

## DATA SHEET

### METAL OXIDE VARISTOR – TMOV SERIES

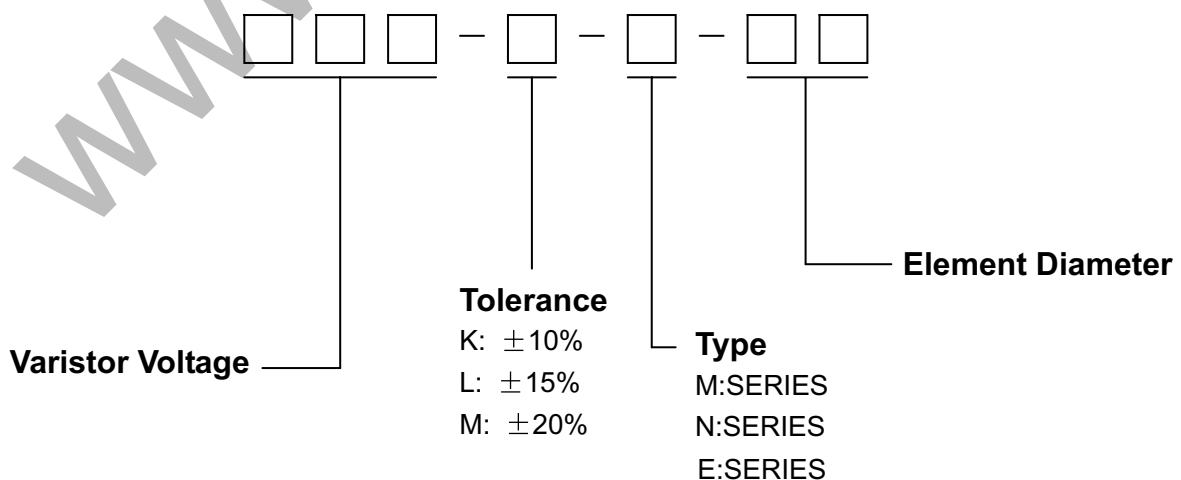
#### FEATURE

- ✧ TMOV integrated thermal protection device
- ✧ High peak surge current rating up to 15KA
- ✧ Designed to facilitate compliance to UL1449 for TVSS products
- ✧ Wide operating voltage ( $V_{1mA}$ ) range from 150V to 1200V.
- ✧ Rated current: 20A
- ✧ Fast responding to transient over-voltage and limited current
- ✧ Large absorbing transient energy capability.
- ✧ Low clamping ratio and no follow-on current.
- ✧ Three-lead version available for indication purposes
- ✧ Meets MSL level 1, per J-STD-020

#### APPLICATION

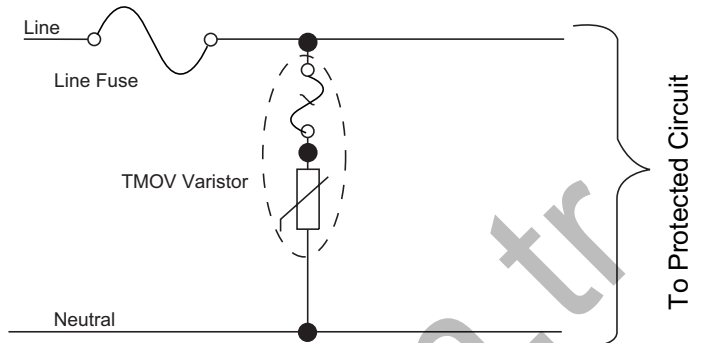
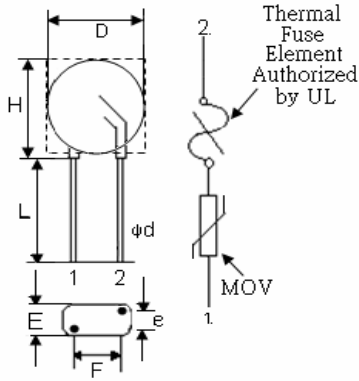
- ✧ AC power line or AC/DC supplies
- ✧ Transistor, diode, IC, thyristor or triac semiconductor protection.
- ✧ Surge protection in consumer electronics.
- ✧ Surge protection in industrial electronics.
- ✧ Surge protection in electronic home appliances, gas and petroleum appliances.
- ✧ Relay and electromagnetic valve surge absorption.
- ✧ AC panel protection Modules

