

DATA SHEET

METAL OXIDE VARISTOR – TMOV SERIES

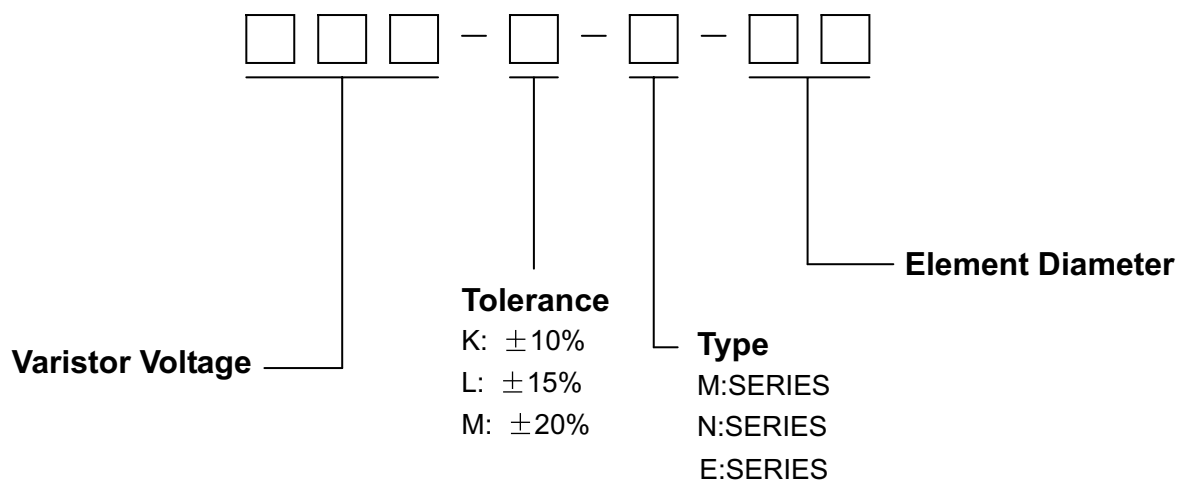
FEATURE

- ✧ 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 18V to 1200V.
- ✧ Rated current: 15A
- ✧ 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

