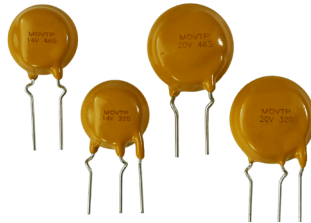


# MOVTP

## Thermally protected through-hole metal oxide varistor



### Product features

- Combination of metal oxide varistor and thermal fuse
- Opens as an open circuit upon end of life
- High peak surge current rating up to 10 kA
- 3-lead version available for lead for indication
- Voltage range: 130 Vac to 465 Vac  
170 Vdc to 615 Vdc
- 14 mm to 20 mm through-hole disc size
- UL 1449 compliant
- Tin plated leads

### Applications

- Smart meters
- Surge protective devices
- Uninterruptible power supplies (UPS)
- Power distribution with integrated surge protection
- Power supplies
- White goods

### Agency information

- cURus: E340782 per UL1449
- TUV: J 50513318



### Environmental compliance



### Ordering part number

**MOVTP 14 V130 N**

Family name \_\_\_\_\_  
 Size \_\_\_\_\_  
 Working voltage (Vac) \_\_\_\_\_  
 Pin code (N=2 lead, T=3 lead) \_\_\_\_\_

Electrical characteristics (+25 °C)

Part number	Working voltage		Varistor voltage @ 1 mA <sub>dc</sub>		Clamping voltage (8/20 μs) (V)	Energy absorption (10/1000 μs) (J)	Rated power (W)	Peak current 8/20 μs (A)	Impulse response time (ns)	Leakage current @ 75% V <sub>1</sub> (μA) maximum
	(V <sub>dc</sub> )	(V <sub>ac</sub> )	(V) minimum	(V) maximum						
MOVTP14V130N/T	170	130	180	220	340 @ 50 A	77	0.6	6000	<25	20
MOVTP14V150N/T	200	150	216	264	395 @ 50 A	94	0.6	6000	<25	20
MOVTP14V250N/T	320	250	351	429	650 @ 50 A	154	0.6	6000	<25	20
MOVTP14V275N/T	350	275	387	473	710 @ 50 A	170	0.6	6000	<25	20
MOVTP14V300N/T	385	300	423	517	775 @ 50 A	192	0.6	6000	<25	20
MOVTP14V320N/T	410	320	459	561	845 @ 50 A	209	0.6	6000	<25	20
MOVTP14V465N/T	615	465	675	825	1240 @ 50 A	247	0.6	6000	<25	20
MOVTP20V130N/T	170	130	180	220	340 @ 100 A	140	1	10000	<25	20
MOVTP20V150N/T	200	150	216	264	395 @ 100 A	170	1	10000	<25	20
MOVTP20V250N/T	320	250	351	429	650 @ 100 A	240	1	10000	<25	20
MOVTP20V275N/T	350	275	387	473	710 @ 100 A	270	1	10000	<25	20
MOVTP20V300N/T	385	300	423	517	775 @ 100 A	350	1	10000	<25	20
MOVTP20V320N/T	410	320	459	561	845 @ 100 A	386	1	10000	<25	20
MOVTP20V465N/T	615	465	675	825	1240 @ 100 A	509	1	10000	<25	20

Dimensions- mm

Drawing not to scale

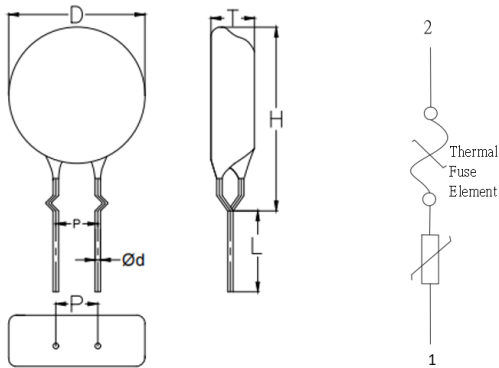


Figure 1.