#### PART NUMBER CODE

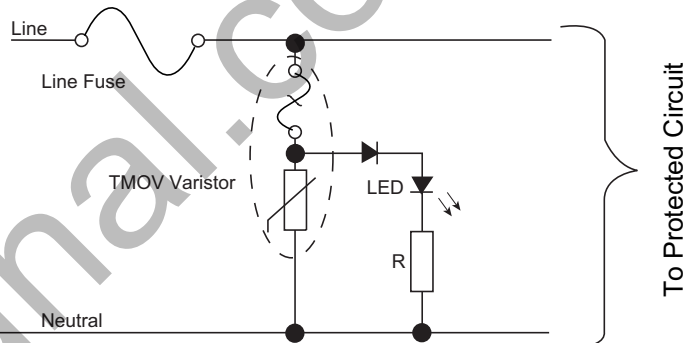
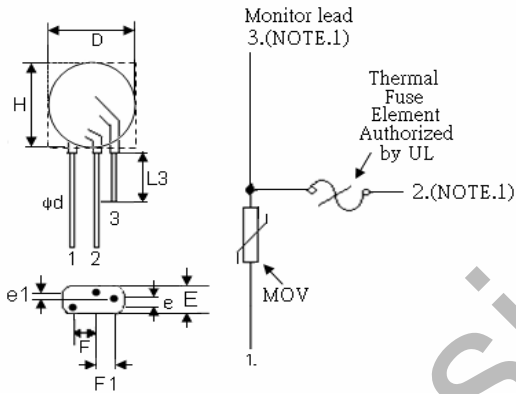


LEAD CONFIGURATIONS AND APPLICATION EXAMPLES

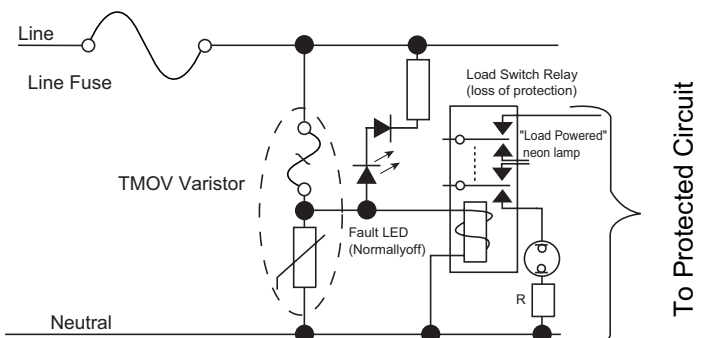
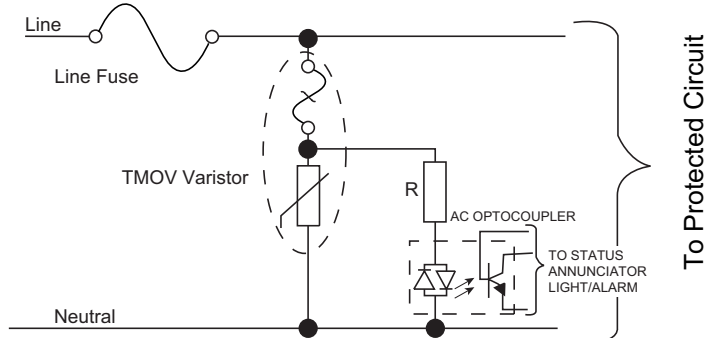
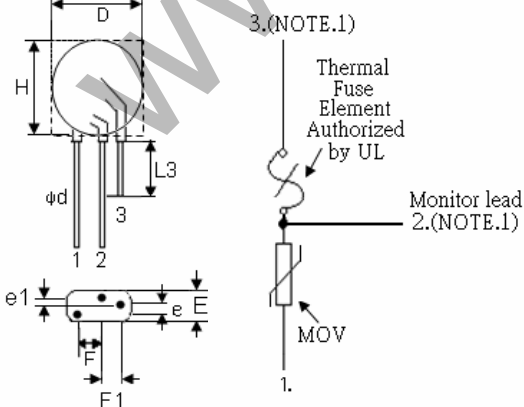
N SERIES