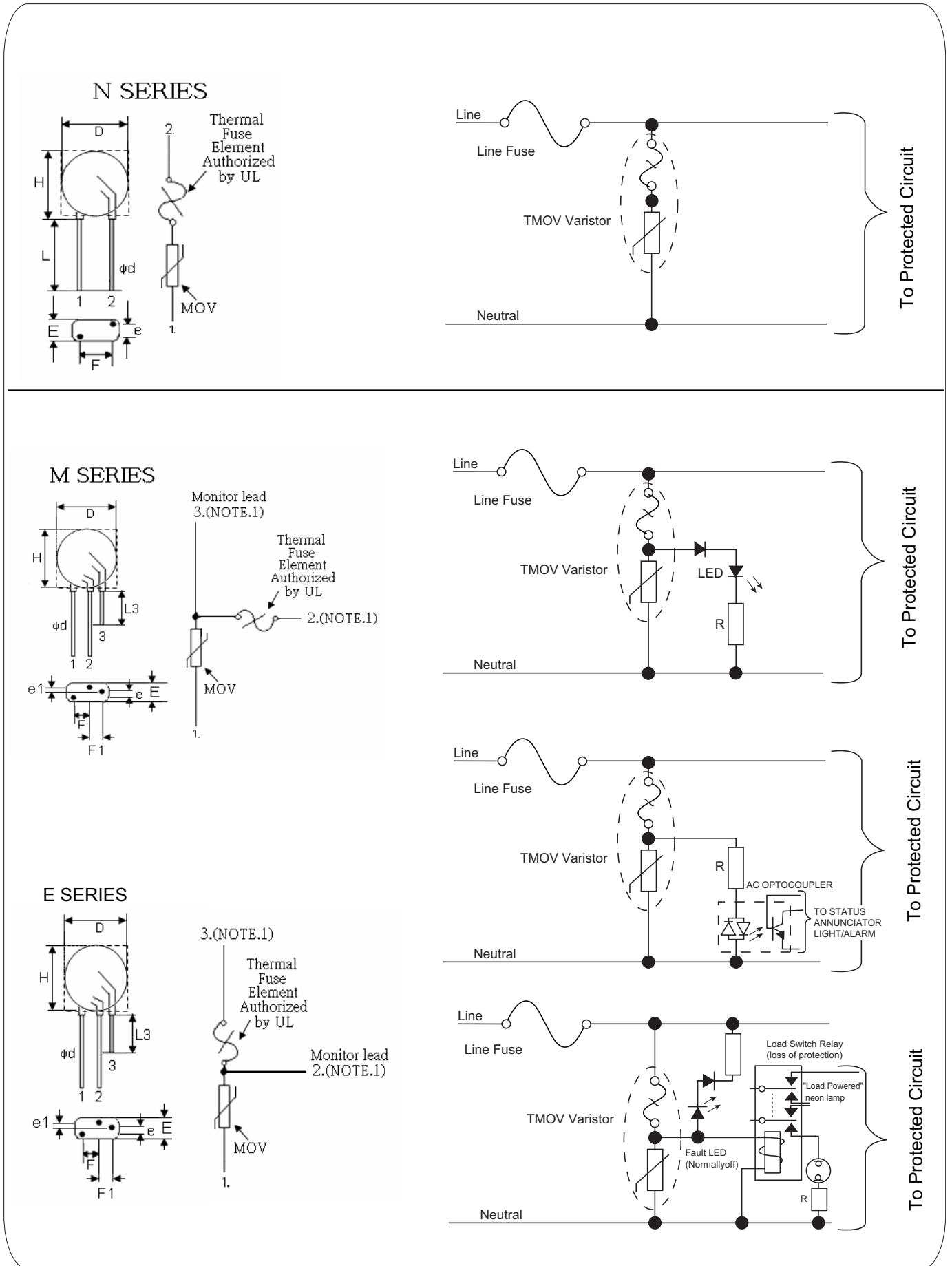
APPLICATION

- ✧ 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



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	—
ϕd		0.8			1.0			1.0		
UNIT:mm										

ELECTRICAL CHARACTERISTIC

Part Number	Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)			Maximum Peak Current (8/20 μ 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 μ s	2ms		
			(A)									
180KM(E,N)20	11	14	18(15~21.6)	36	20	3000	2000	13	10	0.2	28500	
220KM(E,N)20	14	18	22(19.5~26)	43				16	12		18500	
270KM(E,N)20	17	22	27(24~31)	53				19	14		13000	
330KM(E,N)20	20	26	33(29.5~36.5)	65				24	18		11500	
390KM(E,N)20	25	31	39(35~43)	77				28	21		8500	
470KM(E,N)20	30	38	47(42~52)	93	20	5000	3000	34	25	0.2	7400	
560KM(E,N)20	35	45	56(50~62)	110				41	30		6500	
680KM(E,N)20	40	56	68(61~75)	135				49	37		5800	
820KM(E,N)20	50	65	82(74~90)	135	100	6500	4500	56	42	1.0	4900	
101KM(E,N)20	60	85	100(90~110)	165				70	52		4000	
121KM(E,N)20	75	100	120(108~132)	200				85	63		3300	
151KM(E,N)20	95	125	150(135~165)	250	100	10000	8000	100	70	1.0	2700	
181KM(E,N)20	115	150	180(162~198)	300				110	80		2200	
201KM(E,N)20	130	170	200(185~225)	340				140	100		2000	
221KM(E,N)20	140	180	220(198~242)	365				155	110		1800	
241KM(E,N)20	150	200	240(216~264)	395				170	120		1650	
271KM(E,N)20	175	225	270(243~297)	455				190	135		1500	
301KM(E,N)20	190	250	300(270~330)	500				205	145		1300	
331KM(E,N)20	210	275	330(297~363)	550				215	150		1200	
361KM(E,N)20	230	300	360(324~396)	595				225	160		1100	
391KM(E,N)20	250	320	390(351~429)	650				240	170		1000	
431KM(E,N)20	275	350	430(387~473)	710				270	190		930	
471KM(E,N)20	300	385	470(423~517)	775				350	250		850	
511KM(E,N)20	320	415	510(459~561)	845				380	270		780	
561KM(E,N)20	350	460	560(504~616)	920				400	280		710	
621KM(E,N)20	385	505	620(558~682)	1025				425	300		650	
681KM(E,N)20	420	560	680(612~748)	1120				435	310		600	
751KM(E,N)20	460	615	750(675~825)	1240				455	327		530	
781KM(E,N)20	485	640	780(702~858)	1290				461	335		510	
821KM(E,N)20	510	670	820(738~902)	1355				475	344		500	
911KM(E,N)20	550	745	910(819~1001)	1500				500	350		440	
102KM(E,N)20	625	825	1000(900~1100)	1650	560	400	400					
112KM(E,N)20	680	895	1100(990~1210)	1815	610	430	360					
122KM(E,N)20	750	990	1200(1080~1320)	1880	650	460	320					