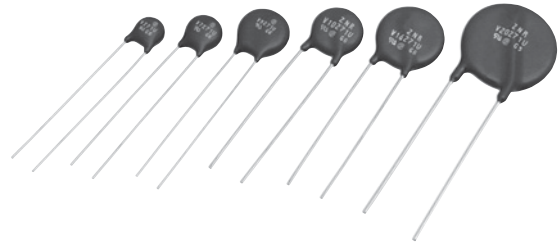


“ZNR” Transient/Surge Absorbers

Type: **D**
Series: **V**



Features

- Large withstanding surge current capability in compact sizes
- Large “Energy Handling Capability” absorbing transient overvoltages in compact sizes
- Wide range of varistor voltages
- RoHS compliant

Recommended Applications

- Transistor, diode, IC, thyristor or triac semiconductor protection
- Surge protection in consumer electronic equipment
- Surge protection in communication, measuring or controller electronics
- Surge protection in electronic home appliances, gas or petroleum appliances

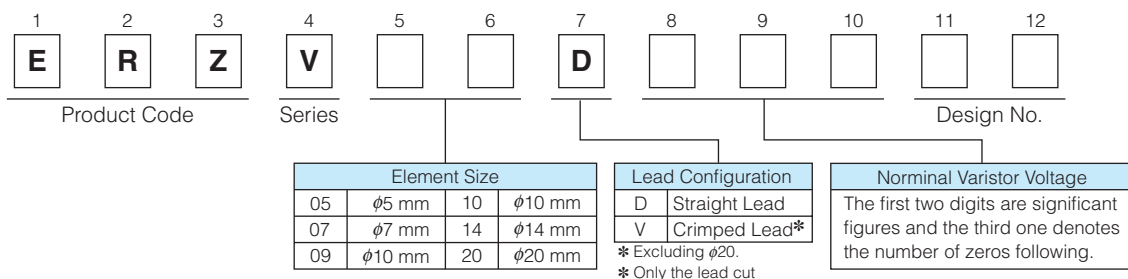
Applicable Standards

- UL1449 (VZCA2/UL, VZCA8/C-UL)
- VDE IEC61051-1, -2, -2-2, IEC60950-1 Annex.Q
- CSA C22.2 No.1
- CQC(GB/T10193, GB/T10194, GB4943.1, GB8898)
Refer to page 5 to 8, and 27, for the details

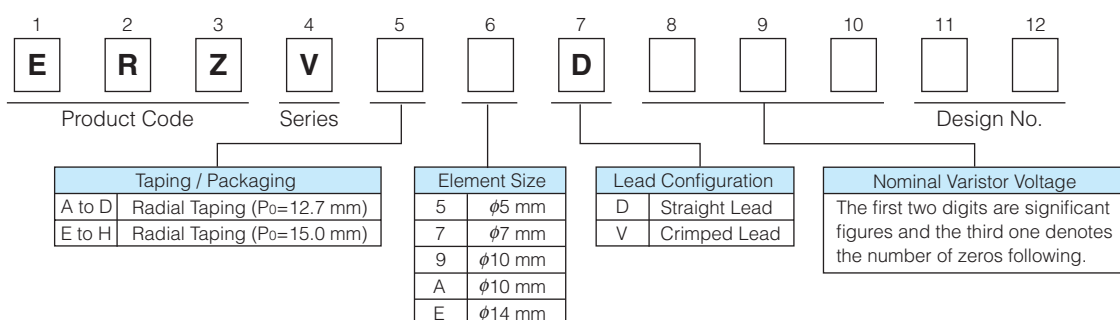
As for Handling Precautions and Minimum Quantity / Packing Unit

Please see Related Information

Explanation of Part Numbers (Bulk)



Explanation of Part Numbers (Taping)



Reference Guide to Standard Products

| Part No. | Applicable Standards | | Varistor Voltage* (V) | Maximum Allowable Voltage | | Clamping Voltage at 8/20μs | | Maximum Peak Current at 8/20μs(A) | | Recommended Applications |
|------------|----------------------|-----------|--------------------------|---------------------------|--------|----------------------------|--------------------|-----------------------------------|---------|-----------------------------|
| | Type Name | Approvals | | ACrms (V) | DC (V) | max.(V) | I _p (A) | 1 time | 2 times | |
| ERZV05D180 | V180 | ◇ | 18 (16 to 20) | 11 | 14 | 40 | 1 | 250 | 125 | For the low voltage circuit |
| ERZV07D180 | V7180 | ◇ | | | | 36 | 2.5 | 500 | 250 | |
| ERZV09D180 | V9180 | ◇ | | | | 36 | 5 | 1000 | 500 | |
| ERZV10D180 | V10180 | ◇ | | | | 36 | 5 | 1000 | 500 | |
| ERZV14D180 | V14180 | ◇ | | | | 36 | 10 | 2000 | 1000 | |
| ERZV20D180 | V20180 | ◇ | | | | 36 | 20 | 3000 | 2000 | |
| ERZV05D220 | V220 | ◇ | 22 (20 to 24) | 14 | 18 | 48 | 1 | 250 | 125 | |
| ERZV07D220 | V7220 | ◇ | | | | 43 | 2.5 | 500 | 250 | |
| ERZV09D220 | V9220 | ◇ | | | | 43 | 5 | 1000 | 500 | |
| ERZV10D220 | V10220 | ◇ | | | | 43 | 5 | 1000 | 500 | |
| ERZV14D220 | V14220 | ◇ | | | | 43 | 10 | 2000 | 1000 | |
| ERZV20D220 | V20220 | ◇ | | | | 43 | 20 | 3000 | 2000 | |
| ERZV05D270 | V270 | ◇ | 27 (24 to 30) | 17 | 22 | 60 | 1 | 250 | 125 | |
| ERZV07D270 | V7270 | ◇ | | | | 53 | 2.5 | 500 | 250 | |
| ERZV09D270 | V9270 | ◇ | | | | 53 | 5 | 1000 | 500 | |
| ERZV10D270 | V10270 | ◇ | | | | 53 | 5 | 1000 | 500 | |
| ERZV14D270 | V14270 | ◇ | | | | 53 | 10 | 2000 | 1000 | |
| ERZV20D270 | V20270 | ◇ | | | | 53 | 20 | 3000 | 2000 | |
| ERZV05D330 | V330 | ◇ | 33 (30 to 36) | 20 | 26 | 73 | 1 | 250 | 125 | |
| ERZV07D330 | V7330 | ◇ | | | | 65 | 2.5 | 500 | 250 | |
| ERZV09D330 | V9330 | ◇ | | | | 65 | 5 | 1000 | 500 | |
| ERZV10D330 | V10330 | ◇ | | | | 65 | 5 | 1000 | 500 | |
| ERZV14D330 | V14330 | ◇ | | | | 65 | 10 | 2000 | 1000 | |
| ERZV20D330 | V20330 | ◇ | | | | 65 | 20 | 3000 | 2000 | |
| ERZV05D390 | V390 | ◇ | 39 (35 to 43) | 25 | 31 | 86 | 1 | 250 | 125 | |
| ERZV07D390 | V7390 | ◇ | | | | 77 | 2.5 | 500 | 250 | |
| ERZV09D390 | V9390 | ◇ | | | | 77 | 5 | 1000 | 500 | |
| ERZV10D390 | V10390 | ◇ | | | | 77 | 5 | 1000 | 500 | |
| ERZV14D390 | V14390 | ◇ | | | | 77 | 10 | 2000 | 1000 | |
| ERZV20D390 | V20390 | ◇ | | | | 77 | 20 | 3000 | 2000 | |
| ERZV05D470 | V470 | ◇ | 47 (42 to 52) | 30 | 38 | 104 | 1 | 250 | 125 | |
| ERZV07D470 | V7470 | ◇ | | | | 93 | 2.5 | 500 | 250 | |
| ERZV09D470 | V9470 | ◇ | | | | 93 | 5 | 1000 | 500 | |
| ERZV10D470 | V10470 | ◇ | | | | 93 | 5 | 1000 | 500 | |
| ERZV14D470 | V14470 | ◇ | | | | 93 | 10 | 2000 | 1000 | |
| ERZV20D470 | V20470 | ◇ | | | | 93 | 20 | 3000 | 2000 | |
| ERZV05D560 | V560 | ◇ | 56 (50 to 62) | 35 | 45 | 123 | 1 | 250 | 125 | |
| ERZV07D560 | V7560 | ◇ | | | | 110 | 2.5 | 500 | 250 | |
| ERZV09D560 | V9560 | ◇ | | | | 110 | 5 | 1000 | 500 | |
| ERZV10D560 | V10560 | ◇ | | | | 110 | 5 | 1000 | 500 | |
| ERZV14D560 | V14560 | ◇ | | | | 110 | 10 | 2000 | 1000 | |
| ERZV20D560 | V20560 | ◇ | | | | 110 | 20 | 3000 | 2000 | |
| ERZV05D680 | V680 | ◇ | 68 (61 to 75) | 40 | 56 | 150 | 1 | 250 | 125 | |
| ERZV07D680 | V7680 | ◇ | | | | 135 | 2.5 | 500 | 250 | |
| ERZV09D680 | V9680 | ◇ | | | | 135 | 5 | 1000 | 500 | |
| ERZV10D680 | V10680 | ◇ | | | | 135 | 5 | 1000 | 500 | |
| ERZV14D680 | V14680 | ◇ | | | | 135 | 10 | 2000 | 1000 | |
| ERZV20D680 | V20680 | ◇ | | | | 135 | 20 | 3000 | 2000 | |

