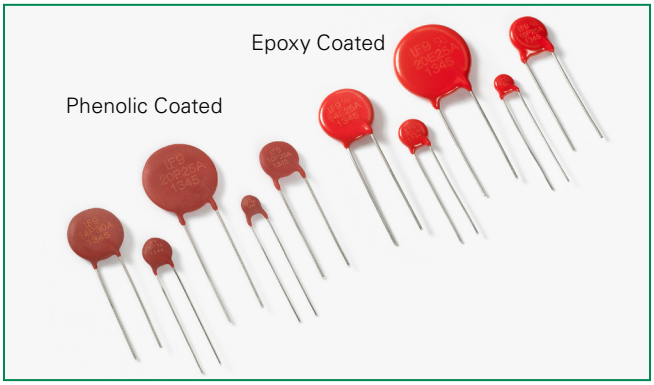
AUMOV® Varistor Series

AUTOMOTIVE GRADE RoHS Pb HF



Agency Approvals

Agency	Agency File Number
	E320116 (only 14VAC to 42VAC for Epoxy coated)

Note: All Phenolic coating parts and Silicone coating parts are qualified to AEC-Q200 (Table 10).

Additional Information

Datasheet | Resources | Samples

Applications

- Body Electronics Systems
- Powertrain Systems
- Infotainment Systems
- Automotive Control Module Protection
- Motor or inductive load transient suppression

Description

The Littelfuse AUMOV® Varistor Series of low voltage, high surge current, radial leaded varistors provides an ideal circuit protection for load dump, jump start voltage transient conditions specifically for automotive applications.

The maximum peak surge current rating is rated up to 5kA (8/20 µs pulse) to protect sensitive infotainment systems from voltage transients. This AEC-Q200 (Table 10) qualified series is available in five disc sizes: 5mm, 7mm, 10mm, 14mm and 20mm; it features a wide VDC voltage range from 16V to 825V.

Features

- Breakthrough in low voltage varistor design provides high peak surge current rating
- Phenolic and Silicone coating meet the stringent quality requirements of AEC-Q200 (Table 10)
- Reduced footprint and volume required for surge protection
- Optional phenolic coating for higher operating temperature up to 125°C
- High peak surge current rating up to 5kA (8/20 µs pulse)
- Wide operating voltage range: 14VAC to 625VAC and 16VDC to 825VDC
- Five disc sizes available: 5, 7, 10, 14, and 20mm
- High resistance to thermal cycles for phenolic coating
- High energy absorption particularly for automotive load dump and jump start
- Lead–free, Halogen-Free and RoHS compliant
- Silicone coating option: High operating temperature combined with high isolation voltage capability: 125°C and 2500V, respectively

Absolute Maximum Ratings

• For ratings of individual members of a series, see Device Ratings and Specifications chart

	Low Voltage Series	Units
Continous:		
Steady State Applied Voltage:		
AC Voltage Range ($V_{M(AC)RMS}$)	14 to 625	V
DC Voltage Range ($V_{M(DC)}$)	16 to 825	V
Transient:		
Non-Repetitive Surge Current, 8/20µs Waveform (I_{TM})	400 to 5,000	A
Non-Repetitive Energy Capability, 2ms Waveform (W_{TM})	1.0 to 140	J
Operating Ambient Temperature Range (T_A) for Epoxy coated	-40 to +85	°C
Operating Ambient Temperature Range (T_A) for Phenolic coated and Silicone coated	-40 to +125	°C
Storage Temperature Range (T_{STG}) for Epoxy coated	-40 to +125	°C
Storage Temperature Range (T_{STG}) for Phenolic coated and Silicone coated	-40 to +150	°C
Temperature Coefficient (αV) of Clamping Voltage (V_C) at Specified Test Current	< 0.01%	°C
Hi-Pot Encapsulation (Isolation Voltage Capability) for Epoxy coated	2500	V
Hi-Pot Encapsulation (Isolation Voltage Capability) for Phenolic coated	500	V
Hi-Pot Encapsulation (Isolation Voltage Capability) for Silicone coated	2500	V
Temperature Cycling (-40C to +125C) for Epoxy coated	5	Cycles
Temperature Cycling (-40C to +125C) for Phenolic and Silicone coated	1000	Cycles

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

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AUMOV® Varistor Series Device Ratings & Specifications

Epoxy Coated Models		Phenolic Coated Models		Size Disc Dia. (mm)	Max Continuous Voltage		Varistor Voltage at 1mA			Maximum Clamping Voltage		Max Peak Current (8 x 20μs 1 pulse)	Energy Rating (2ms, 1 pulse)	Energy (Load Dump, 10 pulses)*	Jump Start DC V_{jump} (5 min)	Typical Capacitance f = 1MHz
Part Number (Base part)	Branding	Part Number (Base part)	Branding		V_{RMS}	V_{DC}	Min	Nom	Max	V_C	I_{PK}	I_{TM}	W_{TM}			
					(V)	(V)	(V)	(V)	(V)	(V)	(A)	(A)	(J)	(J)	(V)	(pF)
V05E14AUTO	5E14A	V05P14AUTO	5P14A	5	14	16	19.8	22	24.2	43	1	400	1	6	25	1100
V07E14AUTO	7E14A	V07P14AUTO	7P14A	7	14	16	19.8	22	24.2	43	2.5	800	2.2	12	25	2450
V10E14AUTO	10E14A	V10P14AUTO	10P14A	10	14	16	19.8	22	24.2	43	5	1500	5	25	25	4650
V14E14AUTO	14E14A	V14P14AUTO	14P14A	14	14	16	19.8	22	24.2	43	10	3000	10	50	25	10200
V20E14AUTO	20E14A	V20P14AUTO	20P14A	20	14	16	19.8	22	24.2	43	20	5000	28	100	25	22200
V05E17AUTO	5E17A	V05P17AUTO	5P17A	5	17	20	24.3	27	29.7	53	1	400	1.4	6	30	950
V07E17AUTO	7E17A	V07P17AUTO	7P17A	7	17	20	24.3	27	29.7	53	2.5	800	2.8	12	30	2100
V10E17AUTO	10E17A	V10P17AUTO	10P17A	10	17	20	24.3	27	29.7	53	5	1500	6.5	25	30	3900
V14E17AUTO	14E17A	V14P17AUTO	14P17A	14	17	20	24.3	27	29.7	53	10	3000	13	50	30	8700
V20E17AUTO	20E17A	V20P17AUTO	20P17A	20	17	20	24.3	27	29.7	53	20	5000	35	100	30	18750
V05E20AUTO	5E20A	V05P20AUTO	5P20A	5	20	26	29.7	33	36.3	65	1	400	2	6	35	790
V07E20AUTO	7E20A	V07P20AUTO	7P20A	7	20	26	29.7	33	36.3	65	2.5	800	4.2	12	35	1620
V10E20AUTO	10E20A	V10P20AUTO	10P20A	10	20	26	29.7	33	36.3	65	5	1500	10	25	35	3495
V14E20AUTO	14E20A	V14P20AUTO	14P20A	14	20	26	29.7	33	36.3	65	10	3000	20	50	35	9290
V20E20AUTO	20E20A	V20P20AUTO	20P20A	20	20	26	29.7	33	36.3	65	20	5000	58	100	35	13000
V05E23AUTO	5E23A	V05P23AUTO	5P23A	5	23	28	32.4	36	39.6	71	1	400	2.2	6	38	720
V07E23AUTO	7E23A	V07P23AUTO	7P23A	7	23	28	32.4	36	39.6	71	2.5	800	5	12	38	1500
V10E23AUTO	10E23A	V10P23AUTO	10P23A	10	23	28	32.4	36	39.6	71	5	1500	12	25	38	3300
V14E23AUTO	14E23A	V14P23AUTO	14P23A	14	23	28	32.4	36	39.6	71	10	3000	23	50	38	8000
V20E23AUTO	20E23A	V20P23AUTO	20P23A	20	23	28	32.4	36	39.6	71	20	5000	70	100	38	12500
V05E25AUTO	5E25A	V05P25AUTO	5P25A	5	25	28	35.1	39	42.9	77	1	400	2.5	6	40	750
V07E25AUTO	7E25A	V07P25AUTO	7P25A	7	25	28	35.1	39	42.9	77	2.5	800	5.5	12	40	1500
V10E25AUTO	10E25A	V10P25AUTO	10P25A	10	25	28	35.1	39	42.9	77	5	1500	13	25	40	2900
V14E25AUTO	14E25A	V14P25AUTO	14P25A	14	25	28	35.1	39	42.9	77	10	3000	25	50	40	6200
V20E25AUTO	20E25A	V20P25AUTO	20P25A	20	25	28	35.1	39	42.9	77	20	5000	77	100	40	13500
V05E30AUTO	5E30A	V05P30AUTO	5P30A	5	30	34	42.3	47	51.7	93	1	400	3.1	6	45	650
V07E30AUTO	7E30A	V07P30AUTO	7P30A	7	30	34	42.3	47	51.7	93	2.5	800	7	12	45	1350
V10E30AUTO	10E30A	V10P30AUTO	10P30A	10	30	34	42.3	47	51.7	93	5	1500	15.5	25	45	2550
V14E30AUTO	14E30A	V14P30AUTO	14P30A	14	30	34	42.3	47	51.7	93	10	3000	32	50	45	5550
V20E30AUTO	20E30A	V20P30AUTO	20P30A	20	30	34	42.3	47	51.7	93	20	5000	90	100	45	12000
V05E35AUTO	5E35A	V05P35AUTO	5P35A	5	35	45	50.4	56	61.6	110	1	400	4	6	50	500
V07E35AUTO	7E35A	V07P35AUTO	7P35A	7	35	45	50.4	56	61.6	110	2.5	800	9	12	50	1100
V10E35AUTO	10E35A	V10P35AUTO	10P35A	10	35	45	50.4	56	61.6	110	5	1500	20	25	50	2100
V14E35AUTO	14E35A	V14P35AUTO	14P35A	14	35	45	50.4	56	61.6	110	10	3000	40	50	50	5000
V20E35AUTO	20E35A	V20P35AUTO	20P35A	20	35	45	50.4	56	61.6	110	20	5000	115	100	50	10000
V05E42AUTO	5E42A	V05P42AUTO	5P42A	5	42	50	61.2	68	74.8	135	1	400	5	6	55	500
V07E42AUTO	7E42A	V07P42AUTO	7P42A	7	42	50	61.2	68	74.8	135	2.5	800	11	12	55	1000
V10E42AUTO	10E42A	V10P42AUTO	10P42A	10	42	50	61.2	68	74.8	135	5	1500	25	25	55	1850
V14E42AUTO	14E42A	V14P42AUTO	14P42A	14	42	50	61.2	68	74.8	135	10	3000	50	50	55	4000
V20E42AUTO	20E42A	V20P42AUTO	20P42A	20	42	50	61.2	68	74.8	135	20	5000	140	100	55	8500
V05E50AUTO	5E50A	V05P50AUTO	5P50A	5	50	65	73.8	82	90.2	135	5	400	2	-	-	350
V07E50AUTO	7E50A	V07P50AUTO	7P50A	7	50	65	73.8	82	90.2	135	10	1200	4	-	-	800
V10E50AUTO	10E50A	V10P50AUTO	10P50A	10	50	65	73.8	82	90.2	135	25	2500	8	-	-	1400
V14E50AUTO	14E50A	V14P50AUTO	14P50A	14	50	65	73.8	82	90.2	145	50	4500	15	-	-	3000
V20E50AUTO	20E50A	V20P50AUTO	20P50A	20	50	65	73.8	82	90.2	145	100	6500	25	-	-	6000
V05E60AUTO	5E60A	V05P60AUTO	5P60A	5	60	85	90	100	110	165	5	400	2.5	-	-	310
V07E60AUTO	7E60A	V07P60AUTO	7P60A	7	60	85	90	100	110	165	10	1200	5	-	-	700
V10E60AUTO	10E60A	V10P60AUTO	10P60A	10	60	85	90	100	110	165	25	2500	10	-	-	1200
V14E60AUTO	14E60A	V14P60AUTO	14P60A	14	60	85	90	100	110	175	50	4500	20	-	-	2500
V20E60AUTO	20E60A	V20P60AUTO	20P60A	20	60	85	90	100	110	175	100	6500	30	-	-	5200

