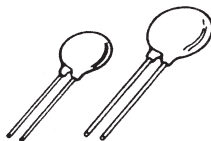




ELECTRONIC Products



LITTELFUSE LA SERIES METAL OXIDE VARISTORS

The LA series of transient voltage surge suppressors are radial-lead varistors (MOVs) that are designed to be operated continuously across AC power lines to protect against lightning or inductive load transients. (Also see UltraMOV series.) **FEATURES:** Operating temperature: -55°C to +85°C. No derating up to 85°C ambient. Available in tape or reel or bulk pack. Agency approvals: UL, CSA, VDE, CECC. Agency file numbers: UL E75961, E56529, E135010; CSA LR91788; VDE 116895E; CECC 42201-006.

Cat. No.	Disc Dia. (mm)	Continuous (85°C) V _{RMS}		Transient (85°C)		Specifications (25°C)				Net Price
		V _(AC) (V)	V _(DC) (V)	Energy 10 × 1000µS W _(TM) (J)	Peak Current 8 × 20µS I _(TM) (A)	Min/Max Varistor Voltage at 1mA DC Test Current V _{NOM} (V)	Max Clamping Voltage 8 × 20µS		Typical Capacitance f=1MHz C (pF)	
							V _C (V)	I _{PK} (A)		
V130LA1	7	130	175	11	1200	184/255	390	100	180	\$.33
V130LA2	7	130	175	11	1200	184/228	340	100	180	\$.33
V130LA5	10	130	175	20	2500	184/228	340	25	450	\$.46
V130LA10A	14	130	175	38	4500	184/228	340	50	1000	\$.58
V130LA20A	20	130	175	70	6500	184/228	340	100	1900	\$.92
V130LA20B	20	130	175	70	6500	184/220	325	100	1900	\$.92
V150LA5	10	150	200	25	2500	212/268	395	25	360	\$.46
V150LA10A	14	150	200	45	4500	212/268	395	50	800	\$.58
V150LA20A	20	150	200	80	6500	212/268	395	100	1600	\$.92
V250LA40A	20	250	330	130	6500	354/429	650	100	1000	\$.92
V250LA40B	20	250	330	130	6500	354/413	620	100	1000	\$.92
V250LA4	7	250	330	21	1200	354/429	650	10	90	\$.33
V250LA10	10	250	330	40	2500	354/429	650	25	220	\$.46
V250LA20A	14	250	330	72	4500	354/429	650	50	500	\$.58
V275LA40A	20	275	369	140	6500	389/473	710	100	900	\$.92
V275LA4	7	275	369	23	1200	389/473	710	10	80	\$.33
V275LA10	10	275	369	45	2500	389/473	710	25	200	\$.46
V275LA20A	14	275	369	75	4500	389/473	710	50	450	\$.58
V275LA40A	20	275	369	140	6500	389/473	710	100	900	\$.92
V275LA40B	20	275	369	140	6500	389/453	680	100	900	\$.92
V300LA4	7	300	405	25	1200	420/517	775	10	70	\$.33
V320LA40B	20	320	420	150	6500	462/540	810	100	750	\$.92
V320LA7	7	320	420	25	1200	462/565	850	10	65	\$.42
V420LA10	10	420	560	55	2500	610/748	1120	25	140	\$.46
V420LA40B	20	420	560	160	6500	610/720	1060	100	600	1.08
V510LA40A	14	510	675	110	4500	735/910	1350	25	100	1.25
V510LA80B	20	510	675	190	6500	735/860	1280	100	500	1.58
V575LA80B	20	575	730	220	6500	805/960	1410	100	450	2.08
V1000LA80A	14	1000	1200	220	4500	1425/1800	2700	50	130	3.12

LITTELFUSE ZA SERIES METAL OXIDE VARISTORS

The ZA series of transient voltage surge suppressors are radial-lead varistors (MOVs) designed for use in the protection of low- and medium-voltage circuits and systems. Typical applications include motor control, telecom, automotive systems, solenoid, and power supply circuits to protect circuit board components and maintain data integrity. **FEATURES:** Wide operating voltage range (VRMS) 4V to 460V. Operating temperature: -55°C to +85°C. No derating up to 85°C ambient. Available in tape and reel or bulk pack. Standard lead form options. Agency approvals: UL, VDE. Agency file numbers: UL E135010, VDE 116895E.

