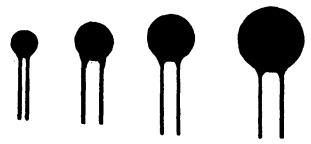
LA Series, Radial
Lead Style; 7, 10, 14, 20 mm



GE-MOV®II Metal Oxide Varistors for Transient Voltage Protection

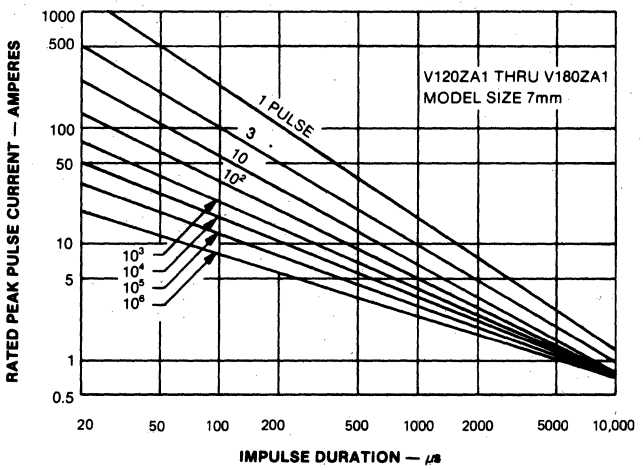
RATINGS AND CHARACTERISTICS TABLE: L SERIES

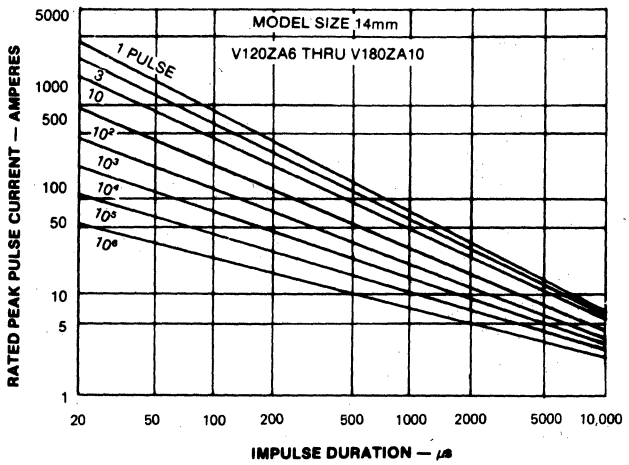
Series L Varistors are listed under UL file #E75961 and E56529 as a recognized component.

