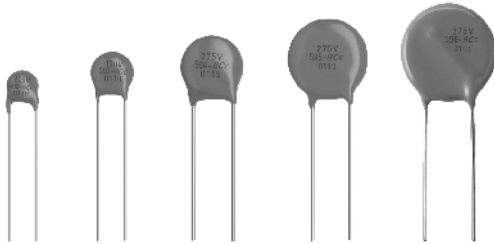


Varistors



| QUICK REFERENCE DATA | | |
|--|---------------------|------|
| PARAMETER | VALUE | UNIT |
| Maximum continuous voltage: | | |
| RMS | 14 to 680 | V |
| DC | 18 to 895 | V |
| Maximum non-repetitive transient current I_{nrp} ($8 \times 20 \mu s$) | 100 to 6500 | A |
| Robustness of terminations | 10 | N |
| Drop test: | | |
| Height of fall | 1 | m |
| Detailed specification | based on CECC 42000 | |
| Storage temperature | -40 to +150 | °C |
| Operating temperature | -40 to +125 | °C |

ORDERING INFORMATION

The varistors are available in a number of packaging options:

- Bulk
- On tape on reel
- On tape in ammpack.

The basic ordering code for each option is given in tables titled Varistors on Tape on Reel, Varistors on Tape in Ammpack and Varistors in Bulk. To complete the catalog number and to determine the required operating parameters, see Electrical Data and Ordering Information table.

FEATURES

- Zinc oxide disc, epoxy coated
- Straight leads
- Straight leads with flange (2322 592 and 593 series only)
- Kinked leads.

APPLICATION

- Suppression of transients.

DESCRIPTION

The varistors consist of a disc of low- β ceramic material with two tinned solid copper leads. They are coated with a layer of ochre coloured epoxy, which provides electrical, mechanical and climatic protection. The encapsulation is resistant to all cleaning solvents in accordance with "IEC 60068-2-45".

MOUNTING

The varistors are suitable for processing on automatic insertion and cutting and bending equipment.

Varistors with flanged leads provide better positioning on printed-circuit boards (PCB) and more accurate control over component height. This is important for hand mounting and automatic insertion techniques; see Outlines of flanged leads drawing.

Soldering

≤ 240 °C; duration ≤ 5 s.

Resistance to heat

≤ 260 °C; duration ≤ 5 s.

MARKING

The varistors are marked with the following information:

- Maximum continuous RMS voltage
- Series number (592, 593, 594, 595 or 596)
- Manufacturers logo
- Date of manufacture.

INFLAMMABILITY

The varistors are non-flammable.

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | | | | |
|--|--------|--------------------------------|-----------------------------------|-------|--|---|------------------------------|--------------------------------|
| MAXIMUM CONTINUOUS VOLTAGE | | VOLTAGE ⁽³⁾ at 1 mA | MAXIMUM VOLTAGE at STATED CURRENT | | MAXIMUM ENERGY ⁽⁴⁾ ($10 \times 1000 \mu s$) | MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I_{nrp} ($8 \times 20 \mu s$) | TYPICAL CAPACITANCE at 1 kHz | CATALOG NUMBERS ⁽¹⁾ |
| RMS ⁽²⁾ (V) | DC (V) | | V (V) | I (A) | | | | |
| 14 | 18 | 22 | 48 | 1.0 | 0.5 | 100 | 1300 | 592 .1406 ⁽⁶⁾ |
| | | | 43 | 2.5 | 1.7 | 250 | 2800 | 593 .1406 ⁽⁶⁾ |
| | | | 43 | 5.0 | 4.3 | 500 | 6000 | 594 .1406 ⁽⁶⁾ |
| | | | 43 | 10.0 | 5.4 | 1000 | 15000 | 595 .1406 ⁽⁶⁾ |
| | | | 43 | 20.0 | 8.0 | 2000 | 30000 | 596 .1406 |
| 17 | 22 | 27 | 60 | 1.0 | 0.7 | 100 | 1050 | 592 .1706 ⁽⁶⁾ |
| | | | 53 | 2.5 | 2.0 | 250 | 2000 | 593 .1706 ⁽⁶⁾ |
| | | | 53 | 5.0 | 5.3 | 500 | 4000 | 594 .1706 ⁽⁶⁾ |
| | | | 53 | 10.0 | 6.9 | 1000 | 10000 | 595 .1706 ⁽⁶⁾ |
| | | | 53 | 20.0 | 10.0 | 2000 | 20000 | 596 .1706 |



| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | | | | |
|--|--------|--------------------------------|-----------------------------------|-------|--|--|------------------------------|--------------------------------|
| MAXIMUM CONTINUOUS VOLTAGE | | VOLTAGE ⁽³⁾ at 1 mA | MAXIMUM VOLTAGE at STATED CURRENT | | MAXIMUM ENERGY ⁽⁴⁾ (10 × 1000 μs) | MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I _{nrp} (8 × 20 μs) | TYPICAL CAPACITANCE at 1 kHz | CATALOG NUMBERS ⁽¹⁾ |
| RMS ⁽²⁾ (V) | DC (V) | (V) | V (V) | I (A) | (J) | (A) | (pF) | 2322 |
| 20 | 26 | 33 | 73 | 1.0 | 0.8 | 100 | 900 | 592 .2006 ⁽⁶⁾ |
| | | | 65 | 2.5 | 2.5 | 250 | 1500 | 593 .2006 ⁽⁶⁾ |
| | | | 65 | 5.0 | 6.5 | 500 | 3000 | 594 .2006 ⁽⁶⁾ |
| | | | 65 | 10.0 | 8.8 | 1000 | 7500 | 595 .2006 ⁽⁶⁾ |
| | | | 65 | 20.0 | 12.0 | 2000 | 15000 | 596 .2006 |
| 25 | 31 | 39 | 86 | 1.0 | 0.9 | 100 | 500 | 592 .2506 ⁽⁶⁾ |
| | | | 77 | 2.5 | 3.0 | 250 | 1350 | 593 .2506 ⁽⁶⁾ |
| | | | 77 | 5.0 | 7.7 | 500 | 2600 | 594 .2506 ⁽⁶⁾ |
| | | | 77 | 10.0 | 9.4 | 1000 | 6500 | 595 .2506 ⁽⁶⁾ |
| | | | 77 | 20.0 | 14.0 | 2000 | 13000 | 596 .2506 |
| 30 | 38 | 47 | 96 | 1.0 | 1.1 | 100 | 700 | 592 .3006 ⁽⁶⁾ |
| | | | 93 | 2.5 | 3.6 | 250 | 1600 | 593 .3006 ⁽⁶⁾ |
| | | | 93 | 5.0 | 9.2 | 500 | 2700 | 594 .3006 ⁽⁶⁾ |
| | | | 90 | 10.0 | 12.0 | 1000 | 6000 | 595 .3006 ⁽⁶⁾ |
| | | | 93 | 20.0 | 17.0 | 2000 | 12000 | 596 .3006 |
| 35 | 45 | 56 | 123 | 1.0 | 1.4 | 100 | 560 | 592 .3506 ⁽⁶⁾ |
| | | | 115 | 2.5 | 4.4 | 250 | 1300 | 593 .3506 ⁽⁶⁾ |
| | | | 110 | 5.0 | 11.0 | 500 | 2200 | 594 .3506 ⁽⁶⁾ |
| | | | 105 | 10.0 | 14.0 | 1000 | 4800 | 595 .3506 ⁽⁶⁾ |
| | | | 110 | 20.0 | 20.0 | 2000 | 9600 | 596 .3506 |
| 40 | 56 | 68 | 145 | 1.0 | 1.6 | 100 | 460 | 592 .4006 ⁽⁶⁾ |
| | | | 135 | 2.5 | 5.2 | 250 | 1000 | 593 .4006 ⁽⁶⁾ |
| | | | 130 | 5.0 | 13.0 | 500 | 1800 | 594 .4006 ⁽⁶⁾ |
| | | | 130 | 10.0 | 17.0 | 1000 | 3800 | 595 .4006 ⁽⁶⁾ |
| | | | 135 | 20.0 | 24.0 | 2000 | 7600 | 596 .4006 |
| 50 | 65 | 82 | 145 | 5.0 | 2.6 | 400 | 370 | 592 .5006 ⁽⁶⁾ |
| | | | 140 | 10.0 | 7.0 | 1200 | 900 | 593 .5006 ⁽⁶⁾ |
| | | | 140 | 25.0 | 12.0 | 2500 | 1500 | 594 .5006 |
| | | | 140 | 50.0 | 21.0 | 4500 | 3100 | 595 .5006 ⁽⁶⁾ |
| | | | 135 | 100.0 | 44.0 | 6500 | 6200 | 596 .5006 |
| 60 | 85 | 100 | 165 | 5.0 | 2.9 | 400 | 290 | 592 .6006 ⁽⁶⁾ |
| | | | 165 | 10.0 | 8.3 | 1200 | 700 | 593 .6006 ⁽⁶⁾ |
| | | | 165 | 25.0 | 15.0 | 2500 | 1200 | 594 .6006 ⁽⁶⁾ |
| | | | 165 | 50.0 | 24.0 | 4500 | 2300 | 595 .6006 ⁽⁶⁾ |
| | | | 165 | 100.0 | 56.0 | 6500 | 4700 | 596 .6006 |
| 75 | 100 | 120 | 190 | 5.0 | 3.4 | 400 | 240 | 592 .7506 ⁽⁶⁾ |
| | | | 200 | 10.0 | 10.0 | 1200 | 530 | 593 .7506 ⁽⁶⁾ |
| | | | 200 | 25.0 | 18.0 | 2500 | 1000 | 594 .7506 ⁽⁶⁾ |
| | | | 200 | 50.0 | 29.0 | 4500 | 1900 | 595 .7506 ⁽⁶⁾ |
| | | | 200 | 100.0 | 64.0 | 6500 | 3900 | 596 .7506 |
| 95 | 125 | 150 | 230 | 5.0 | 4.1 | 400 | 180 | 592 .9506 ⁽⁶⁾ |
| | | | 250 | 10.0 | 13.0 | 1200 | 450 | 593 .9506 ⁽⁶⁾ |
| | | | 250 | 25.0 | 22.0 | 2500 | 800 | 594 .9506 ⁽⁶⁾ |
| | | | 250 | 50.0 | 37.0 | 4500 | 1500 | 595 .9506 ⁽⁶⁾ |
| | | | 250 | 100.0 | 88.0 | 6500 | 3000 | 596 .9506 |

