

# No. HVR250



Devices are not intended for continuous use at 250 V!

### Dimensions (mm)

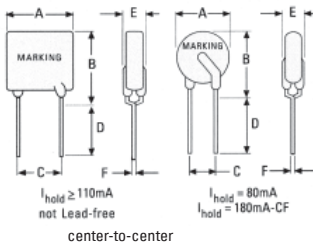


Figure 1 Figure 2

## High Voltage PTC Device, 60 V / 250 V

### Standard

UL 1434 1<sup>st</sup> Edition  
CSA C22.2 No. 0 CSA TIL No. CA-3A

### Approvals

cULus Recognition  
TÜV

### Features

This product line is designed to provide protection against induced AC power current, direct power contact and the natural lightning strike. The HVR250 product line is widely used in the field of telecommunications and networking, ISDN and XSDN equipment. It also helps equipment manufacturers pass ITU K20, K21 and telcordia requirements.

## Specifications

### Packaging

A: bulk  
F: tape and ammo

### Materials

Insulating Material: Yellow Epoxy Polymer, UL 94 V-0

Round Pins: Copper alloy, tin plated

**Max. Device Surface Temperature in Tripped State**  
125 °C

### Operating / Storage Temperature

-40 °C to +85 °C (consider de-rating)

### Humidity Ageing

+85 °C, 85 % R.H., 1000 hours, ± 5 % typical resistance change

### Soldering Characteristics

Solderability per MIL-STD-202, Method 208E

### Thermal Shock

MIL-STD-202F, Method 107G

+125 °C to -40 °C 10 times,

±10 % typical resistance change

### Solvent Resistance

MIL-STD-202, Method 215F, no change

### Marking

"P", voltage, amperage rating, lot number



### Dimensions (mm)

Model	Fig.	A Max	B Max	C typ	D Min	E Max	Physical Lead	Characteristics Material	packaging bag	quantity ammo
HVR250P080C	1	5,8	10,9	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1500
HVR250P080U	1	5,0	9,0	3,8	4,7	5,1	0.65 dia	Sn/Cu	500	1500
HVR250P080CF	1	5,8	10,9	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1500
HVR250P110U	1	5,3	9,4	3,8	4,7	5,1	0.65 dia	Sn/Cu	500	1500
HVR250P120C	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120U	2	6,0	10,0	3,8	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120C-RA	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120C-RC	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120C-RF	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120C-R1	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120C-R2	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120C-R3	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P120CT	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P145C	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P145U	2	6,0	12,5	3,8	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P145C-RA	2	6,8	10,0	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P145C-RB	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P145CT	2	6,8	12,5	5,5	4,7	5,1	0.65 dia	Sn/Cu	500	1200
HVR250P180C	2	12,5	12,9	5,5	4,7	5,1	0.65 dia	Sn/Cu	200	1000
HVR250P180U	2	10,4	12,6	3,8	4,7	5,1	0.65 dia	Sn/Cu	200	1000
HVR250P180CF	1	12,0	13,2	5,5	4,7	5,1	0.65 dia	Sn/Cu	200	1000

Permissible continuous operating current is ≤ 100 % at ambient temperature of 20 °C (68 °F).