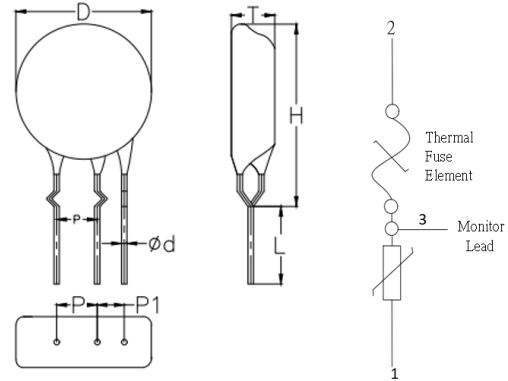


Figure 2.

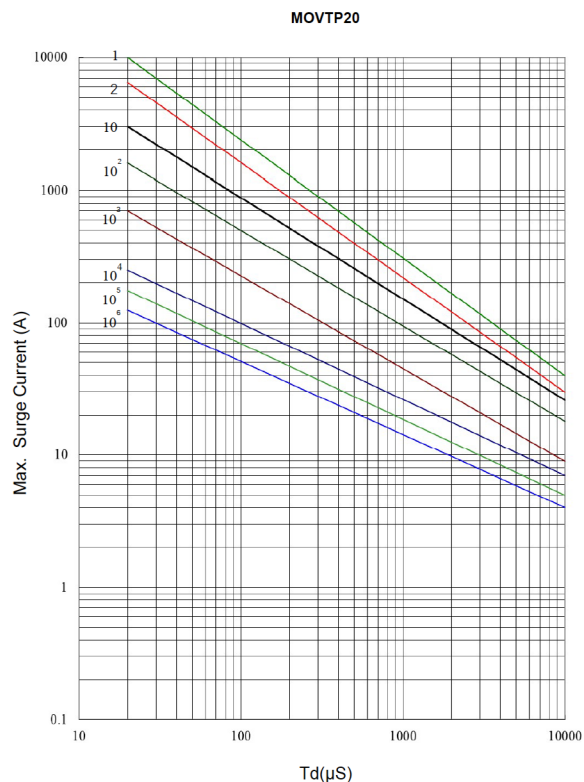
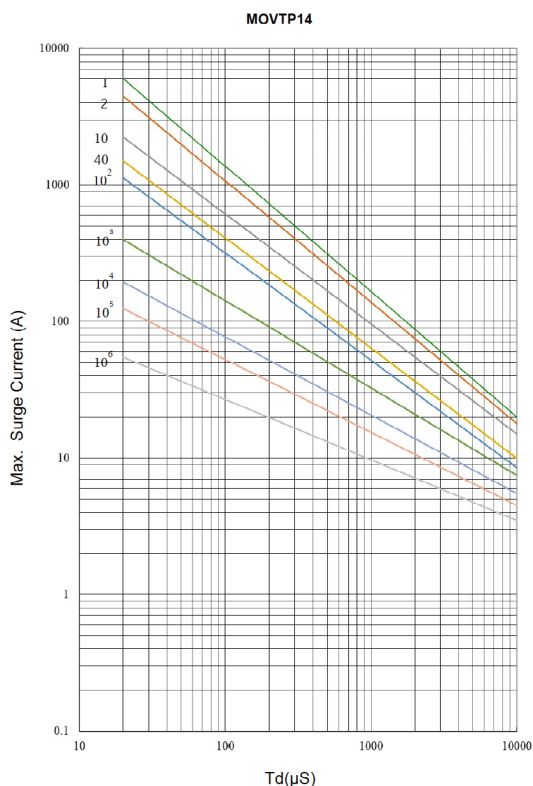
Dimensions- mm