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AUMOV® Varistor Series Device Ratings & Specifications cont...

Epoxy Coated Models		Phenolic Coated Models		Size Disc Dia. (mm)	Max Continuous Voltage		Varistor Voltage at 1mA			Maximum Clamping Voltage		Max Peak Current (8 x 20μs 1 pulse)	Energy Rating (2ms, 1 pulse)	Energy (Load Dump, 10 pulses)*	Jump Start DC V_{jump} (5 min)	Typical Capacitance f = 1MHz
Part Number (Base part)	Branding	Part Number (Base part)	Branding		V_{RMS}	V_{DC}	Min	Nom	Max	V_C	I_{PK}	I_{TM}	W_{TM}			
					(V)	(V)	(V)	(V)	(V)	(V)	(A)	(A)	(J)	(J)	(V)	(pF)
V05E75AUTO	5E75A	V05P75AUTO	5P75A	5	75	100	108	120	132	205	5	400	3	-	-	260
V07E75AUTO	7E75A	V07P75AUTO	7P75A	7	75	100	108	120	132	205	10	1200	6	-	-	600
V10E75AUTO	10E75A	V10P75AUTO	10P75A	10	75	100	108	120	132	200	25	2500	12	-	-	1100
V14E75AUTO	14E75A	V14P75AUTO	14P75A	14	75	100	108	120	132	210	50	4500	22	-	-	2300
V20E75AUTO	20E75A	V20P75AUTO	20P75A	20	75	100	108	120	132	210	100	6500	33	-	-	4800
V05E95AUTO	5E95A	V05P95AUTO	5P95A	5	95	125	135	150	165	250	5	400	4	-	-	200
V07E95AUTO	7E95A	V07P95AUTO	7P95A	7	95	125	135	150	165	250	10	1200	8	-	-	520
V10E95AUTO	10E95A	V10P95AUTO	10P95A	10	95	125	135	150	165	250	25	2500	15	-	-	800
V14E95AUTO	14E95A	V14P95AUTO	14P95A	14	95	125	135	150	165	250	50	4500	22	-	-	1700
V20E95AUTO	20E95A	V20P95AUTO	20P95A	20	95	125	135	150	165	250	100	6500	45	-	-	3700
V10E130AUTO	10E130A	V10P130AUTO	10P130A	10	130	170	184.5	205	225.5	340	25	3500	40	-	-	450
V14E130AUTO	14E130A	V14P130AUTO	14P130A	14	130	170	184.5	205	225.5	340	50	6500	60	-	-	1000
V20E130AUTO	20E130A	V20P130AUTO	20P130A	20	130	170	184.5	205	225.5	340	100	10000	145	-	-	1900
V10E140AUTO	10E140A	V10P140AUTO	10P140A	10	140	180	198	220	242	360	25	3500	45	-	-	400
V14E140AUTO	14E140A	V14P140AUTO	14P140A	14	140	180	198	220	242	360	50	6500	65	-	-	900
V20E140AUTO	20E140A	V20P140AUTO	20P140A	20	140	180	198	220	242	360	100	10000	155	-	-	1750
V10E150AUTO	10E150A	V10P150AUTO	10P150A	10	150	200	216	240	264	395	25	3500	50	-	-	360
V14E150AUTO	14E150A	V14P150AUTO	14P150A	14	150	200	216	240	264	395	50	6500	70	-	-	800
V20E150AUTO	20E150A	V20P150AUTO	20P150A	20	150	200	216	240	264	395	100	10000	165	-	-	1600
V10E175AUTO	10E175A	V10P175AUTO	10P175A	10	175	225	243	270	297	455	25	3500	55	-	-	350
V14E175AUTO	14E175A	V14P175AUTO	14P175A	14	175	225	243	270	297	455	50	6500	80	-	-	700
V20E175AUTO	20E175A	V20P175AUTO	20P175A	20	175	225	243	270	297	455	100	10000	180	-	-	1400
V10E230AUTO	10E230A	V10P230AUTO	10P230A	10	230	300	324	360	396	595	25	3500	60	-	-	250
V14E230AUTO	14E230A	V14P230AUTO	14P230A	14	230	300	324	360	396	595	50	6500	105	-	-	550
V20E230AUTO	20E230A	V20P230AUTO	20P230A	20	230	300	324	360	396	595	100	10000	225	-	-	1100
V10E250AUTO	10E250A	V10P250AUTO	10P250A	10	250	320	351	390	429	650	25	3500	65	-	-	220
V14E250AUTO	14E250A	V14P250AUTO	14P250A	14	250	320	351	390	429	650	50	6500	115	-	-	500
V20E250AUTO	20E250A	V20P250AUTO	20P250A	20	250	320	351	390	429	650	100	10000	240	-	-	1000
V10E275AUTO	10E275A	V10P275AUTO	10P275A	10	275	350	387	430	473	710	25	3500	70	-	-	200
V14E275AUTO	14E275A	V14P275AUTO	14P275A	14	275	350	387	430	473	710	50	6500	130	-	-	450
V20E275AUTO	20E275A	V20P275AUTO	20P275A	20	275	350	387	430	473	710	100	10000	260	-	-	900
V10E300AUTO	10E300A	V10P300AUTO	10P300A	10	300	385	423	470	517	775	25	3500	75	-	-	180
V14E300AUTO	14E300A	V14P300AUTO	14P300A	14	300	385	423	470	517	775	50	6500	140	-	-	400
V20E300AUTO	20E300A	V20P300AUTO	20P300A	20	300	385	423	470	517	775	100	10000	290	-	-	800
V10E320AUTO	10E320A	V10P320AUTO	10P320A	10	320	420	459	510	561	840	25	3500	80	-	-	170
V14E320AUTO	14E320A	V14P320AUTO	14P320A	14	320	420	459	510	561	840	50	6500	150	-	-	380
V20E320AUTO	20E320A	V20P320AUTO	20P320A	20	320	420	459	510	561	840	100	10000	320	-	-	750
V10E385AUTO	10E385A	V10P385AUTO	10P385A	10	385	505	558	620	682	1025	25	3500	85	-	-	160
V14E385AUTO	14E385A	V14P385AUTO	14P385A	14	385	505	558	620	682	1025	50	6500	175	-	-	360
V20E385AUTO	20E385A	V20P385AUTO	20P385A	20	385	505	558	620	682	1025	100	10000	325	-	-	700
V10E420AUTO	10E420A	V10P420AUTO	10P420A	10	420	560	612	680	748	1120	25	3500	90	-	-	140
V14E420AUTO	14E420A	V14P420AUTO	14P420A	14	420	560	612	680	748	1120	50	6500	185	-	-	300
V20E420AUTO	20E420A	V20P420AUTO	20P420A	20	420	560	612	680	748	1120	100	10000	330	-	-	600
V10E440AUTO	10E440A	V10P440AUTO	10P440A	10	440	585	643.5	715	786.5	1180	25	3500	95	-	-	130
V14E440AUTO	14E440A	V14P440AUTO	14P440A	14	440	585	643.5	715	786.5	1180	50	6500	185	-	-	260
V20E440AUTO	20E440A	V20P440AUTO	20P440A	20	440	585	643.5	715	786.5	1180	100	10000	340	-	-	500
V10E460AUTO	10E460A	V10P460AUTO	10P460A	10	460	615	675	750	825	1240	25	3500	95	-	-	120
V14E460AUTO	14E460A	V14P460AUTO	14P460A	14	460	615	675	750	825	1240	50	6500	190	-	-	220
V20E460AUTO	20E460A	V20P460AUTO	20P460A	20	460	615	675	750	825	1240	100	10000	370	-	-	400
V10E510AUTO	10E510A	V10P510AUTO	10P510A	10	510	670	738	820	902	1355	25	3500	98	-	-	110
V14E510AUTO	14E510A	V14P510AUTO	14P510A	14	510	670	738	820	902	1355	50	6500	205	-	-	200
V20E510AUTO	20E510A	V20P510AUTO	20P510A	20	510	670	738	820	902	1355	100	10000	410	-	-	350

