

Radial Lead Resettable Polymer PTCs

UN250 Series

Description

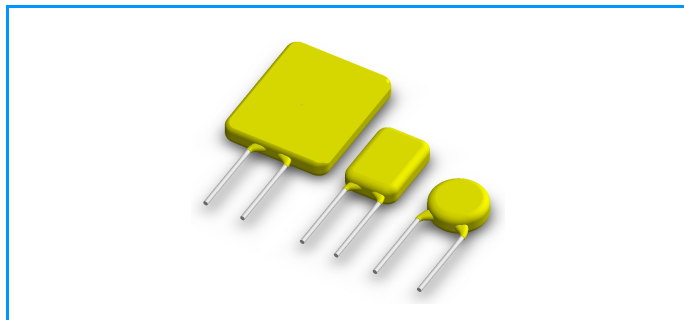
UN250 Series is designed to protect against short duration high voltage fault currents (power cross or power induction surge) typically used in AC220V.

Features

- ◆ 0.02-2.0A hold current rating
- ◆ 265V operating voltage
- ◆ Fast time-to- trip
- ◆ RoHS compliant, Lead-Free and Halogen-Free

Applicable

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



Electrical Parameters

Part Number	I _{hold} (A)	I _{trip} (A)	V _{max} (Vdc)	I _{max} (A)	P _{dtyp.} (W)	Maximum Time To Trip		Resistance		
						Current (A)	Time (Sec.)	R _{min} (Ω)	R _{max} (Ω)	R _{1max} (Ω)
UN250-020	0.020	0.04	265	1.0	0.6	0.06	20	65.0	165.0	225.0
UN250-030	0.030	0.065	265	1.0	0.6	0.09	15	36.0	90.0	120.0
UN250-040	0.040	0.080	265	1.0	0.7	0.12	15	27.0	65.0	90.0
UN250-050	0.050	0.10	265	1.0	0.7	0.15	15	22.0	55.0	75.0
UN250-060	0.060	0.120	265	1.0	0.8	0.18	15	18.0	45.0	60.0
UN250-080	0.080	0.160	265	1.2	0.8	0.24	15	11.0	22.0	33.0
UN250-120-C	0.120	0.240	265	12	1.0	0.36	15	6.0	12.0	16.0
UN250-120-S	0.120	0.240	265	1.2	1.0	0.36	15	6.0	12.0	16.0
UN250-160	0.160	0.320	265	2.0	1.4	0.48	25	3.5	7.8	10.4
UN250-200-C	0.200	0.400	265	3.0	1.5	0.60	25	3.0	6.5	8.0
UN250-200-S	0.200	0.400	265	3.0	1.5	0.60	25	3.0	6.5	8.0
UN250-250	0.250	0.500	265	3.5	1.5	0.75	20	2.2	5.0	5.0
UN250-300	0.300	0.600	265	4.5	1.7	0.90	20	1.8	4.0	4.8
UN250-330	0.330	0.660	265	4.5	1.7	0.99	20	1.6	3.6	4.3
UN250-400	0.400	0.800	265	5.5	2.0	1.20	25	1.35	3.0	3.6
UN250-500	0.500	1.000	265	6.5	2.5	1.50	25	0.90	2.0	2.4
UN250-550	0.550	1.100	265	7.0	2.5	1.65	25	0.85	1.8	2.2
UN250-600	0.600	1.200	265	6.0	2.5	1.80	25	0.80	1.65	2.2
UN250-650	0.650	1.300	265	6.5	2.6	1.95	30	0.65	1.3	1.6
UN250-750	0.750	1.500	265	7.5	2.6	2.25	30	0.55	1.1	1.3

Radial Lead Resettable Polymer PTCs

UN250 Series

UN250-800	0.800	1.600	265	8.0	2.7	2.40	3.0	0.5	1.0	1.2
UN250-900	0.900	1.800	265	9.0	2.8	2.70	35	0.45	0.9	1.1
UN250-1000	1.000	2.000	265	10.0	2.9	3.00	35	0.37	0.75	0.9
UN250-1100	1.100	2.200	265	10.0	3.1	3.30	35	0.33	0.66	0.80
UN250-1250	1.250	2.500	265	10.0	3.3	3.75	40	0.27	0.55	0.66
UN250-1350	1.350	2.700	265	10.0	3.5	4.05	40	0.25	0.50	0.60
UN250-1600	1.600	3.200	265	10.0	3.9	4.80	40	0.20	0.40	0.48
UN250-1850	1.850	3.7	265	10.0	4.3	5.55	50	0.165	0.33	0.40
UN250-2000	2.000	4.000	265	10.0	4.5	6.00	50	0.135	0.27	0.33

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)

