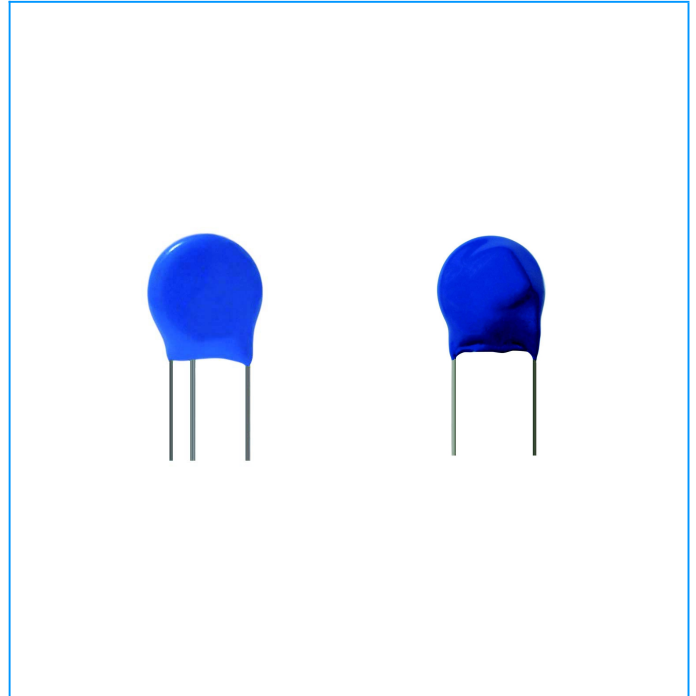


Thermal Fuse & MOV (TMOV)

TMOV-20 Series

Description

TMOV temperature tube type pressure sensitive resistor is a kind of insurance which has the function of overtemperature out (off) zno piezoresistor. It is in the ordinary course of MOV is sensitive to the temperature of the chip attached device. When power frequency current continue to increase, or MOV failure, because of the power frequency current or MOV leakage current increase, leading to MOV body temperature rises to the set of TMOV action temperature, temperature sensitive device will be disconnected. Thus cutting off the supply current of MOV, make MOV temperature no longer increases, thus prevent the caused due to the failure of MOV new ZnO piezoresistor on fire. It uses a standard lead as a terminal, very suitable for the PCB circuit board installation.



Features

- ◆ Fast responding to transient over-voltage
- ◆ Large absorbing transient energy capability
- ◆ Low clamping ratio and no follow-on current
- ◆ Meets MSL level 1, per J-STD-020
- ◆ Operating Temperature: -40℃ ~ +85℃
- ◆ Storage Temperature: -40℃ ~ +125℃

Applications

- ◆ Power supply, Telecommunication, Smart meter, or PLC protection
- ◆ Surge protection in consumer electronics
- ◆ Surge protection in industrial electronics
- ◆ Surge protection in electronic home appliances, gas and petroleum appliances
- ◆ Relay and electromagnetic valve surge absorption

Thermal Fuse & MOV (TMOV)