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AUMOV® Varistor Series Device Ratings & Specifications cont...

Epoxy Coated Models		Phenolic Coated Models		Size Disc Dia. (mm)	Max Continuous Voltage		Varistor Voltage at 1mA			Maximum Clamping Voltage		Max Peak Current (8 x 20μs 1 pulse)	Energy Rating (2ms, 1 pulse)	Energy (Load Dump, 10 pulses)*	Jump Start DC V_{jump} (5 min)	Typical Capacitance f = 1MHz
Part Number (Base part)	Branding	Part Number (Base part)	Branding		V_{RMS}	V_{DC}	Min	Nom	Max	V_C	I_{PK}	I_{TM}	W_{TM}			
					(V)	(V)	(V)	(V)	(V)	(V)	(A)	(A)	(J)	(J)	(V)	(pF)
V10E550AUTO	10E550A	V10P550AUTO	10P550A	10	550	745	819	910	1001	1500	25	3500	98	-	-	100
V14E550AUTO	14E550A	V14P550AUTO	14P550A	14	550	745	819	910	1001	1500	50	6500	210	-	-	180
V20E550AUTO	20E550A	V20P550AUTO	20P550A	20	550	745	819	910	1001	1500	100	10000	450	-	-	300
V10E625AUTO	10E625A	V10P625AUTO	10P625A	10	625	825	900	1000	1100	1650	25	3500	110	-	-	90
V14E625AUTO	14E625A	V14P625AUTO	14P625A	14	625	825	900	1000	1100	1650	50	6500	235	-	-	160
V20E625AUTO	20E625A	V20P625AUTO	20P625A	20	625	825	900	1000	1100	1650	100	10000	490	-	-	250

Note: 1. Average power dissipation of transients not to exceed 0.2W, 0.25W, 0.4W, 0.6W or 1W for model sizes 5mm, 7mm, 10mm, 14mm and 20mm, respectively.
*2. Energy rating (auto load dump) for impulse duration of 40ms minimum to one half of peak current, 60sec interval ISO7637-2 pulse 5a and ISO16750-2 Table 5A.
3. The shift of Vnom (Varistor Volatge) may be to +/-15% for Load dump or Jump Start test.
4. The ratings and specifications of Silicone coated options are the same as the Phenolic coating, except the isolation voltage capability (Hi-Pot Encapsulation) is 2500V.

Current Energy and Power Dissipation Ratings

Figure 1A - Power Derating for Epoxy Coated

For applications exceeding 85ºC ambient temperature, the peak surge current and energy ratings must be reduced as shown below.

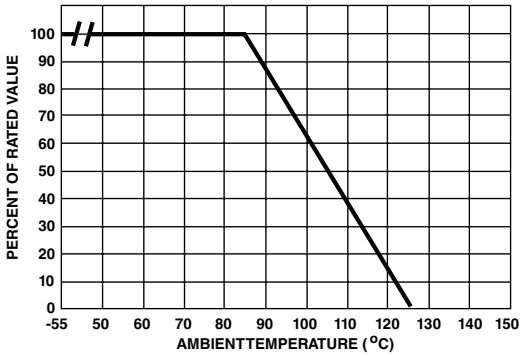
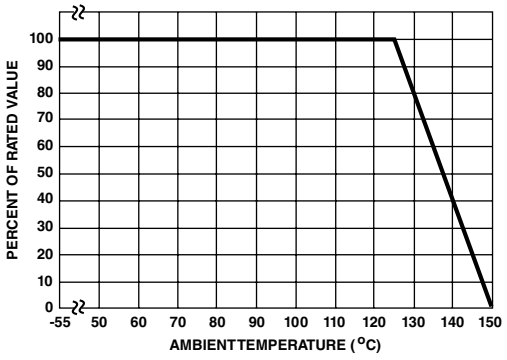


Figure 1B - Power Derating for Phenolic Coated and Silicone Coated

For applications exceeding 125ºC ambient temperature, the peak surge current and energy ratings must be reduced as shown below.



Peak Pulse Current Test Waveform for Clamping Voltage

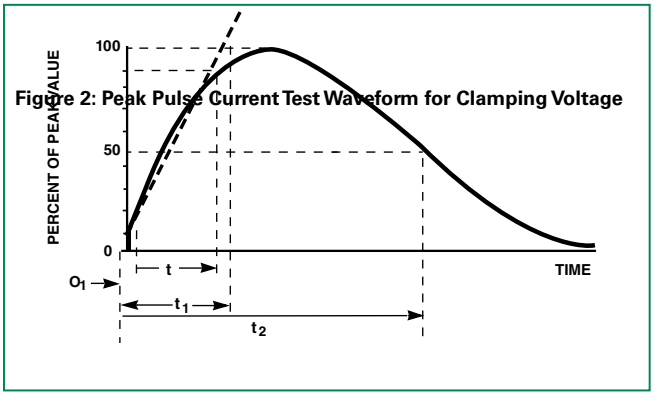


Figure 2: Peak Pulse Current Test Waveform for Clamping Voltage

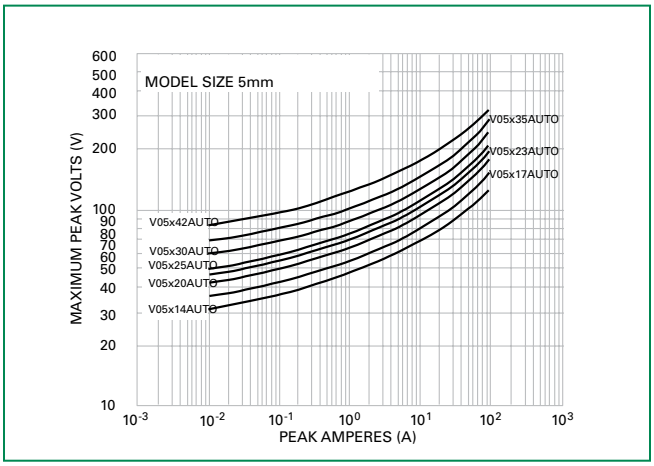
0_1 = Virtual Origin of Wave
t = Time from 10% to 90% of Peak
t_1 = Virtual Front Time = 1.25 x t
t_2 = Virtual Time to Half-Value (Impulse Duration)

Example - For an 8/20 μs Current Waveform:
8μs = t_1 = Virtual Front Time
20μs = t_2 = Virtual Time to Half-Value