MODEL NUMBER	MODEL SIZE DIA. (mm)	DEVICE MARKING	MAXIMUM RATINGS (25°C)				CHARACTERISTICS					
			CONTINUOUS		TRANSIENT		VARISTOR VOLTAGE @ 1.0 mA DC TEST CURRENT			MAXIMUM CLAMPING VOLTAGE, V_C @ TEST CURRENT (8/20 μs)		TYPICAL CAPACITANCE
			RMS VOLTAGE	DC VOLTAGE	ENERGY (10/1000 μs)	PEAK CURRENT (8/20 μs)	MIN.	$V_{N(dc)}$	MAX.	V_C	I_P	f = 0.1-1 MHz
			$V_{m(ac)}$	$V_{m(dc)}$	W_{tm}	I_{tm}						
			VOLTS	VOLTS	JOULES	AMPERES	VOLTS	VOLTS	VOLTS	VOLTS	AMPS	PICOFARADS
V130LA2	7	1302	130	175	11	1200	184	200	228	340	10	180
V130LA5	10	1305			20	2500			228	340	25	500
V130LA10A	14	130L10			38	4500			228	340	50	1000
V130LA20A	20	130L20			70	6500			228	340	100	1900
V130LA20B	20	130L20B			70	6500			220	325	100	1900
V140LA2	7	1402	140	180	12	1200	198	220	242	360	10	160
V140LA5	10	1405			22	2500			242	360	25	480
V140LA10A	14	140L10			42	4500			242	360	50	900
V150LA2	7	1502	150	200	13	1200	212	240	268	395	10	150
V150LA5	10	1505			25	2500			268	395	25	400
V150LA10A	14	150L10			45	4500			268	395	50	800
V150LA20A	20	150L20			80	6500			268	395	100	1600
V150LA20B	20	150L20B			80	6500			243	360	100	1600
V175LA2	7	1752	175	225	15	1200	247	270	303	455	10	130
V175LA10A	14	175L10			55	4500			303	455	50	700
V230LA4	7	2304	230	300	20	1200	324	360	396	595	10	120
V230LA20A	14	230L20			70	4500			396	595	50	600
V250LA4	7	2504	250	330	21	1200	354	390	429	650	10	110
V250LA10	10	250L			40	2500			429	650	25	250
V250LA20A	14	250L20			72	4500			429	650	50	500
V250LA40A	20	250L40			130	6500			429	650	100	1000
V250LA40B	20	250L40B			130	6500			413	620	100	1000
V275LA4	7	2754	275	369	23	1200	389	430	473	710	10	100
V275LA10	10	275L			45	2500			473	710	25	230
V275LA20A	14	275L20			75	4500			473	710	50	450
V275LA40A	20	275L40			140	6500			473	710	100	900
V275LA40B	20	275L40B			140	6500			453	680	100	900
V300LA4	7	3004	305	405	25	1200	420	470	517	775	10	90
V320LA20A	14	320L20	320	420	90	4500	462	510	565	850	50	380
V320LA40B	20	320L40			160	6500			540	810	100	750
V420LA10	10	420L	420	560	45	2500	612	680	748	1120	25	220
V420LA20A	14	420L20			90	4500	610		748	1120	50	500
V420LA40B	20	420L40			160	6500	610		720	1060	100	1000
V480LA40A	14	480L40	480	640	105	4500	670	750	825	1240	50	450
V480LA80B	20	480L80			180	6500			790	1160	100	900
V510LA40A	14	510L40	510	675	110	4500	735	820	910	1350	50	400
V510LA80B	20	510L80			190	6500			860	1280	100	800
V575LA40A	14	575L40	575	730	120	4500	805	910	1000	1500	50	370
V575LA80B	20	575L80			220	6500			960	1410	100	750
V1000LA80A	14	1000L80	1000	1200	220	4500	1425	1600	1800	2700	50	200
V1000LA160B	20	1000L160			360	6500			1650	2420	100	400

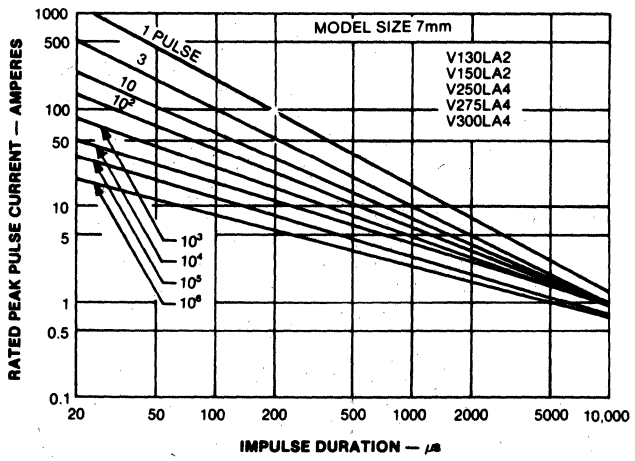
NOTE: Power dissipation of transients not to exceed 0.25, 0.4, 0.6, 1.0 watts for sizes 7, 10, 14 and 20mm respectively.