* Measuring Current of Varistor Voltage 5 Series : 0.1 mA, Others: 1 mA

○ : UL1449 (VZCA2/UL, VZCA8/C-UL),

☆ : VDE (IEC61051-1, -2, -2-2), ★ : VDE (IEC60950-1 Annex.Q), □ : CSA C22.2 No.1

◇ : CQC (GB/T10193, GB/T10194), ◆ : CQC (GB4943.1, GB8898)

※ Approval number (File No.) of safety regulations are subject to revision without notice. Ask factory for a copy of the latest file No.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.

Should a safety concern arise regarding this product, please be sure to contact us immediately.

Reference Guide to Standard Products

| Part No. | Applicable Standards | | Varistor Voltage* (V) | Maximum Allowable Voltage | | Clamping Voltage at 8/20μs | | Maximum Peak Current at 8/20μs(A) | | Recommended Applications |
|------------|----------------------|-----------|--------------------------|---------------------------|--------|----------------------------|--------|-----------------------------------|---------|--|
| | Type Name | Approvals | | ACrms (V) | DC (V) | max.(V) | Ip (A) | 1 time | 2 times | |
| ERZV05D820 | V820U | ○☆◇ | 82 (74 to 90) | 50 | 65 | 145 | 5 | 800 | 600 | Telephone, Communication Line (DC 48 V) |
| ERZV07D820 | V7820U | ○☆◇ | | | | 135 | 10 | 1750 | 1250 | |
| ERZV09D820 | V9820U | ○☆◇ | | | | 135 | 25 | 3500 | 2500 | |
| ERZV10D820 | V10820U | ○☆◇ | | | | 135 | 25 | 3500 | 2500 | |
| ERZV14D820 | V14820U | ○☆◇ | | | | 135 | 50 | 6000 | 5000 | |
| ERZV20D820 | V20820U | ○☆◇ | | | | 135 | 100 | 10000 | 7000 | |
| ERZV05D101 | V101U | ○☆◇ | 100 (90 to 110) | 60 | 85 | 175 | 5 | 800 | 600 | |
| ERZV07D101 | V7101U | ○☆◇ | | | | 165 | 10 | 1750 | 1250 | |
| ERZV09D101 | V9101U | ○☆◇ | | | | 165 | 25 | 3500 | 2500 | |
| ERZV10D101 | V10101U | ○☆◇ | | | | 165 | 25 | 3500 | 2500 | |
| ERZV14D101 | V14101U | ○☆◇ | | | | 165 | 50 | 6000 | 5000 | |
| ERZV20D101 | V20101U | ○☆◇ | | | | 165 | 100 | 10000 | 7000 | |
| ERZV05D121 | V121U | ○☆◇ | 120 (108 to 132) | 75 | 100 | 210 | 5 | 800 | 600 | |
| ERZV07D121 | V7121U | ○☆◇ | | | | 200 | 10 | 1750 | 1250 | |
| ERZV09D121 | V9121U | ○☆◇ | | | | 200 | 25 | 3500 | 2500 | |
| ERZV10D121 | V10121U | ○☆◇ | | | | 200 | 25 | 3500 | 2500 | |
| ERZV14D121 | V14121U | ○☆◇ | | | | 200 | 50 | 6000 | 5000 | |
| ERZV20D121 | V20121U | ○☆◇ | | | | 200 | 100 | 10000 | 7000 | |
| ERZV05D151 | V151U | ○☆◇ | 150 (135 to 165) | 95 | 125 | 260 | 5 | 800 | 600 | |
| ERZV07D151 | V7151U | ○☆◇ | | | | 250 | 10 | 1750 | 1250 | |
| ERZV09D151 | V9151U | ○☆◇ | | | | 250 | 25 | 3500 | 2500 | |
| ERZV10D151 | V10151U | ○☆◇ | | | | 250 | 25 | 3500 | 2500 | |
| ERZV14D151 | V14151U | ○☆◇ | | | | 250 | 50 | 6000 | 5000 | |
| ERZV20D151 | V20151U | ○☆◇ | | | | 250 | 100 | 10000 | 7000 | |
| ERZV05D201 | V201U | ○☆□◇ | 200 (185 to 225) | 130 | 170 | 355 | 5 | 800 | 600 | AC 100 V Line-Line Applications |
| ERZV07D201 | V7201U | ○☆□◇ | | | | 340 | 10 | 1750 | 1250 | |
| ERZV09D201 | V9201U | ○☆□◇ | | | | 340 | 25 | 3500 | 2500 | |
| ERZV10D201 | V10201U | ○☆□◇ | | | | 340 | 25 | 3500 | 2500 | |
| ERZV14D201 | V14201U | ○☆★□◇◆ | | | | 340 | 50 | 6000 | 5000 | |
| ERZV20D201 | V20201U | ○☆★□◇◆ | | | | 340 | 100 | 10000 | 7000 | |
| ERZV05D221 | V221U | ○☆□◇ | 220 (198 to 242) | 140 | 180 | 380 | 5 | 800 | 600 | |
| ERZV07D221 | V7221U | ○☆□◇ | | | | 360 | 10 | 1750 | 1250 | |
| ERZV09D221 | V9221U | ○☆□◇ | | | | 360 | 25 | 3500 | 2500 | |
| ERZV10D221 | V10221U | ○☆□◇ | | | | 360 | 25 | 3500 | 2500 | |
| ERZV14D221 | V14221U | ○☆★□◇◆ | | | | 360 | 50 | 6000 | 5000 | |
| ERZV20D221 | V20221U | ○☆★□◇◆ | | | | 360 | 100 | 10000 | 7000 | |
| ERZV05D241 | V241U | ○☆□◇ | 240 (216 to 264) | 150 | 200 | 415 | 5 | 800 | 600 | AC 100 V to 120 V, Line-Line Applications |
| ERZV07D241 | V7241U | ○☆□◇ | | | | 395 | 10 | 1750 | 1250 | |
| ERZV09D241 | V9241U | ○☆□◇ | | | | 395 | 25 | 3500 | 2500 | |
| ERZV10D241 | V10241U | ○☆□◇ | | | | 395 | 25 | 3500 | 2500 | |
| ERZV14D241 | V14241U | ○☆★□◇◆ | | | | 395 | 50 | 6000 | 5000 | |
| ERZV20D241 | V20241U | ○☆★□◇◆ | | | | 395 | 100 | 10000 | 7000 | |
| ERZV05D271 | V271U | ○☆□◇ | 270 (247 to 303) | 175 | 225 | 475 | 5 | 800 | 600 | |
| ERZV07D271 | V7271U | ○☆□◇ | | | | 455 | 10 | 1750 | 1250 | |
| ERZV09D271 | V9271U | ○☆□◇ | | | | 455 | 25 | 3500 | 2500 | |
| ERZV10D271 | V10271U | ○☆□◇ | | | | 455 | 25 | 3500 | 2500 | |
| ERZV14D271 | V14271U | ○☆★□◇◆ | | | | 455 | 50 | 6000 | 5000 | |
| ERZV20D271 | V20271U | ○☆★□◇◆ | | | | 455 | 100 | 10000 | 7000 | |

