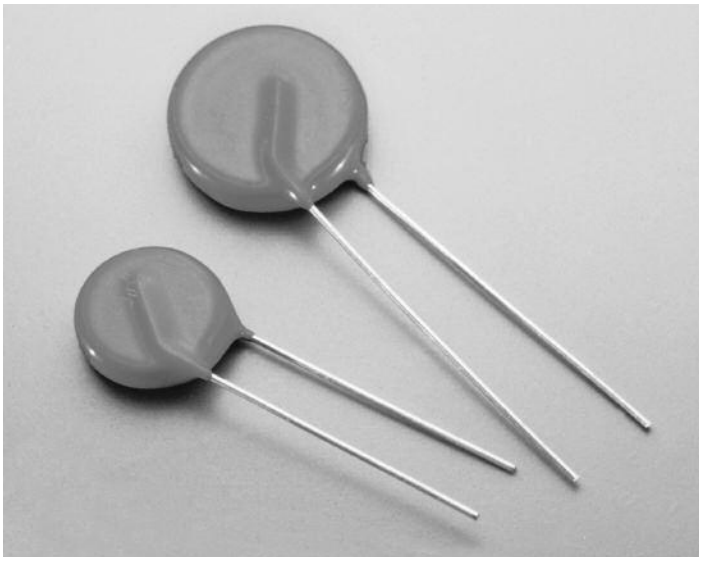
# LA Varistor Series

The LA Series of transient voltage surge suppressors are radial-lead varistors (MOVs) that are designed to be operated continuously across AC power lines. These UL recognized varistors require very little mounting space, and are offered in various standard lead form options.

The LA Series varistors are available in four model sizes: 7mm, 10mm, 14mm and 20mm; and have a $V_{M(AC)RMS}$ voltage range from 130V to 1000V, and an energy absorption capability up to 360J. Some LA series model numbers are available with clamping voltage selections, designated by a model number suffix of either A or B. The “A” selection is the standard model; the “B” selection provides a lower clamping voltage.

See LA Series Device Ratings and Specifications table for part number and brand information.



## Features

- Energy Absorption Capability ($W_{TM}$) . . . . . Up to 360J
- Wide Operating Voltage Range $V_{M(AC)RMS}$ . . . . . 130V to 1000V
- No Derating Up to 85°C Ambient
- Available in Tape and Reel or Bulk Pack

**AGENCY APPROVALS:** Recognized under the components program of Underwriters Laboratories. Certified by CSA, VDE and CECC.

**AGENCY FILE NUMBERS:** UL E75961, E56529, E135010; CSA LR91788; VDE 116895E; CECC 42201-006.

## ALSO SEE LITTELFUSE ULTRAMOV™ AND C-III VARISTOR SERIES

# LA Varistor Series

**Absolute Maximum Ratings** For ratings of individual members of a series, see Device Ratings and Specifications chart

| | LA SERIES | UNITS |
|---|---|---|
| Continuous: | | |
| Steady State Applied Voltage: | | |
| AC Voltage Range ($V_{M(AC)RMS}$) | 130 to 1000 | V |
| DC Voltage Range ($V_{M(DC)}$) | 175 to 1200 | V |
| Transients: | | |
| Peak Pulse Current ($I_{TM}$) | | |
| For 8/20µs Current Wave (See Figure 2) | 1200 to 6500 | A |
| Single Pulse Energy Range | | |
| For 10/1000µs Current Wave ($W_{TM}$) | 11 to 360 | J |
| Operating Ambient Temperature Range ($T_A$) | -55 to 85 | °C |
| Storage Temperature Range ($T_{STG}$) | -55 to 125 | °C |
| Temperature Coefficient ($\alpha V$) of Clamping Voltage ($V_C$) at Specified Test Current | <0.01 | %/°C |
| Hi-Pot Encapsulation (Isolation Voltage Capability) | 2500 | V |
| (Dielectric must withstand indicated DC voltage for one minute per MIL-STD 202, Method 301) | | |
| Insulation Resistance | 1000 | MΩ |

*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.*

## Device Ratings and Specifications

| PART NUMBER | MODEL SIZE DISC DIA. (mm) | DEVICE MODEL NUMBER BRAND-ING | MAXIMUM RATING (85°C) | | | | SPECIFICATIONS (25°C) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTINUOUS | | TRANSIENT | | VARISTOR VOLTAGE AT 1mA DC TEST CURRENT | | MAXIMUM CLAMPING VOLTAGE 8 x 20µs | | TYPICAL CAPACITANCE f = 1MHz |
| | | | $V_{RMS}$ | $V_{DC}$ | ENERGY 10 x 1000µs | PEAK CURRENT 8 x 20µs | $V_{NOM}$ MIN | $V_{NOM}$ MAX | $V_C$ | $I_{PK}$ | C |
| | | | $V_{M(AC)}$ | $V_{M(DC)}$ | $W_{TM}$ | $I_{TM}$ | | | | | |
| | | | (V) | (V) | (J) | (A) | (V) | | (V) | (A) | (pF) |
| V130LA1 | 7 | 1301 | 130 | 175 | 11 | 1200 | 184 | 255 | 390 | 10 | 180 |
| V130LA2 | 7 | 1302 | 130 | 175 | 11 | 1200 | 184 | 228 | 340 | 10 | 180 |
| V130LA5 | 10 | 1305 | 130 | 175 | 20 | 2500 | 184 | 228 | 340 | 25 | 450 |
| V130LA10A | 14 | 130L10 | 130 | 175 | 38 | 4500 | 184 | 228 | 340 | 50 | 1000 |
| V130LA20A | 20 | 130L20 | 130 | 175 | 70 | 6500 | 184 | 228 | 340 | 100 | 1900 |
| V130LA20B | 20 | 130L20B | 130 | 175 | 70 | 6500 | 184 | 220 | 325 | 100 | 1900 |
| V140LA2 | 7 | 1402 | 140 | 180 | 12 | 1200 | 198 | 242 | 360 | 10 | 160 |
| V140LA5 | 10 | 1405 | 140 | 180 | 22 | 2500 | 198 | 242 | 360 | 25 | 400 |
| V140LA10A | 14 | 140L10 | 140 | 180 | 42 | 4500 | 198 | 242 | 360 | 50 | 900 |
| V140LA20A | 20 | 140L20 | 140 | 180 | 75 | 6500 | 198 | 242 | 340 | 100 | 1750 |
| V150LA1 | 7 | 1501 | 150 | 200 | 13 | 1200 | 212 | 284 | 430 | 10 | 150 |
| V150LA2 | 7 | 1502 | 150 | 200 | 13 | 1200 | 212 | 268 | 395 | 10 | 150 |
| V150LA5 | 10 | 1505 | 150 | 200 | 25 | 2500 | 212 | 268 | 395 | 25 | 360 |
| V150LA10A | 14 | 150L10 | 150 | 200 | 45 | 4500 | 212 | 268 | 395 | 50 | 800 |
| V150LA20A | 20 | 150L20 | 150 | 200 | 80 | 6500 | 212 | 268 | 395 | 100 | 1600 |
| V150LA20B | 20 | 150L20B | 150 | 200 | 80 | 6500 | 212 | 243 | 360 | 100 | 1600 |
| V175LA2 | 7 | 1752 | 175 | 225 | 15 | 1200 | 247 | 303 | 455 | 10 | 130 |
| V175LA5 | 10 | 1755 | 175 | 225 | 30 | 2500 | 247 | 303 | 455 | 25 | 350 |
| V175LA10A | 14 | 175L10 | 175 | 225 | 55 | 4500 | 247 | 303 | 455 | 50 | 700 |
| V175LA20A | 20 | 175L20 | 175 | 225 | 90 | 6500 | 247 | 303 | 455 | 100 | 1400 |
| V230LA4 | 7 | 2304 | 230 | 300 | 20 | 1200 | 324 | 396 | 595 | 10 | 100 |
| V230LA10 | 10 | 230L | 230 | 300 | 35 | 2500 | 324 | 396 | 595 | 25 | 250 |
| V230LA20A | 14 | 230L20 | 230 | 300 | 70 | 4500 | 324 | 396 | 595 | 50 | 550 |
| V230LA40A | 20 | 230L40 | 230 | 300 | 122 | 6500 | 324 | 396 | 595 | 100 | 1100 |