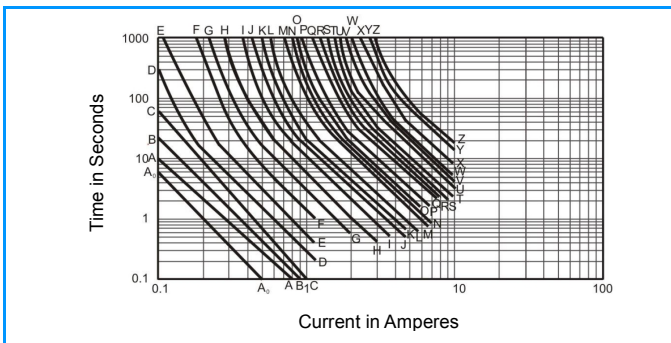
Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
	Hold Current (A)								
UN250-020	0.031	0.027	0.024	0.020	0.016	0.015	0.013	0.011	0.008
UN250-030	0.047	0.041	0.036	0.030	0.025	0.022	0.019	0.017	0.012
UN250-040	0.062	0.055	0.048	0.040	0.033	0.029	0.026	0.022	0.016
UN250-050	0.078	0.069	0.060	0.050	0.041	0.037	0.032	0.028	0.021
UN250-060	0.093	0.082	0.070	0.060	0.049	0.044	0.038	0.033	0.025
UN250-080	0.124	0.110	0.095	0.080	0.066	0.059	0.051	0.044	0.033
UN250-120-C	0.186	0.164	0.143	0.120	0.098	0.088	0.077	0.066	0.049
UN250-120-S	0.186	0.164	0.143	0.120	0.098	0.088	0.077	0.066	0.049
UN250-160	0.248	0.219	0.190	0.160	0.131	0.117	0.102	0.088	0.064
UN250-200-C	0.310	0.274	0.238	0.200	0.164	0.146	0.128	0.110	0.082
UN250-200-S	0.310	0.274	0.238	0.200	0.164	0.146	0.128	0.110	0.082
UN250-250	0.390	0.340	0.300	0.250	0.210	0.180	0.160	0.140	0.100
UN250-300	0.470	0.410	0.360	0.300	0.250	0.220	0.190	0.170	0.012
UN250-330	0.510	0.450	0.390	0.330	0.270	0.240	0.210	0.180	0.140
UN250-400	0.620	0.550	0.480	0.400	0.330	0.290	0.260	0.220	0.160
UN250-500	0.780	0.690	0.600	0.500	0.410	0.370	0.320	0.280	0.210
UN250-550	0.850	0.750	0.660	0.550	0.45	0.400	0.35	0.300	0.230
UN250-600	0.930	0.820	0.710	0.600	0.490	0.440	0.380	0.330	0.250
UN250-650	1.010	0.890	0.770	0.650	0.530	0.470	0.420	0.360	0.27
UN250-750	1.160	1.030	0.890	0.750	0.620	0.550	0.480	0.410	0.310
UN250-800	1.240	1.100	0.950	0.800	0.660	0.580	0.510	0.440	0.330
UN250-900	1.400	1.230	1.070	0.900	0.740	0.660	0.580	0.500	0.370

Radial Lead Resettable Polymer PTCs

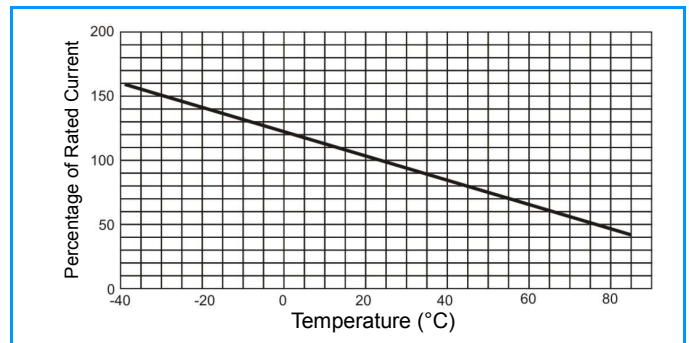
UN250 Series

UN250-1000	1.550	1.370	1.190	1.000	0.820	0.730	0.640	0.550	0.410
UN250-1100	1.710	1.510	1.310	1.100	0.900	0.800	0.700	0.610	0.450
UN250-1250	1.940	1.710	1.490	1.250	1.030	0.910	0.800	0.690	0.510
UN250-1350	2.090	1.850	1.610	1.350	1.110	0.990	0.860	0.740	0.550
UN250-1600	2.480	2.190	1.900	1.600	1.310	1.170	1.020	0.880	0.660
UN250-1850	2.870	2.530	2.200	1.850	1.520	1.350	1.180	1.020	0.760
UN250-2000	3.100	2.740	2.380	2.000	1.640	1.460	1.280	1.100	0.820