* Measuring Current of Varistor Voltage 5 Series : 0.1 mA, Others: 1 mA

○ : UL1449 (VZCA2/UL, VZCA8/C-UL),

☆ : VDE (IEC61051-1, -2, -2-2), ★ : VDE (IEC60950-1 Annex.Q), □ : CSA C22.2 No.1

◇ : CQC (GB/T10193, GB/T10194), ◆ : CQC (GB4943.1, GB8898)

※ Approval number (File No.) of safety regulations are subject to revision without notice. Ask factory for a copy of the latest file No.

Reference Guide to Standard Products

| Part No. | Applicable Standards | | Varistor Voltage* (V) | Maximum Allowable Voltage | | Clamping Voltage at 8/20μs | | Maximum Peak Current at 8/20μs(A) | | Recommended Applications | |
|------------|----------------------|-----------|--------------------------|---------------------------|--------|----------------------------|--------------------|-----------------------------------|---------|--|---|
| | Type Name | Approvals | | ACrms (V) | DC (V) | max.(V) | I _p (A) | 1 time | 2 times | | |
| ERZV05D331 | V331U | ○☆□◇ | 330 (297 to 363) | 210 | 270 | 570 | 5 | 800 | 600 | AC 100 V to 120 V, Line-Line Applications Telephone Line Applications, (For DC 250 V Insulation Resistance Test) | |
| ERZV07D331 | V7331U | ○☆□◇ | | | | 545 | 10 | 1750 | 1250 | | |
| ERZV09D331 | V9331U | ○☆□◇ | | | | 545 | 25 | 3500 | 2500 | | |
| ERZV10D331 | V10331U | ○☆□◇ | | | | 545 | 25 | 3500 | 2500 | | |
| ERZV14D331 | V14331U | ○☆★□◇◆ | | | | 545 | 50 | 6000 | 4500 | | |
| ERZV20D331 | V20331U | ○☆★□◇◆ | | | | 545 | 100 | 10000 | 6500 | | |
| ERZV05D361 | V361U | ○☆□◇ | 360 (324 to 396) | 230 | 300 | 620 | 5 | 800 | 600 | | |
| ERZV07D361 | V7361U | ○☆□◇ | | | | 595 | 10 | 1750 | 1250 | | |
| ERZV09D361 | V9361U | ○☆□◇ | | | | 595 | 25 | 3500 | 2500 | | |
| ERZV10D361 | V10361U | ○☆□◇ | | | | 595 | 25 | 3500 | 2500 | | |
| ERZV14D361 | V14361U | ○☆★□◇◆ | | | | 595 | 50 | 6000 | 4500 | | |
| ERZV20D361 | V20361U | ○☆★□◇◆ | | | | 595 | 100 | 10000 | 6500 | | |
| ERZV05D391 | V391U | ○☆□◇ | 390 (351 to 429) | 250 | 320 | 675 | 5 | 800 | 600 | | |
| ERZV07D391 | V7391U | ○☆□◇ | | | | 650 | 10 | 1750 | 1250 | | |
| ERZV09D391 | V9391U | ○☆□◇ | | | | 650 | 25 | 3500 | 2500 | | |
| ERZV10D391 | V10391U | ○☆□◇ | | | | 650 | 25 | 3500 | 2500 | | |
| ERZV14D391 | V14391U | ○☆★□◇◆ | | | | 650 | 50 | 6000 | 4500 | | |
| ERZV20D391 | V20391U | ○☆★□◇◆ | | | | 650 | 100 | 10000 | 6500 | | |
| ERZV05D431 | V431U | ○☆□◇ | 430 (387 to 473) | 275 | 350 | 745 | 5 | 800 | 600 | | AC 100 V to 220 V, Line-Line and Line-Ground Applications |
| ERZV07D431 | V7431U | ○☆□◇ | | | | 710 | 10 | 1750 | 1250 | | |
| ERZV09D431 | V9431U | ○☆□◇ | | | | 710 | 25 | 3500 | 2500 | | |
| ERZV10D431 | V10431U | ○☆□◇ | | | | 710 | 25 | 3500 | 2500 | | |
| ERZV14D431 | V14431U | ○☆★□◇◆ | | | | 710 | 50 | 6000 | 4500 | | |
| ERZV20D431 | V20431U | ○☆★□◇◆ | | | | 710 | 100 | 10000 | 6500 | | |
| ERZV05D471 | V471U | ○☆□◇ | 470 (423 to 517) | 300 | 385 | 810 | 5 | 800 | 600 | | |
| ERZV07D471 | V7471U | ○☆□◇ | | | | 775 | 10 | 1750 | 1250 | | |
| ERZV09D471 | V9471U | ○☆□◇ | | | | 775 | 25 | 3500 | 2500 | | |
| ERZV10D471 | V10471U | ○☆★□◇◆ | | | | 775 | 25 | 3500 | 2500 | | |
| ERZV14D471 | V14471U | ○☆★□◇◆ | | | | 775 | 50 | 6000 | 4500 | | |
| ERZV20D471 | V20471U | ○☆★□◇◆ | | | | 775 | 100 | 10000 | 6500 | | |
| ERZV07D511 | V7511U | ○☆□◇ | 510 (459 to 561) | 320 | 410 | 845 | 10 | 1750 | 1250 | AC 100 to 240 V, Line-Line and Line-Ground Applications | |
| ERZV09D511 | V9511U | ○☆□◇ | | | | 845 | 25 | 3500 | 2500 | | |
| ERZV10D511 | V10511U | ○☆★□◇◆ | | | | 845 | 25 | 3500 | 2500 | | |
| ERZV14D511 | V14511U | ○☆★□◇◆ | | | | 845 | 50 | 6000 | 4500 | | |
| ERZV20D511 | V20511U | ○☆★□◇◆ | | | | 845 | 100 | 10000 | 6500 | | |