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | | | | |
|--|-----------|--------------------------------|-----------------------------------|----------|---|---|------------------------------|--------------------------------|
| MAXIMUM CONTINUOUS VOLTAGE | | VOLTAGE ⁽³⁾ at 1 mA | MAXIMUM VOLTAGE at STATED CURRENT | | MAXIMUM ENERGY ⁽⁴⁾ (10 × 1000 μs) | MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I _{nrp} (8 × 20 μs) | TYPICAL CAPACITANCE at 1 kHz | CATALOG NUMBERS ⁽¹⁾ |
| RMS ⁽²⁾ (V) | DC (V) | (V) | V (V) | I (A) | (J) | (A) | (pF) | 2322 |
| 130 | 170 | 205 | 310 | 5.0 | 5.5 | 400 | 130 | 592 .1316 ⁽⁶⁾ |
| | | | 340 | 10.0 | 17.0 | 1200 | 320 | 593 .1316 ⁽⁶⁾ |
| | | | 340 | 25.0 | 30.0 | 2500 | 580 | 594 .1316 ⁽⁶⁾ |
| | | | 340 | 50.0 | 56.0 | 4500 | 1050 | 595 .1316 ⁽⁶⁾ |
| | | | 340 | 100.0 | 114.0 | 6500 | 2100 | 596 .1316 |
| 140 | 180 | 220 | 350 | 5.0 | 6.3 | 400 | 120 | 592 .1416 ⁽⁶⁾ |
| | | | 370 | 10.0 | 21.0 | 1200 | 290 | 593 .1416 ⁽⁶⁾ |
| | | | 370 | 25.0 | 33.0 | 2500 | 540 | 594 .1416 ⁽⁶⁾ |
| | | | 370 | 50.0 | 57.0 | 4500 | 950 | 595 .1416 ⁽⁶⁾ |
| | | | 360 | 100.0 | 124.0 | 6500 | 1900 | 596 .1416 |
| 150 | 200 | 240 | 395 | 5.0 | 7.1 | 400 | 110 | 592 .1516 ⁽⁶⁾ |
| | | | 400 | 10.0 | 20.0 | 1200 | 270 | 593 .1516 ⁽⁶⁾ |
| | | | 400 | 25.0 | 36.0 | 2500 | 490 | 594 .1516 ⁽⁶⁾ |
| | | | 400 | 50.0 | 59.0 | 4500 | 850 | 595 .1516 ⁽⁶⁾ |
| | | | 395 | 100.0 | 134.0 | 6500 | 1700 | 596 .1516 |
| 175 | 225 | 275 | 410 | 5.0 | 7.3 | 400 | 90 | 592 .1716 ⁽⁶⁾ |
| | | | 455 | 10.0 | 23.0 | 1200 | 230 | 593 .1716 ⁽⁶⁾ |
| | | | 455 | 25.0 | 41.0 | 2500 | 430 | 594 .1716 ⁽⁶⁾ |
| | | | 455 | 50.0 | 67.0 | 4500 | 750 | 595 .1716 ⁽⁶⁾ |
| | | | 455 | 100.0 | 158.0 | 6500 | 1500 | 596 .1716 |
| 230 | 300 | 360 | 560 | 5.0 | 10.0 | 400 | 70 | 592 .2316 ⁽⁶⁾ |
| | | | 600 | 10.0 | 30.0 | 1200 | 170 | 593 .2316 ⁽⁶⁾ |
| | | | 600 | 25.0 | 54.0 | 2500 | 320 | 594 .2316 ⁽⁶⁾ |
| | | | 600 | 50.0 | 88.0 | 4500 | 540 | 595 .2316 ⁽⁶⁾ |
| | | | 595 | 100.0 | 208.0 | 6500 | 1100 | 596 .2316 |
| 250 | 320 | 390 | 600 | 5.0 | 11.0 | 400 | 60 | 592 .2516 ⁽⁶⁾ |
| | | | 650 | 10.0 | 33.0 | 1200 | 160 | 593 .2516 ⁽⁶⁾ |
| | | | 650 | 25.0 | 58.0 | 2500 | 300 | 594 .2516 ⁽⁶⁾ |
| | | | 650 | 50.0 | 96.0 | 4500 | 480 | 595 .2516 ⁽⁶⁾ |
| | | | 650 | 100.0 | 240.0 | 6500 | 960 | 596 .2516 |
| 275 | 350 | 430 | 695 | 5.0 | 12.0 | 400 | 55 | 592 .2716 ⁽⁶⁾ |
| | | | 710 | 10.0 | 36.0 | 1200 | 140 | 593 .2716 ⁽⁶⁾ |
| | | | 710 | 25.0 | 63.0 | 2500 | 270 | 594 .2716 ⁽⁶⁾ |
| | | | 710 | 50.0 | 104.0 | 4500 | 440 | 595 .2716 ⁽⁶⁾ |
| | | | 710 | 100.0 | 264.0 | 6500 | 900 | 596 .2716 |
| 300 | 385 | 470 | 750 | 5.0 | 13.0 | 400 | 50 | 592 .3016 ⁽⁶⁾ |
| | | | 800 | 10.0 | 40.0 | 1200 | 130 | 593 .3016 ⁽⁶⁾ |
| | | | 800 | 25.0 | 71.0 | 2500 | 240 | 594 .3016 ⁽⁶⁾ |
| | | | 800 | 50.0 | 117.0 | 4500 | 400 | 595 .3016 ⁽⁶⁾ |
| | | | 775 | 100.0 | 280.0 | 6500 | 810 | 596 .3016 |
| 320 | 420 | 510 | 800 | 5.0 | 15.0 | 400 | 45 | 592 .3216 ⁽⁶⁾ |
| | | | 850 | 10.0 | 44.0 | 1200 | 120 | 593 .3216 ⁽⁶⁾ |
| | | | 850 | 25.0 | 77.0 | 2500 | 220 | 594 .3216 ⁽⁶⁾ |
| | | | 850 | 50.0 | 120.0 | 4500 | 370 | 595 .3216 ⁽⁶⁾ |
| | | | 842 | 100.0 | 296.0 | 6500 | 750 | 596 .3216 |

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | | | | |
|--|--------|--------------------------------|-----------------------------------|-------|--|--|------------------------------|--------------------------------|
| MAXIMUM CONTINUOUS VOLTAGE | | VOLTAGE ⁽³⁾ at 1 mA | MAXIMUM VOLTAGE at STATED CURRENT | | MAXIMUM ENERGY ⁽⁴⁾ (10 × 1000 μs) | MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I _{nrp} (8 × 20 μs) | TYPICAL CAPACITANCE at 1 kHz | CATALOG NUMBERS ⁽¹⁾ |
| RMS ⁽²⁾ (V) | DC (V) | | (V) | V (V) | | | | |
| 350 | 460 | 560 | 940 | 5.0 | 19.5 | 400 | 42 | 592 .3516 ⁽⁶⁾ |
| | | | 920 | 10.0 | 39.0 | 1200 | 110 | 593 .3516 ⁽⁶⁾ |
| | | | 920 | 25.0 | 78.0 | 2500 | 200 | 594 .3516 ⁽⁶⁾ |
| | | | 920 | 50.0 | 156.0 | 4500 | 325 | 595 .3516 ⁽⁶⁾ |
| | | | 920 | 100.0 | 312.0 | 6500 | 660 | 596 .3516 |
| 385 | 505 | 620 | 1000 | 5.0 | 18.0 | 400 | 40 | 592 .3816 ⁽⁶⁾ |
| | | | 1025 | 10.0 | 51.0 | 1200 | 95 | 593 .3816 ⁽⁶⁾ |
| | | | 1025 | 25.0 | 67.0 | 2500 | 180 | 594 .3816 ⁽⁶⁾ |
| | | | 1025 | 50.0 | 110.0 | 4500 | 280 | 595 .3816 ⁽⁶⁾ |
| | | | 1025 | 100.0 | 328.0 | 6500 | 570 | 596 .3816 |
| 420 | 560 | 680 | 1100 | 5.0 | 20.0 | 400 | 35 | 592 .4216 ⁽⁶⁾ |
| | | | 1120 | 10.0 | 56.0 | 1200 | 85 | 593 .4216 ⁽⁶⁾ |
| | | | 1120 | 25.0 | 73.0 | 2500 | 165 | 594 .4216 ⁽⁶⁾ |
| | | | 1120 | 50.0 | 120.0 | 4500 | 250 | 595 .4216 ⁽⁶⁾ |
| | | | 1120 | 100.0 | 344.0 | 6500 | 510 | 596 .4216 |
| 460 | 615 | 750 | 1200 | 5.0 | 21.0 | 400 | 30 | 592 .4616 ⁽⁶⁾ |
| | | | 1240 | 10.0 | 63.0 | 1200 | 75 | 593 .4616 ⁽⁶⁾ |
| | | | 1240 | 25.0 | 82.0 | 2500 | 150 | 594 .4616 ⁽⁶⁾ |
| | | | 1240 | 50.0 | 135.0 | 4500 | 225 | 595 .4616 ⁽⁶⁾ |
| | | | 1240 | 100.0 | 360.0 | 6500 | 460 | 596 .4616 |
| 510 | 670 | 820 | 1355 | 25.0 | 89.0 | 2500 | 135 | 594 .5116 ⁽⁶⁾ |
| | | | 1355 | 50.0 | 145.0 | 4500 | 220 | 595 .5116 ⁽⁶⁾ |
| | | | 1355 | 100.0 | 376.0 | 6500 | 450 | 596 .5116 |
| 550 | 745 | 910 | 1500 | 25.0 | 98.0 | 2500 | 120 | 594 .5516 ⁽⁶⁾ |
| | | | 1500 | 50.0 | 160.0 | 4500 | 180 | 595 .5516 ⁽⁶⁾ |
| | | | 1500 | 100.0 | 408.0 | 6500 | 370 | 596 .5516 |
| 625 | 825 | 1000 | 1650 | 100.0 | 448.0 | 6500 | 320 | 596 .6216 |
| 680 | 895 | 1100 | 1815 | 100.0 | 496.0 | 6500 | 270 | 596 .6816 |