Model	I <sub>hold</sub>	I <sub>Trip</sub>	V <sub>max. ac</sub> V <sub>int</sub> /V <sub>op</sub> *	I <sub>max.</sub>	max. time to trip (s @ A)	P <sub>d max.</sub> (W)	Resistance			Approvals	
							R <sub>min.</sub> (Ω)	R <sub>max.</sub> (Ω)	R <sub>I max.</sub> (Ω)	cULus	TÜV
HVR250P080C	0.080	0.16	250/60	3	3.00 @ 0.35**	1.00	14.0	22.0	33	•	•
HVR250P080U	0.080	0.16	250/60	3	3.00 @ 0.35**	1.00	15.0	22.0	33	•	•
HVR250P080CFT	0.080	0.16	250/60	3	3.00 @ 0.35**	1.00	14.0	22.0	33	p	•
HVR250P110U	0.110	0.22	250/60	3	0.75 @ 1.00	1.00	5.0	9.0	16	p	p
HVR250P120C	0.120	0.24	250/60	3	1.50 @ 1.00	1.00	4.0	8.0	16	•	•
HVR250P120U	0.120	0.24	250/60	3	1.00 @ 1.00	1.00	6.0	10.0	16	•	•
HVR250P120C-RA	0.120	0.24	250/60	3	0.90 @ 1.00	1.00	7.0	9.0	16	•	•
HVR250P120C-RC	0.120	0.24	250/60	3	0.85 @ 1.00	1.00	5.4	7.5	14	•	•
HVR250P120C-RF	0.120	0.24	250/60	3	0.70 @ 1.00	1.00	6.0	10.5	16	•	•
HVR250P120C-R1	0.120	0.24	250/60	3	0.80 @ 1.00	1.00	6.0	9.0	16	•	•
HVR250P120C-R2	0.120	0.24	250/60	3	0.70 @ 1.00	1.00	8.0	10.5	16	•	•
HVR250P120C-R3	0.120	0.24	250/60	3	1.00 @ 1.00	1.00	8.0	10.0	16	•	•
HVR250P120CT	0.120	0.24	250/60	3	0.70 @ 1.00	1.00	7.0	12.0	16	•	•
HVR250P145C	0.145	0.29	250/60	3	2.50 @ 1.00	1.00	3.0	6.0	14	•	•
HVR250P145U	0.145	0.29	250/60	3	2.00 @ 1.00	1.00	3.5	6.5	14	•	•
HVR250P145C-RA	0.145	0.29	250/60	3	2.50 @ 1.00	1.00	3.0	5.5	12	•	•
HVR250P145C-RB	0.145	0.29	250/60	3	2.00 @ 1.00	1.00	4.5	6.0	14	•	•
HVR250P145CT	0.145	0.29	250/60	3	2.00 @ 1.00	1.00	5.4	7.5	14	•	•
HVR250P180C	0.180	0.65	250/60	3	21.00 @ 1.00	1.80	0.8	2.0	4	•	•
HVR250P180U	0.180	0.65	250/60	10	15.00 @ 1.00	1.80	0.8	2.0	4	•	•
HVR250P180CF	0.180	0.65	250/60	3	21.00 @ 1.00	1.80	0.8	2.2	4	p	•

\* V<sub>int</sub>: Interrupt Voltage V<sub>op</sub>: Operating Voltage(Vcd)

\*\* typical value

### NOTE:

I<sub>hold</sub> = Hold current: maximum current device will pass without tripping in 20 °C still air.  
I<sub>trip</sub> = Trip current: minimum current at which the device will trip in 20 °C still air.  
I<sub>max</sub> = Maximum fault current device can withstand without damage at rated voltage (V<sub>max</sub>)

P<sub>d</sub> = Power dissipated from device when in the tripped state at 20 °C still air.  
R<sub>min</sub> = Minimum resistance of device in initial (un-soldered) state.  
R<sub>I max</sub> = Maximum resistance of device at 20 °C measured one hour after tripping for 20 s.  
Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

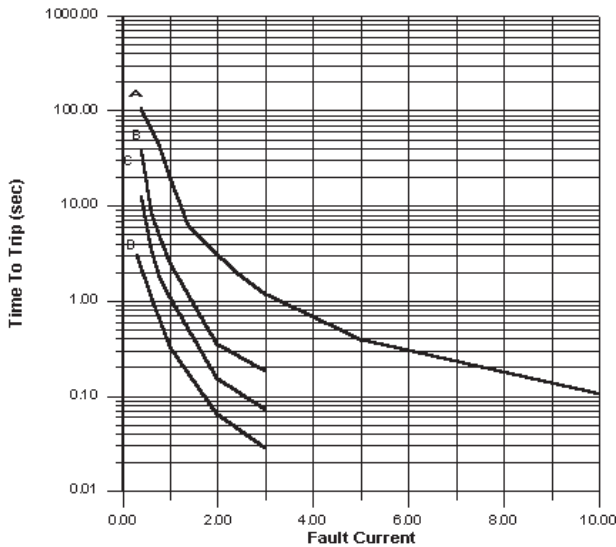
### Order Information

Qty.	Order-Number	Model	Packaging
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Specifications are subject to change without notice.