| ERZV10D561 | V10561U | ○☆★□◇◆ | 560 (504 to 616) | 350 | 450 | 930 | 25 | 3500 | 2500 | | |
| ERZV14D561 | V14561U | ○☆★□◇◆ | | | | 930 | 50 | 5000 | 4500 | | |
| ERZV20D561 | V20561U | ○☆★□◇◆ | | | | 930 | 100 | 7500 | 6500 | | |
| ERZV10D621 | V10621U | ○☆★□◇◆ | 620 (558 to 682) | 385 | 505 | 1025 | 25 | 3500 | 2500 | | |
| ERZV14D621 | V14621U | ○☆★□◇◆ | | | | 1025 | 50 | 5000 | 4500 | | |
| ERZV20D621 | V20621U | ○☆★□◇◆ | | | | 1025 | 100 | 7500 | 6500 | | |
| ERZV10D681 | V10681U | ○☆★□◇◆ | 680 (612 to 748) | 420 | 560 | 1120 | 25 | 3500 | 2500 | | |
| ERZV14D681 | V14681U | ○☆★□◇◆ | | | | 1120 | 50 | 5000 | 4500 | | |
| ERZV20D681 | V20681U | ○☆★□◇◆ | | | | 1120 | 100 | 7500 | 6500 | | |

* Measuring Current of Varistor Voltage 5 Series : 0.1 mA, Others : 1 mA

○ : UL1449 (VZCA2/UL, VZCA8/C-UL),

☆ : VDE (IEC61051-1, -2, -2-2), ★ : VDE (IEC60950-1 Annex.Q), □ : CSA C22.2 No.1

◇ : CQC (GB/T10193, GB/T10194), ◆ : CQC (GB4943.1, GB8898)

※ Approval number (File No.) of safety regulations are subject to revision without notice. Ask factory for a copy of the latest file No.

Reference Guide to Standard Products

| Part No. | Applicable Standards | | Varistor Voltage* (V) | Maximum Allowable Voltage | | Clamping Voltage at 8/20μs | | Maximum Peak Current at 8/20μs(A) | | Recommended Applications | |
|--------------|----------------------|-----------|--------------------------|---------------------------|--------|----------------------------|--------|-----------------------------------|---------|--|--|
| | Type Name | Approvals | | ACrms (V) | DC (V) | max.(V) | Ip (A) | 1 time | 2 times | | |
| ERZV10D751 | V10751U | ○☆★□◇◆ | 750 (675 to 825) | 460 | 615 | 1240 | 25 | 3500 | 2500 | AC 380 V, Line-Line and Line-Ground Applications (For DC 500 V Insulating Test) | |
| ERZV14D751 | V14751U | ○☆★□◇◆ | | | | 1240 | 50 | 5000 | 4500 | | |
| ERZV20D751 | V20751U | ○☆★□◇◆ | | | | 1240 | 100 | 7500 | 6500 | | |
| ERZV10D821 | V10821U | ○☆★□◇◆ | 820 (738 to 902) | 510 | 670 | 1355 | 25 | 3500 | 2500 | | |
| ERZV14D821 | V14821U | ○☆★□◇◆ | | | | 1355 | 50 | 5000 | 4500 | | |
| ERZV20D821 | V20821U | ○☆★□◇◆ | | | | 1355 | 100 | 7500 | 6500 | | |
| ERZV10D911 | V10911U | ○☆★□◇◆ | 910 (819 to 1001) | 550 | 745 | 1500 | 25 | 3500 | 2500 | | AC 415 V, Line-Line and Line-Ground Applications (For DC 500 V Insulating Test) |
| ERZV14D911 | V14911U | ○☆★□◇◆ | | | | 1500 | 50 | 5000 | 4500 | | |
| ERZV20D911 | V20911U | ○☆★□◇◆ | | | | 1500 | 100 | 7500 | 6500 | | |
| ERZV10D102 | V10102U | ○☆★□◇◆ | 1000 (900 to 1100) | 625 | 825 | 1650 | 25 | 3500 | 2500 | AC 480 V, Line-Line and Line-Ground Applications (For DC 500 V Insulating Test) | |
| ERZV14D102 | V14102U | ○☆★□◇◆ | | | | 1650 | 50 | 5000 | 4500 | | |
| ERZV20D102 | V20102U | ○☆★□◇◆ | | | | 1650 | 100 | 7500 | 6500 | | |
| ERZV10D112 | V10112U | ○☆★□◇◆ | 1100 (990 to 1210) | 680 | 895 | 1815 | 25 | 3500 | 2500 | | |
| ERZV14D112 | V14112U | ○☆★□◇◆ | | | | 1815 | 50 | 5000 | 4500 | | |
| ERZV20D112 | V20112U | ○☆★□◇◆ | | | | 1815 | 100 | 7500 | 6500 | | |
| ERZV10D182CS | V10182U | ○☆★□◇◆ | 1800 (1700 to 1980) | 1000 | 1465 | 2970 | 25 | 3500 | 2500 | | Line-Ground Applications (For AC 1200 V Withstanding Test) |
| ERZV14D182CS | V14182U | ○☆★□◇◆ | | | | 2970 | 50 | 5000 | 4500 | | |
| ERZV20D182 | V20182U | ○☆★□◇◆ | | | | 2970 | 100 | 7500 | 6500 | | |

* Measuring Current of Varistor Voltage 5 Series : 0.1 mA, Others: 1 mA

○ : UL1449 (VZCA2/UL, VZCA8/C-UL),

☆ : VDE (IEC61051-1, -2, -2-2), ★ : VDE (IEC60950-1 Annex.Q), □ : CSA C22.2 No.1

◇ : CQC (GB/T10193, GB/T10194), ◆ : CQC (GB4943.1, GB8898)

※ Approval number (File No.) of safety regulations are subject to revision without notice. Ask factory for a copy of the latest file No.