Cat. No.	Disc Dia. (mm)	Continuous (85°C) V _{RMS}		Transient (85°C)		Specifications (25°C)				Net Price
		V _(AC) (V)	V _(DC) (V)	Energy 10 × 1000µS W _(TM) (J)	Peak Current 8 × 20µS I _(TM) (A)	Min/Max Varistor Voltage at 1mA DC Test Current V _{NOM} (V)	Max Clamping Voltage 8 × 20µS V _C (V)	I _{PK} (A)	Typical Capacitance f=1MHz C (pF)	
V8ZA1	7	4	5.5	0.4	100	6/11	22	2.5	3000	\$.50
V18ZA1	7	10	14	0.8	250	14.4/21.6	36	2.5	2000	\$.46
V22ZA05	5	14	18	0.2	100	18.7/26	43	1	800	\$.33
V22ZA1	7	14	18	0.9	250	18.7/26	43	2.5	1600	\$.33
V22ZA3	14	14	18	4	1000	18.7/26	43	10	9000	\$.75
V24ZA50	20	14	18	100*	2000	19.2/26	43	20	18000	\$.92
V33ZA1	7	20	26	1.2	250	29.5/36.5	65	2.5	1100	\$.33

*Auto load dump transient.

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Cat. No.	Disc Dia. (mm)	Continuous (85°C) V _{RMS}		Transient (85°C)		Specifications (25°C)			Typical Capacitance f=1MHz C (pF)	Net Price
		V _(AC) (V)	V _(DC) (V)	Energy 10 × 1000µS W _(TM) (J)	Peak Current 8 × 20µS I _(TM) (A)	Min/Max Varistor Voltage at 1mA DC Test Current V _{NOM} (V)	Max Clamping Voltage 8 × 20µS V _C (V)	I _{PK} (A)		
V33ZA5	14	20	26	6	1000	29.5/36.5	65	10	6000	\$.58
V33ZA70	20	21	27	150*	2000	29.5/36.5	58	20	13000	\$.92
V36ZA80	20	23	31	160*	2000	32/40	63	20	12000	\$.92
V39ZA1	7	25	31	1.2	250	35/43	79	2.5	1100	\$.33
V39ZA6	14	25	31	6	1000	35/43	76	10	6000	\$.58
V47ZA1	7	30	38	1.8	250	42/52	93	2.5	800	\$.33
V47ZA3	10	30	38	4.5	500	42/52	93	5	2000	\$.46
V47ZA7	14	30	38	8.8	1000	42/52	93	10	4500	\$.58
V47ZA20	20	30	38	23	2000	42/52	93	20	11000	\$.92
V56ZA2	7	35	45	2.3	250	50/62	110	2.5	700	\$.33
V56ZA8	14	35	45	10	1000	50/62	110	10	3900	\$.58
V68ZA05	5	40	56	0.6	100	61/80	135	1	300	\$.33
V68ZA2	7	40	56	3	250	61/75	135	2.5	600	\$.33
V68ZA10	14	40	56	13	1000	61/75	135	10	3300	\$.58
V100ZA3	7	60	81	5	1200	90/110	165	10	400	\$.33
V120ZA1	7	75	102	6	1200	108/132	205	10	300	\$.33
V150ZA8	14	95	127	20	4500	135/165	250	50	1400	\$.58

*Auto load dump transient.

LITTELFUSE BA/DA/DB HIGH ENERGY VARISTORS

The BA/DA/DB series transient surge suppressors are heavy-duty industrial metal-oxide varistors designed to provide surge protection for motor controls and power supplies used in oil-drilling, mining, and transportation equipment. The BA series can be used in other heavy industrial AC line applications where lightning and inductive load switching transients require suppression. **FEATURES:** High energy absorption: BA-3200J; DA/DB-1050J. Wide operating voltage: BA-130V to 880V; DA/DB-130V to 750V. Screw terminals: BA and DA series quick connect push-on connectors (DB series). Operating Temperature: -55°C to +85°C. No derating up to 85°C ambient.