Part number	Disc size	D	P ±1.0	P1 ±1.0	H maximum	d ±0.05	T maximum	L minimum	Marking	Figure
MOVTP14V130N	14	15.5-18.5	7.5	--	26.5	0.8	8.5	8	MOVTP 14V130	1
MOVTP14V150N	14	15.5-18.5	7.5	--	26.5	0.8	8.8	8	MOVTP 14V150	1
MOVTP14V250N	14	15.5-18.5	7.5	--	26.5	0.8	9.2	8	MOVTP 14V250	1
MOVTP14V275N	14	15.5-18.5	7.5	--	26.5	0.8	8.9	8	MOVTP 14V275	1
MOVTP14V300N	14	15.5-18.5	7.5	--	26.5	0.8	9	8	MOVTP 14V300	1
MOVTP14V320N	14	15.5-18.5	7.5	--	26.5	0.8	9.2	8	MOVTP 14V320	1
MOVTP14V465N	14	15.5-18.5	7.5	--	26.5	0.8	10.3	8	MOVTP 14V465	1
MOVTP14V130T	14	15.5-18.5	7.5	5	26.5	0.8	8.5	8	MOVTP 14V130	2
MOVTP14V150T	14	15.5-18.5	7.5	5	26.5	0.8	8.8	8	MOVTP 14V150	2
MOVTP14V250T	14	15.5-18.5	7.5	5	26.5	0.8	9.2	8	MOVTP 14V250	2
MOVTP14V275T	14	15.5-18.5	7.5	5	26.5	0.8	8.9	8	MOVTP 14V275	2
MOVTP14V300T	14	15.5-18.5	7.5	5	26.5	0.8	9	8	MOVTP 14V300	2
MOVTP14V320T	14	15.5-18.5	7.5	5	26.5	0.8	9.2	8	MOVTP 14V320	2
MOVTP14V465T	14	15.5-18.5	7.5	5	26.5	0.8	10.3	8	MOVTP 14V465	2
MOVTP20V130N	20	19.5-23.5	7.5	--	31.5	0.8	10.2	6	MOVTP 20V130	1
MOVTP20V150N	20	19.5-23.5	7.5	--	31.5	0.8	10.5	6	MOVTP 20V150	1
MOVTP20V250N	20	19.5-23.5	7.5	--	31.5	0.8	10.9	6	MOVTP 20V250	1
MOVTP20V275N	20	19.5-23.5	7.5	--	31.5	0.8	10.6	6	MOVTP 20V275	1
MOVTP20V300N	20	19.5-23.5	7.5	--	31.5	0.8	10.7	6	MOVTP 20V300	1
MOVTP20V320N	20	19.5-23.5	7.5	--	31.5	0.8	10.9	6	MOVTP 20V320	1
MOVTP20V465N	20	19.5-23.5	7.5	--	31.5	1	12	6	MOVTP 20V465	1
MOVTP20V130T	20	19.5-23.5	7.5	5	31.5	0.8	10.2	6	MOVTP 20V130	2
MOVTP20V150T	20	19.5-23.5	7.5	5	31.5	0.8	10.5	6	MOVTP 20V150	2
MOVTP20V250T	20	19.5-23.5	7.5	5	31.5	0.8	10.9	6	MOVTP 20V250	2
MOVTP20V275T	20	19.5-23.5	7.5	5	31.5	0.8	10.6	6	MOVTP 20V275	2
MOVTP20V300T	20	19.5-23.5	7.5	5	31.5	0.8	10.7	6	MOVTP 20V300	2
MOVTP20V320T	20	19.5-23.5	7.5	5	31.5	0.8	10.9	6	MOVTP 20V320	2
MOVTP20V465T	20	19.5-23.5	7.5	5	31.5	1	12	6	MOVTP 20V465	2