Revised: 09/14/17

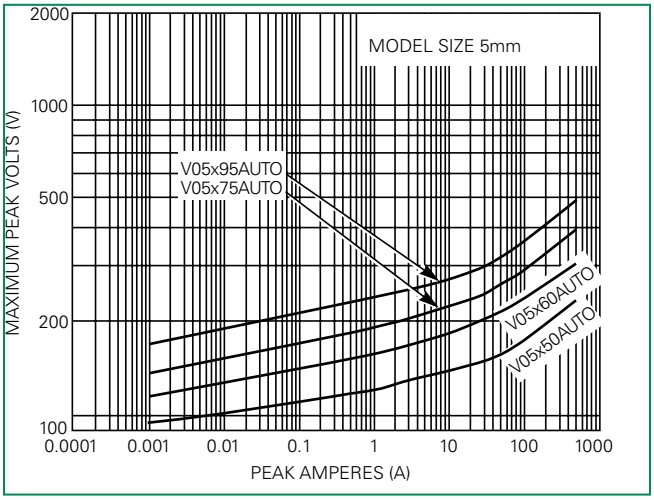
Maximum Clamping Voltage for 5mm Parts

V05x14AUTO - V05x42AUTO



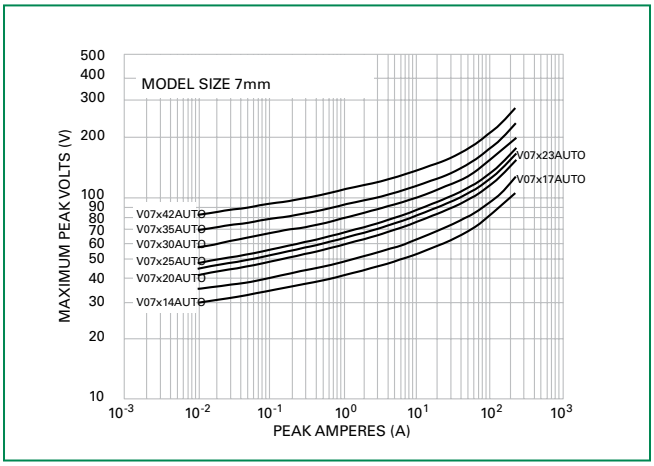
Maximum Clamping Voltage for 5mm Parts

V05x50AUTO - V05x95AUTO



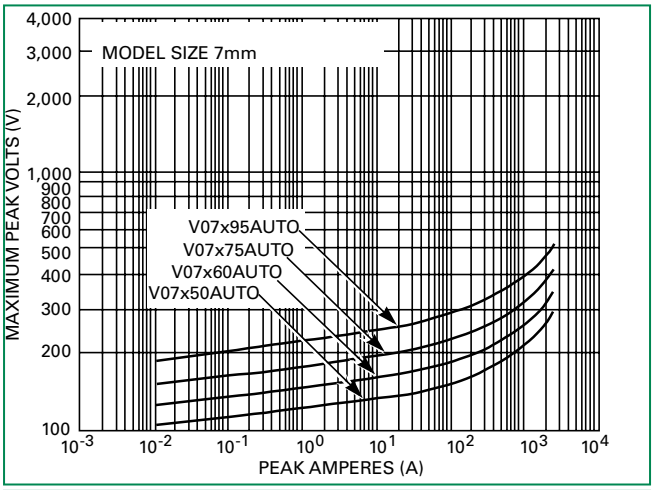
Maximum Clamping Voltage for 7mm Parts

V07x14AUTO - V07x42AUTO



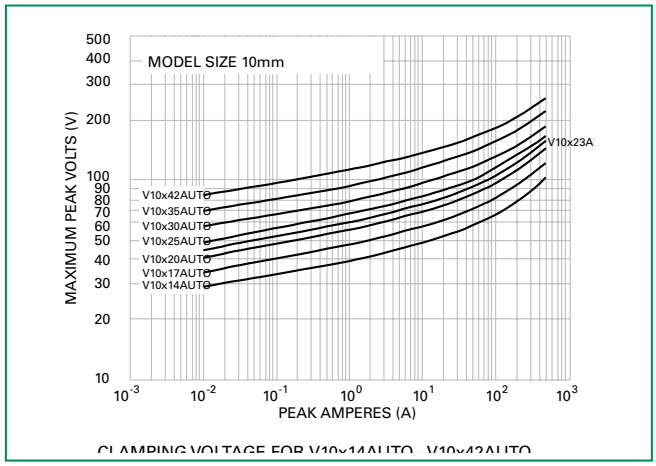
Maximum Clamping Voltage for 7mm Parts

V07x50AUTO - V07x95AUTO



Maximum Clamping Voltage for 10mm Parts

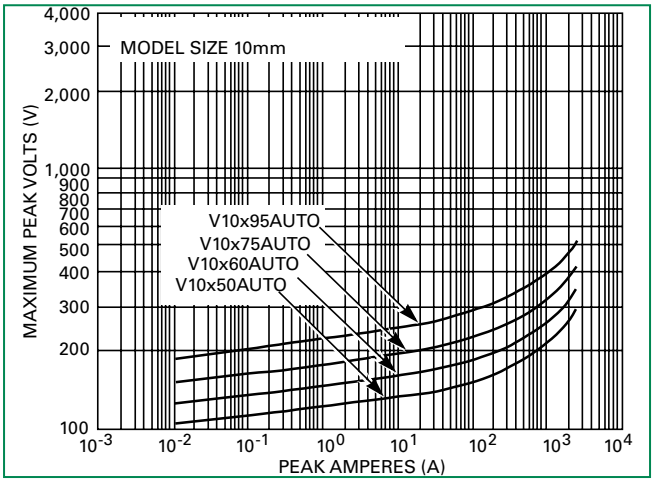
V10x14AUTO - V10x42AUTO



CLAMPING VOLTAGE FOR V10x14AUTO - V10x42AUTO

Maximum Clamping Voltage for 10mm Parts

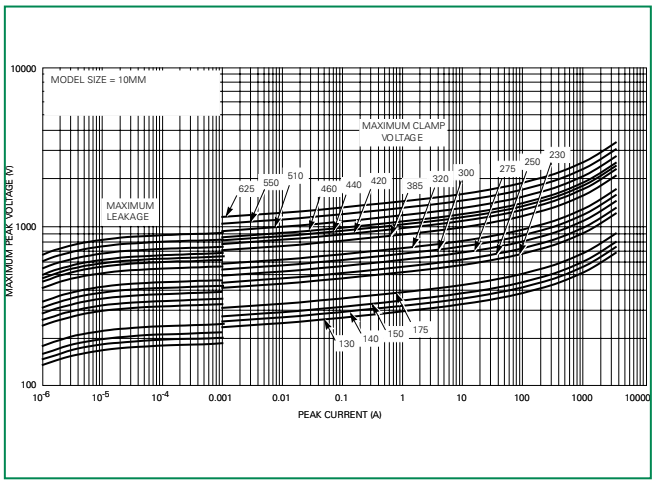
V10x50AUTO - V10x95AUTO



Revised: 09/14/17

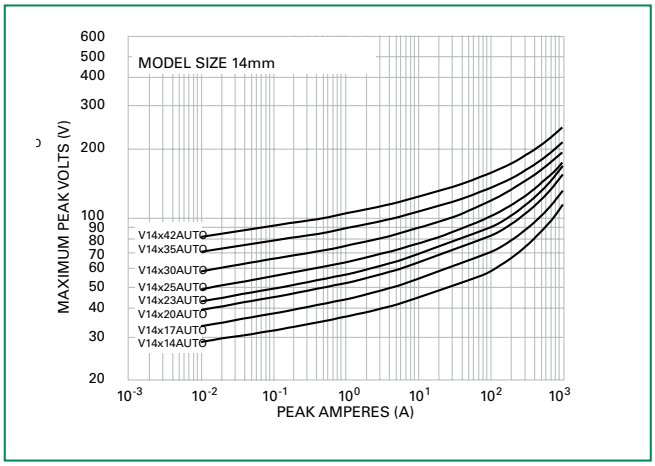
Maximum Clamping Voltage for 10mm Parts

V10x130AUTO - V10x625AUTO



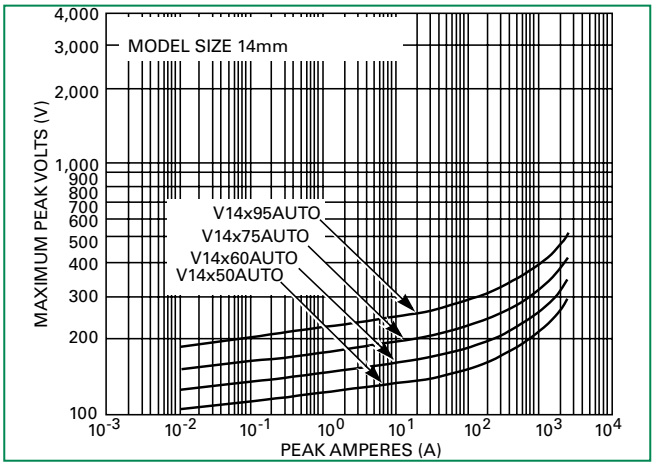
Maximum Clamping Voltage for 14mm Parts

V14x14AUTO - V14x42AUTO