M SERIES



E SERIES



**DIMENSIONS**

Symbol		BK'S M / E / N Varistor								
		14M	14E	14N	20M	20E	20N	25M	25E	25N
D(MAX.)		19.0	19.0	19.0	24.0	24.0	24.0	29.0	29.0	29.0
H(MAX.)		21.0	21.0	21.0	26.0	26.0	26.0	32.0	32.0	32.0
F(±1.0)		7.5	7.5	7.5	7.5	7.5	$\frac{12.5}{7.5}$	$\frac{12.5}{7.5}$	$\frac{12.5}{7.5}$	$\frac{12.5}{7.5}$
F1(±1.0)		5	5	—	5	5	—	$\frac{6.5}{5}$	$\frac{6.5}{5}$	—
e MAX.	180K~680K	—	—	—	3.0	3.0	3.0	—	—	—
	820K~121K	2.8	2.8	2.8	3.0	3.0	3.0	—	—	—
	151K~391K	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
	431K~621K	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
	681K~911K	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
	102K~122K	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
e1	180K~680K	—	—	—	1.5±1	1.5±1	—	—	—	—
	820K~121K	1.3±0.8	1.3±0.8					—	—	
	151K~391K	1.3±0.8	1.3±0.8					2.3±1	2.3±1	
	431K~621K	1.3±0.8	1.3±0.8							
	681K~911K	1.3±0.8	1.3±0.8							
	102K~122K	1.3±0.8	1.3±0.8							
E MAX.	180K~680K	—	—	—	9.0	9.0	9.0	—	—	—
	820K~121K	8.8	8.8	8.8	9.0	9.0	9.0	—	—	—
	151K~391K	9.8	9.8	9.8	9.8	9.8	9.8	11.8	11.8	11.8
	431K~621K	11.5	11.5	11.5	11.5	11.5	11.5	13.5	13.5	13.5
	681K~911K	13.8	13.8	13.8	13.8	13.8	13.8	15.8	15.8	15.8
	102K~122K	16.0	16.0	16.0	16.0	16.0	16.0	18.0	18.0	18.0
L (MIN)		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
L3(MIN)		10	10	—	10	10	—	10	10	—
$\phi d$		0.8			1.0			1.0		
<b>UNIT:mm</b>										

**ELECTRICAL CHARACTERISTIC**

Part Number	Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)			Maximum Peak Current (8/20 $\mu$ s)		Maximum Energy (JOULE)		Rated Power (W)	Typical Capacitance (Reference) @1KHZ(pf)
	AC rms (V)	DC (V)		$V_{1mA}(V)$	$V_C(V)$	$I_P(A)$	1 time	2 time	10/1000 $\mu$ s	2ms		
			(A)									
151KM(E,N)25	95	125	150(135~165)	250	150	15000	12000	160	105	1.2	4300	
181KM(E,N)25	115	150	180(162~198)	300				175	120		3500	
201KM(E,N)25	130	170	200(185~225)	340				210	150		3200	
221KM(E,N)25	140	180	220(198~242)	365				230	165		2900	
241KM(E,N)25	150	200	240(216~264)	395				255	180		2650	
271KM(E,N)25	175	225	270(243~297)	455				285	205		2400	
301KM(E,N)25	190	250	300(270~330)	500				310	220		2100	
331KM(E,N)25	210	275	330(297~363)	550				325	231		1900	
361KM(E,N)25	230	300	360(324~396)	595				340	240		1750	
391KM(E,N)25	250	320	390(351~429)	650				360	250		1600	
431KM(E,N)25	275	350	430(387~473)	710				440	310		1500	
471KM(E,N)25	300	385	470(423~517)	775				490	345		1400	
511KM(E,N)25	320	415	510(459~561)	845				530	370		1250	
561KM(E,N)25	350	460	560(504~616)	920				560	390		1150	
621KM(E,N)25	385	505	620(558~682)	1025				590	410		1050	
681KM(E,N)25	420	560	680(612~748)	1120				620	430		950	
751KM(E,N)25	460	615	750(675~825)	1240				630	440		850	
781KM(E,N)25	485	640	780(702~858)	1290				675	470		800	
821KM(E,N)25	510	670	820(738~902)	1355				690	480		750	
911KM(E,N)25	550	745	910(819~1001)	1500				715	500		700	
102KM(E,N)25	625	825	1000(900~1100)	1650	750	505	650					
112KM(E,N)25	680	895	1100(990~1210)	1815	780	550	600					
122KM(E,N)25	750	990	1200(1080~1320)	1880	840	590	550					