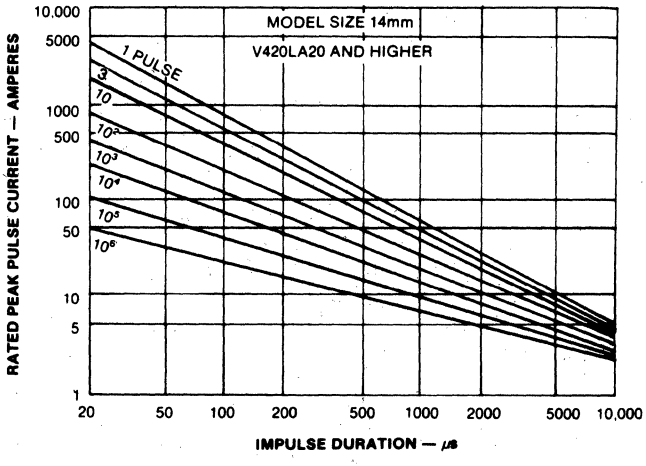
*PULSE RATINGS: Z SERIES (cont'd)

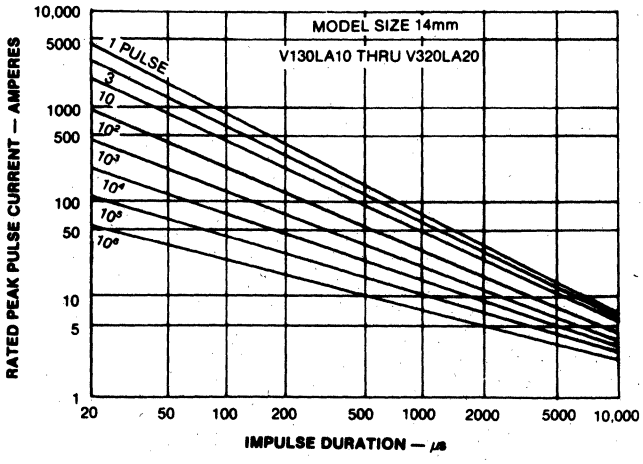


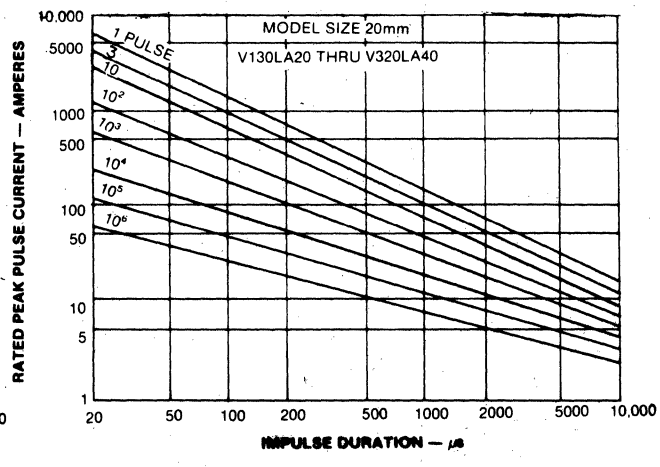


L SERIES



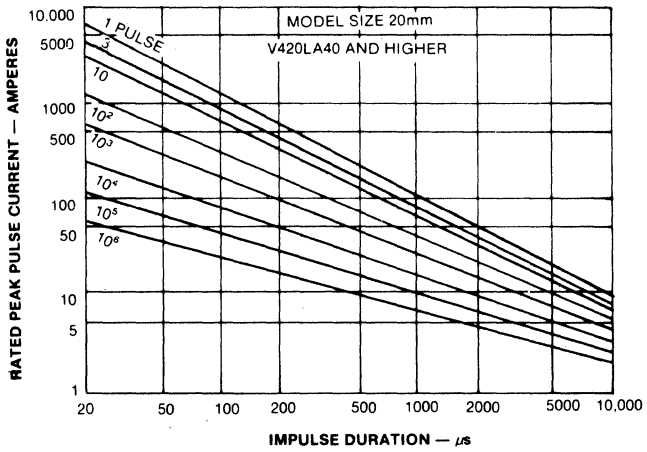




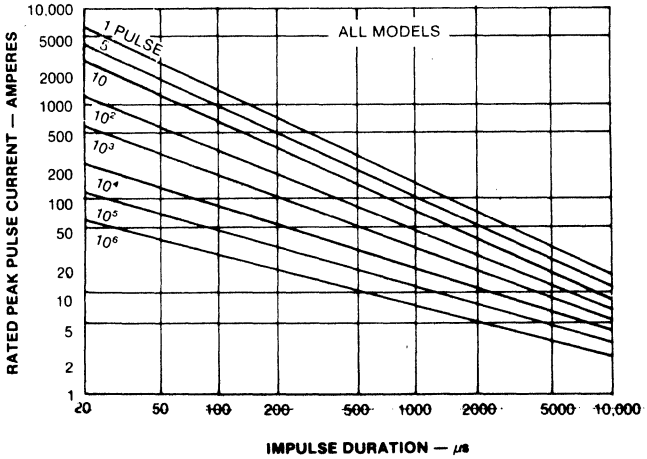


*See note on page 149

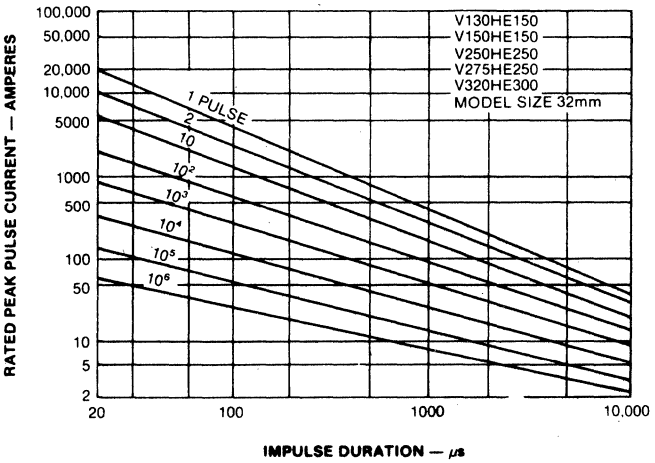
*PULSE RATINGS:
L SERIES (cont'd)