Maximum Clamping Voltage for 14mm Parts

V14x50AUTO - V14x95AUTO

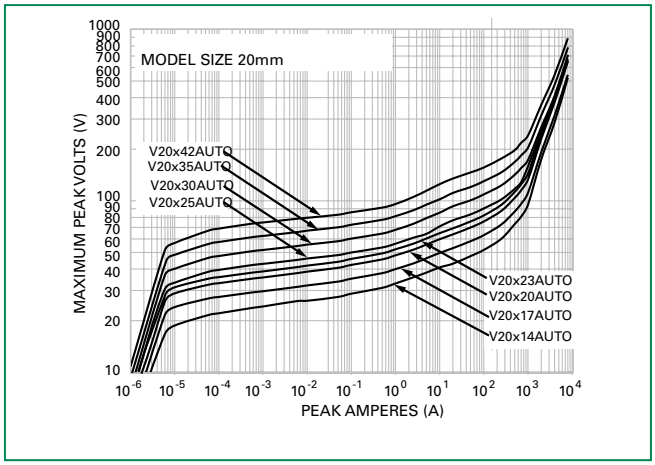


Maximum Clamping Voltage for 14mm Parts

V14x130AUTO - V14x625AUTO

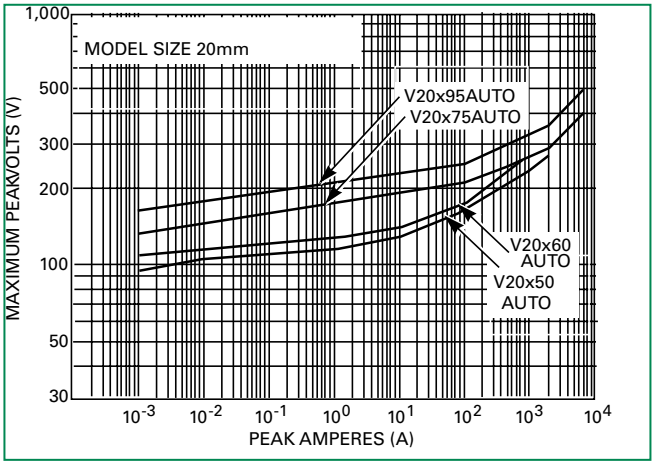
Maximum Clamping Voltage for 20mm Parts

V20x14AUTO - V20x42AUTO



Maximum Clamping Voltage for 20mm Parts

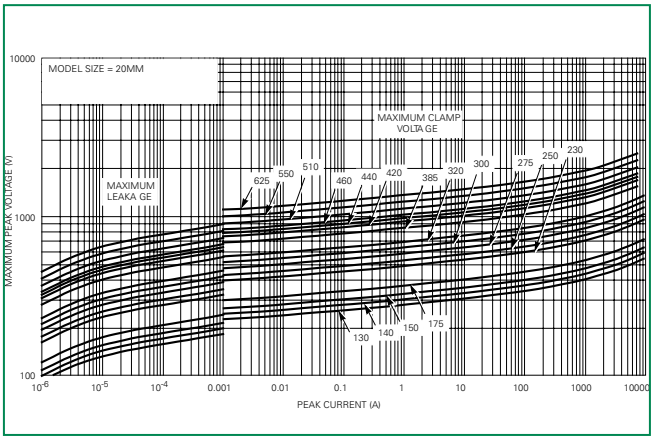
V20x50AUTO - V20x95AUTO



Revised: 09/14/17

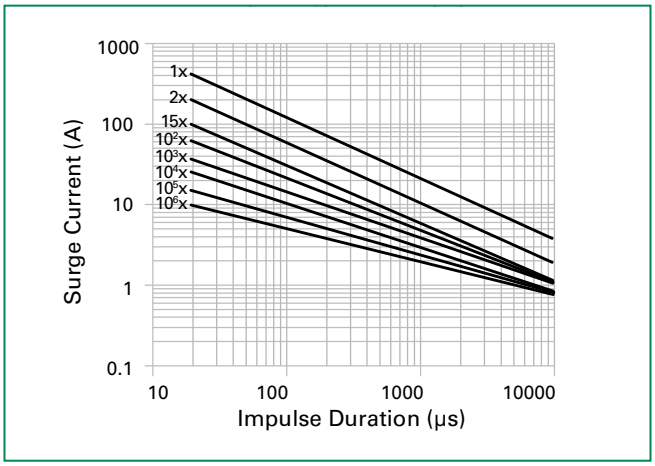
Maximum Clamping Voltage for 20mm Parts

V20x130AUTO - V20x625AUTO



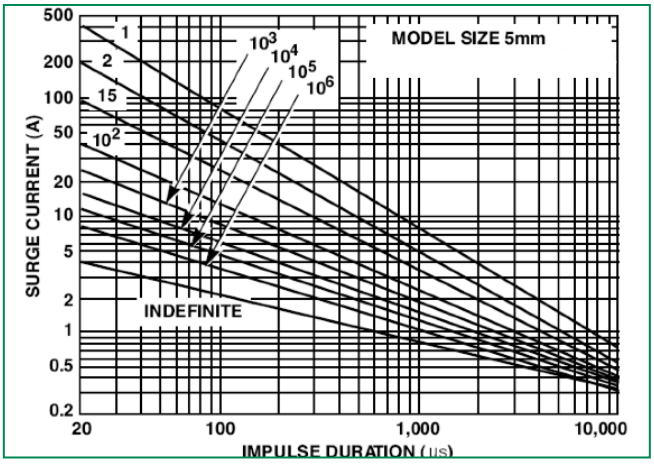
Repetitive Surge Capability for 5mm Parts

V05x14AUTO – V05x42AUTO



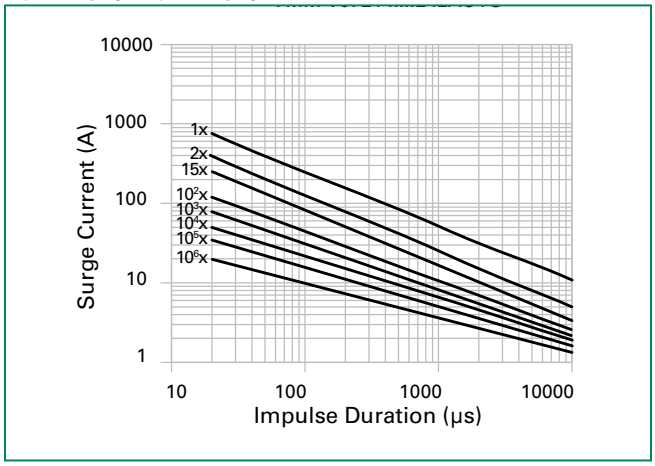
Repetitive Surge Capability for 5mm Parts

V05x50AUTO – V05x95AUTO



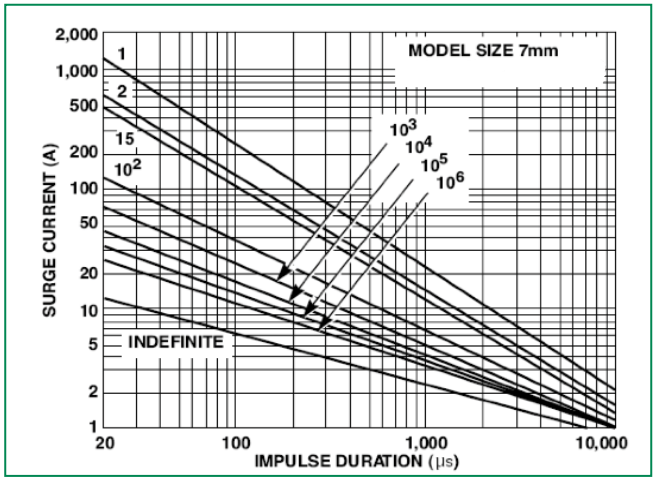
Repetitive Surge Capability for 7mm Parts

V07x14AUTO – V07x42AUTO



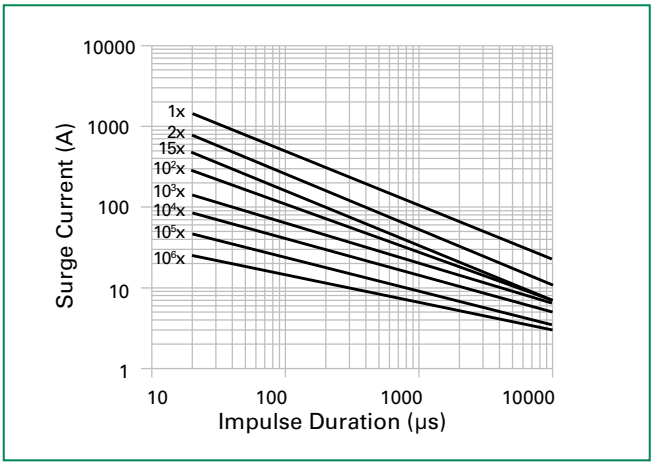
Repetitive Surge Capability for 7mm Parts