5 Series

Ratings and Characteristics

● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

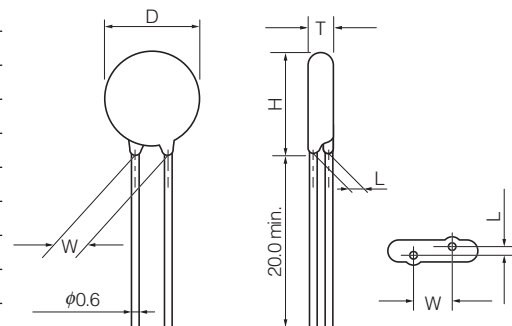
| Part No. | Varistor Voltage $V_{0.1 \text{ mA}}$ (V) | Maximum Allowable Voltage | | Clamping Voltage (max.) ** I_p (V) | Rated Power (W) | Maximum Energy | | Maximum Peak Current (8/20 μ s) | | Capacitance (max.) at 1 kHz (pF) |
|------------|--|---------------------------|--------|---|-----------------|-------------------|--------|-------------------------------------|---------|-------------------------------------|
| | | ACrms (V) | DC (V) | | | (10/1000 μ s) | (2 ms) | 1 time | 2 times | |
| | | | | | | (J) | (J) | (A) | (A) | |
| ERZV05D180 | 18(16 to 20) | 11 | 14 | 40 | 0.01 | 0.6 | 0.4 | 250 | 125 | 1600 |
| ERZV05D220 | 22(20 to 24) | 14 | 18 | 48 | 0.01 | 0.7 | 0.5 | 250 | 125 | 1500 |
| ERZV05D270 | 27(24 to 30) | 17 | 22 | 60 | 0.01 | 0.9 | 0.7 | 250 | 125 | 1450 |
| ERZV05D330 | 33(30 to 36) | 20 | 26 | 73 | 0.01 | 1.1 | 0.8 | 250 | 125 | 1400 |
| ERZV05D390 | 39(35 to 43) | 25 | 31 | 86 | 0.01 | 1.2 | 0.9 | 250 | 125 | 700 |
| ERZV05D470 | 47(42 to 52) | 30 | 38 | 104 | 0.01 | 1.5 | 1.1 | 250 | 125 | 650 |
| ERZV05D560 | 56(50 to 62) | 35 | 45 | 123 | 0.01 | 1.8 | 1.3 | 250 | 125 | 600 |
| ERZV05D680 | 68(61 to 75) | 40 | 56 | 150 | 0.01 | 2.2 | 1.6 | 250 | 125 | 580 |
| ERZV05D820 | 82(74 to 90) | 50 | 65 | 145 | 0.1 | 3.5 | 2.5 | 800 | 600 | 460 |
| ERZV05D101 | 100(90 to 110) | 60 | 85 | 175 | 0.1 | 4.0 | 3.0 | 800 | 600 | 400 |
| ERZV05D121 | 120(108 to 132) | 75 | 100 | 210 | 0.1 | 5.0 | 3.5 | 800 | 600 | 350 |
| ERZV05D151 | 150(135 to 165) | 95 | 125 | 260 | 0.1 | 6.5 | 4.5 | 800 | 600 | 300 |
| ERZV05D201 | 200(185 to 225) | 130 | 170 | 355 | 0.1 | 8.5 | 6.0 | 800 | 600 | 120 |
| ERZV05D221 | 220(198 to 242) | 140 | 180 | 380 | 0.1 | 9.0 | 6.5 | 800 | 600 | 110 |
| ERZV05D241 | 240(216 to 264) | 150 | 200 | 415 | 0.1 | 10.5 | 7.5 | 800 | 600 | 100 |
| ERZV05D271 | 270(247 to 303) | 175 | 225 | 475 | 0.1 | 11.0 | 8.0 | 800 | 600 | 90* |
| ERZV05D331 | 330(297 to 363) | 210 | 270 | 570 | 0.1 | 13.0 | 9.5 | 800 | 600 | 80* |
| ERZV05D361 | 360(324 to 396) | 230 | 300 | 620 | 0.1 | 16.0 | 11.0 | 800 | 600 | 80* |
| ERZV05D391 | 390(351 to 429) | 250 | 320 | 675 | 0.1 | 17.0 | 12.0 | 800 | 600 | 80* |
| ERZV05D431 | 430(387 to 473) | 275 | 350 | 745 | 0.1 | 20.0 | 13.5 | 800 | 600 | 70* |
| ERZV05D471 | 470(423 to 517) | 300 | 385 | 810 | 0.1 | 21.0 | 15.0 | 800 | 600 | 60* |

* Measured at 1 MHz ** I_p Measuring current of clamping voltage 180 to 680 : 1 A, 820 to 471 : 5 A

Dimensions in mm (not to scale)

* Refer to page 24 to 26 about leads cut type and taping.

