

## Radial Lead Resettable Polymer PTCs

### JK250 Series

#### Description

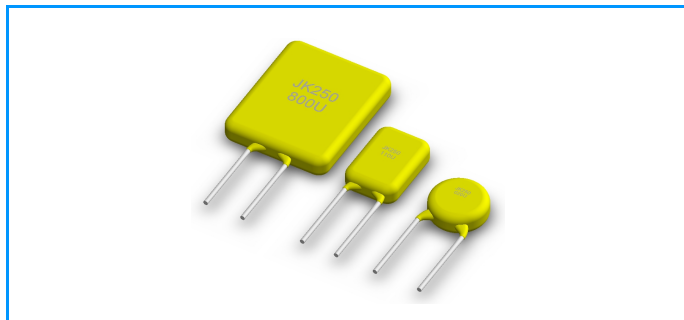
JK250 Series is designed to protect against short duration high voltage fault currents (power cross or power induction surge) typically used in AC220V.

#### Features

- u 0.02-2.0A hold current rating
- u 250VAC operating voltage
- u Fast time-to- trip
- u RoHS compliant, Lead-Free and Halogen-Free

#### Applicable

- u AC220V over-current protection
- u Power ports
- u Customer Premises Equipment(CPE)



#### Electrical Parameters

Part Number	I <sub>hold</sub> (A)	I <sub>trip</sub> (A)	V <sub>max</sub> (Vac)	I <sub>max</sub> (A)	P <sub>dtyp.</sub> (W)	Maximum Time To Trip		Resistance		
						Current (A)	Time (Sec.)	R <sub>min</sub> (Ω)	R <sub>max</sub> (Ω)	R <sub>1max</sub> (Ω)
JK250-020U	0.020	0.045	250	3.0	1.0	1.0	0.10	80.0	160.0	240.0
JK250-030U	0.030	0.065	250	3.0	1.0	1.0	0.10	60.0	120.0	180.0
JK250-040U	0.040	0.080	250	3.0	1.0	0.5	1.00	30.0	60.0	80.0
JK250-060U	0.060	0.120	250	3.0	1.0	0.5	2.00	22.0	40.0	60.0
JK250-080U	0.080	0.160	250	3.0	1.0	1.0	0.25	14.0	22.0	33.0
JK250-090U	0.090	0.180	250	3.0	1.0	1.0	0.50	10.0	20.0	31.0
JK250-100U	0.100	0.200	250	3.0	1.0	1.0	1.00	10.0	20.0	31.0
JK250-110U	0.110	0.220	250	3.0	1.0	1.0	1.20	6.0	12.0	16.0
JK250-120U	0.120	0.240	250	3.0	1.0	1.0	1.20	6.0	11.0	16.0
JK250-145U	0.145	0.290	250	3.0	1.0	1.0	4.00	3.5	6.5	14.0
JK250-180T	0.180	0.540	250	10.0	1.8	3.0	1.50	1.0	2.2	4.0
JK250-180U	0.180	0.540	250	10.0	1.8	3.0	1.50	1.0	3.0	5.0
JK250-200U	0.200	0.400	250	10.0	2.4	3.0	5.00	3.0	6.0	9.0
JK250-400U	0.400	0.800	250	10.0	2.8	3.0	8.0	1.0	3.0	6.0
JK250-600U	0.600	1.200	250	10.0	3.2	3.0	12.0	0.6	2.00	5.0
JK250-800U	0.800	1.600	250	10.0	3.6	4.0	18.0	0.40	1.00	3.0
JK250-1000U	1.000	2.000	250	10.0	3.6	5.0	20.0	0.50	0.80	2.0
JK250-1200U	1.200	2.400	250	10.0	3.6	6.0	20.0	0.20	0.80	2.0
JK250-1500U	1.500	3.000	250	10.0	4.8	7.5	20.0	0.20	0.60	1.5
JK250-2000U	2.000	4.000	250	10.0	4.8	10.0	20.0	0.20	0.40	1.5

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$I_{hold}$  = Hold current: maximum current device will pass without tripping in 25°C still air.

$I_{trip}$  = Trip current: minimum current at which the device will trip in 25°C still air.

$V_{max}$  = Maximum voltage device can withstand without damage at rated current ( $I_{max}$ )

$I_{max}$  = Maximum fault current device can withstand without damage at rated voltage ( $V_{max}$ )

$P_{dtyp}$  = Power dissipated from device when in the tripped state at 25°C still air.

$R_{min}$  = Minimum resistance of device in initial (un-soldered) state.

$R_{max}$  = Maximum resistance of device in initial (un-soldered) state.

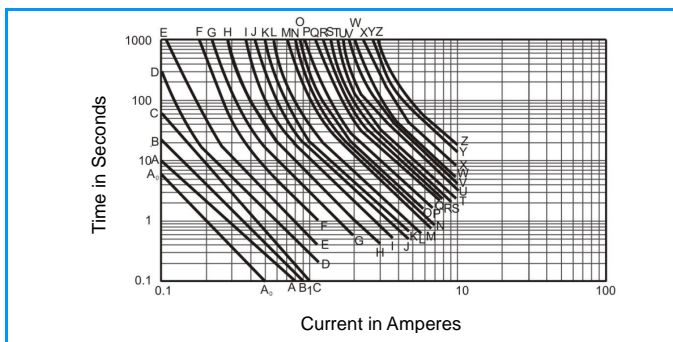
$R_{1max}$  = Maximum resistance of device at 25°C measured one hour after tripping.

Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

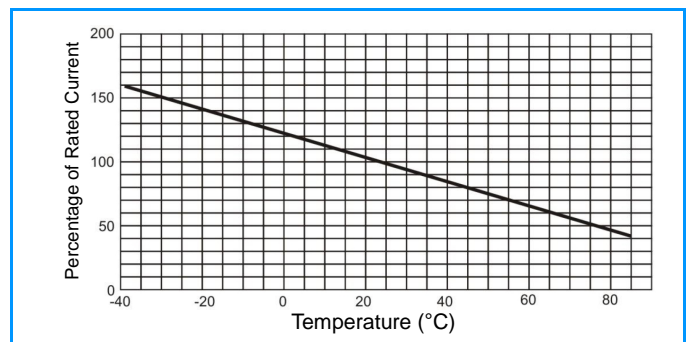
### Temperature Derating Chart – $I_{hold}$ (A)

Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
	Hold Current (A)								
JK250-020U	0.031	0.027	0.024	0.020	0.016	0.015	0.013	0.011	0.008
JK250-030U	0.047	0.041	0.036	0.030	0.025	0.022	0.019	0.017	0.012
JK250-040U	0.062	0.055	0.048	0.040	0.033	0.029	0.026	0.022	0.016
JK250-060U	0.093	0.082	0.070	0.060	0.049	0.044	0.038	0.033	0.025
JK250-080U	0.124	0.110	0.095	0.080	0.066	0.058	0.051	0.044	0.033
JK250-090U	0.140	0.119	0.105	0.090	0.077	0.069	0.061	0.055	0.043
JK250-100U	0.155	0.137	0.119	0.100	0.085	0.077	0.068	0.61	0.045
JK250-110U	0.171	0.145	0.129	0.110	0.094	0.085	0.075	0.067	0.053
JK250-120U	0.186	0.164	0.143	0.120	0.098	0.088	0.077	0.066	0.049
JK250-145U	0.230	0.191	0.170	0.145	0.123	0.112	0.099	0.088	0.070
JK250-180T	0.280	0.238	0.211	0.180	0.153	0.139	0.122	0.110	0.086
JK250-180U	0.280	0.238	0.211	0.180	0.153	0.139	0.122	0.110	0.086
JK250-200U	0.310	0.274	0.238	0.200	0.164	0.146	0.128	0.110	0.082
JK250-400U	0.620	0.550	0.480	0.400	0.330	0.290	0.260	0.22	0.160
JK250-600U	0.930	0.820	0.710	0.600	0.490	0.440	0.380	0.33	0.250
JK250-800U	1.240	1.100	0.950	0.800	0.660	0.580	0.510	0.44	0.330
JK250-1000U	1.550	1.370	1.190	1.000	0.820	0.730	0.640	0.55	0.410
JK250-1200U	1.860	1.650	1.430	1.200	1.020	0.900	0.816	0.732	0.564
JK250-1500U	2.330	2.100	1.650	1.500	1.280	1.130	1.020	0.915	0.705
JK250-2000U	3.100	2.740	2.380	2.000	1.640	1.460	1.280	1.10	0.820

### Average Time Current Curves



### Temperature Derating Curve



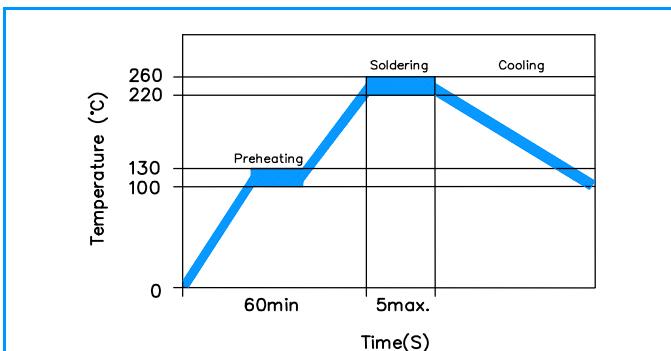
### Test Procedures and Requirement

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Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @25±2°C	$R_{min} \leq R \leq R_{max}$
Hold Current	60 min, at $I_{hold}$ , In still air @25±2°C	No trip
Time to Trip	Specified current, $V_{max}$ , @25±2°C	$T \leq$ Maximum Time To Trip
Trip Cycle Life	$V_{max}$ , $I_{max}$ , 100 cycles	No arcing or burning
Trip Endurance	$V_{max}$ , 24 hours	No arcing or burning