V07x50AUTO – V07x95AUTO



Repetitive Surge Capability for 10mm Parts

V10x14AUTO – V10x42AUTO

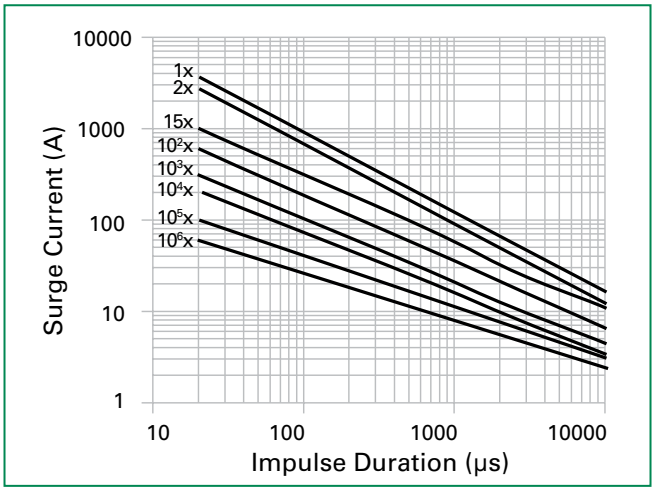


NOTE: If pulse ratings are exceeded, a shift of $V_{N(DC)}$ (at specified current) of more then +/-10% could result. This type of shift, which normally results in a decrease of $V_{N(DC)}$, may result in the device not meeting the original published specifications, but does not prevent the device from continuing to function, and to provide ample protection.

Revised: 09/14/17

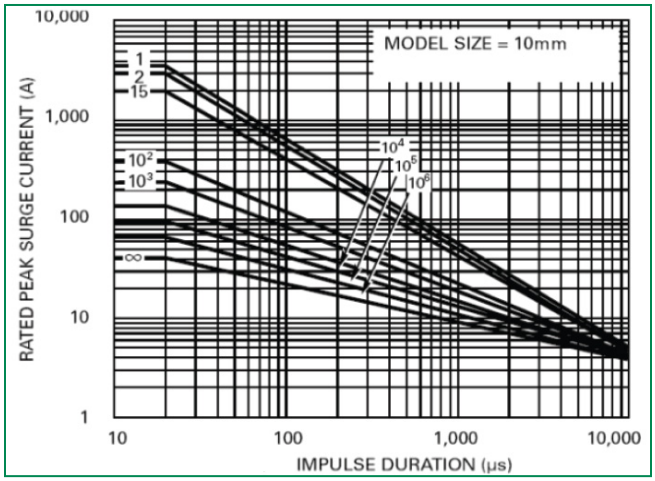
Repetitive Surge Capability for 10mm Parts

V10x50AUTO - V10x95AUTO



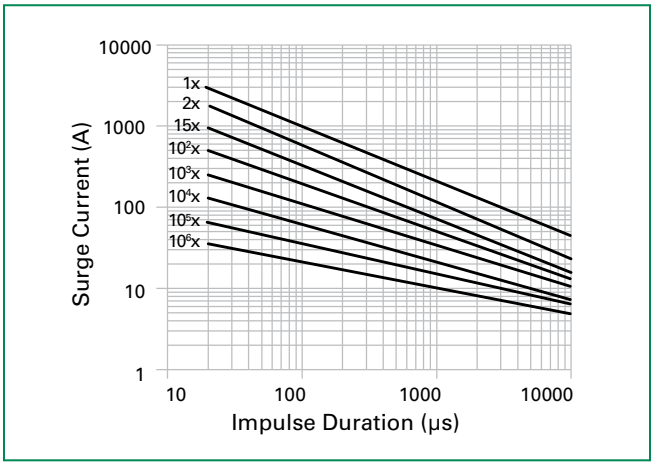
Repetitive Surge Capability for 10mm Parts

V10x130AUTO - V10x625AUTO



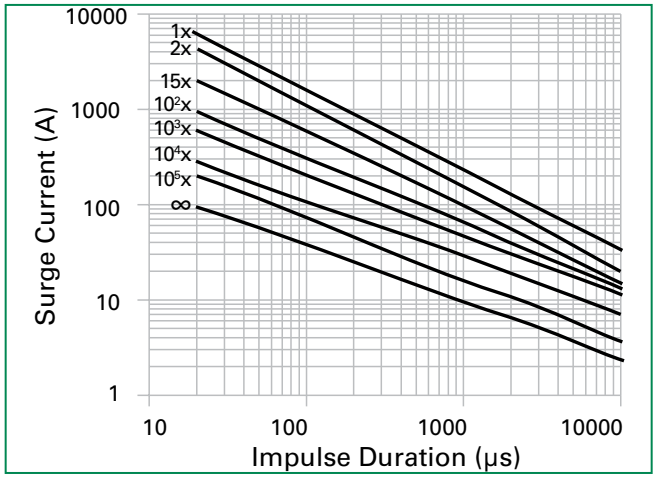
Repetitive Surge Capability for 14mm Parts

V14x14AUTO – V14x42AUTO



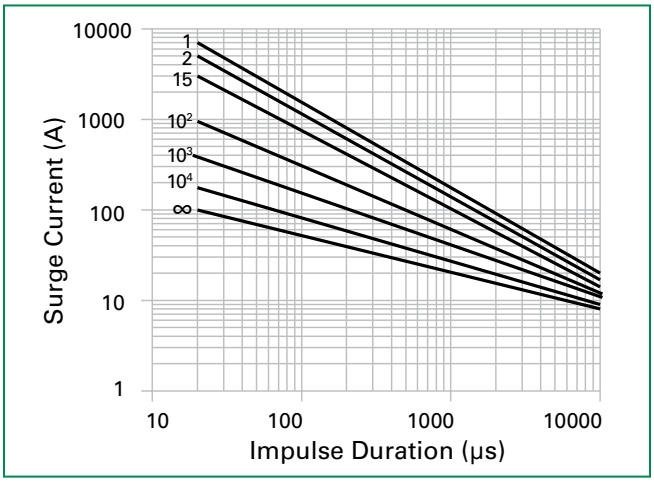
Repetitive Surge Capability for 14mm Parts

V14x50AUTO - V14x95AUTO



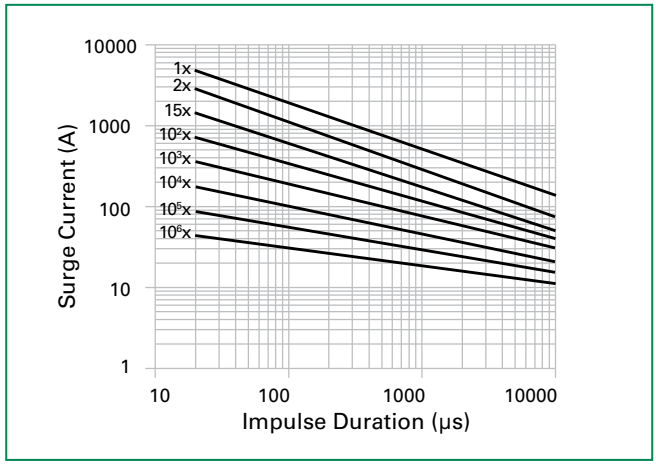
Repetitive Surge Capability for 14mm Parts

V14x130AUTO - V14x625AUTO



Repetitive Surge Capability for 20mm Parts

V020x14AUTO – V20x42AUTO



NOTE: If pulse ratings are exceeded, a shift of $V_{N(DC)}$ (at specified current) of more then +/-10% could result. This type of shift, which normally results in a decrease of $V_{N(DC)}$, may result in the device not meeting the original published specifications, but does not prevent the device from continuing to function, and to provide ample protection.