TMOV-20 Series

Electrical Characteristics

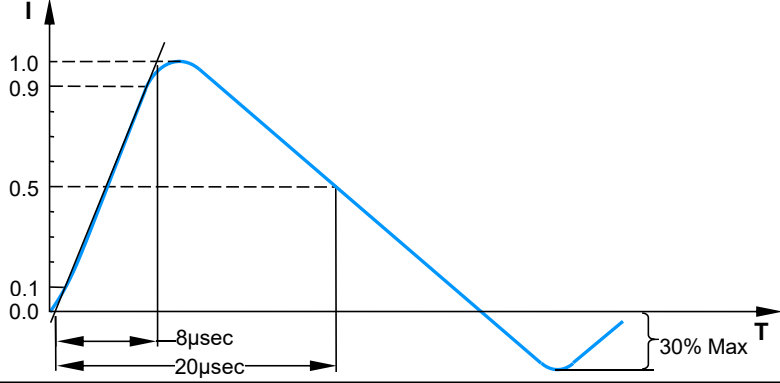
Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current	Maximum Energy (10/1000μs)	Rated Power
	V _{AC} (V)	V _{DC} (V)	V _{1mA} (V)	I _P (A)	V _C (V)	8/20μs (A)	(J)	(W)
TMOV-20D(E)181K	115	150	180(162~198)	100	300	10000	110	1.0
TMOV-20D(E)201K	130	170	200(180~220)	100	340	10000	140	1.0
TMOV-20D(E)221K	140	180	220(198~242)	100	360	10000	155	1.0
TMOV-20D(E)241K	150	200	240(216~264)	100	395	10000	170	1.0
TMOV-20D(E)271K	175	225	270(243~297)	100	455	10000	190	1.0
TMOV-20D(E)301K	190	250	300(270~330)	100	500	10000	205	1.0
TMOV-20D(E)331K	210	275	330(297~363)	100	550	10000	215	1.0
TMOV-20D(E)361K	230	300	360(324~396)	100	595	10000	225	1.0
TMOV-20D(E)391K	250	320	390(351~429)	100	650	10000	240	1.0
TMOV-20D(E)431K	275	350	430(387~473)	100	710	10000	270	1.0
TMOV-20D(E)471K	300	385	470(423~517)	100	775	10000	350	1.0
TMOV-20D(E)511K	320	415	510(459~561)	100	845	10000	380	1.0
TMOV-20D(E)561K	350	460	560(504~616)	100	925	10000	400	1.0
TMOV-20D(E)621K	385	505	620(558~682)	100	1025	10000	425	1.0
TMOV-20D(E)681K	420	560	680(612~748)	100	1120	10000	435	1.0
TMOV-20D(E)751K	460	615	750(675~825)	100	1240	10000	455	1.0
TMOV-20D(E)781K	485	640	780(702~858)	100	1290	10000	461	1.0
TMOV-20D(E)821K	510	670	820(738~902)	100	1355	10000	475	1.0
TMOV-20D(E)911K	550	745	910(819~1001)	100	1500	10000	500	1.0
TMOV-20D(E)102K	625	825	1000(900~1100)	100	1650	10000	560	1.0
TMOV-20D(E)112K	680	895	1100(990~1210)	100	1815	10000	610	1.0
TMOV-20D(E)122K	750	990	1200(1080~1320)	100	1980	10000	650	1.0

Note: Leakage Current (@80% of V_{1mA}): I_R ≤ 25μA.

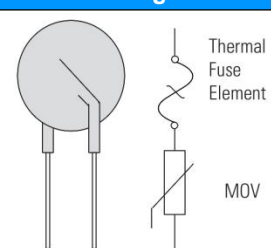
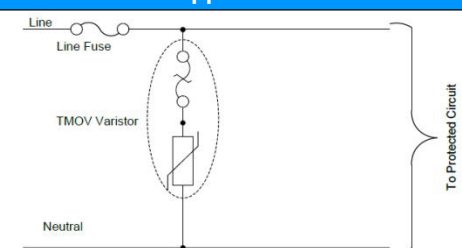
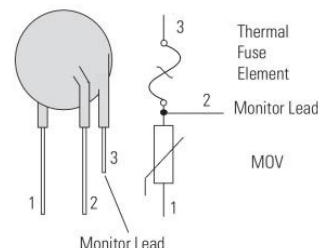
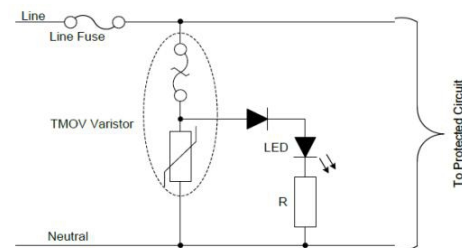
Thermal Fuse & MOV (TMOV)