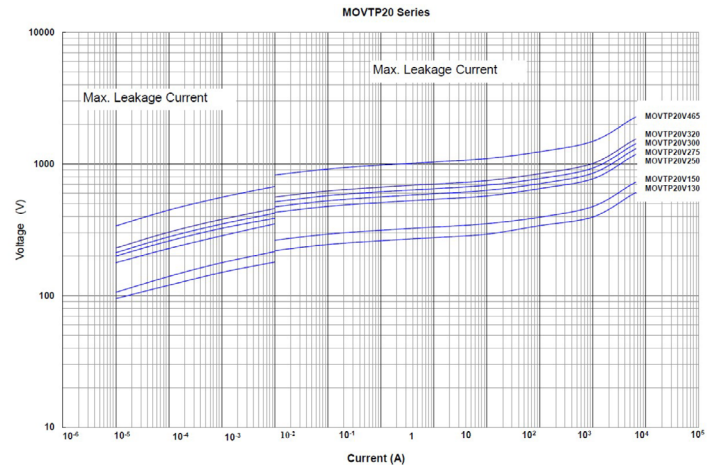
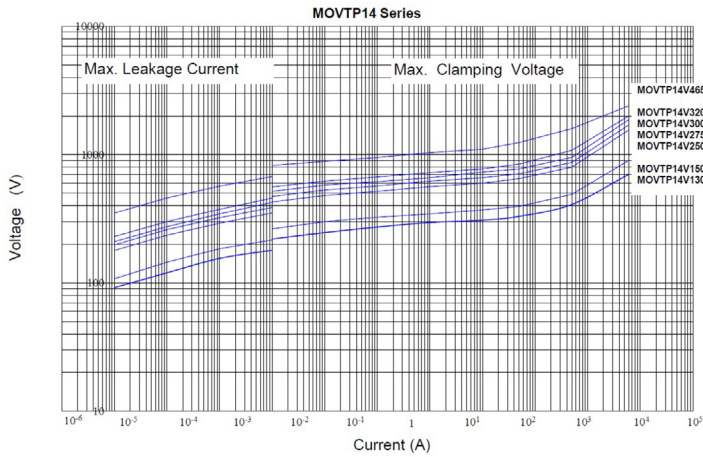
**General specifications**

Operating temperature	-40 °C to +105 °C (without derating)															
Solderability	IEC60068-2-20, +245±3 °C, 3±0.3 second															
High temperature exposure	IEC60068-2-2, Temperature: +110 °C ± 5 °C, Duration: 1000 ± 24 hours unpowered															
Rapid change of temperature	IEC60068-2-14, Number of cycles: 5 cycles <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Step</th> <th>Temp./ °C</th> <th>Period/minutes</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±3</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>5±3</td> </tr> <tr> <td>3</td> <td>+105±2</td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>5±3</td> </tr> </tbody> </table>	Step	Temp./ °C	Period/minutes	1	-40±3	30±3	2	Room temperature	5±3	3	+105±2	30±3	4	Room temperature	5±3
Step	Temp./ °C	Period/minutes														
1	-40±3	30±3														
2	Room temperature	5±3														
3	+105±2	30±3														
4	Room temperature	5±3														
Damp heat, steady state	IEC60068-2-78, a. +40 ± 2 °C, 90-95% R.H., 1344 hours, b. +40 ± 2 °C, 90-95% R.H., at 10% VDC, 1344 hours															
High temperature load	MIL-STD-202 Method 108, Temperature: +105 ± 2 °C, Duration: 1000 ± 24 hours, Bias at Vdc or Vrms (max. operating voltage)															
Vibration	IEC60068-2-6, Amplitude: 0.75 mm or 98 m/s <sup>2</sup> , Frequency range: 10 to 55 Hz, Direction: 3 mutually perpendicular directions, 2 hours each direction															
Resistance to soldering heat	IEC60068-2-20, +260 ± 3 °C, 10 ± 1 seconds															
Limited current abnormal overvoltage test	UL1449 item 44.1, Short current (Isc): 0.125 A, 0.5 A, 2.5 A and 5 A for MOVTP14, 0.5A, 2.5 A, 5 A and 10 A for MOVTP20															
8/20 µs surge life	IEC61051-1 4.6, 8/20 µs waveform, 10 surges, unipolar, interval 30 seconds															
10/1000 µs surge life	IEC61051-1 4.6, 10/1000 µs waveform, 10 surges, unipolar, interval 2 minutes															
Varistor voltage temp. coefficient	In the operating temperature range of -40 ~ +105 °C, When T>25 °C, TC=100 x (V1 mA at 105 °C - V1 mA at 25 °C)/V1 mA at 25 °C/(105-25) (%/ °C), When T<25 °C, TC=100 x (V1 mA at -40 °C - V1 mA at 25 °C)/V1 mA at 25 °C/(25-(-40)) (%/ °C), -0.05 ≤ Tc ≤ 0.05 (%/ °C)															
Voltage proof	IEC61051-1 4.9, Metal balls method, 2500 Vac 1 minute															