Notes

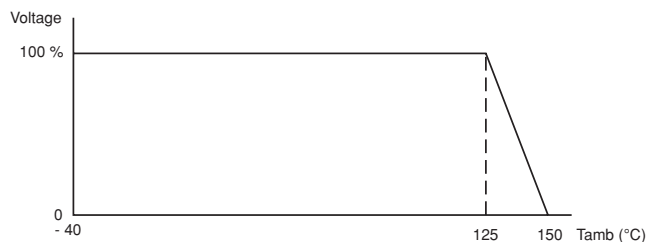
- Lists with products certified according to UL (E98144), VDE (40002622) and CSA (219883) are available at www.vishay.com or on request.
- The sinusoidal voltage is assumed as the normal operating condition. If a non-sinusoidal voltage is present, type selection should be based on multiplying the peak voltage by a factor of 0.707.
- The voltage measured at 1 mA meets the requirements of "paragraph 4.3 of CECC specification 42000". The tolerance on the voltage at 1 mA is ±10%.
- High energy surges are generally of longer duration. The maximum energy for one pulse of 10 × 1000 μs is given as a reference for longer duration pulses. This pulse can be characterised by peak current (I_p) and pulse width t₂ (virtual time of half I_p value, following "IEC 60060-2, section 6"). If V_p is the clamping voltage corresponding to I_p, the energy absorbed in the varistor is determined by the formula:

$$E = K \times V_p \times I_p \times t_2$$
 where:
 - K is dependent on the value of t₂ when the value of t₁ is between 8 μs and 10 μs; see Peak Current as a Function of Pulse Width drawing.
- A current wave of 8 × 20 μs (requirement of "paragraph B.2.10.1 of CECC specification 42000") is used as a standard for pulse current and clamping voltage ratings. The maximum non-repetitive transient current is given for one pulse applied during the life of the component.
- Replace the last digit of the catalog number with a '7' for ordering on tape in ammpack.

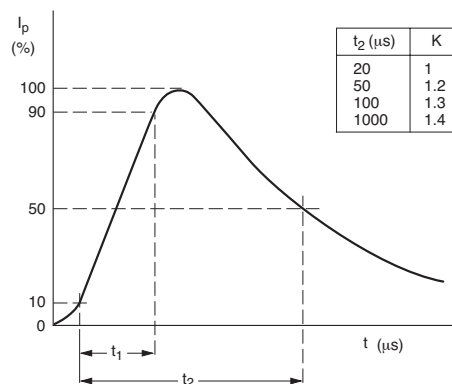
ELECTRICAL CHARACTERISTICS

| ELECTRICAL DATA | | |
|---|--------------|-------------|
| PARAMETER | VALUE | UNIT |
| Maximum continuous voltage: | | |
| RMS | 14 to 680 | V |
| DC | 18 to 895 | V |
| Maximum non-repetitive transient current (I_{nrp}) ($8 \times 20 \mu s$): | | |
| 2322 592 | 100 or 400 | A |
| 2322 593 | 250 or 1200 | A |
| 2322 594 | 500 or 2500 | A |
| 2322 595 | 1000 or 4500 | A |
| 2322 596 | 2000 or 6500 | A |
| Thermal resistance: | | |
| 2322 592 | ≈ 80 | K/W |
| 2322 593 | ≈ 70 | K/W |
| 2322 594 | ≈ 60 | K/W |
| 2322 595 | ≈ 50 | K/W |
| 2322 596 | ≈ 40 | K/W |
| Maximum dissipation: | | |
| 2322 592 | 100 | mW |
| 2322 593 | 250 | mW |
| 2322 594 | 400 | mW |
| 2322 595 | 600 | mW |
| 2322 596 | 1000 | mW |
| Temperature coefficient of voltage at 1 mA maximum | -0.065 | %/K |
| Voltage proof between interconnected leads and case | 2500 | V |
| Storage temperature | -40 to +150 | $^{\circ}C$ |
| Operating temperature | -40 to +125 | $^{\circ}C$ |

DERATING CURVE



PEAK CURRENT AS A FUNCTION OF PULSE WIDTH



COMPONENT DIMENSIONS AND CATALOG NUMBERS in millimeters

| D NOM. | D MAX. | A MAX. | A ₀ MAX. | L MIN. | T MAX. | T MIN. | $\varnothing D$ | F | CATALOG NUMBER |
|--------|--------|--------|---------------------|--------|--------|--------|-----------------|-------------|----------------|
| 5.0 | 7.0 | 9.0 | 11.0 | 27.0 | 6 | 4.1 | 0.6 ±0.05 | 5 +0.6/-0.1 | 2322 592 |
| 7.0 | 9.0 | 11.0 | 13.0 | 27.0 | 6 | 4.1 | 0.6 ±0.05 | 5 +0.6/-0.1 | 2322 593 |
| 10.0 | 13.5 | 15.5 | 18.0 | 17.0 | 7 | 4.4 | 0.8 ±0.05 | 7.5 ±0.8 | 2322 594 |
| 14.0 | 17.0 | 19.0 | 23.0 | 16.0 | 7 | 4.4 | 0.8 ±0.05 | 7.5 ±0.8 | 2322 595 |
| 20.0 | 23.0 | 25.0 | 28.0 | 24.0 | 7 | 5.0 | 1.0 ±0.05 | 10 ±0.8 | 2322 596 |

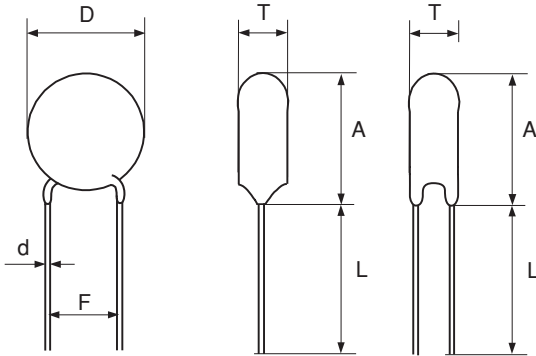
| VARISTORS IN BULK | | | | | |
|--|---|---|--|--|--|
| TYPE | 2322 592 Ø5 mm 14 V to 460 V | 2322 593 Ø7 mm 14 V to 460 V | 2322 594 Ø10 mm 14 V to 550 V | 2322 595 Ø14 mm 14 V to 550 V | 2322 596 Ø20 mm 14 V to 680 V |
| Straight leads; see Outline of components with straight leads drawing(1) | 5...6 | 5...6 | 5...6 | 5...6 | 5...6 |
| Straight leads with flange; see Outline of components with flanged leads drawing | 7...6 | 7...6 | - | - | - |
| Kinked leads; see Outline of components with kinked leads drawing | 6...6 | 6...6 | 6...6 | 6...6 | 6...6 |
| Package quantities | | | | | |
| 14 to 95 V | 250 | 250 | 250 | 100 | 50 |
| 130 to 460 V | 250 | 250 | 250 | 100 | 50 |
| 485 to max. V | - | 250 | 150 | 100 | 50 |

Note

- Outline of the Ø20 mm differs from the other dimensions.

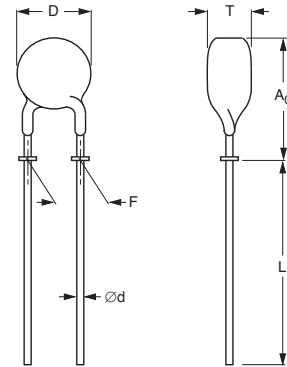
DIMENSIONS in millimeters

Outline of component with straight leads.