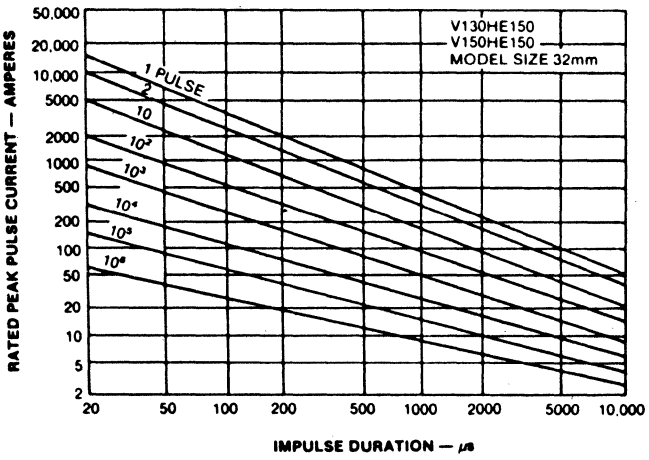


P SERIES

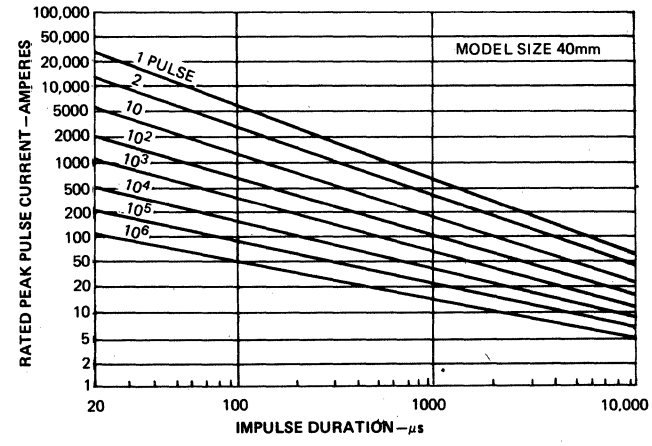


HE SERIES

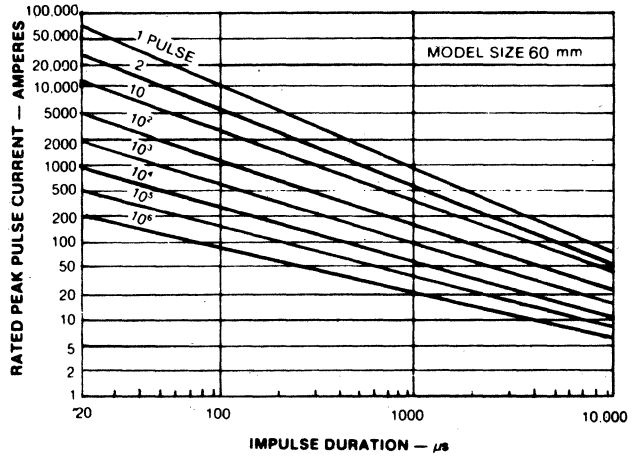




D SERIES



B SERIES



TE: If pulse ratings are exceeded, a shift of $V_{N(dc)}$ at specified current nore than ±10% could result. This type of shift normally results in reasing $V_{N(dc)}$ which may result in the device not meeting the original lished specifications. This does not prevent the device from continuing unction and to provide ample protection.

MECHANICAL AND ENVIRONMENTAL TESTING: HIGH RELIABILITY SERIES

The High Reliability GE-MOV®II Varistor is the latest step in increased product performance. Applications requiring guaranteed quality in extreme ambients can now be served. The new series of varistors are 100% prescreened and process conditioned to meet stringent mechanical and electrical requirements.

100% PRESCREEN

Pre-encapsulation Inspection	Visual Inspection of Lead Frame and Disc Prior to Coating
Electrical	I_L, $V_{N(dc)}$, V_C(8x20μs)
Final Inspection	Coating Integrity, Leads, Marking, Outline

100% PROCESS CONDITIONING

TEST NAME	TEST METHOD(MIL-STD-750)	DESCRIPTION
High Temperature Life	Method 1032.1	125°C, 24 Hr. Bake
Thermal Shock	Method 1051.1	Air-Air; −55°C to 125°C, 5 Cycles
Constant Acceleration	Method 2006	20,000 G, Z_1