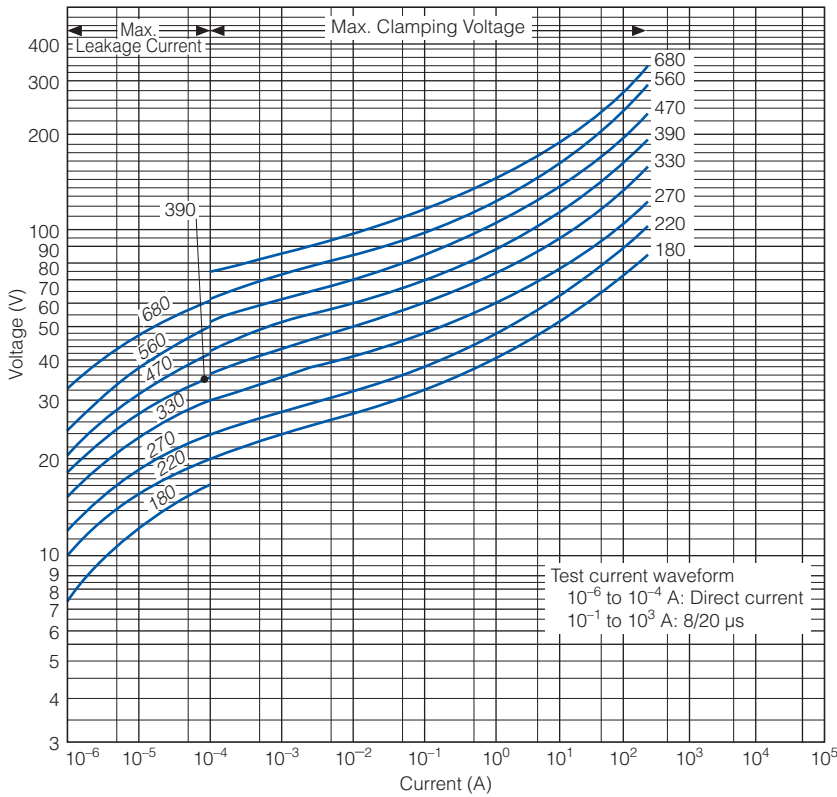
| Part No. | D max. | T max. | W \pm 1.0 | H max. | L \pm 1.0 |
|------------|--------|--------|-------------|--------|-------------|
| ERZV05D180 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D220 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D270 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D330 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D390 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D470 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D560 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D680 | 7.0 | 4.5 | 5.0 | 10.0 | 1.5 |
| ERZV05D820 | 7.0 | 4.1 | 5.0 | 10.0 | 1.4 |
| ERZV05D101 | 7.0 | 4.3 | 5.0 | 10.0 | 1.6 |
| ERZV05D121 | 7.0 | 4.5 | 5.0 | 10.0 | 1.8 |
| ERZV05D151 | 7.0 | 4.8 | 5.0 | 10.0 | 2.1 |
| ERZV05D201 | 7.0 | 4.4 | 5.0 | 10.0 | 1.7 |
| ERZV05D221 | 7.0 | 4.5 | 5.0 | 10.0 | 1.8 |
| ERZV05D241 | 7.0 | 4.6 | 5.0 | 10.0 | 1.9 |
| ERZV05D271 | 7.0 | 4.8 | 5.0 | 10.0 | 2.1 |
| ERZV05D331 | 7.0 | 5.1 | 5.0 | 10.0 | 2.4 |
| ERZV05D361 | 7.0 | 5.3 | 5.0 | 10.0 | 2.5 |
| ERZV05D391 | 7.0 | 5.4 | 5.0 | 10.0 | 2.7 |
| ERZV05D431 | 7.0 | 5.6 | 5.0 | 10.0 | 2.9 |
| ERZV05D471 | 7.0 | 5.8 | 5.0 | 10.0 | 3.1 |



Typical Characteristics

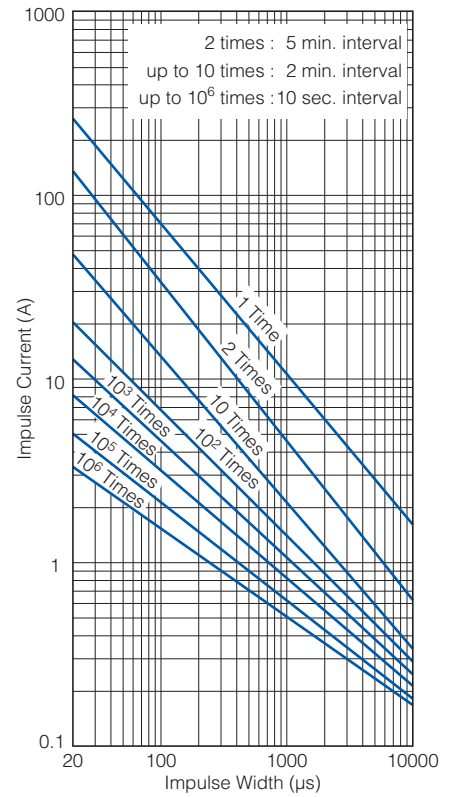
Voltage vs. Current

ERZV05D180 to ERZV05D680

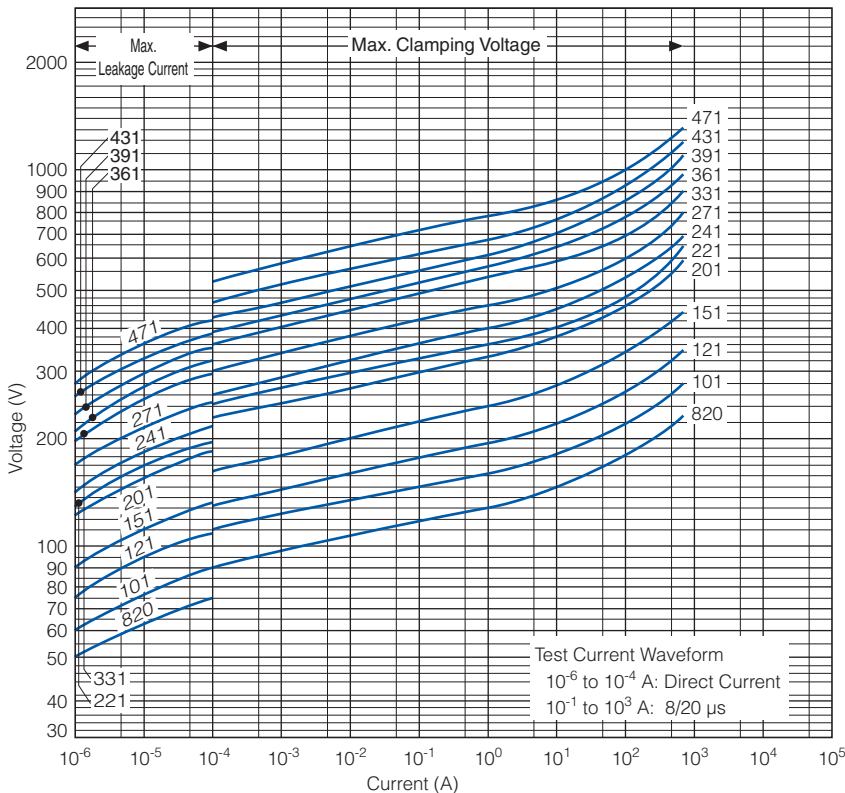


Impulse Derating (Relation between impulse width and impulse current multiple)