# LA Varistor Series

**Device Ratings and Specifications** (Continued)

| PART NUMBER | MODEL SIZE DISC DIA. (mm) | DEVICE MODEL NUMBER BRAND-ING | MAXIMUM RATING (85°C) | | | | SPECIFICATIONS (25°C) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTINUOUS | | TRANSIENT | | VARISTOR VOLTAGE AT 1mA DC TEST CURRENT | | MAXIMUM CLAMPING VOLTAGE 8 x 20µs | | TYPICAL CAPACITANCE f = 1MHz |
| | | | $V_{RMS}$ | $V_{DC}$ | ENERGY 10 x 1000µs | PEAK CURRENT 8 x 20µs | $V_{NOM}$ MIN | $V_{NOM}$ MAX | | | |
| | | | $V_{M(AC)}$ | $V_{M(DC)}$ | $W_{TM}$ | $I_{TM}$ | | | $V_C$ | $I_{PK}$ | C |
| | | | (V) | (V) | (J) | (A) | (V) | | (V) | (A) | (pF) |
| V250LA2 | 7 | 2502 | 250 | 330 | 21 | 1200 | 354 | 473 | 730 | 10 | 90 |
| V250LA4 | 7 | 2504 | 250 | 330 | 21 | 1200 | 354 | 429 | 650 | 10 | 90 |
| V250LA10 | 10 | 250L | 250 | 330 | 40 | 2500 | 354 | 429 | 650 | 25 | 220 |
| V250LA20A | 14 | 250L20 | 250 | 330 | 72 | 4500 | 354 | 429 | 650 | 50 | 500 |
| V250LA40A | 20 | 250L40 | 250 | 330 | 130 | 6500 | 354 | 429 | 650 | 100 | 1000 |
| V250LA40B | 20 | 250L40B | 250 | 330 | 130 | 6500 | 354 | 413 | 620 | 100 | 1000 |
| V275LA2 | 7 | 2752 | 275 | 369 | 23 | 1200 | 389 | 515 | 775 | 10 | 80 |
| V275LA4 | 7 | 2754 | 275 | 369 | 23 | 1200 | 389 | 473 | 710 | 10 | 80 |
| V275LA10 | 10 | 275L | 275 | 369 | 45 | 2500 | 389 | 473 | 710 | 25 | 200 |
| V275LA20A | 14 | 275L20 | 275 | 369 | 75 | 4500 | 389 | 473 | 710 | 50 | 450 |
| V275LA40A | 20 | 275L40 | 275 | 369 | 140 | 6500 | 389 | 473 | 710 | 100 | 900 |
| V275LA40B | 20 | 275L40B | 275 | 369 | 140 | 6500 | 389 | 453 | 680 | 100 | 900 |
| V300LA2 | 7 | 3002 | 300 | 405 | 25 | 1200 | 420 | 565 | 870 | 10 | 70 |
| V300LA4 | 7 | 3004 | 300 | 405 | 25 | 1200 | 420 | 517 | 775 | 10 | 70 |
| V300LA10 | 10 | 300L | 300 | 405 | 46 | 2500 | 420 | 517 | 775 | 25 | 180 |
| V300LA20A | 14 | 300L20 | 300 | 405 | 77 | 4500 | 420 | 517 | 775 | 50 | 400 |
| V300LA40A | 20 | 300L40 | 300 | 405 | 165 | 6500 | 420 | 517 | 775 | 100 | 800 |
| V320LA7 | 7 | 3207 | 320 | 420 | 25 | 1200 | 462 | 565 | 850 | 10 | 65 |
| V320LA10 | 10 | 320L | 320 | 420 | 48 | 2500 | 462 | 565 | 850 | 25 | 170 |
| V320LA20A | 14 | 320L20 | 320 | 420 | 80 | 4500 | 462 | 565 | 850 | 50 | 380 |
| V320LA40B | 20 | 320L40 | 320 | 420 | 150 | 6500 | 462 | 540 | 810 | 100 | 750 |
| V385LA7 | 7 | 3857 | 385 | 505 | 27 | 1200 | 558 | 682 | 1025 | 10 | 60 |
| V385LA10 | 10 | 385L | 385 | 505 | 51 | 2500 | 558 | 682 | 1025 | 25 | 160 |
| V385LA20A | 14 | 385L20 | 385 | 505 | 85 | 4500 | 558 | 682 | 1025 | 50 | 360 |
| V385LA40B | 20 | 385L40 | 385 | 505 | 160 | 6500 | 558 | 682 | 1025 | 100 | 700 |
| V420LA7 | 7 | 4207 | 420 | 560 | 30 | 1200 | 610 | 748 | 1120 | 10 | 55 |
| V420LA10 | 10 | 420L | 420 | 560 | 55 | 2500 | 610 | 748 | 1120 | 25 | 140 |
| V420LA20A | 14 | 420L20 | 420 | 560 | 90 | 4500 | 610 | 748 | 1120 | 50 | 300 |
| V420LA40B | 20 | 420L40 | 420 | 560 | 160 | 6500 | 610 | 720 | 1060 | 100 | 600 |
| V460LA7 | 7 | 4607 | 460 | 615 | 37 | 1200 | 702 | 858 | 1130 | 10 | 55 |
| V480LA7 | 7 | 4807 | 480 | 640 | 35 | 1200 | 670 | 825 | 1240 | 10 | 50 |
| V480LA10 | 10 | 480L | 480 | 640 | 60 | 2500 | 670 | 825 | 1240 | 25 | 120 |
| V480LA40A | 14 | 480L40 | 480 | 640 | 105 | 4500 | 670 | 825 | 1240 | 50 | 270 |
| V480LA80B | 20 | 480L80 | 480 | 640 | 180 | 6500 | 670 | 790 | 1160 | 100 | 550 |
| V510LA10 | 10 | 510L | 510 | 675 | 63 | 2500 | 735 | 910 | 1350 | 25 | 100 |
| V510LA40A | 14 | 510L40 | 510 | 675 | 110 | 4500 | 735 | 910 | 1350 | 50 | 250 |
| V510LA80B | 20 | 510L80 | 510 | 675 | 190 | 6500 | 735 | 860 | 1280 | 100 | 500 |
| V575LA10 | 10 | 575L | 575 | 730 | 65 | 2500 | 805 | 1000 | 1500 | 25 | 90 |
| V575LA40A | 14 | 575L40 | 575 | 730 | 120 | 4500 | 805 | 1000 | 1500 | 50 | 220 |
| V575LA80B | 20 | 575L80 | 575 | 730 | 220 | 6500 | 805 | 960 | 1410 | 100 | 450 |
| V625LA10 | 10 | 625L | 625 | 825 | 67 | 2500 | 900 | 1100 | 1650 | 25 | 80 |
| V625LA40A | 14 | 625L40 | 625 | 825 | 125 | 4500 | 900 | 1100 | 1650 | 50 | 210 |
| V625LA80B | 20 | 625L80 | 625 | 825 | 230 | 6500 | 900 | 1100 | 1650 | 100 | 425 |