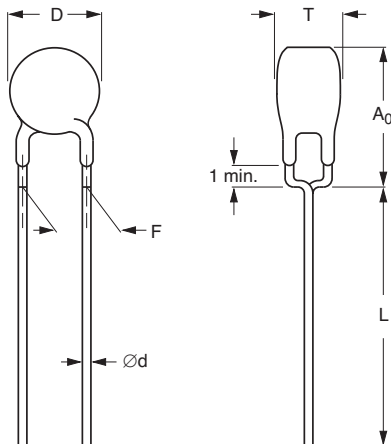
For dimensions, see Component Dimensions and Catalog Numbers table.

Outline of component with flanged leads.



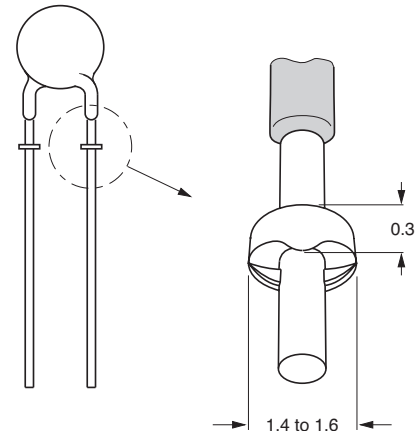
For dimensions, see Component Dimensions and Catalog Numbers table.

Outline of component with kinked leads.



For dimensions, see Component Dimensions and Catalog Numbers table.

Outline of flanged leads.

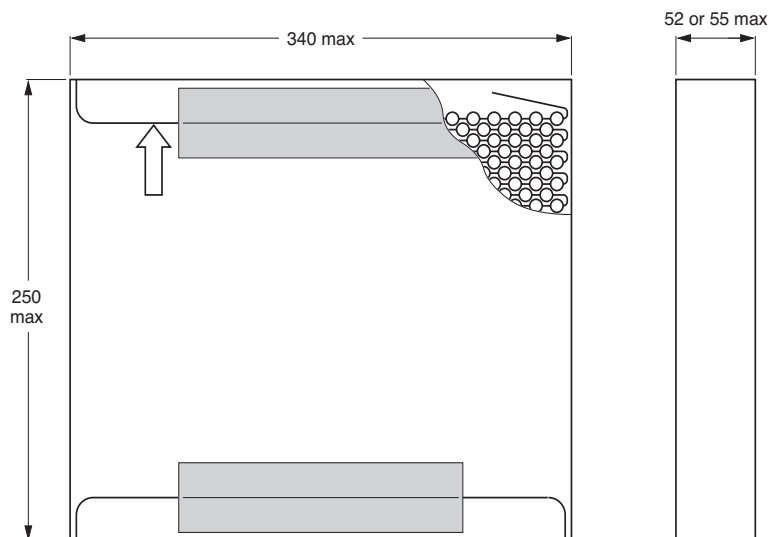


| VARISTORS ON TAPE IN AMMOPACK | | | | |
|--|---|---|--|---|
| TYPE | 2322 592 Ø5 MM 14 V TO 460 V | 2322 593 Ø7 MM 14 V TO 460 V | 2322 594 Ø10 MM 14 V TO 550 V | 2322 595 Ø14 MM 14V TO 550 V |
| Straight leads; H = 18 or 20 mm; see Taped version with straight leads (only for 2322 592 and 2322 593 series) and Taped version with straight leads (only for 2322 594 and 2322 595 series) drawings | 0...7 | 0...7 | 0...7 | 0...7 |
| Straight leads with flange; H ₀ = 16 mm; see Taped version with flanged leads (onlt for 2322 592 and 2322 593 series) drawing | 1...7 | 1...7 | - | - |
| Straight leads with flange; H ₀ = 18.25 mm; see Taped version with flanged leads (onlt for 2322 592 and 2322 593 series) drawing | 2...7 | 2...7 | - | - |
| Kinked leads; H ₀ = 18.25 mm; see Taped version with kinked leads (only for 2322 594 and 2322 595 series) drawing | 3...7 | 3...7 | 3...7 | 3...7 |
| Kinked leads; H ₀ = 16 mm; see Taped version with kinked leads (only for 2322 592 and 2322 593 series) drawing | 8...7 | 8...7 | 8...7 | 8...7 |
| Package quantities | | | | |
| 14 to 210 V | 1500 ¹⁾ | 1500 ¹⁾ | 500 | 500 |
| 230 to max. V | 1000 | 1000 | 500 | 500 |

Note

1. Except for 35 and 40 V = 1000 pieces

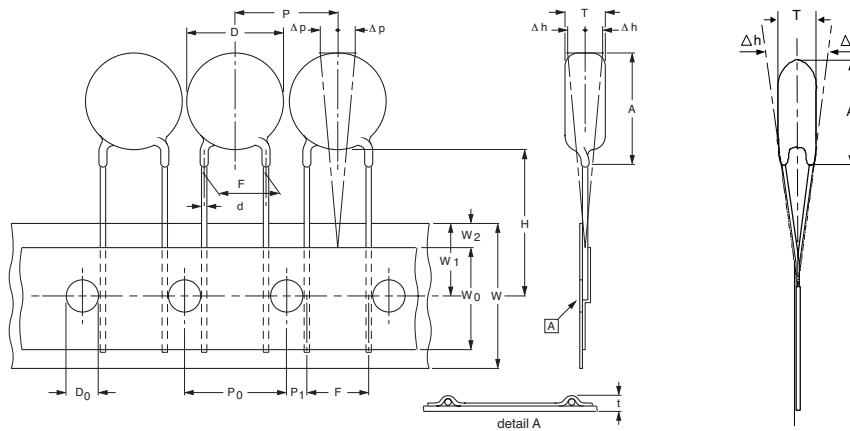
DIMENSIONS OF AMMOPACK in millimeters



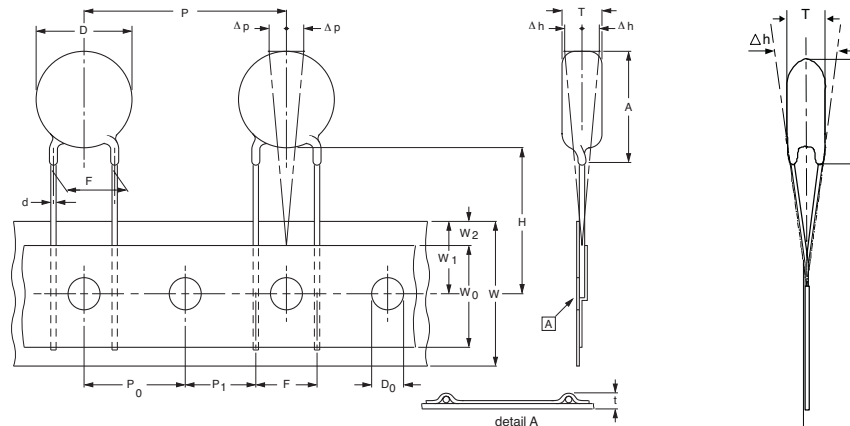
| VARISTORS ON TAPE ON REEL | | | | |
|---|---|--|--|---|
| TYPE | 2322 592 Ø5 mm 14 V to 460 V | 2322 593 Ø7 mm 14V to 460 V | 2322 594 Ø10 mm 14 V to 550 V | 2322 595 Ø14 mm 14V to 550 V |
| Straight leads: H = 18 mm (2322 594 and 2322 595); see Taped version with straight leads (only for 2322 594 and 2322 595 series) drawing | – | – | 0...6 | 0...6 |
| H = 20 mm (2322 592 and 2322 593); see Taped version with straight leads (only for 2322 592 and 2322 593 series) drawing | 0...6 | 0...6 | – | – |
| Straight leads with flange; H ₀ = 16 mm; see Taped version with flanged leads (only for 2322 592 and 2322 593 series) drawing | 1...6 | 1...6 | – | – |
| Straight leads with flange; H ₀ = 18.25 mm; see Taped version with flanged leads (only for 2322 592 and 2322 593 series) drawing | 2...6 | 2...6 | – | – |
| Kinked leads; H ₀ = 18.25 mm; see Taped version with kinked leads (only for 2322 594 and 2322 595 series) drawing | 3...6 | 3...6 | 3...6 | 3...6 |
| Kinked leads; H ₀ = 16 mm; see Taped version with kinked leads (only for 2322 592 and 2322 593 series) drawing | 8...6 | 8...6 | 8...6 | 8...6 |
| Package quantities | | | | |
| 14 V to 300V | 3000 | 3000 | 2000 | 750 |
| 320 V to 350 V | 3000 | 3000 | 1 000 | 500 |
| 385 V to max. V | 3000 | 2000 | 1 000 | 500 |

PACKAGING

TAPED VERSION WITH STRAIGHT LEADS (only for 2322 592 and 2322 593 series).