Cat. No.	Continuous (85°C) V _{RMS}		Transient (85°C)		Specifications (25°C)			Typical Capacitance f=1MHz C (pF)	Net Price	
	V _(AC) (V)	V _(DC) (V)	Energy 10 × 1000µS W _(TM) (J)	Peak Current 8 × 20µS I _(TM) (A)	Min/Max Varistor Voltage at 1mA DC Test Current					
					V _{Min} (V)	V _{Nom(DC)} (V)	V _{Nom} (V)			
V151BA60	150	200	530	50000	212	268	400	240	16000	\$192.28
V481BA60	480	640	1600	70000	670	825	1160	750	5500	103.00
V511BA60	510	675	1800	70000	735	910	1300	820	5000	103.00
V481DA40	480	640	650	40000	670	825	1240	750	2700	99.09
V571DA40	575	730	770	40000	805	1000	1480	910	2200	99.09
V271DB40	275	369	400	40000	389	473	730	430	4500	74.48
V511DB40	510	675	700	40000	735	910	1350	820	2500	99.09

LITTELFUSE ULTRAMOV VARISTORS

The UltraMOV metal oxide varistor is designed for applications requiring high peak current ratings and high energy absorption capability. UltraMOV varistors are primarily intended for use in AC line voltage applications such as TVS suppressors (TVSS), UPS, AC power taps, AC power meters, or other products that require voltage clamping of high transient surge currents from sources such as lightning, inductive load switching, or capacitor bank switching. **FEATURES:** High peak surge current (ITM) up to 10kA, single 8 × 20 pulse (20mm). Standard operating voltage range compatible with common AC line voltages (130VAC to 625VAC). Characterized for maximum standby current (leakage). Custom voltage types available. Standard lead form and lead space options. Agency approvals: UL, CSA, VDE, and CECC. Agency file numbers: UL E75961, CSA LR91788, VDE 116895E, CECC 42201-006.

Cat. No.	Disc Dia. (mm)	Continuous (85°C) V _{RMS}		Transient (85°C)		Specifications			Typical Capacitance f=1MHz C (pF)	Net Price
		V _(AC) (V)	V _(DC) (V)	Energy 2ms W _(TM) (J)	Peak Current 8 × 20µS I _(TM) (A)	Min/Max Varistor Voltage at 1mA DC Test Current V _{NOM} (V)	Max Clamping Voltage 8 × 20µS			
							V _C (V)	I _{PK} (A)		
V07E130	7	130	170	12.5	1750	184/226	340	10	180	\$.33
V14E130	14	130	170	50	6000	184/226	340	50	1000	\$.58
V07E150	7	150	200	15	1750	216/264	395	10	150	\$.33
V14E150	14	150	200	60	6000	216/264	395	50	800	\$.58
V20E150	20	150	200	120	10000	216/264	395	100	1600	\$.92
V14E275	14	275	350	110	6000	387/473	710	50	450	\$.58
V14E320	14	320	420	136	6000	459/561	840	50	380	\$.58
V20E420	20	420	560	320	10000	612/748	1120	100	600	\$.92

HIGH ENERGY VARISTORS

Cat. No.	Continuous (85°C) V _{RMS}		Transient (85°C)		Specifications (25°C)					Net Price
	V _(AC) (V)	V _(DC) (V)	Energy 2ms W _(TM) (J)	Peak Current 8 × 20µs I _(TM) (A)	Min/Max Varistor Voltage at 1mA DC Test Current			Max Clamping Voltage V _c at 200A (8 × 20µs)	Typical Capacitance e f=1MHz	
					Min	Vn (DC)	Max			
V131HA40	130	175	270	40000	184	200	228	345	10000	\$27.22
V251HA40	250	330	370	40000	354	390	429	630	5000	27.22
V321HA40	320	420	460	40000	462	510	561	825	3800	28.89
V421HA40	420	560	600	40000	610	680	748	1100	3000	28.89
V571HA32	575	730	550	25000	805	910	1000	1570	1100	29.72