Humidity Life	No Equivalent	85°C, 85% RH, 168 Hr. Exposure
Burn-In	Method 1038, Cond B	96 Hr., 85°C, Rated $V_{m(ac)}$
Post Burn-In Screen	No Equivalent	$V_{n(dc)}$ and V_C Screen; 10% PDA
Visual Inspection	Method 2071	Encapsulation, Marking, Outline, Leads

QUALITY ASSURANCE TESTS AFTER PROCESSING CONDITIONING

- Electrical (Bi-Directional), $V_{n(dc)}$, V_C — 0.1% AQL LEVEL II
- Dielectric BV (MIL-STD 202-301) — 0.65% AQL LEVEL I
- Capacitance @ 1MHz — 1.0% AQL LEVEL S-4
- Solderability (Non Activated) — 1.0% AQL LEVEL S-4

ADDITIONAL CAPABILITIES

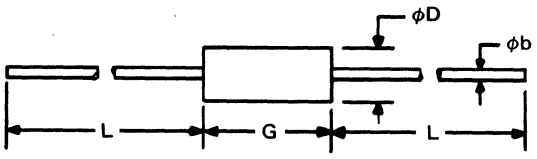
TEST NAME	TEST METHOD(MIL-STD-750)	DESCRIPTION
Terminal Strength	Method 2036.3	3 Bends; 90° Arc; 16 oz. Weight
Shock	Method 2016.2	1500 G's; .5 ms; 5 pulses; X_1, Y_1, Z_1
Variable Frequency Vibration	Method 2056	20 G's; 100-2000Hz; X_1, Y_1, Z_1
Salt Atmosphere	Method 1041	35°C; 24 Hr.; 10-50 G/M²/Day
Soldering Heat	Method 2031	260°C; 10 Sec.; 3 Cycles; Test
Resistance to Solvents	MIL-202E, Method 215	Marking Permanence; 3 Solvents
Flammability	MIL-202E, Method 111A	15 Sec. Torching; 10 Sec. to Flame Out

Note: High reliability varistors are rated to withstand a low temperature storage of −65°C.

Please contact your local General Electric Sales Office for any specific high reliability requirement or for types presently available.

