UN30 Series

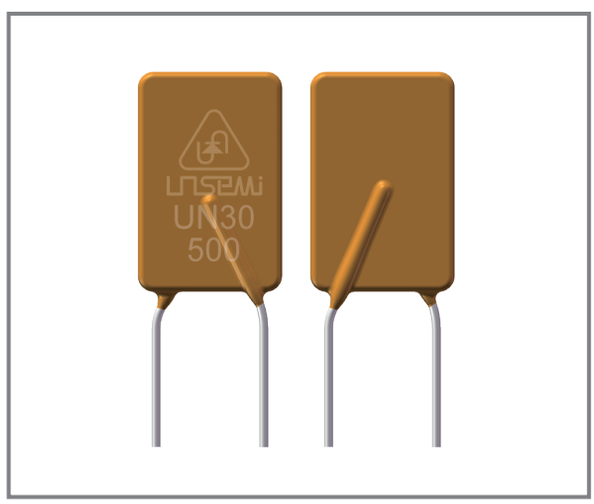
ROHS

Radial Lead Resettable Polymer PTCs

www.unsemi.com.tw

Description

UN30 series radial leaded PTCs are designed to provide over-current protection for low voltage (≤30V) applications where space is not a concern and resettable protection is preferred.



Features

- Cured, flame retardant epoxy polymer meets UL 94V-0 requirements
- 30VDC operating voltage
- Fast time-to-trip
- RoHS compliant, Lead-Free and Halogen-Free

Applicable

- Computers and peripherals
- USB hubs ,ports and peripherals
- Power ports
- General electronics
- Motor protection
- Automotive application

Electrical Parameters

Part Number	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	Pdtyp. (W)	Maximum Time To Trip		Resistance		
						Current (A)	Time (Sec.)	R min (mΩ)	R max (mΩ)	R 1max (mΩ)
UN30-040	0.40	0.8	30	40	0.45	1.20	10	320	800	1200
UN30-050	0.50	1.0	30	40	0.50	1.50	10	240	600	900
UN30-065	0.65	1.3	30	40	0.50	1.95	10	160	360	540
UN30-075	0.75	1.5	30	40	0.55	2.25	10	135	300	450
UN30-090	0.90	1.8	30	40	0.60	2.70	12	110	220	330
UN30-110	1.10	2.2	30	40	0.70	3.30	12	85	170	230
UN30-135	1.35	2.7	30	40	0.80	4.05	12	65	130	165
UN30-160	1.60	3.2	30	40	0.90	4.80	15	55	110	140
UN30-185	1.85	3.7	30	40	1.00	5.55	15	45	90	115
UN30-200	2.00	4.0	30	40	1.10	6.00	15	40	80	100
UN30-250	2.50	5.0	30	40	1.20	7.50	15	35	70	90
UN30-300	3.00	6.0	30	100	2.00	9.00	15	30	60	75
UN30-400	4.00	8.0	30	100	2.50	12.0	15	20	40	50
UN30-500	5.00	10.0	30	100	3.00	15.0	20	15	30	40
UN30-600	6.00	12.0	30	100	3.50	18.0	20	12	24	30
UN30-700	7.00	14.0	30	100	3.80	21.0	25	10	20	25
UN30-800	8.00	16.0	30	100	4.00	24.0	25	8	16	20
UN30-900	9.00	18.0	30	100	4.20	27.0	25	7	14	18

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 (Imax)
I_{max}= Maximum fault current device can withstand without damage at rated voltage (Vmax)
$P_{dtyp.}$= 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.

