these devices for each of their applications.
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire.
- These devices are intended to protect against the effects of temporary over-current or over-temperature Conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration.
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the prolonged of these PPTC devices.
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses.
- Circuits with inductance may generate a voltage (L di/dt) above the rated voltage of the PPTC device.