# LA Varistor Series

**Device Ratings and Specifications** (Continued)

| PART NUMBER | MODEL SIZE DISC DIA. (mm) | DEVICE MODEL NUMBER BRAND-ING | MAXIMUM RATING (85°C) | | | | SPECIFICATIONS (25°C) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTINUOUS | | TRANSIENT | | VARISTOR VOLTAGE AT 1mA DC TEST CURRENT | | MAXIMUM CLAMPING VOLTAGE 8 x 20µs | | TYPICAL CAPACITANCE f = 1MHz |
| | | | $V_{RMS}$ | $V_{DC}$ | ENERGY 10 x 1000µs | PEAK CURRENT 8 x 20µs | $V_{NOM}$ MIN | $V_{NOM}$ MAX | $V_C$ | $I_{PK}$ | C |
| | | | $V_{M(AC)}$ | $V_{M(DC)}$ | $W_{TM}$ | $I_{TM}$ | (V) | | (V) | (A) | (pF) |
| | | | (V) | (V) | (J) | (A) | | | | | |
| V660LA10 | 10 | 660L | 660 | 850 | 70 | 2500 | 940 | 1210 | 1820 | 25 | 70 |
| V660LA50A | 14 | 660L50 | 660 | 850 | 140 | 4500 | 940 | 1210 | 1820 | 50 | 200 |
| V660LA100B | 20 | 660L100 | 660 | 850 | 250 | 6500 | 940 | 1100 | 1650 | 100 | 400 |
| V1000LA80A | 14 | 1000L80 | 1000 | 1200 | 220 | 4500 | 1425 | 1800 | 2700 | 50 | 130 |
| V1000LA160B | 20 | 1000L160 | 1000 | 1200 | 360 | 6500 | 1425 | 1600 | 2420 | 100 | 250 |

NOTE: Average power dissipation of transients not to exceed 0.25W, 0.4W, 0.6W or 1W for model sizes 7mm, 10mm, 14mm and 20mm, respectively.

## *Power Dissipation Ratings*

Should transients occur in rapid succession, the average power dissipation is the energy (watt-seconds) per pulse times the number of pulses per second. The power so developed must be within the specifications shown on the Device Ratings and Specifications table for the specific device.The operating values of a MOV need to be derated at high temperatures as shown in Figure 1. Because varistors only dissipate a relatively small amount of average power they are not suitable for repetitive applications that involve substantial amounts of average power dissipation.

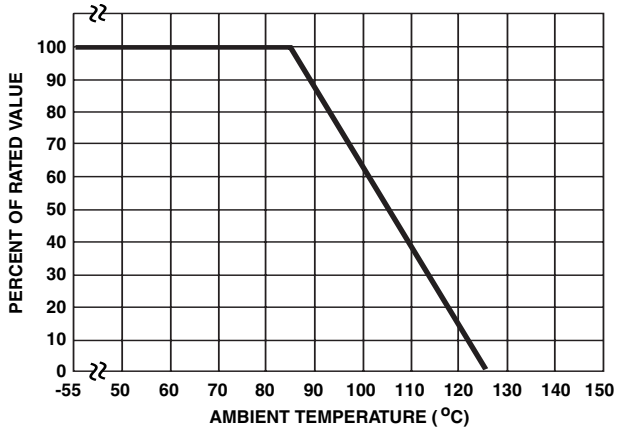
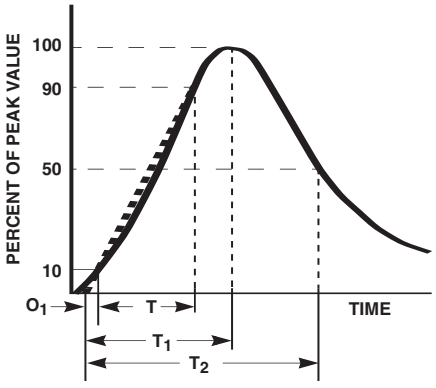