## No. HVR250

### Average time-current curve

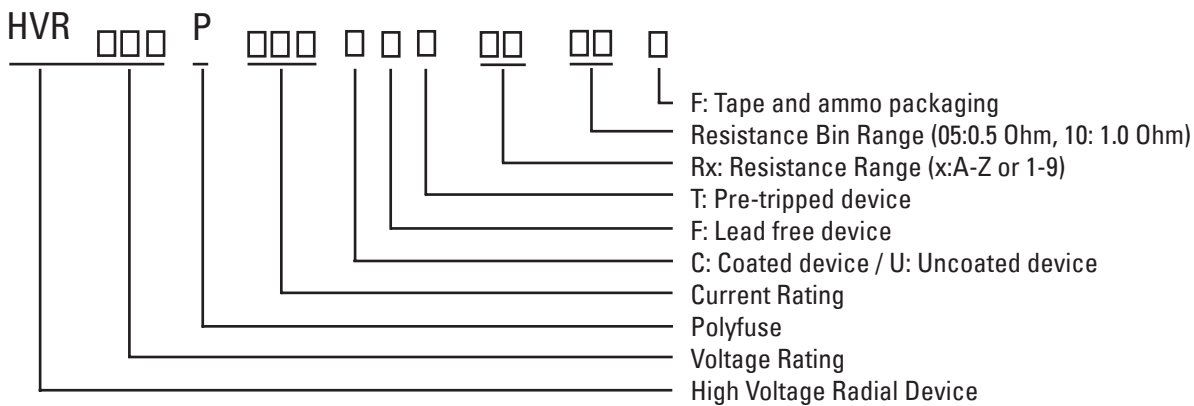


- A : HVR250P180C / HVR250P180F
- B : HVR250P145C
- C : HVR250P120C
- D : HVR250P080F

### Agency Specification

Product	Lightning	Power Cross	
HVR250P080F	ITU K.20/21/45 - 1.5 kV 10/700 $\mu$ s	ITU K.20/21/45 - 230 V ac, 10 $\Omega$	select a specific part number for each application based on the agency request
HVR250P120C	ITU K.20/21/45 - 4 kV 10/700 $\mu$ s	ITU K.20/21/45 - 600 V ac, 600 $\Omega$	
HVR250P145C	ITU K.20/21/45 - 1.5 kV 10/700 $\mu$ s	ITU K.20/21/45 - 230 V ac, 10 $\Omega$	
HVR250P180C	ITU K.20/21/45 - 4 kV 10/700 $\mu$ s	ITU K.20/21/45 - 600 V ac, 600 $\Omega$	
HVR250P180F	Telcordia GR-974 - 1.0 kV 10/1000 $\mu$ s	Telcordia GR-974 - 283 V ac, 10 A	

### Part-numbering system



### Thermal Derating Chart

Model	Ambient Operation Temperature - $I_{hold}$ (A)								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
HVR250P080C/U	0.12	0.11	0.09	0.08	0.06	0.05	0.05	0.04	0.03
HVR250P080CF	0.12	0.11	0.09	0.08	0.06	0.05	0.05	0.04	0.03
HVR250P110U	0.17	0.15	0.13	0.11	0.09	0.08	0.07	0.05	0.04
HVR250P120C/U	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.05
HVR250P145C/U	0.26	0.20	0.17	0.145	0.12	0.11	0.09	0.08	0.06
HVR250P180C/U	0.27	0.23	0.21	0.18	0.15	0.13	0.19	0.11	0.083
HVR250P180CF	0.28	0.23	0.21	0.18	0.16	0.13	0.10	0.11	0.083