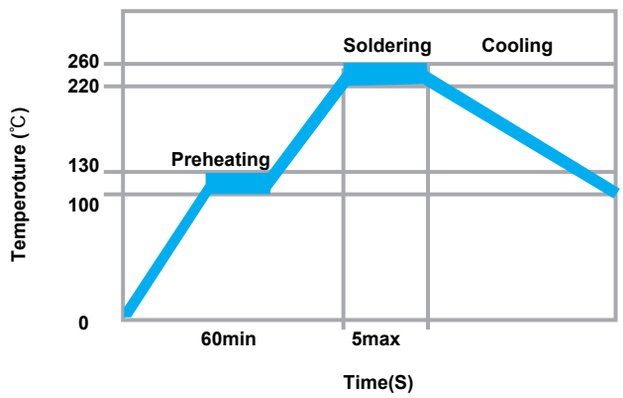
Temperature Rerating Chart – I hold (A)

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)								
UN30-040	0.58	0.52	0.46	0.40	0.33	0.31	0.27	0.24	0.21
UN30-050	0.73	0.65	0.58	0.50	0.42	0.39	0.34	0.31	0.26
UN30-065	0.94	0.85	0.75	0.65	0.54	0.50	0.44	0.40	0.34
UN30-075	1.09	0.98	0.86	0.75	0.62	0.58	0.51	0.46	0.39
UN30-090	1.31	1.17	1.04	0.90	0.75	0.69	0.61	0.55	0.47
UN30-110	1.60	1.43	1.27	1.10	0.91	0.85	0.75	0.67	0.57
UN30-135	1.96	1.76	1.55	1.35	1.12	1.04	0.92	0.82	0.70
UN30-160	2.32	2.08	1.84	1.60	1.33	1.23	1.26	0.98	0.83
UN30-185	2.68	2.41	2.13	1.85	1.54	1.42	1.36	1.13	0.96
UN30-200	2.90	2.60	2.30	2.00	1.66	1.54	1.70	1.22	1.04
UN30-250	3.63	3.25	2.88	2.50	2.08	1.93	2.04	1.53	1.30
UN30-300	4.35	3.90	3.45	3.00	2.49	2.31	2.72	1.83	1.56
UN30-400	5.80	5.20	4.60	4.00	3.32	3.08	3.40	2.44	2.08
UN30-500	7.25	6.50	5.75	5.00	4.15	3.85	4.08	3.05	2.60
UN30-600	8.70	7.80	6.90	6.00	4.98	4.62	4.76	3.66	3.12
UN30-700	10.15	9.10	8.05	7.00	5.81	5.39	5.44	4.27	3.64
UN30-800	11.60	10.40	9.20	8.00	6.64	6.16	6.12	4.88	4.16
UN30-900	13.05	11.70	10.35	9.00	7.47	6.93	6.93	5.49	4.68

Test Procedures and Requirement

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @25°C±2°C	$R_{min} \le R \le R_{max}$
Hold Current	60 min, at I_{hold}, In still air @25°C±2°C	No trip
Time to Trip	Specified current, V_{max}, @25°C± 2°C	T ≤ Maximum Time To Trip
Trip Cycle Life	V_{max};I_{max},15min	Resistance change rate ≤ 50%
Trip Endurance	V_{max},24hours	No arcing or burning

Soldering Parameters

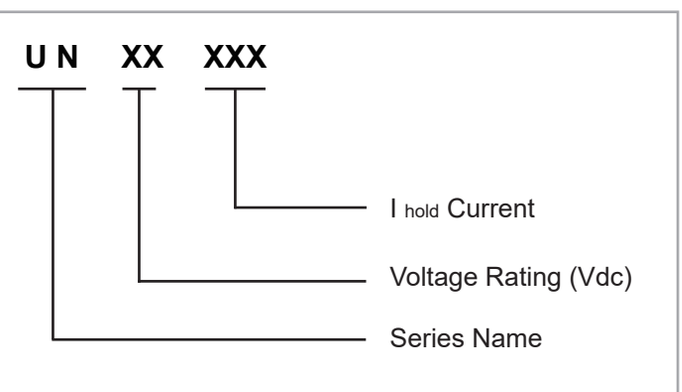


Pre-Heating Zone	Refer to the condition recommended by the manufacturer. Max.ramping rate should not exceed 4°C/Sec
Soldering Zone	Max.solder temperature should not exceed 260°C
Cooling Zone	Cooling by natural convection in air