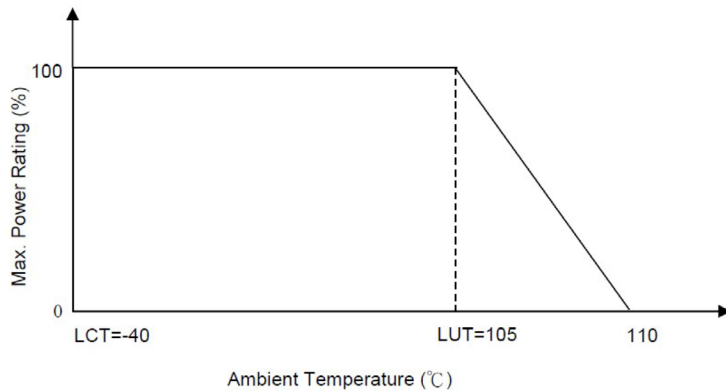
**Surge derating curve**



**Leakage current and clamping voltage curve**



**Power derating curve**

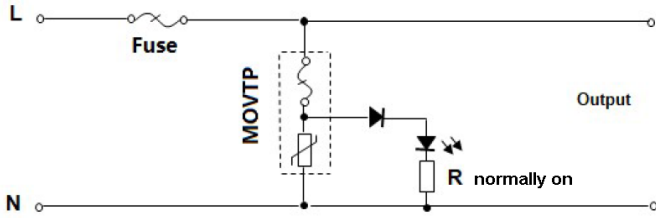


**Packaging information**

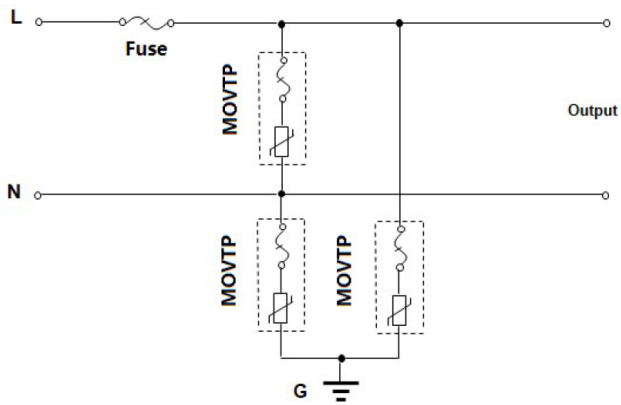
Bulk: MOVTP14 (50 parts per poly bag)  
 MOVTP20 (20 parts per poly bag)