**FIGURE 1. CURRENT, ENERGY AND POWER DERATING CURVE**




$O_1$ = Virtual Origin of Wave
T = Time From 10% to 90% of Peak
$T_1$ = Virtual Front time = 1.25 • t
$T_2$ = Virtual Time to Half Value (Impulse Duration)
Example: For an 8/20µs Current Waveform:
8µs = $T_1$ = Virtual Front Time
20µs = $T_2$ = Virtual Time to Half Value

**FIGURE 2. PEAK PULSE CURRENT TEST WAVEFORM**

# LA Varistor Series

## Transient V-I Characteristics Curves

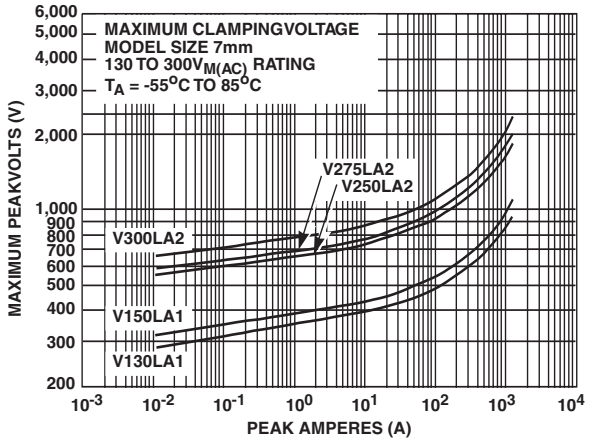



FIGURE 3. CLAMPING VOLTAGE FOR V130LA1 - V300LA2

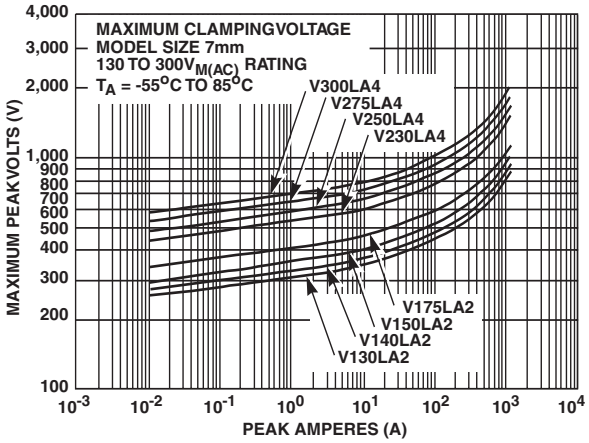



FIGURE 4. CLAMPING VOLTAGE FOR V130LA2 - V300LA4

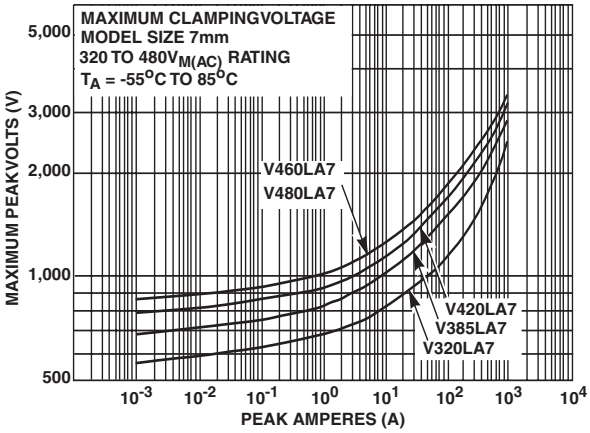