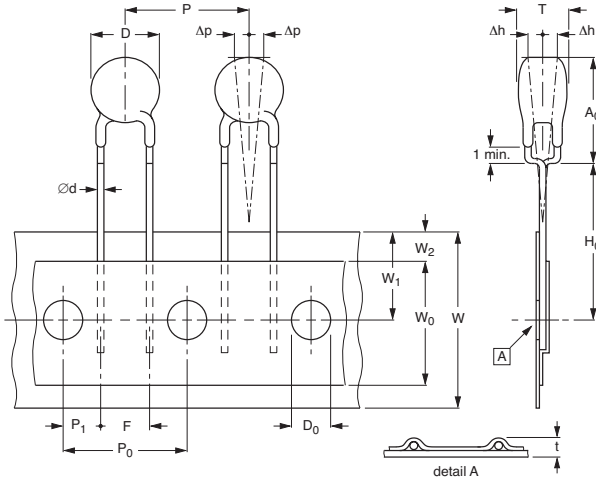


TAPED VERSION WITH STRAIGHT LEADS (only for 2322 594 and 2322 595 series).



TAPED VERSION WITH KINKED LEADS

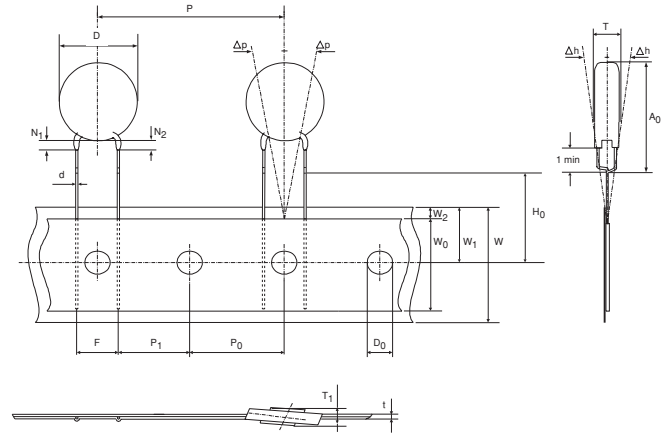
(only for 2322 592 and 2322 593 series).



For dimensions, see Taping data table.

TAPED VERSION WITH KINKED LEADS

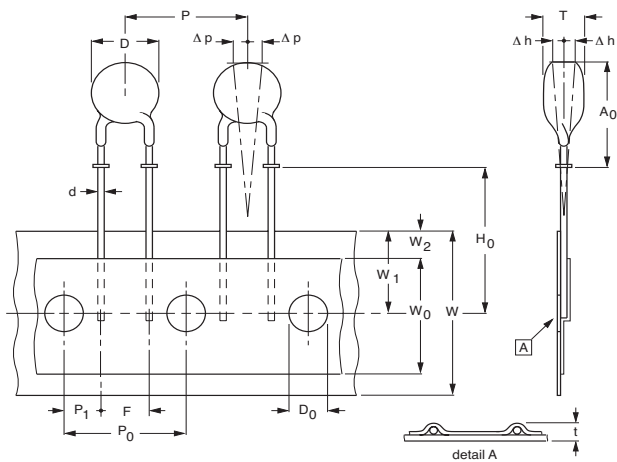
(only for 2322 594 and 2322 595 series).



For dimensions, see Taping data table.

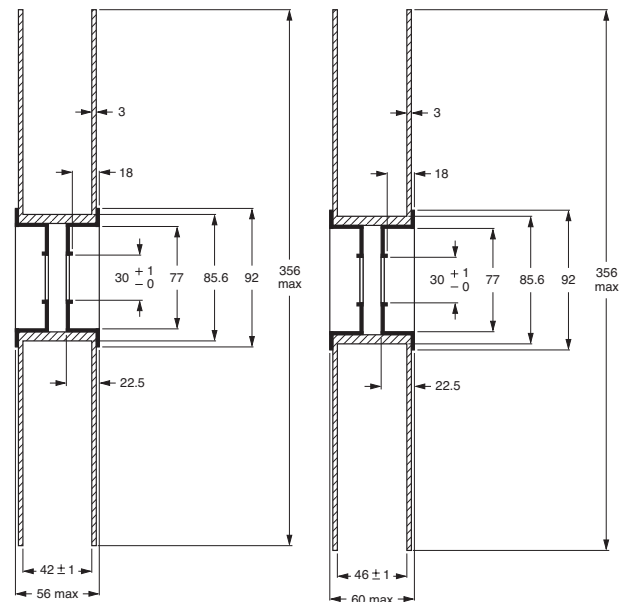
TAPED VERSION WITH FLANGED LEADS

(only for 2322 592 and 2322 593 series).



For dimensions, see Taping data table.

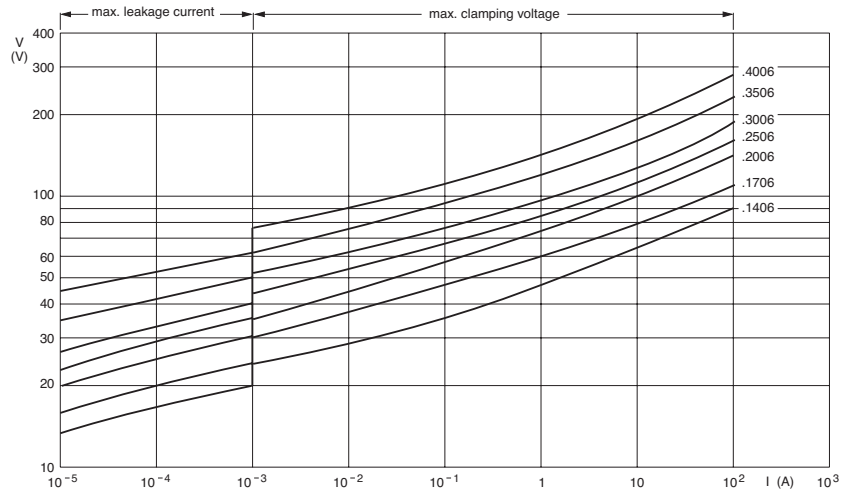
DIMENSIONS OF REELS in millimeters



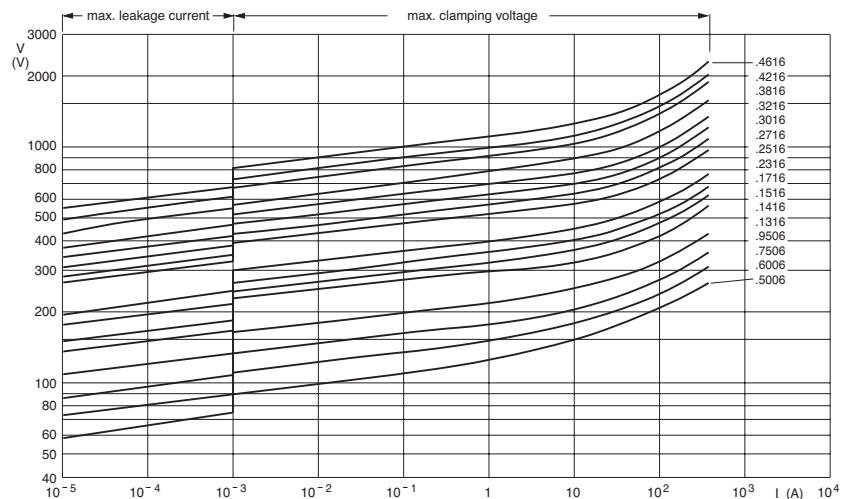
| TAPING DATA (based on "IEC 60286-2") | | | | |
|---|--|--------------------------------|-------------------|---|
| SYMBOL | PARAMETER | DIMENSIONS NOMINAL (mm) | TOLERANCE (mm) | REMARKS |
| D | body diameter | see Component Dimensions table | | |
| T | total thickness | see Component Dimensions table | | |
| A ₀ ; A | mounting height | see Component Dimensions table | | |
| ∅d | lead diameter | see Component Dimensions table | | |
| F | lead to lead distance | see Component Dimensions table | | guaranteed between component and tape |
| P | component pitch | 12.7 or 25.4 | ±1.0 | |
| P ₀ | feed hole pitch | 12.7 | ±0.3 | cumulative pitch error ±1 mm/20 pitches |
| P ₁ | feed hole centre to lead centre | 3.85 or 8.95 | ±0.7 | guaranteed between component and tape |
| Δp | component alignment | 0.0 | ±1.3 | |
| Δh | component alignment | 0.0 | ±2.0 | |
| W | tape width | 18.0 | +1.0/-0.5 | |
| W ₀ | hold down tape width | ≥12.5 | | |
| W ₁ | hole position | 9.0 | ±0.5 | |
| W ₂ | hold down tape position | ≤3.0 | | |
| H | height between component and tape centre | 18.0 | +2.0/-0.0 | straight lead version 2322 594 and 2322 595 |
| | | 20.0 | +2.0/-0.0 | straight lead version 2322 592 and 2322 593 |
| H ₀ | lead-wire flange height | 16.0 or 18.25 | ±0.5 | flanged and kinked lead versions |
| D ₀ | feed hole diameter | 4.0 | ±0.2 | |
| t | total tape thickness | ≤1.4 | | with cardboard tape 0.5 ±0.1 mm |



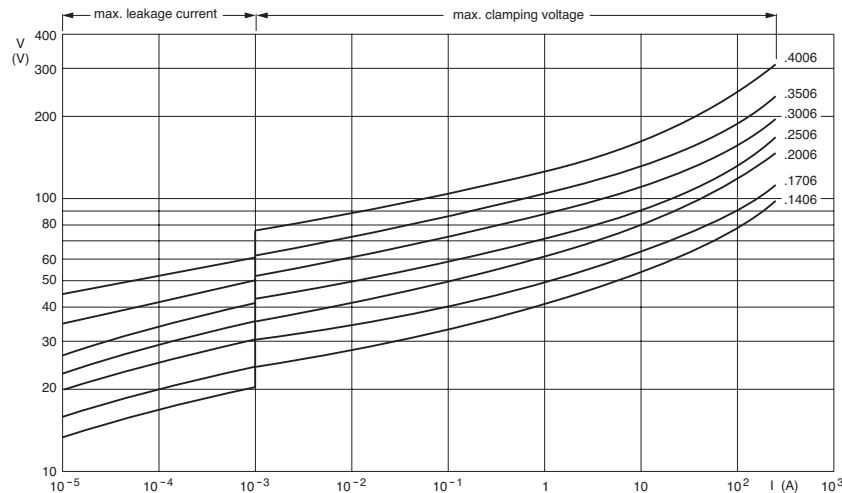
V/I CHARACTERISTICS, 14 V TO 40 V (RMS); 2322 592 series.