GE-MOV®II Metal Oxide Varistors for Transient Voltage Protection

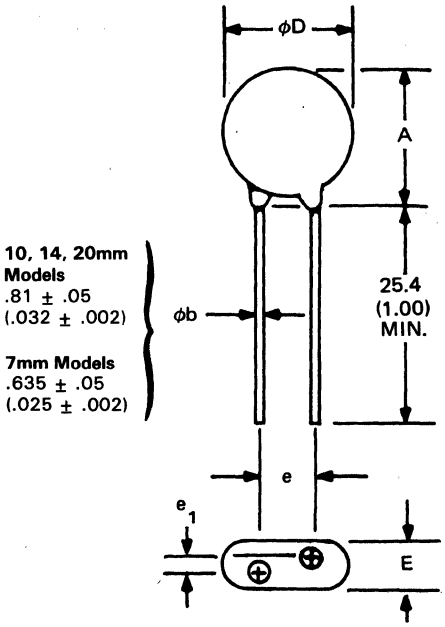
OUTLINES AND DIMENSIONS: MA SERIES



SYMBOL	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
ϕb	.60	.83	0.024	.033
ϕD	3.43	3.68	.135	.145
G	8.01	8.50	.315	.335
L	26.0	29.0	1.03	1.14

Typical Weight - 0.35g.

Z AND L SERIES



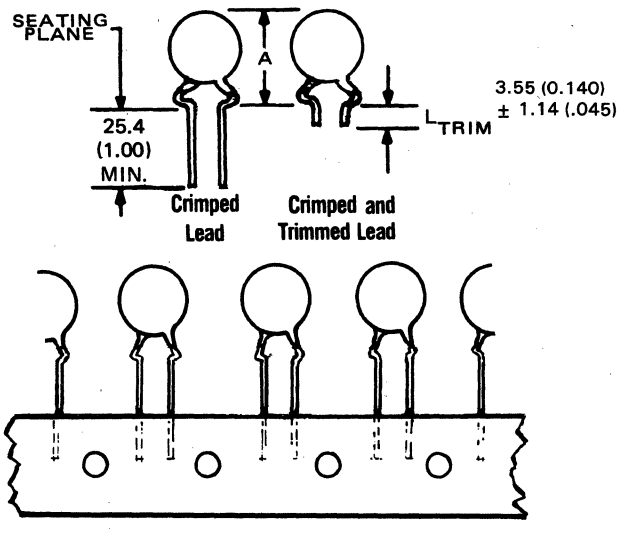
*±1 MM (.039)
‡±1.5 MM (0.59)

Dimensions: MM (IN.)

SYMBOL	VARISTOR MODEL SIZE			
	7MM	10MM	14MM	20MM
A (MAX)†	11.7 (0.461)	16.0 (0.630)	18.9 (0.744)	25.5 (1.01)
ϕD (MAX)	8.7 (0.343)	12.5 (0.492)	16.4 (0.646)	22.5 (0.886)
e ± 1MM (.039)	5.0 (.197)	7.5 (0.296)	7.5 (0.296)	7.5 (0.296)
Typ. Weight (g)	0.5	1.2	2	3

SYMBOL	VARISTOR MODEL			
	V8ZA — V56ZA V120ZA — V180ZA	V68ZA — V100ZA V130LA — V320LA	V420LA V575LA	V1000LA
e_1	* 2.0 (.079)	* 2.5 (.098)	‡4.0 (.157)	‡7.3 (.287)
E (MAX)	5.0 (.197)	5.6 (.220)	7.3 (.287)	10.8 (.425)

AVAILABLE LEAD STYLE CHANGES



Tape and Reel*

*For Tape and Reel availability and specifications, Contact Factory.

Dimension A: MM (IN.)

SYMBOL	VARISTOR MODEL SIZE			
	7MM	10MM	14MM	20MM
A (MAX)	15.0 (.591)	19.5 (.768)	22.5 (.890)	29.0 (1.140)

†For Models V420LA-V1000LA, A(MAX) for 10, 14, 20MM is 17.0(.669), 20.0(.787), 28.0(1.10) respectively.