FIGURE 5. CLAMPING VOLTAGE FOR V320LA7 - V480LA7

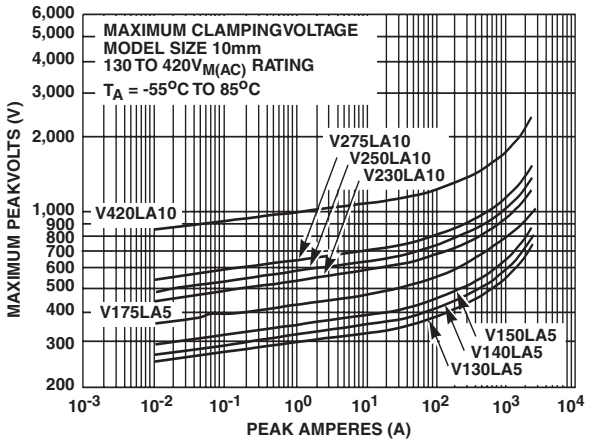



FIGURE 6. CLAMPING VOLTAGE FOR V130LA5 - V420LA10

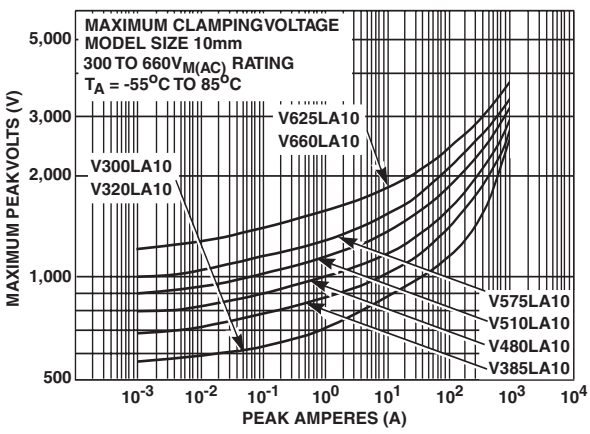



FIGURE 7. CLAMPING VOLTAGE FOR V300LA10 - V660LA10

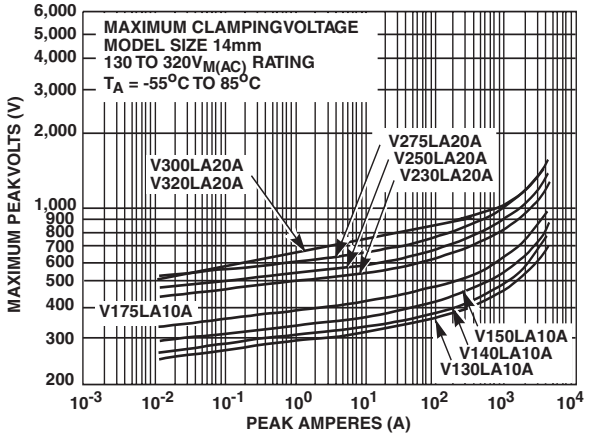



FIGURE 8. CLAMPING VOLTAGE FOR V130LA10A - V320LA20A

# LA Varistor Series

## Transient V-I Characteristics Curves (Continued)

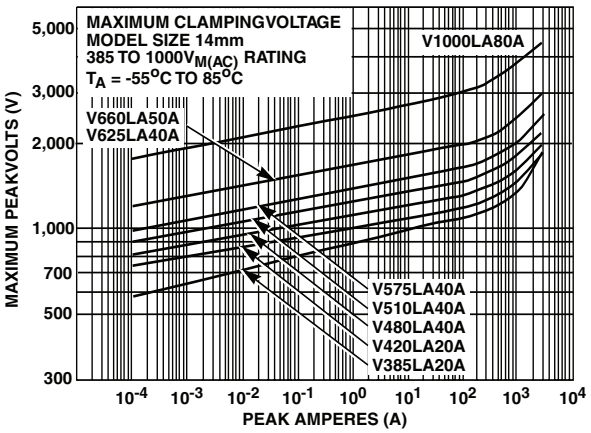



FIGURE 9. CLAMPING VOLTAGE FOR V385LA20A - V1000LA80A

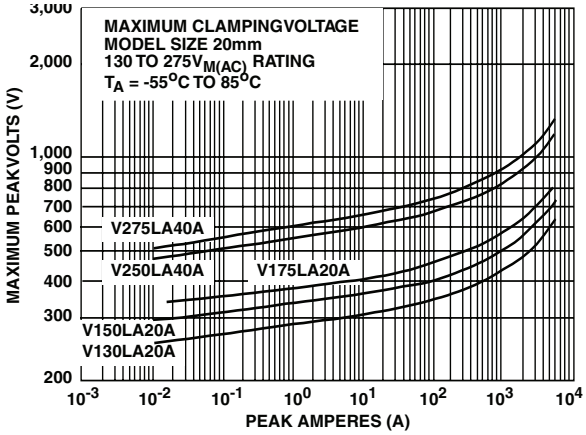



FIGURE 10. CLAMPING VOLTAGE FOR V130LA20A - V275LA40A

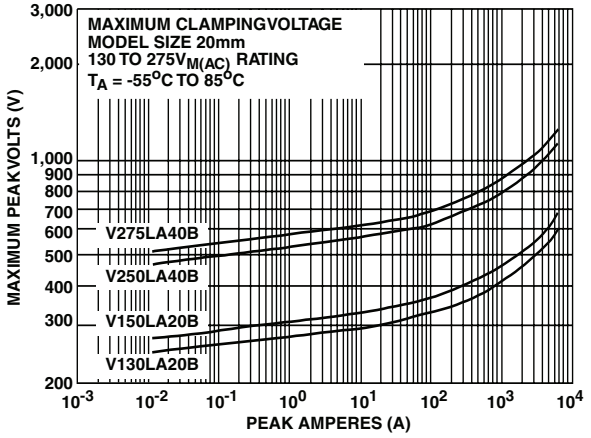
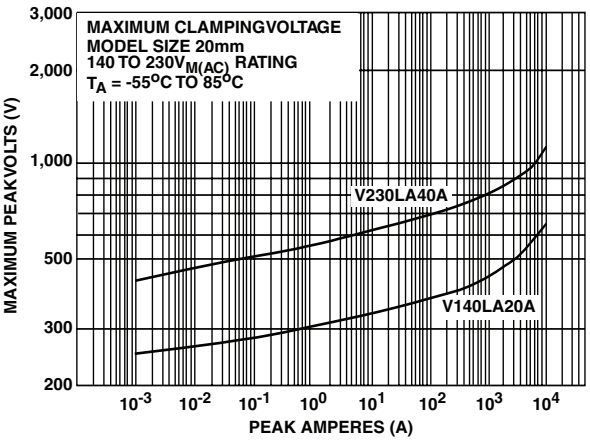