TMOV-20 Series

Electrical Rating

Item	Test Condition / Description	Requirement
Maximum Allowable Voltage	The recommended maximum sine wave voltage (RMS) or the maximum DC voltage can be applied continuously.	To meet the specified value
Varistor Voltage	The voltage between two terminals with the specified measuring current 1mA.DC applied is call Vb.	
Maximum Clamping Voltage	The maximum voltage between two terminals with the specification standard impulse current. Applied waveform: 8/20μs 	
Rated Wattage	The maximum average power that can be applied within the specified ambient temperature.	
Energy	The maximum energy within the varistor voltage change of $\pm 10\%$ when one impulse of 10/1000 μ s. or 2 msec. is applied.	
Withstanding Surge Current	The maximum current within the varistor voltage change of $\pm 10\%$ with the standard impulse current (8/20 μ sec.) applied one time	
Varistor Voltage Temp. Coefficient	$\frac{V_b \text{ at } 20^{\circ}\text{C} - V_b \text{ at } 70^{\circ}\text{C}}{V_b \text{ at } 20^{\circ}\text{C}} \times \frac{1}{50} \times 100(\% / ^{\circ}\text{C})$	0.05% / $^{\circ}\text{C}$ max

Lead Configurations and Application Examples

Lead Configurations	Application
D Series 	
E Series 	

Thermal Fuse & MOV (TMOV)

TMOV-20 Series

Part Numbering

TMOV - 20 D XXX K

Tolerance:
K:±10%,L:±15%,M:±20%

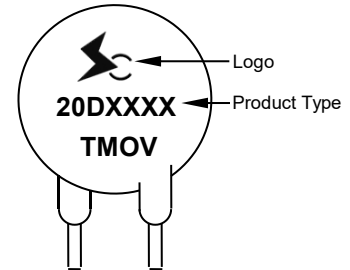
Varistor Voltage

Pin type: D-Two pins,E-Three pins

Element Diameter

Zone temperature insurance tube type

Part Marking



Packaging Information

Part Number	Quantity	Packaging Option	Packaging Specification
TMOV-20 Series	100 PCS	Plastic Bag	Bulk Pack

Package Dimensions (Unit: mm)

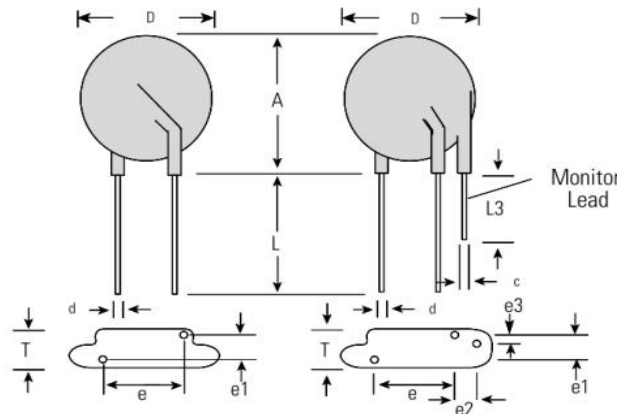


TABLE 1

Symbol	Dimensions	
	D Series	E Series
D(max.)	23	23
A(max.)	28	28
e(±1)	7.5/12.5	7.5
e2(±1)	n/a	5.0
e3(max.)	n/a	2.0
L(min.)	20	20
L3(min.)	n/a	6.0
d(±0.05)	1.0	1.0
c(±0.05)	n/a	1.0
T(max.)	TABLE 2	TABLE 2
e1	TABLE 2	TABLE 2

TABLE 2

Model	T(max.)	e1(max.)	Model	T(max.)	e1(max.)
181K	9.0	4.0	511K	11.5	5.5
201K	9.8	4.0	561K	11.5	5.5
221K	9.8	4.0	621K	11.5	6.0
241K	9.8	4.0	681K	13.8	7.8
271K	9.8	4.0	751K	13.8	7.8
301K	9.8	4.5	781K	13.8	7.8
331K	9.8	4.5	821K	13.8	7.8
361K	9.8	4.5	911K	13.8	7.8
391K	9.8	4.5	102K	16	10
431K	11.5	5.5	112K	16	10
471K	11.5	5.5	122K	16	10

Thermal Fuse & MOV (TMOV)

TMOV-20 Series

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