### Soldering Parameters

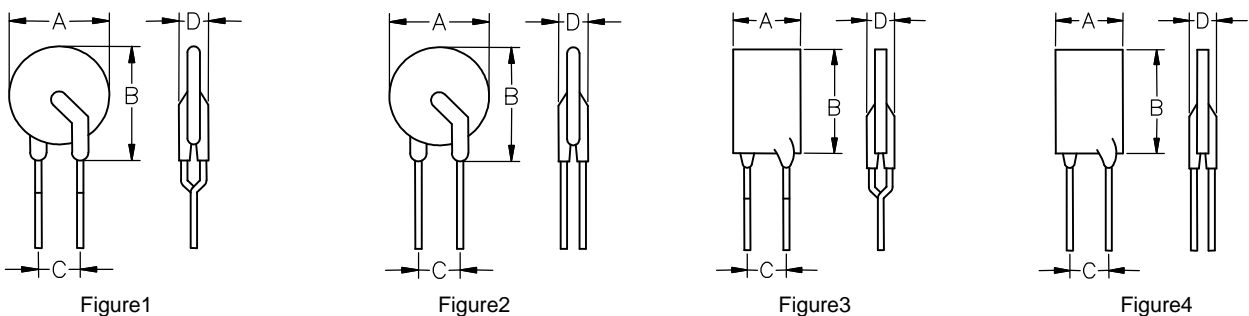


<b>Pre-Heating Zone</b>	Refer to the condition recommended by the manufacturer. Max. ramping rate should not exceed 4°C/Sec
<b>Soldering Zone</b>	Max. solder temperature should not exceed 260°C
<b>Cooling Zone</b>	Cooling by natural convection in air

### Physical Specifications

<b>Lead Material</b>	0.02-0.04A Tin-plated Copper clad steel 0.05-2.00A Tin-plated Copper
<b>Soldering Characteristics</b>	Solder ability per MIL-STD-202, Method 208E
<b>Insulating Material</b>	Cured, flame retardant epoxy polymer meets UL 94V-0 requirements.
<b>Device Labeling</b>	Marked with 'SC', voltage, current rating

### Dimensions



Part Number	Figure	A	B	C	D	Lead (dia)		Packaging (Bulk Pack)
		mm Max.	mm Max.	mm Typ.	mm Max.	Inches	mm	
JK250-020U	Figure1(2)	7.4	12.7	5.1	3.8	0.020	0.5	1000
JK250-030U	Figure1(2)	7.4	12.7	5.1	3.8	0.020	0.5	1000
JK250-040U	Figure1(2)	7.4	12.7	5.1	3.8	0.020	0.5	1000
JK250-060U	Figure1(2)	7.4	12.7	5.1	3.8	0.024	0.6	1000

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JK250-080U	Figure1	7.4	12.7	5.1	3.8	0.024	0.6	1000
JK250-090U	Figure1	7.4	12.7	5.1	3.8	0.024	0.6	1000
JK250-100U	Figure1	7.8	12.0	5.1	3.8	0.024	0.6	1000
JK250-110U	Figure3	7.0	12.6	5.1	3.8	0.024	0.6	1000
JK250-120U	Figure3	7.0	10.0	5.1	3.8	0.024	0.6	1000
JK250-145U	Figure3	7.0	10.0	5.1	3.8	0.024	0.6	1000
JK250-180T	Figure1	10.2	14.5	5.1	3.4	0.024	0.6	1000
JK250-180U	Figure3	11.2	14.5	5.1	3.8	0.024	0.6	1000
JK250-200U	Figure4	10.5	17.0	5.1	3.8	0.024	0.6	1000
JK250-400U	Figure4	10.5	17.0	5.1	3.8	0.031	0.8	1000
JK250-600U	Figure4	16.0	18.0	5.1	4.5	0.031	0.8	500
JK250-800U	Figure4	20.0	22.0	5.1	4.5	0.031	0.8	500
JK250-1000U	Figure4	20.0	22.0	5.1	4.5	0.031	0.8	200
JK250-1200U	Figure4	22.0	28.0	5.1	4.5	0.031	0.8	200
JK250-1500U	Figure4	25.0	30.0	5.1	4.5	0.031	0.8	200
JK250-2000U	Figure4	26.0	32.0	5.1	4.5	0.031	0.8	200

### Warning



- ⓘ This product should not be used in an application where the maximum interrupt voltage or maximum interrupt current in a fault condition, Operation beyond the maximum rating or improper use may result in device damage and possible electrical arcing and flame.
- ⓘ A PPTC device is not a fuse, It is a nonlinear thermistor that limits current, Because under a fault condition all PPTC devices go into a high resistance state but not open circuit hazardous voltage may be present at PPTC.
- ⓘ The devices are intended for protection against occasional over-current or over-temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events.
- ⓘ In most application, power must be removed and the fault condition cleared in order to reset a PPTC device.
- ⓘ PPTC devices are not recommended to be installed in applications where the device is constrained such that its PPTC properties are inhibited, for example in rigid potting materials or Add devices surface coating, Bundled devices ontology, which lack adequate clearance to accommodate device expansion.
- ⓘ Contamination on of the PPTC material with certain silicone-based oils or some aggressive solvents can adversely impact the performance of the devices. For example, Organic solvents to cleaning.