FIGURE 11. CLAMPING VOLTAGE FOR V130LA20B - V275LA40B




FI GURE 12. CLAMPING VOLTAGE FOR V140LA20A - V230LA40A

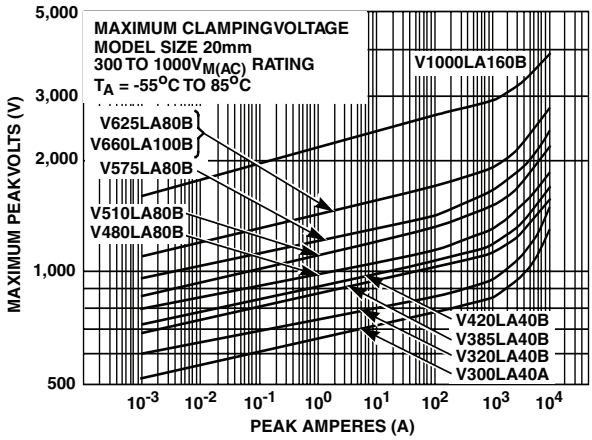



FIGURE 13. CLAMPING VOLTAGE FOR V300LA40A - V1000LA160B

# LA Varistor Series

## Pulse Rating Curves

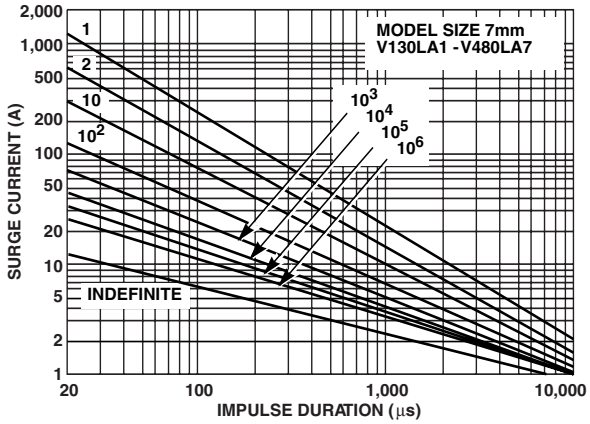



FIGURE 14. SURGE CURRENT RATING CURVES FOR V130LA1 - V480LA7

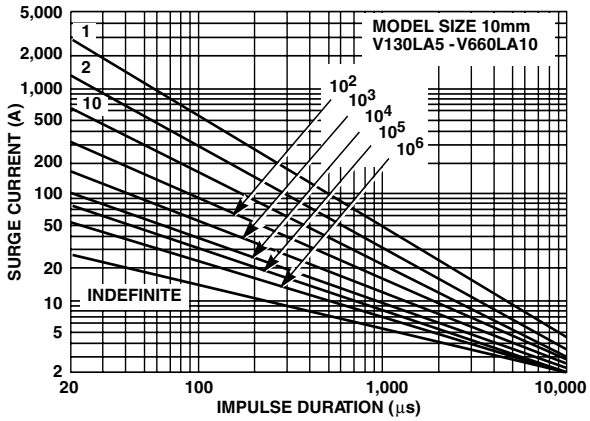



FIGURE 15. SURGE CURRENT RATING CURVES FOR V130LA5 - V660LA10

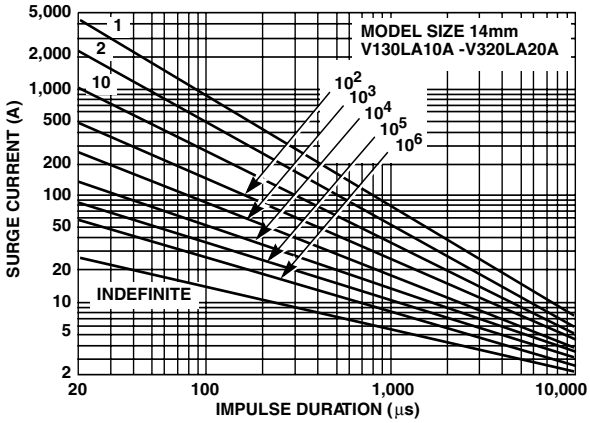



FIGURE 16. SURGE CURRENT RATING CURVES FOR V130LA10A - V320LA20A

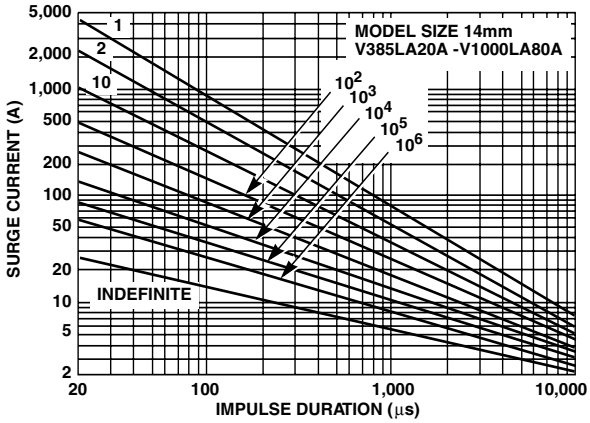



FIGURE 17. SURGE CURRENT RATING CURVES FOR V385LA20A - V1000LA80A

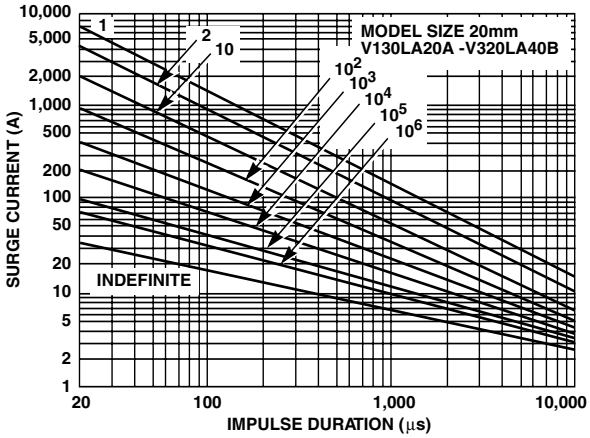



FIGURE 18. SURGE CURRENT RATING CURVES FOR V130LA20A - V320LA40B

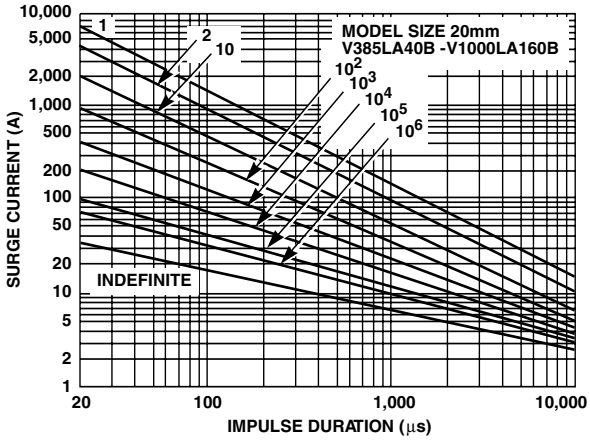


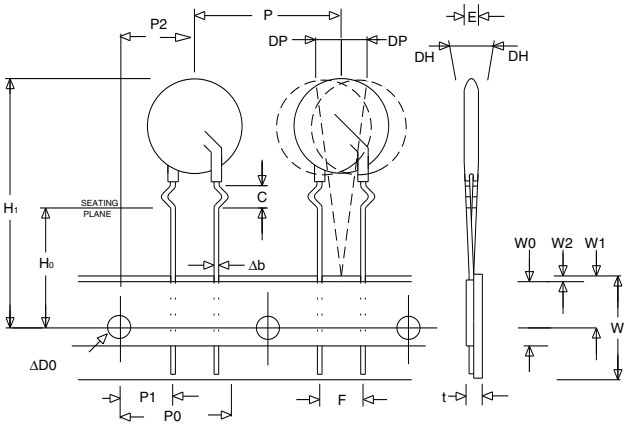

FIGURE 19. SURGE CURRENT RATING CURVES FOR V385LA40B - V1000LA160B

NOTE: If pulse ratings are exceeded, a shift of $V_{N(DC)}$ (at specified current) of more than ±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.

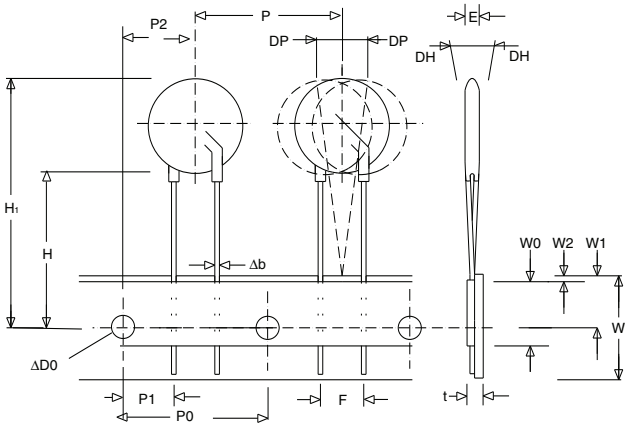
# LA Varistor Series

## Tape and Reel Specifications

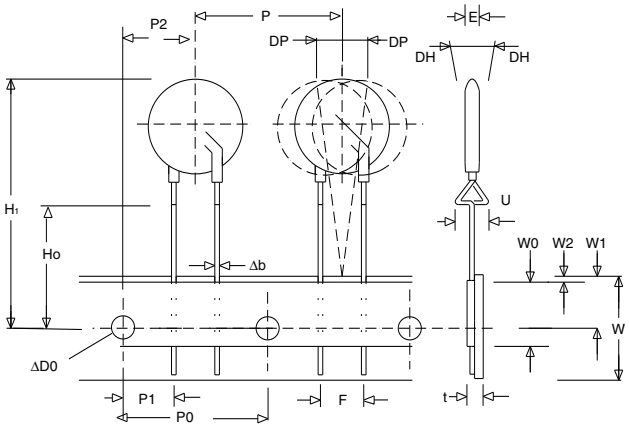
### 7mm Devices




Crimped Leads "LT"