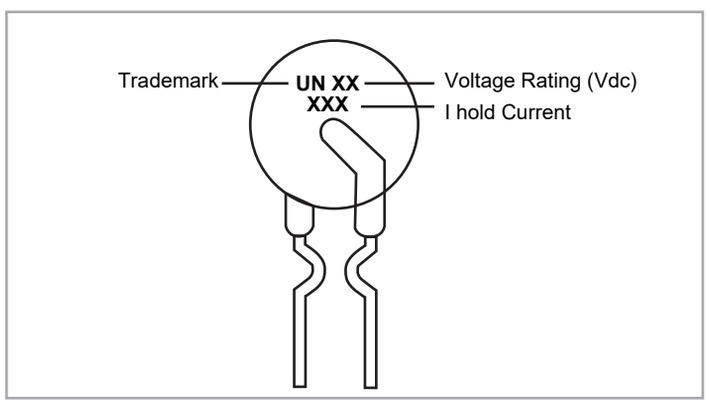
Physical Specifications

Lead Material	0.4-2.0A Tin-plated Copper clad steel 2.5-9.0A 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.
Device Labeling	Marked with “UN” voltage, current rating

Part Numbering



Part Marking



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Dimensions

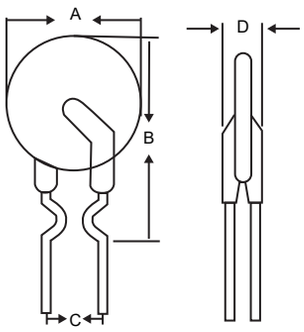

Figure1

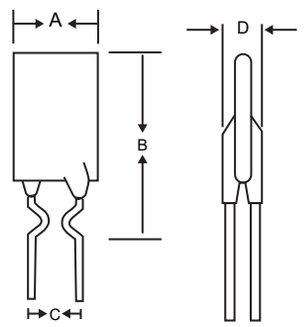

Figure2

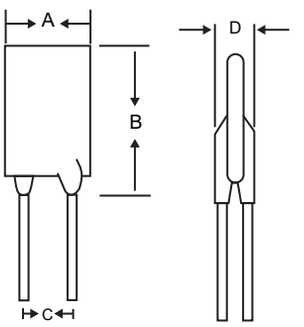

Figure3

Part Number	Figure	A	B	C	D	Lead (dia)	Packaging mm (Bulk Pack)
		mm (Max.)	mm (Max.)	mm (Typ.)	mm (Max.)	mm	
UN30-040	Figure1	6.0	11.3	5.1±0.5	3.0	0.5	1000
UN30-050	Figure1	6.0	12.0	5.1±0.5	3.0	0.5	1000
UN30-065	Figure1	7.0	12.0	5.1±0.5	3.0	0.5	1000
UN30-075	Figure1	7.2	12.2	5.1±0.5	3.0	0.5	1000
UN30-090	Figure2	7.0	12.0	5.1±0.5	3.0	0.5	1000
UN30-110	Figure2	6.5	14.5	5.1±0.5	3.0	0.5	1000
UN30-135	Figure2	8.8	13.8	5.1±0.5	3.0	0.5	1000
UN30-160	Figure2	8.8	15.5	5.1±0.5	3.0	0.5	1000
UN30-185	Figure2	10.0	16.0	5.1±0.5	3.0	0.5	1000
UN30-200	Figure2	10.0	17.5	5.1±0.5	3.0	0.5	1000
UN30-250	Figure2	11.3	18.5	5.1±0.5	3.0	0.5	1000
UN30-300	Figure3	11.3	17.0	5.1±0.5	3.0	0.8	1000
UN30-400	Figure3	13.5	17.8	5.1±0.5	3.0	0.8	500
UN30-500	Figure3	14.5	23.5	10.2±0.5	3.0	0.8	500
UN30-600	Figure3	16.0	23.5	10.2±0.5	3.0	0.8	500
UN30-700	Figure3	18.5	24.5	10.2±0.5	3.0	0.8	200
UN30-800	Figure3	21.0	28.0	10.2±0.5	3.0	0.8	200
UN30-900	Figure3	24.5	28.0	10.2±0.5	3.0	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.
- 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.

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