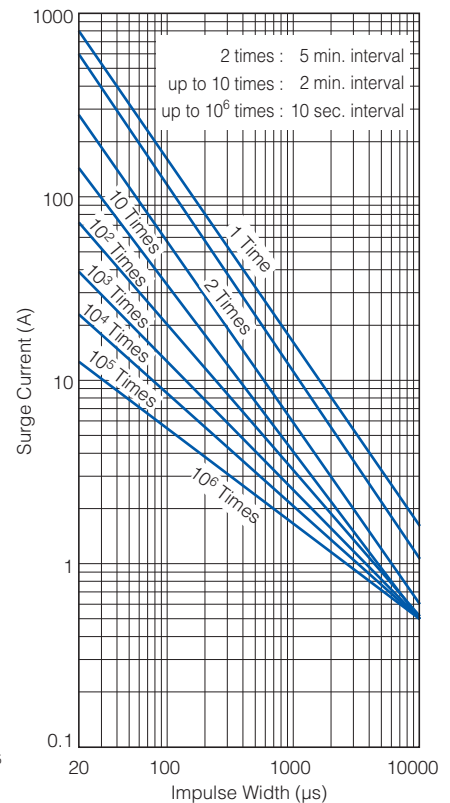
ERZV05D180 to ERZV05D680



ERZV05D820 to ERZV05D471



ERZV05D820 to ERZV05D471



7 Series

Ratings and Characteristics

● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

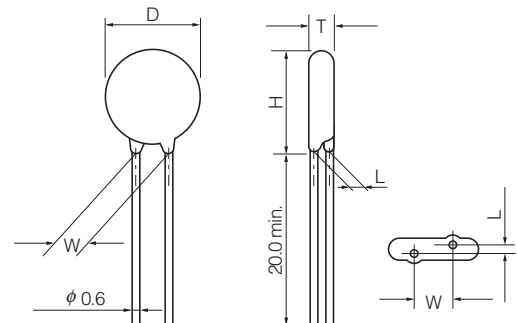
| Part No. | Varistor Voltage | Maximum Allowable Voltage | | Clamping Voltage (max.) **I _p | Rated Power (W) | Maximum Energy | | Maximum Peak Current (8/20 μs) | | Capacitance (max.) at 1 kHz (pF) |
|------------|------------------|---------------------------|--------|---|-----------------|------------------|------------|--------------------------------|-------------|-------------------------------------|
| | | ACrms (V) | DC (V) | | | (10/1000 μs) (J) | (2 ms) (J) | 1 time (A) | 2 times (A) | |
| ERZV07D180 | 18(16 to 20) | 11 | 14 | 36 | 0.02 | 1.1 | 0.9 | 500 | 250 | 3800 |
| ERZV07D220 | 22(20 to 24) | 14 | 18 | 43 | 0.02 | 1.3 | 1.1 | 500 | 250 | 3600 |
| ERZV07D270 | 27(24 to 30) | 17 | 22 | 53 | 0.02 | 1.6 | 1.3 | 500 | 250 | 3400 |
| ERZV07D330 | 33(30 to 36) | 20 | 26 | 65 | 0.02 | 2.0 | 1.6 | 500 | 250 | 2900 |
| ERZV07D390 | 39(35 to 43) | 25 | 31 | 77 | 0.02 | 2.4 | 1.9 | 500 | 250 | 1600 |
| ERZV07D470 | 47(42 to 52) | 30 | 38 | 93 | 0.02 | 2.8 | 2.3 | 500 | 250 | 1550 |
| ERZV07D560 | 56(50 to 62) | 35 | 45 | 110 | 0.02 | 3.4 | 2.7 | 500 | 250 | 1500 |
| ERZV07D680 | 68(61 to 75) | 40 | 56 | 135 | 0.02 | 4.1 | 3.3 | 500 | 250 | 1200 |
| ERZV07D820 | 82(74 to 90) | 50 | 65 | 135 | 0.25 | 7 | 5 | 1750 | 1250 | 810 |
| ERZV07D101 | 100(90 to 110) | 60 | 85 | 165 | 0.25 | 8.5 | 6 | 1750 | 1250 | 700 |
| ERZV07D121 | 120(108 to 132) | 75 | 100 | 200 | 0.25 | 10 | 7 | 1750 | 1250 | 590 |
| ERZV07D151 | 150(135 to 165) | 95 | 125 | 250 | 0.25 | 13 | 9 | 1750 | 1250 | 500 |
| ERZV07D201 | 200(185 to 225) | 130 | 170 | 340 | 0.25 | 17.5 | 12.5 | 1750 | 1250 | 200 |
| ERZV07D221 | 220(198 to 242) | 140 | 180 | 360 | 0.25 | 19 | 13.5 | 1750 | 1250 | 190 |
| ERZV07D241 | 240(216 to 264) | 150 | 200 | 395 | 0.25 | 21 | 15 | 1750 | 1250 | 170 |
| ERZV07D271 | 270(247 to 303) | 175 | 225 | 455 | 0.25 | 24 | 17 | 1750 | 1250 | 150 |
| ERZV07D331 | 330(297 to 363) | 210 | 270 | 545 | 0.25 | 28 | 20 | 1750 | 1250 | 130 |
| ERZV07D361 | 360(324 to 396) | 230 | 300 | 595 | 0.25 | 32 | 23 | 1750 | 1250 | 130 |
| ERZV07D391 | 390(351 to 429) | 250 | 320 | 650 | 0.25 | 35 | 25 | 1750 | 1250 | 130 |
| ERZV07D431 | 430(387 to 473) | 275 | 350 | 710 | 0.25 | 40 | 27.5 | 1750 | 1250 | 120 |
| ERZV07D471 | 470(423 to 517) | 300 | 385 | 775 | 0.25 | 42 | 30 | 1750 | 1250 | 100 |
| ERZV07D511 | 510(459 to 561) | 320 | 410 | 845 | 0.25 | 45 | 32 | 1750 | 1250 | 90* |

* Measured at 1 MHz **I_p Measuring current of clamping voltage 180 to 680 : 25 A, 820 to 511 : 10 A

Dimensions in mm (not to scale)

* Refer to page 24 to 26 about leads cut type and taping.