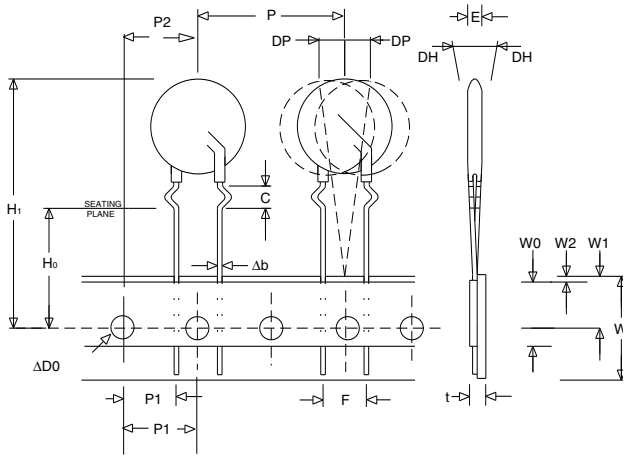



Straight Leads "LS"

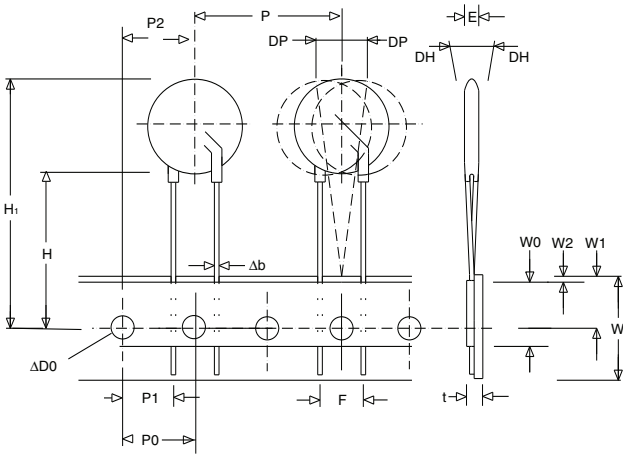



Under-crimped Leads "LU"

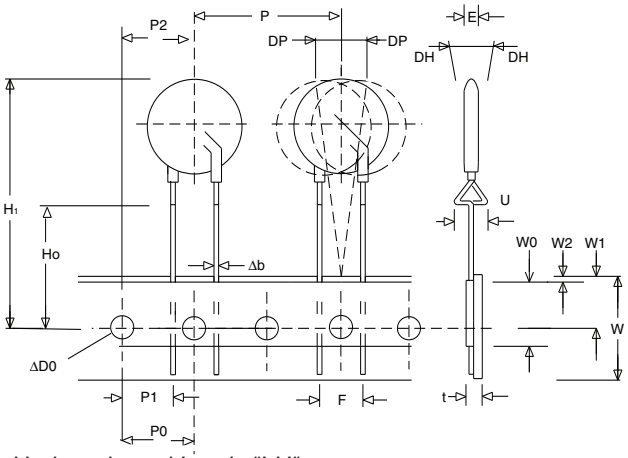
### 10, 14 and 20mm Devices




Crimped Leads "LT"




Straight Leads "LS"




Under-crimped Leads "LU"

# LA Varistor Series

| SYMBOL | PARAMETER | MODEL SIZE | | | |
|---|---|---|---|---|---|
| | | 7mm | 10mm | 14mm | 20mm |
| P | Pitch of Component | 12.7 ± 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 |
| $P_1$ | Feed Hole Center to Pitch | 3.85 ± 0.7 | 8.85 ± 0.7 | 8.85± 0.7 | 8.85± 0.7 |
| $P_2$ | Hole Center to Component Center | 6.35 ± 0.7 | 12.7 ± 0.7 | 12.7± 0.7 | 12.7± 0.7 |
| F | Lead to Lead Distance | 5.0 ± 0.8 | 7.5 ± 0.8 | 7.5 ± 0.8 | 7.5 ± 0.8 |
| h | Component Alignment | 2.0 Max | 2.0 Max | 2.0 Max | 2.0 Max |
| W | Tape Width | 18.0 + 1.0<br>18.0 - 0.5 | 18.0 + 1.0<br>18.0 - 0.5 | 18.0 + 1.0<br>18.0 - 0.5 | 18.0 + 1.0<br>18.0 - 0.5 |
| $W_0$ | Hold Down Tape Width | 12.0± 0.3 | 12.0 ± 0.3 | 12.0± 0.3 | 12.0 ± 0.3 |
| $W_1$ | Hole Position | 9.0 + 0.75<br>9.0 - 0.50 | 9.0 + 0.75<br>9.0 - 0.50 | 9.0 + 0.75<br>9.0 - 0.50 | 9.0 + 0.75<br>9.0 - 0.50 |
| $W_2$ | Hold Down Tape Position | 0.5 Max | 0.5 Max | 0.5 Max | 0.5 Max |
| H | Height from Tape Center to Component Base | 18.0 + 2.0<br>18.0 - 0.0 | 18.0 + 2.0<br>18.0 - 0.0 | 18.0 + 2.0<br>18.0 - 0.0 | 18.0 + 2.0<br>18.0 - 0.0 |
| $H_0$ | Seating Plane Height | 16.0 ± 0.5 | 16.0 ± 0.5 | 16.0 ± 0.5 | 16.0 ± 0.5 |
| $H_1$ | Component Height | 32.0 Max | 36.0 Max | 40.0 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 |
| t | Total Tape Thickness | 0.7 ± 0.2 | 0.7 ± 0.2 | 0.7 ± 0.2 | 0.7 ± 0.2 |
| U | Under-crimp Width | 8.0 Max | 8.0 Max | 8.0 Max | 8.0 Max |
| p | Component Alignment | $3^o$ Max<br>1.00mm | $3^o$ Max<br>1.00mm | $3^o$ Max<br>1.00mm | $3^o$ Max |

NOTE: Dimensions are in mm.