BASE MOUNT VARISTORS

Cat. No.	Continuous (85°C) V _{RMS}		Transient (85°C)		Specifications (25°C)					Net Price	
	V _(AC) (V)	V _(DC) (V)	Energy 2ms W _(TM) (J)	Peak Current 8 × 20µs I _(TM) (A)	Min/Max Varistor Voltage at 1mA DC Test Current			Max Clamping Voltage V _c at 200A (8 × 20µs)			Typical Capacitance e f=1MHz
					Min	Vn (DC)	Max	(V)	(A)		
V150PA20A	150	200	80	6500	212	240	284	420	100	1600	\$23.90
V575PA80C	575	730	220	6500	805	910	960	1410	100	450	24.94



LITTELFUSE TMOV34S SERIES HIGH ENERGY INDUSTRIAL THERMALLY PROTECTED VARISTORS

The Littelfuse Industrial TMOV34S series thermally protected varistor represents a new development in circuit protection. It consists of a 34mm square format varistor element (MOV) with an integral thermally activated element designed to open in the event of overheating due to abnormal over-voltage, Limited current conditions. The device has a third lead, an indicator lead, which may be used to indicate that the MOV has been disconnected from the circuit. The lead facilitates connection to monitoring circuitry. The TMOV34S devices offer quick thermal response due to the close proximity of the integrated thermal element to the MOV body. The integrated configuration also offers lower inductance than most discreet solutions resulting in improved clamping performance to fast over-voltage transients. **FEATURES:** Alternative design available with narrow 3mm wide monitor (right) lead. Designed to facilitate compliance to UL1449 for TVSS product. Hi peak current rating to 40 kA. Operating temperature range: -55 to +85. Agency approvals: UL. **APPLICATIONS:** TVSS products. AC panel protection modules. AC line power supplies. AC power meters. UPS (uninterruptible power supply). Inverters. AC/DC power supplies. DIN rail.

Cat. No.	Maximum Rating (85°C)				Specifications (25°C)					Net Price
	Continuous			Transient		Varistor Voltage at 1mA Test Current		Maximum Clamping Voltage 8/20µs at 200A V _c (V)	Typical Capacitance f=1MHz C (pF)	
	AC Volts VM(AC)RMS (V)	DC Volts VM(AC)	MCOV Surge Arrester VM(AC)RMS (V)	Energy 2ms WTM 1 × Pulse (J)	Peak Surge Current 8/20µs ITM 1 × Pulse (A)	Vn(DC) Min V	Vn(DC) Max V			
TMOV34S111MX2696	115	150	98	235	40000	163	202	305	11500	\$25.86
TMOV34S151M	150	200	128	300	40000	212	268	405	8000	25.86
TMOV34S181M	180	240	153	330	40000	254	312	488	6800	25.86
TMOV34S201M	200	265	170	335	40000	283	357	540	6500	25.86
TMOV34S251M	250	330	213	370	40000	354	429	650	5000	25.86
TMOV34S271M	275	369	234	400	40000	389	473	730	4500	25.86
TMOV34S301M	300	400	255	435	40000	433	528	780	4050	25.86
TMOV34S321M	320	420	272	460	40000	462	561	830	3800	25.86
TMOV34S331M	330	435	281	475	40000	476	581	855	3700	25.86
TMOV34S391M	385	506	327	550	40000	555	678	1005	3300	29.31
TMOV34S421M	420	560	357	600	40000	610	748	1130	3000	29.31
TMOV34S461M	460	610	391	620	40000	642	783	1188	2800	32.76
TMOV34S481MX2696	480	640	408	650	40000	670	825	1240	2700	32.76
TMOV34S511MX2696	510	675	434	700	40000	735	910	1350	2500	32.76
TMOV34S551MX2696	550	700	468	735	40000	770	939	1415	2250	32.76
TMOV34S571M	575	730	489	770	40000	805	1000	1480	2200	32.76
TMOV34S621M	620	800	527	840	40000	880	1074	1589	2100	32.76
TMOV34S661M	660	850	561	900	40000	940	1160	1720	2000	32.76
TMOV34S681M	680	890	578	950	40000	980	1195	1772	1970	32.76
TMOV34S751M	750	970	638	1050	40000	1080	1320	2000	1800	32.76