Average Time Current Curves



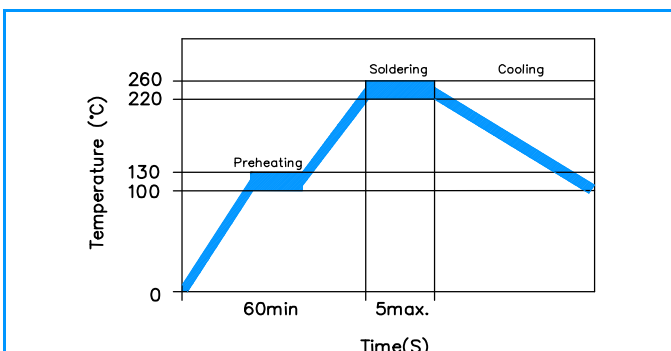
Temperature Derating Curve



Test Procedures and Requirement

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



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

Physical Specifications

Lead Material	0.02-0.04A Tin-plated Copper clad steel 0.05-2.00A Tin-plated Copper
Soldering Characteristics	Solder ability per MIL-STD-202, Method 208E
Insulating Material	Cured, flame retardant epoxy polymer meets UL 94V-0 requirements.

Radial Lead Resettable Polymer PTCs

UN250 Series

Device Labeling

Marked with 'UN', voltage, current rating

Dimensions

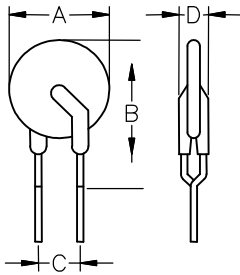


Figure1

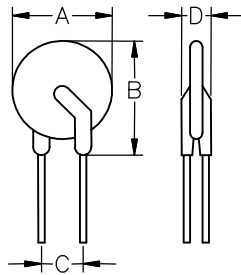


Figure2

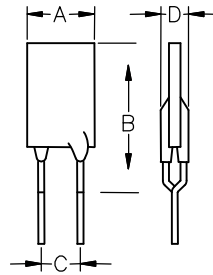


Figure3

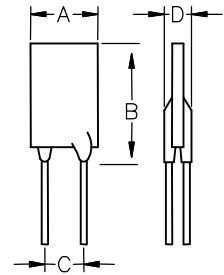


Figure4

Part Number	Figure	A	B	C	D	Lead (dia)	Packaging (Bulk Pack)
		mm Max.	mm Max.	mm Typ.	mm Max.	mm	
UN250-020	Figure1(2)	6.0	8.7	5.1±0.5	4.6	0.5	1000
UN250-030	Figure1(2)	6.0	8.7	5.1±0.5	4.6	0.5	1000
UN250-040	Figure1(2)	6.0	9.3	5.1±0.5	4.6	0.5	1000
UN250-050	Figure1(2)	6.0	9.3	5.1±0.5	4.6	0.5	1000
UN250-060	Figure1	6.0	10.0	5.1±0.5	4.6	0.6	1000
UN250-080	Figure1	6.0	10.0	5.1±0.5	4.6	0.6	1000
UN250-120-C	Figure1	7.2	11.2	5.1±0.5	4.6	0.6	1000
UN250-120-S	Figure3	6.5	10.5	5.1±0.5	4.6	0.6	1000
UN250-160	Figure1	9.3	12.8	5.1±0.5	4.6	0.6	1000
UN250-200-C	Figure1	10.0	13.5	5.1±0.5	4.6	0.6	1000
UN250-200-S	Figure3	9.3	12.8	5.1±0.5	4.6	0.6	1000
UN250-250	Figure3	9.3	12.8	5.1±0.5	4.6	0.6	1000
UN250-300	Figure3	9.3	14.5	5.1±0.5	4.6	0.6	1000
UN250-330	Figure3	9.3	14.5	5.1±0.5	4.6	0.6	1000
UN250-400	Figure4	10.5	16.5	5.1±0.5	4.6	0.8	1000
UN250-500	Figure4	11.8	17.5	5.1±0.5	4.6	0.8	500
UN250-550	Figure4	11.8	17.5	5.1±0.5	4.6	0.8	500
UN250-600	Figure4	11.8	17.5	5.1±0.5	4.6	0.8	500
UN250-650	Figure4	14.0	18.3	5.1±0.5	4.6	0.8	500
UN250-750	Figure4	14.5	21.7	5.1±0.5	4.6	0.8	500
UN250-800	Figure4	14.5	21.7	5.1±0.5	4.6	0.8	500
UN250-900	Figure4	16.5	24.5	10.2±0.5	4.6	0.8	200
UN250-1000	Figure2	21.1	25.1	10.2±0.5	4.6	0.8	200
UN250-1100	Figure4	19.0	25.5	10.2±0.5	4.6	0.8	200
UN250-1250	Figure2	24.2	28.2	10.2±0.5	4.6	0.8	200
UN250-1350	Figure4	19.0	29.0	10.2±0.5	4.6	0.8	200
UN250-1600	Figure4	21.5	29.0	10.2±0.5	4.6	0.8	200
UN250-1850	Figure4	25.0	29.0	10.2±0.5	4.6	0.8	100
UN250-2000	Figure4	25.0	33.5	10.2±0.5	4.6	0.8	200

Radial Lead Resettable Polymer PTCs

UN250 Series

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.