## Tape and Reel Data

- Conforms to ANSI and EIA specifications
- Can be supplied to IEC Publication 286-2
- Radial devices on tape are supplied with crimped leads, straight leads, or under-crimped leads

# LA Varistor Series

## Tape and Reel Ordering Information

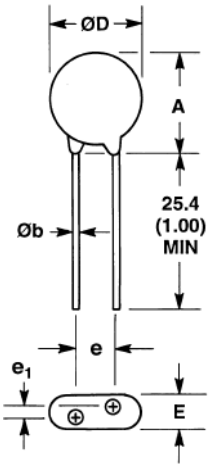
Crimped leads are standard on LA types supplied in tape and reel and are denoted by the model letter "T". Model letter "S" denotes straight leads and letter "U" denotes special under-crimped leads.

Example:

| STANDARD MODEL | CRIMPED LEADS | STRAIGHT LEADS | UNDER-CRIMPED LEADS |
|---|---|---|---|
| V130LA2 | V130LT2 | V130LS2 | V130LU2 |

## Standard Bulk Pack Quantity

| VARISTOR VOLTAGE MODEL | STANDARD BULK PACK QUANTITY | | | |
|---|---|---|---|---|
| | VARISTOR MODEL SIZE | | | |
| | 7mm | 10mm | 14mm | 20mm |
| 130-275 | 1500 | 1000 | 700 | 500 |
| 300-460 | 1500 | 700 | 600 | 400 |
| 510-625 | 1500 | 700 | 500 | 400 |




| SYMBOL | VOLTAGE MODEL | VARISTOR MODEL SIZE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 7mm | | 10mm | | 14mm | | 20mm | |
| | | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX |
| A | V130LA-V320LA | - - | 12 (0.472) | - - | 16 (0.630) | - - | 20 (0.787) | - - | 26.5 (1.043) |
| | V385LA-V1000LA | - - | 13 (0.0512) | - - | 17 (0.689) | - - | 20.5 (0.807) | - - | 28 (1.102) |
| ØD | All | - - | 9 (0.354) | - - | 12.5 (0.492) | - - | 17 (0.669) | - - | 23 (0.906) |
| e | All | 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) (Note 2) | 8.5 (0.335) (Note 2) |
| $e_1$ | V130LA-V320LA | 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) |
| | V385A-V1000LA | 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 | V130LA-V320LA | - - | 5.6 (0.220) | - - | 5.6 (0.220) | - - | 5.6 (0.220) | - - | 5.6 (0.220) |
| | V385LA-V660LA | - - | 7.5 (0.287) | - - | 7.5 (0.287) | - - | 7.5 (0.287) | - - | 7.5 (0.287) |
| | V1000LA | - - | - - | - - | - - | - - | 10.8 (0.425) | - - | 10.8 (0.425) |
| Øb | All (Note 3) | 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) (Note 2) | 0.86 (0.034) (Note 2) |

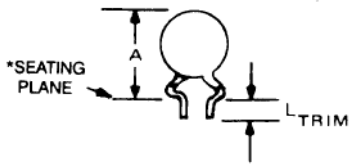
NOTES:

1. Dimensions in millimeters, inches in parentheses.
2. 10mm (9mm min, 11mm Max) ALSO AVAILABLE; See Additional Lead Style Options
3. 1000V parts supplied with lead wire of diameter 1.00 ± 0.05 (0.039 ± 0.002).

# LA Varistor Series

## Additional Lead Style Options

Radial lead types can be supplied with combination preformed crimp and trimmed leads. This option is supplied to the dimensions shown.




*Seating plane interpretation per IEC-717

**CRIMPED AND TRIMMED LEAD**



| SYMBOL | VARISTOR MODEL SIZE | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 7mm | | 10mm | | 14mm | | 20mm | |
| | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX |
| A | -<br>- | 15<br>(0.591) | -<br>- | 19.5 (0.768) | -<br>- | 22.5 (0.886) | -<br>- | 29.0 (1.142) |
| $L_{TRIM}$ | 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 millimeters, inches in parentheses.

- To order this crimped and trimmed lead style, standard radial type model numbers are changed by replacing the model letter “A” with “C”.

Example:

| STANDARD CATALOG MODEL | ORDER AS: |
|---|---|
| V130LA2 | V130LC2 |

For crimped leads without trimming and any variations to the above, contact Littelfuse.

- For 10/±1mm lead spacing on 20mm diameter models only; append standard model numbers by adding “X10”.

Example:

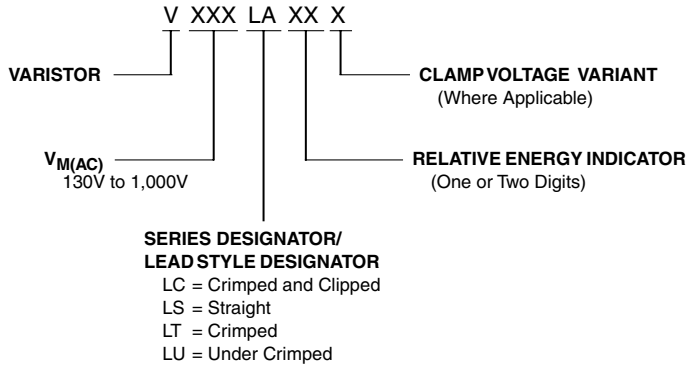
| STANDARD CATALOG MODEL | ORDER AS: |
|---|---|
| V130LA20A | V130LA20AX10 |

**LA series varistors for Hi-Temperature operating conditions:**

- Phenolic Coated LA Series devices are available with improved maximum operating maximum temperature 125°C.
- These devices also have improved temperature cycling performance capability.
- Ratings and Specifications are as per standard LA Series except Hi-Pot encapsulation Isolation Voltage Capability = 500V.
- To order: add X1347 to part number (e.g. V230LA20AX1347)
- Marked identifier will contain 'P' to denote Phenolic.
- These devices are not UL, CSA, VDE or CECC certified.
- Contact factory for further details.

## Ordering Information

LA series Varistors are shipped standard in bulk pack with straight leads and lead spacing outlined in the package dimensions on page 4-13. Contact your Littelfuse sales representative to discuss the non-standard options outlined below.



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