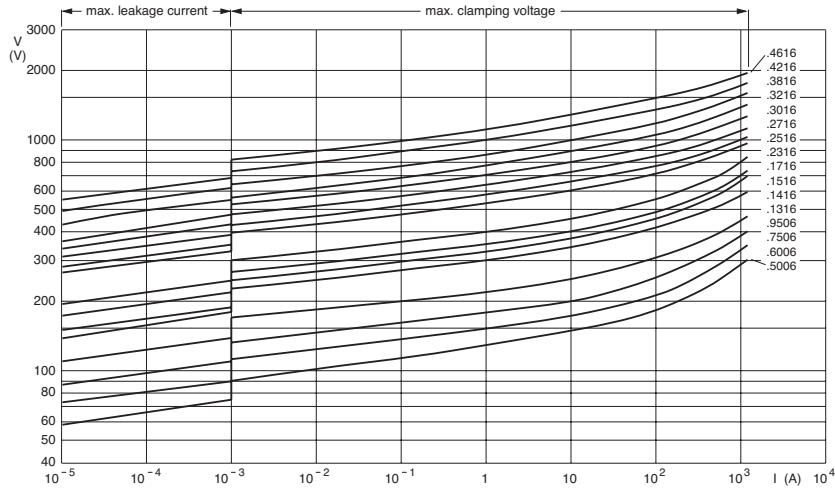
V/I CHARACTERISTICS, 50V TO 460 V (RMS); 2322 592 series.



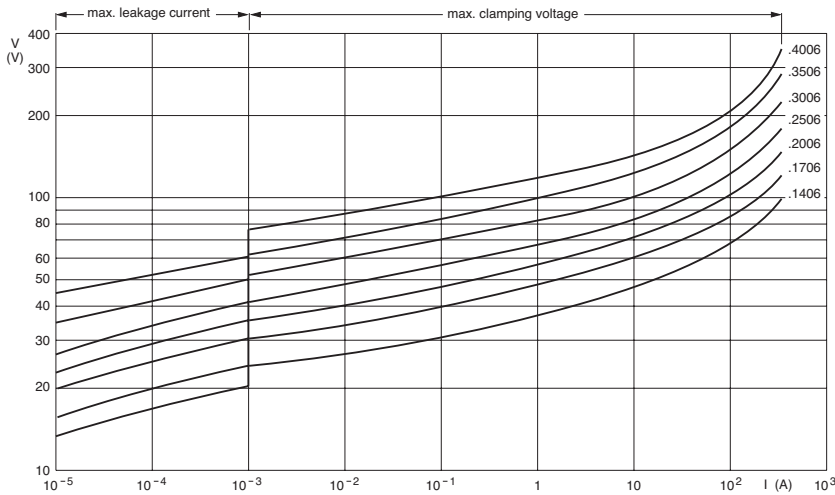
V/I CHARACTERISTICS, 14V TO 40 V (RMS); 2322 593 series.



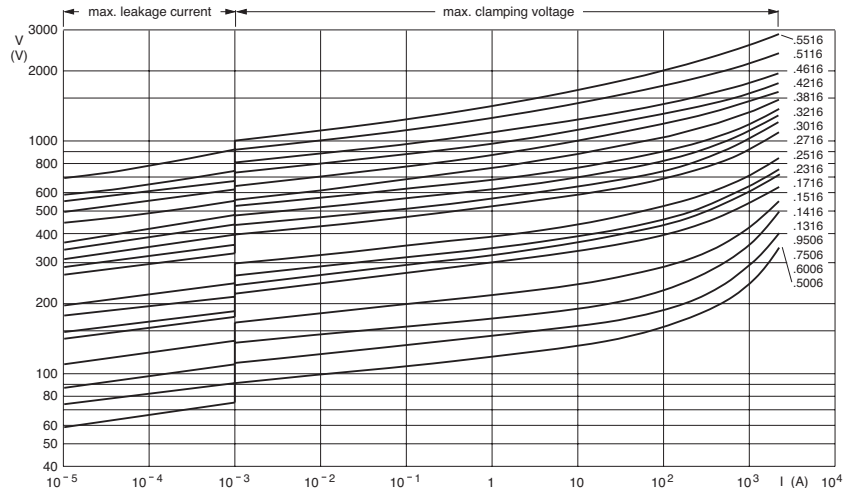
V/I CHARACTERISTICS, 50V TO 460 V (RMS); 2322 593 series.



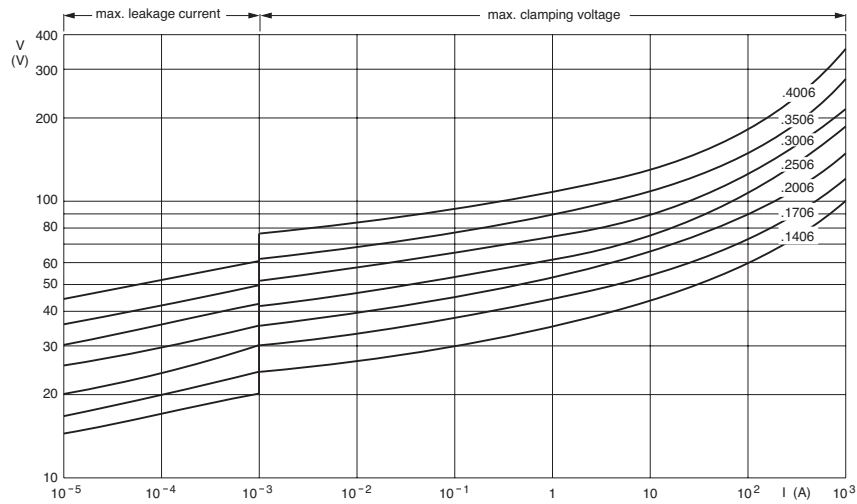
V/I CHARACTERISTICS, 14V TO 40 V (RMS); 2322 594 series.



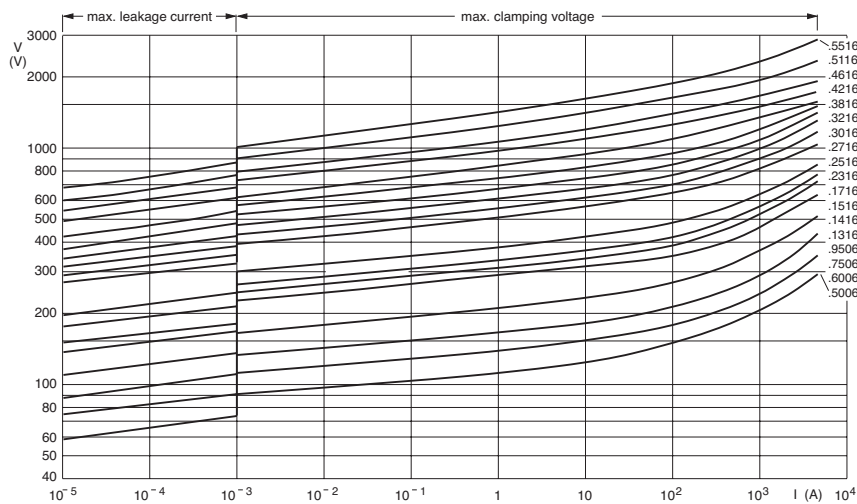
V/I CHARACTERISTICS, 50V TO 550V (RMS); 2322 594 series.



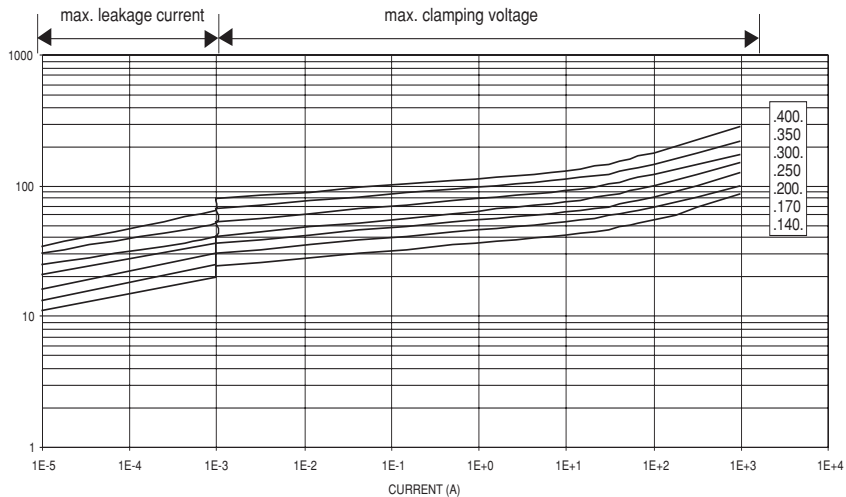
V/I CHARACTERISTICS, 14V TO 40V (RMS); 2322 595 series.