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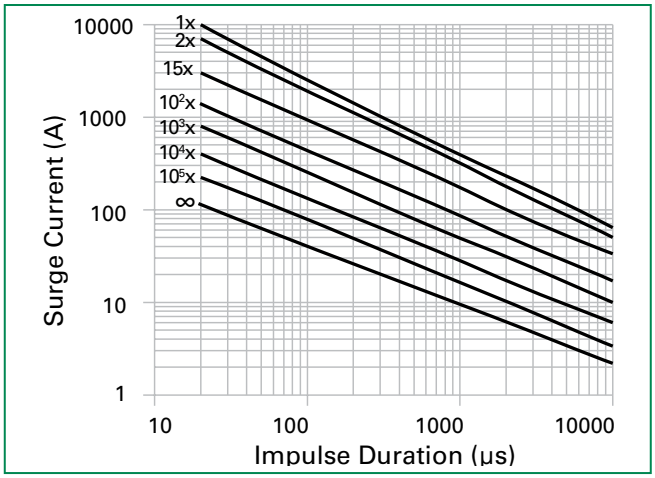
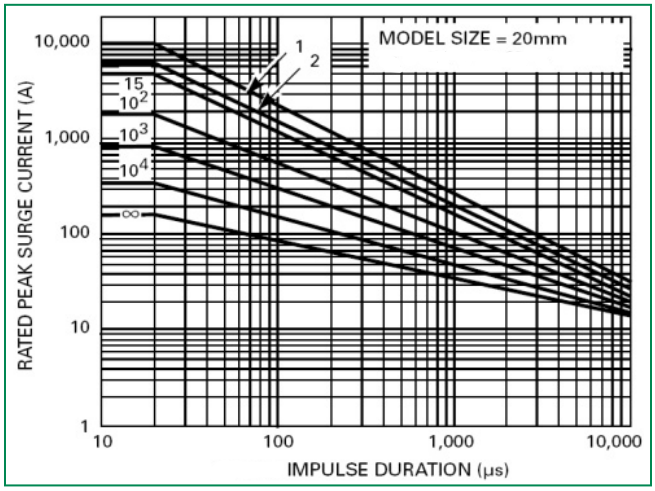
Repetitive Surge Capability for 20mm Parts

V20x50AUTO - V20x95AUTO



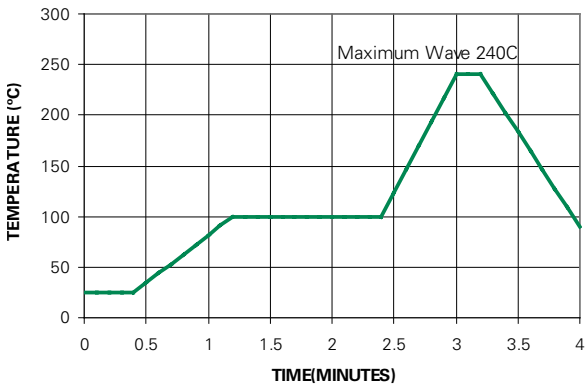
Repetitive Surge Capability for 20mm Parts

V20x130AUTO - V20x625AUTO

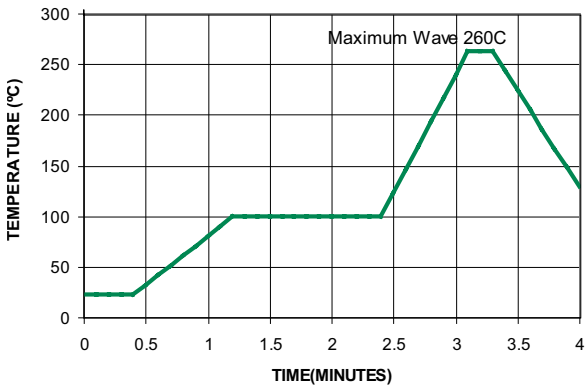


Wave Solder Profile

Non Lead–free Profile



Lead–free Profile



Physical Specifications

Lead Material	Copper Clad Steel Wire
Soldering Characteristics	Solderability per MIL–STD–202, Method 208
Insulating Material	Cured, flame retardant epoxy polymer meets UL94V–0 requirements
Device Labeling	Marked with LF, voltage and date code

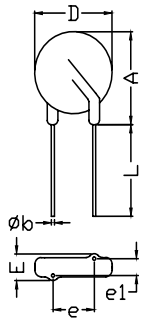
Environmental Specifications

Humidity Aging	+85°C, 85% RH,1000 hours +/-10% typical voltage change
Temperature Cycling Shock	-40°C to 125°C, 5 cycles for Epoxy coating; -40°C to 125°C, 1000 cycles for Phenolic and Silicone coating; +/-10% typical voltage change
Solvent Resistance	MIL–STD–202, Method 215
Moisture Sensitivity	Level 1, J-STD-020

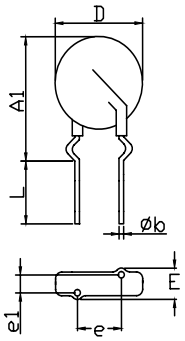
Revised: 09/14/17

Product Dimensions (mm)

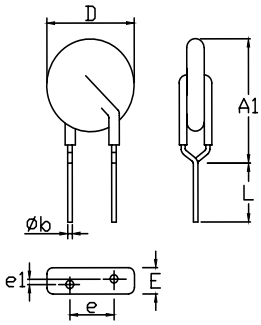
Straight Lead



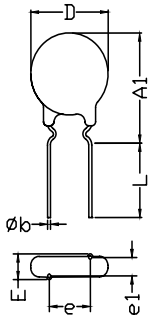
Outer Crimp Lead



In-Line (Under Crimp) Lead



Inner Crimp Lead



Dimension	V_{RMS} Voltage Model	5mm Size		7mm Size		10mm Size		14mm Size		20mm Size	
		Min. mm (in)	Max. mm (in)	Min. mm (in)	Max. mm (in)	Min. mm (in)	Max. mm (in)	Min. mm (in)	Max. mm (in)	Min. mm (in)	Max. mm (in)
A	11 - 320	-	10 (0.394)	-	12 (0.472)	-	16 (0.630)	-	20 (0.787)	-	26.5 (1.043)
	385 - 625	-	10.5 (0.413)	-	13 (0.512)	-	17.0 (0.689)	-	20.5 (0.807)	-	28.0 (1.102)
A1	All	-	13 (0.512)	-	15 (0.591)	-	19.5 (0.768)	-	22.5 (0.886)	-	29 (1.142)
ØD	All	-	7 (0.276)	-	9 (0.354)	-	12.5 (0.492)	-	17 (0.669)	-	23 (0.906)
e	11 - 95	4 (0.157)	6 (0.236)	4 (0.157)	6 (0.236)	6.5 (0.256)	8.5 (0.335)	6.5 (0.256)	8.5 (0.335)	6.5 (0.256)	8.5 (0.335)
	130 - 625									9.0 (0.354)	11.0 (0.433)
e_1	11 - 30	1 (0.039)	3 (0.118)	1 (0.039)	3 (0.118)	1 (0.039)	3 (0.118)	1 (0.039)	3 (0.118)	1 (0.039)	3 (0.118)
	35 - 320	1.5 (0.059)	3.5 (0.138)	1.5 (0.059)	3.5 (0.138)	1.5 (0.059)	3.5 (0.138)	1.5 (0.059)	3.5 (0.138)	1.5 (0.059)	3.5 (0.138)
	385 - 625	2.5 (0.098)	5.5 (0.217)	2.5 (0.098)	5.5 (0.217)	2.5 (0.098)	5.5 (0.217)	2.5 (0.098)	5.5 (0.217)	2.5 (0.098)	5.5 (0.217)
E	11 - 30	-	5.0 (0.197)	-	5.0 (0.197)	-	5.0 (0.197)	-	5.0 (0.197)	-	5.0 (0.197)
	35 - 320	-	5.6 (0.220)	-	5.6 (0.220)	-	5.6 (0.220)	-	5.6 (0.220)	-	5.6 (0.220)
	385 - 510	-	7.3 (0.287)	-	7.3 (0.287)	-	7.3 (0.287)	-	7.3 (0.287)	-	7.3 (0.287)
	550 - 625	-	8.3 (0.327)	-	8.3 (0.327)	-	8.3 (0.327)	-	8.3 (0.327)	-	8.3 (0.327)
Øb	All	0.585 (0.023)	0.685 (0.027)	0.585 (0.023)	0.685 (0.027)	0.76 (0.030)	0.86 (0.034)	0.76 (0.030)	0.86 (0.034)	0.76 (0.030)	0.86 (0.034)
L	All	25.4 (1.00)	-	25.4 (1.00)	-	25.4 (1.00)	-	25.4 (1.00)	-	25.4 (1.00)	-
L_{TRIM}	All	2.41 (0.095)	4.69 (0.185)	2.41 (0.095)	4.69 (0.185)	2.41 (0.095)	4.69 (0.185)	2.41 (0.095)	4.69 (0.185)	2.41 (0.095)	4.69 (0.185)

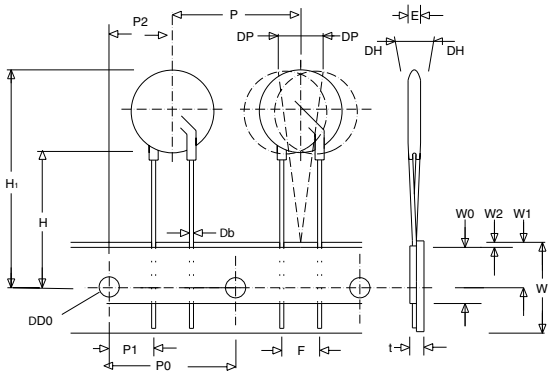
Note: Dimensions in millimetres, (Inches) is typical.