## Applications

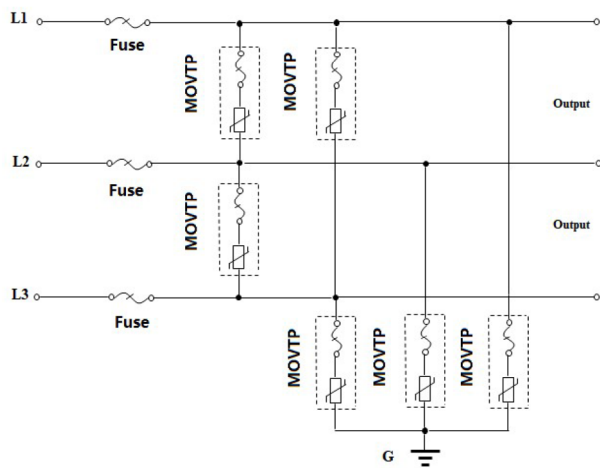
### Alarming circuit



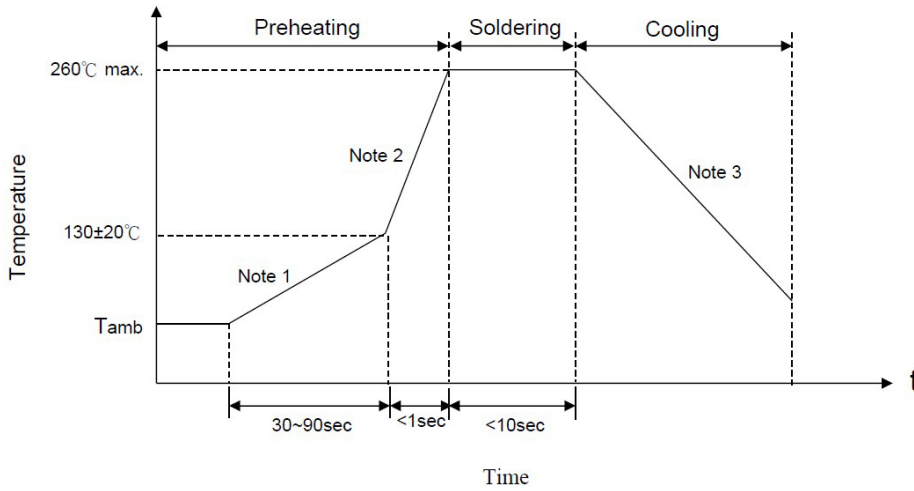
### Single-phase protection mode



### Three-phase protection mode



### Wave solder profile



#### Profile feature

Note 1: 1-3 °C/sec

Note 2: 200 °C/sec

Note 3: 5 °C/sec maximum

### Manual solder

+360 °C (3 seconds maximum by soldering iron, distance from varistor 2 mm minimum), generally manual/hand soldering is not recommended.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

**Eaton**  
**Electronics Division**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
Eaton.com/electronics

© 2021 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. ELX1079 BU-ELX21085  
July 2021

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Follow us on social media to get the latest product and support information.



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Varistors](#) category:*

*Click to view products by [Eaton](#) manufacturer:*

Other Similar products are found below :

[820443211E](#) [MOV05131AIA](#) [MOV07231AQA](#) [MOV18131CZA](#) [R71ZOV151HC](#) [D58ZOV500RA01T1](#) [B72205S271K111](#)  
[B72214S251K151](#) [B72232B131K1](#) [B72530E1140S272](#) [B72540E250K62](#) [B72660M0271K093](#) [NTE1V020](#) [NTE1V130](#) [NTE2V010](#)  
[NTE2V130](#) [25FN511K](#) [S10K11G5S5](#) [ERZ-C14DK361U](#) [ERZ-C20DK221U](#) [ERZ-C32CK201B](#) [207869-1](#) [AS-13](#) [TMOV25SP625E](#)  
[TND10V-471KB00AAA0](#) [B72210S251K531](#) [B72214S200K551](#) [B72280B112K1](#) [B72280B381K1](#) [B72590D360A60](#) [B72650M301K93](#)  
[B72670M1140K72](#) [MOV07251ARA](#) [MOV10131EDA](#) [MOV10151EFA](#) [MOV14151CWA](#) [MOV20251DFA](#) [TVZ18EC271KBS](#)  
[TVZ20EB911KBS](#) [TVZ25D201KBS](#) [TVZ25D241KBS](#) [VDRH20X230BSE](#) [VZ07D220KBS](#) [VZ40D241K](#) [VZ25D511KBS-N](#)  
[VZ20E511KBSX](#) [VZ20E221KBSX](#) [VZ10D471KBS-N](#) [ERZ-V20R201](#) [ERZ-V20R221](#)