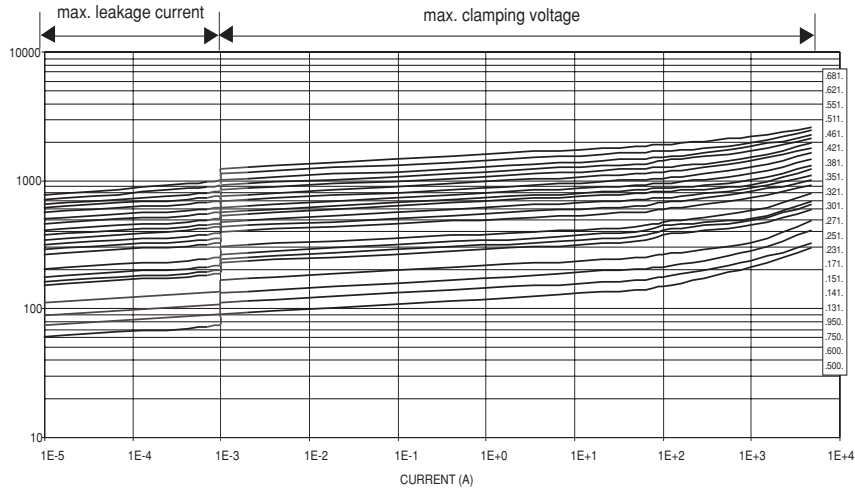
V/I CHARACTERISTICS, 50V TO 550V (RMS); 2322 595 series.



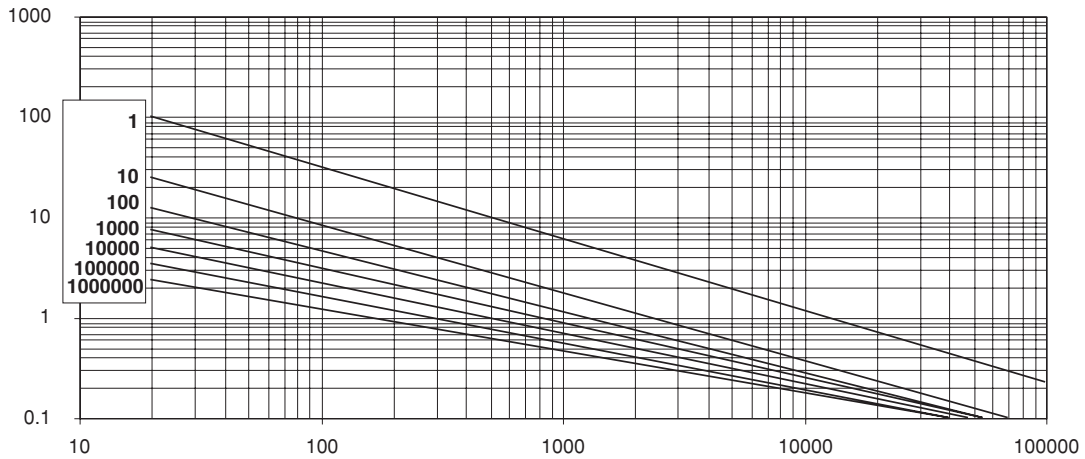
V/I CHARACTERISTICS, 14V TO 40V (RMS); 2322 596 series.



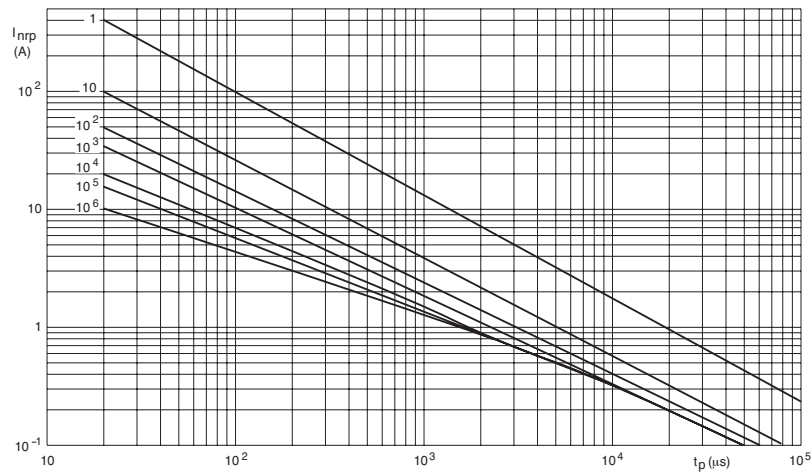
V/I CHARACTERISTICS, 50V TO 680V (RMS); 2322 596 series.



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 14V TO 40V (RMS); 2322 592 series.

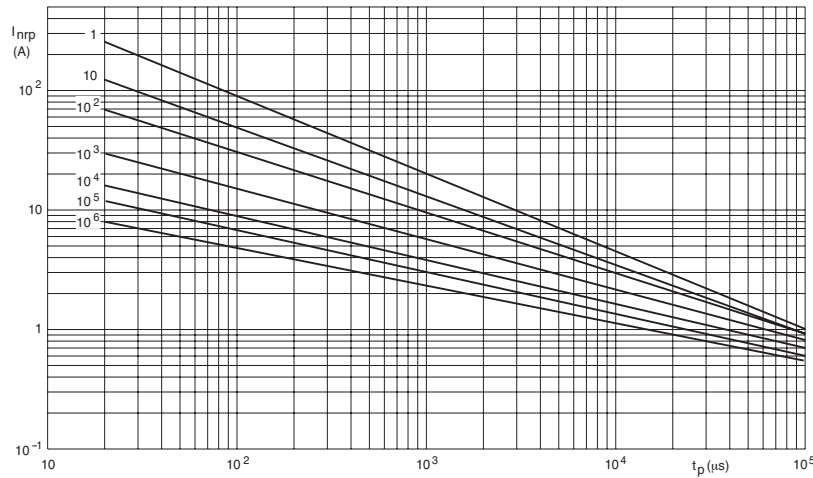


MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50V TO 460V (RMS); 2322 592 series.

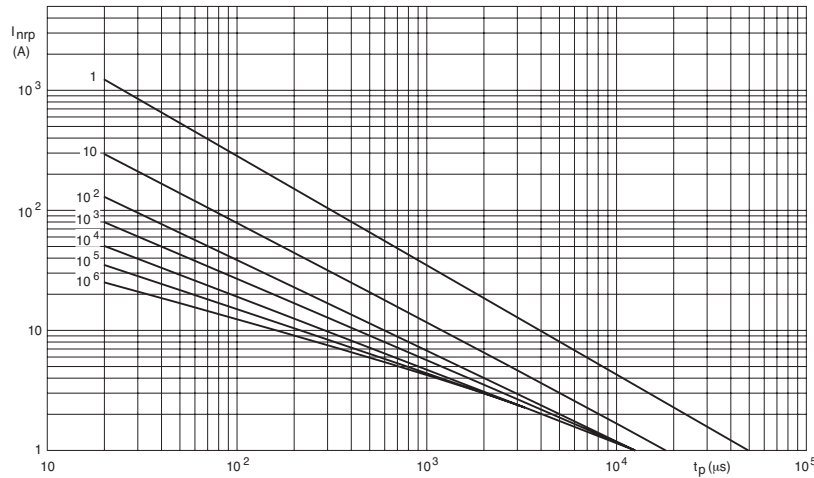




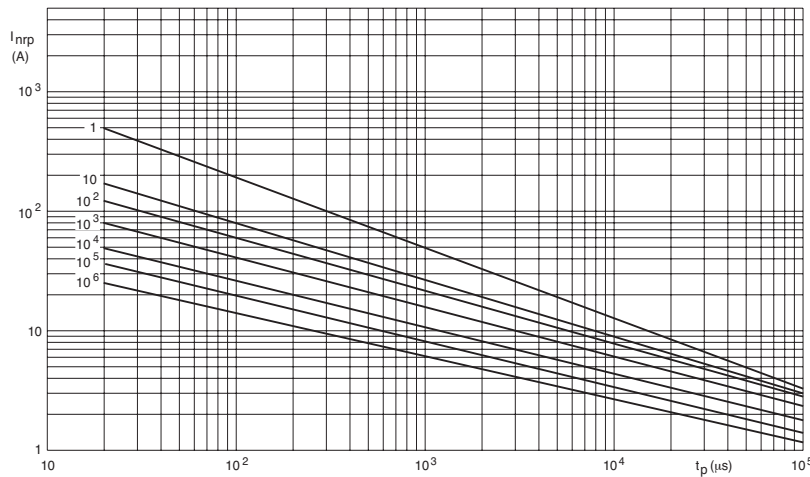
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 14V TO 40V (RMS); 2322 593 series.