Revised: 09/14/17

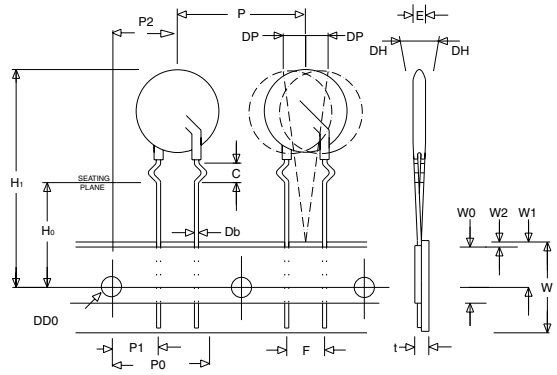
Tape and Reel Specifications

5 and 7mm Devices

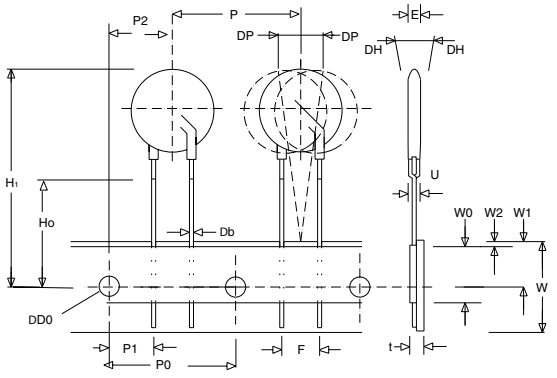
STRAIGHT LEADS "L1"



CRIMPED LEADS "L2"

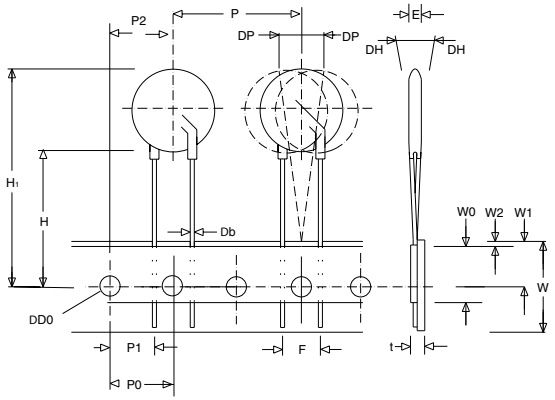


UNDER CRIMPED / IN-LINE LEADS "L3"

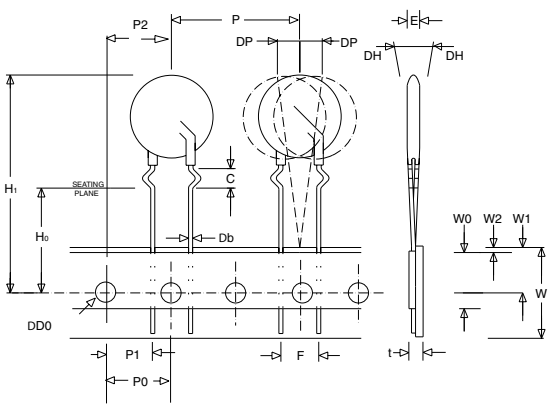


10, 14 and 20mm Devices

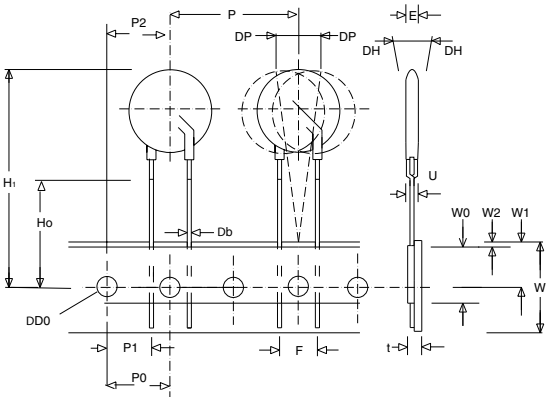
STRAIGHT LEADS "L1"



CRIMPED LEADS "L2"



UNDER CRIMPED / IN-LINE LEADS "L3"



Refer to next page for dimension measurement specifics.

Tape and Reel Specifications (continued)

NOTES:
- Radial devices on tape are supplied with crimped leads, straight leads, or under-crimped leads
- Leads are offset by product dimension e1
- Conforms to ANSI and EIA specifications
- Can be supplied to IEC Publication 286-2
- 10mm parts are available on tape and reel up to 510 VAC only
- 14mm and 20mm parts are available on tape and reel up to 550 VAC only

SYMBOL	DESCRIPTION	MODEL SIZE					
		5mm	7mm	10mm	14mm	20mm	
						(11 Vac to 95Vac voltage)	≧115 Vac Voltage
P	Pitch of Component	12.7 +/- 1.0	12.7 +/- 1.0	25.4 +/- 1.0	25.4 +/- 1.0	25.4 +/- 1.0	25.4 +/- 1.0
P_0	Feed Hole Pitch	12.7 +/- 0.2	12.7 +/- 0.2	12.7 +/- 0.2	12.7 +/- 0.2	12.7 +/- 0.2	12.7 +/- 0.2
P_1	Feed Hole Center to Pitch	3.85 +/- 0.7	3.85 +/- 0.7	8.85 +/- 0.7	8.85 +/- 0.7	8.85 +/- 0.7	7.70 +/- 0.7
P_2	Hole Center to Component Center	6.35 +/- 1.0	6.35 +/- 1.0	12.7 +/- 0.7	12.7 +/- 0.7	12.7 +/- 0.7	12.7 +/- 0.7
F	Lead to Lead Distance	5.0 +/- 1.0	5.0 +/-1.0	7.5 +/- 1.0	7.5 +/- 1.0	7.5 +/- 1.0	10 +/- 1.0
h	Component Alignment	2.0 Max	2.0 Max	2.0 Max	2.0 Max	2.0 Max	2.0 Max
W	Tape Width	18.0 +1.0 / -0.5	18.0 +1.0 / -0.5	18.0 +1.0 / -0.5	18.0 +1.0 / -0.5	18.0 +1.0 / -0.5	18.0 + 1.0 / -0.5
W_0	Hold Down Tape Width	12.0 +/- 0.3	12.0 +/- 0.3	12.0 +/- 0.3	12.0 +/- 0.3	12.0 +/- 0.3	12.0 +/- 0.3
W_1	Hole Position	9.0 +0.75 / -0.50	9.0 +0.75 / -0.50	9.0 +0.75 / -0.50	9.0 +0.75 / -0.50	9.0 +0.75 / -0.50	9.0 +0.75 / -0.50
W_2	Hold Down Tape Position	0.5 Max	0.5 Max	0.5 Max	0.5 Max	0.5 Max	0.5 Max
H	Height from Tape Center to Component Base	18.0 +2.0 / -0.0	18.0 +2.0 / -0.0	18.0 +2.0 / -0.0	18.0 +2.0 / -0.0	18.0 +2.0 / -0.0	18.0 +2.0 / -0.0
H_0	Seating Plane Height	16.0 +/- 0.5	16.0 +/- 0.5	16.0 +/- 0.5	16.0 +/- 0.5	16.0 +/- 0.5	16.0 +/- 0.5
H_1	Component Height	29.0 Max	32.0 Max	36.0 Max	40.0 Max	46.5 Max	46.5 Max
D_0	Feed Hole Diameter	4.0 +/- 0.2	4.0 +/- 0.2	4.0 +/- 0.2	4.0 +/- 0.2	4.0 +/- 0.2	4.0 +/- 0.2
t	Total Tape Thickness	0.7 +/- 0.2	0.7 +/- 0.2	0.7 +/- 0.2	0.7 +/- 0.2	0.7 +/- 0.2	0.7 +/- 0.2
U	Undercrimp Width	8.0 Max	8.0 Max	8.0 Max	8.0 Max	8.0 Max	8.0 Max
p	Component Alignment	3° Max	3° Max	3° Max	3° Max	3° Max	3° Max

Part Numbering System

V 05 E 14 AUTO L1 B XXXXX

Littelfuse Varistor

Disc Size
05, 07, 10, 14 or 20 mm

Coating
E: Epoxy
P: Phenolic
H: Silicone
Available for 10, 14, or 20mm

VM(AC)RMS
14V to 625V

AUMOV® Series
AEC-Q200 Table 10 Compliant for Phenolic and Silicone coating

Other Non-Standard Options

Packaging
Blank or B: Bulk Pack
T: Tape and Reel
A: Ammo Pack

Lead Formation
Blank or L1: Straight
L2: Outer Crimp
L3: In-Line
L4: Trim/Outer Crimp (Bulk pack only)
L5: Inner Crimp
Note: for Vm(AC) 100V to 625V parts, the L1, L2, L3, L4, and L5 should be replaced by 1,2,3,4, and 5 respectively

Revised: 09/14/17