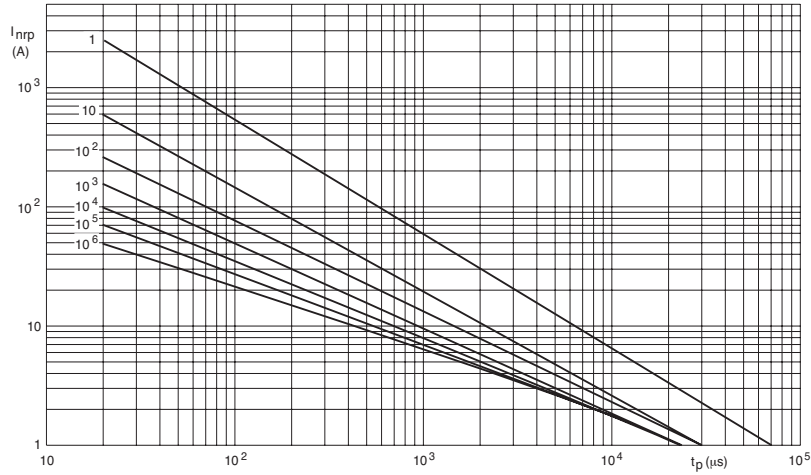
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50V TO 460V (RMS); 2322 593 series.



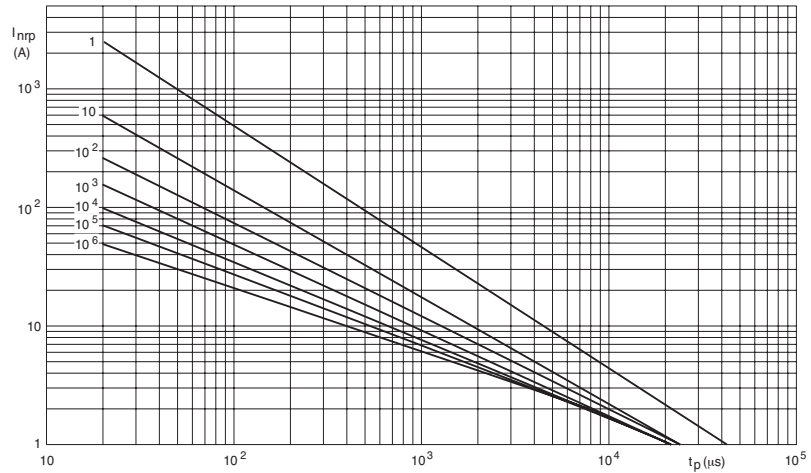
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 14V TO 40V (RMS); 2322 594 series.



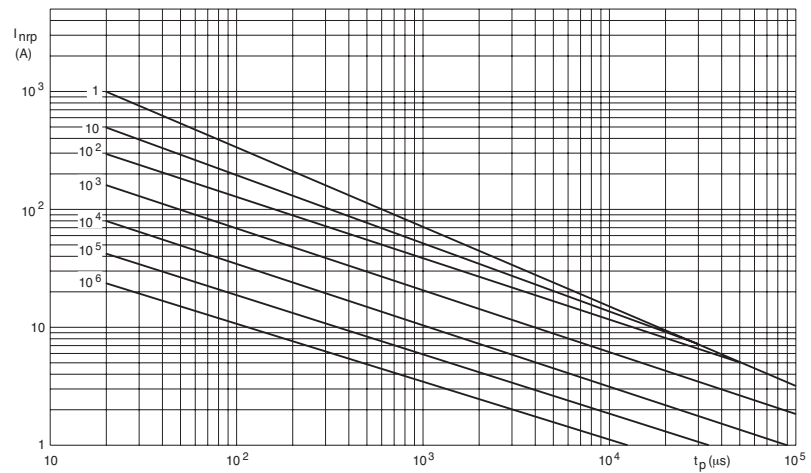
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50V TO 320V (RMS); 2322 594 series.



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 385V TO 550V (RMS); 2322 594 series.

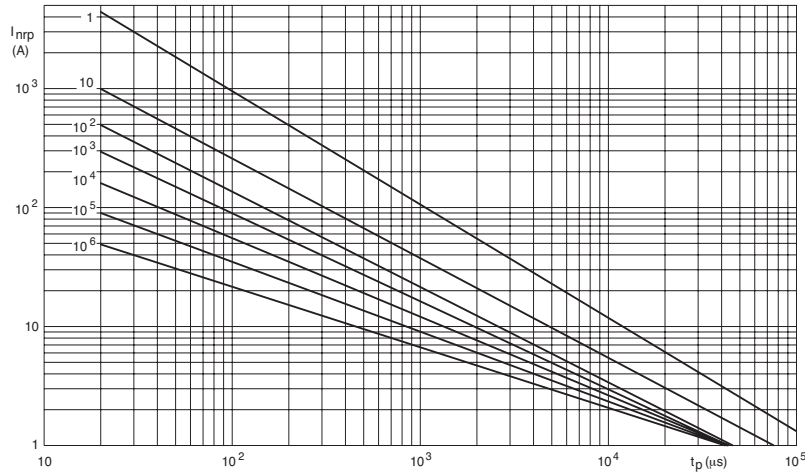


MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 14V TO 40V (RMS); 2322 595 series.

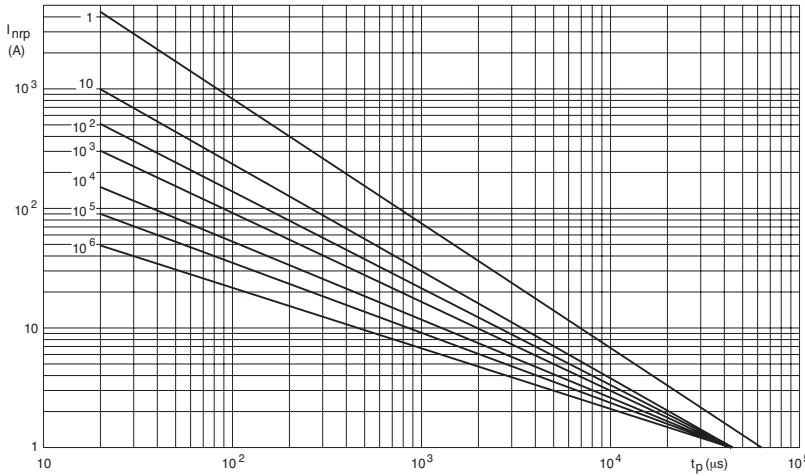




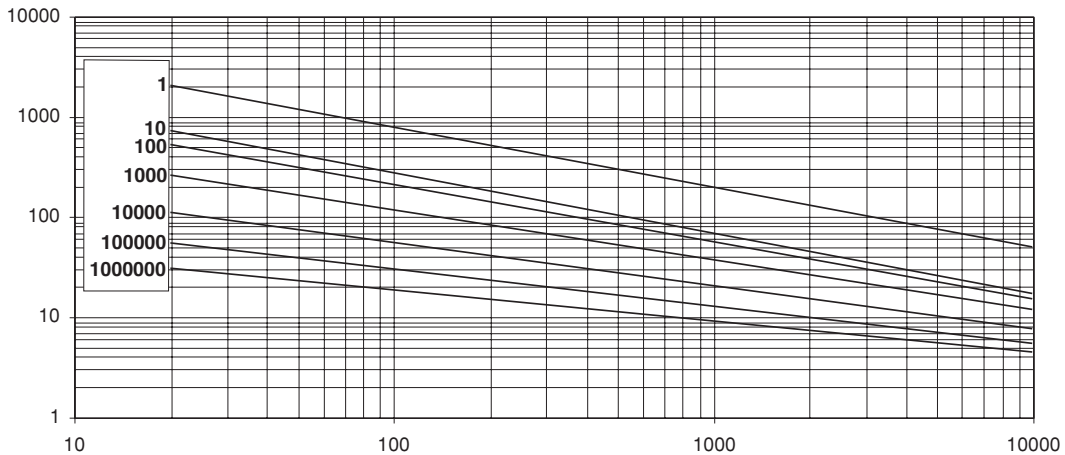
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50V TO 320V (RMS); 2322 595 series.



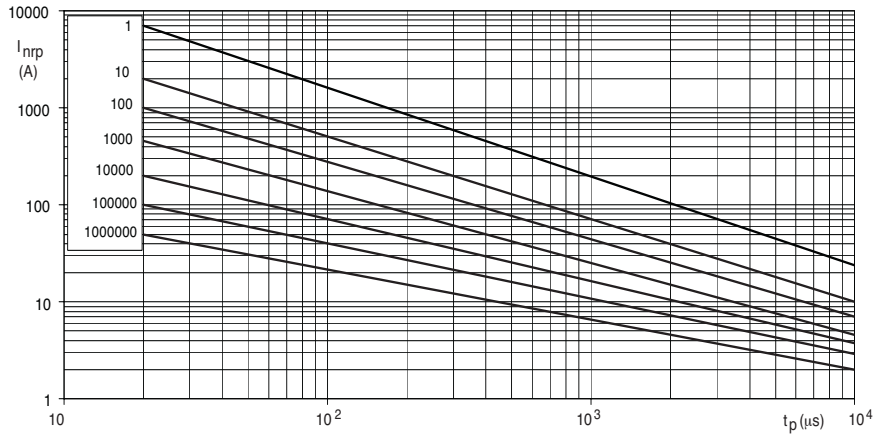
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 385V TO 550V (RMS); 2322 595 series.



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 14V TO 40V (RMS); 2322 596 series.



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 60V TO 300V (RMS); 2322 596 series.



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 320V TO 680V (RMS); 2322 596 series.