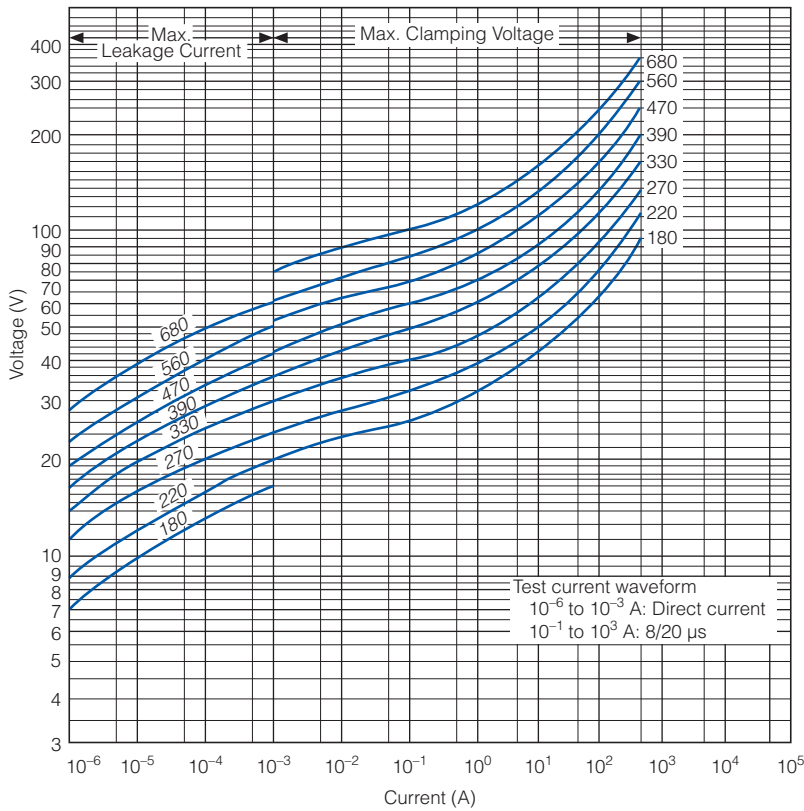
| Part No. | D max. | T max. | W±1.0 | H max. | L±1.0 |
|------------|--------|--------|-------|--------|-------|
| ERZV07D180 | 8.5 | 4.5 | 5.0 | 11.5 | 1.3 |
| ERZV07D220 | 8.5 | 4.6 | 5.0 | 11.5 | 1.4 |
| ERZV07D270 | 8.5 | 4.7 | 5.0 | 11.5 | 1.5 |
| ERZV07D330 | 8.5 | 4.9 | 5.0 | 11.5 | 1.7 |
| ERZV07D390 | 8.5 | 4.8 | 5.0 | 11.5 | 1.6 |
| ERZV07D470 | 8.5 | 4.9 | 5.0 | 11.5 | 1.7 |
| ERZV07D560 | 8.5 | 5.0 | 5.0 | 11.5 | 1.8 |
| ERZV07D680 | 8.5 | 5.2 | 5.0 | 11.5 | 2.0 |
| ERZV07D820 | 8.5 | 4.1 | 5.0 | 11.5 | 1.4 |
| ERZV07D101 | 8.5 | 4.3 | 5.0 | 11.5 | 1.6 |
| ERZV07D121 | 8.5 | 4.5 | 5.0 | 11.5 | 1.8 |
| ERZV07D151 | 8.5 | 4.8 | 5.0 | 11.5 | 2.1 |
| ERZV07D201 | 8.5 | 4.4 | 5.0 | 11.5 | 1.7 |
| ERZV07D221 | 8.5 | 4.5 | 5.0 | 11.5 | 1.8 |
| ERZV07D241 | 8.5 | 4.6 | 5.0 | 11.5 | 1.9 |
| ERZV07D271 | 8.5 | 4.8 | 5.0 | 11.5 | 2.1 |
| ERZV07D331 | 8.5 | 5.1 | 5.0 | 11.5 | 2.4 |
| ERZV07D361 | 8.5 | 5.3 | 5.0 | 11.5 | 2.5 |
| ERZV07D391 | 8.5 | 5.4 | 5.0 | 11.5 | 2.7 |
| ERZV07D431 | 8.5 | 5.6 | 5.0 | 11.5 | 2.9 |
| ERZV07D471 | 8.5 | 5.8 | 5.0 | 11.5 | 3.1 |
| ERZV07D511 | 8.5 | 6.0 | 5.0 | 11.5 | 3.3 |



Typical Characteristics

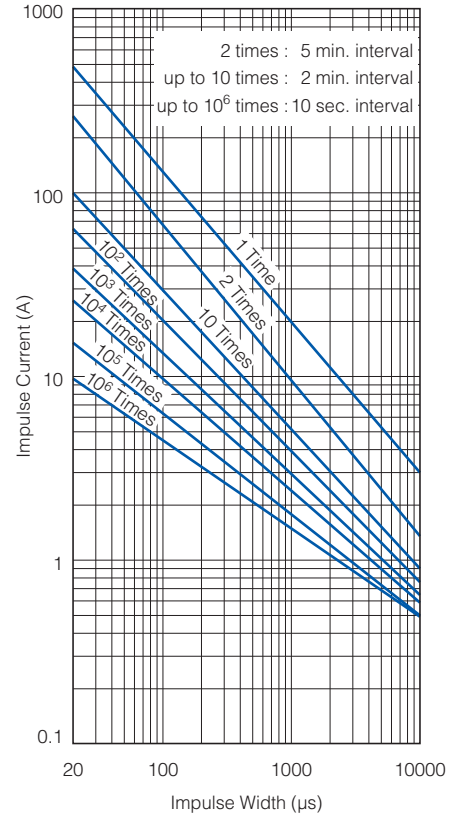
Voltage vs. Current

ERZV07D180 to ERZV07D680

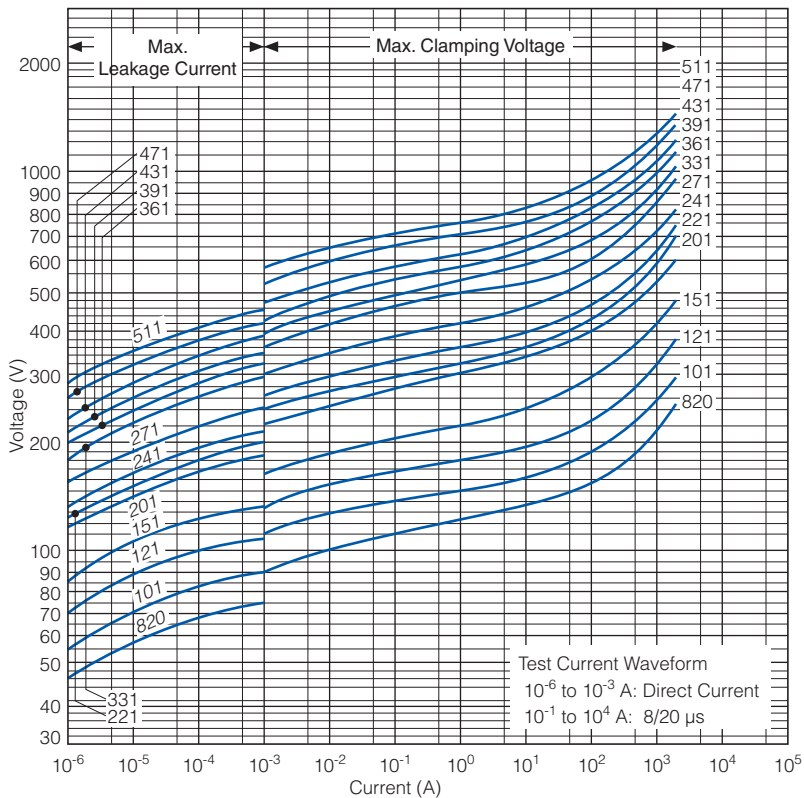


Impulse Derating (Relation between impulse width and impulse current multiple)

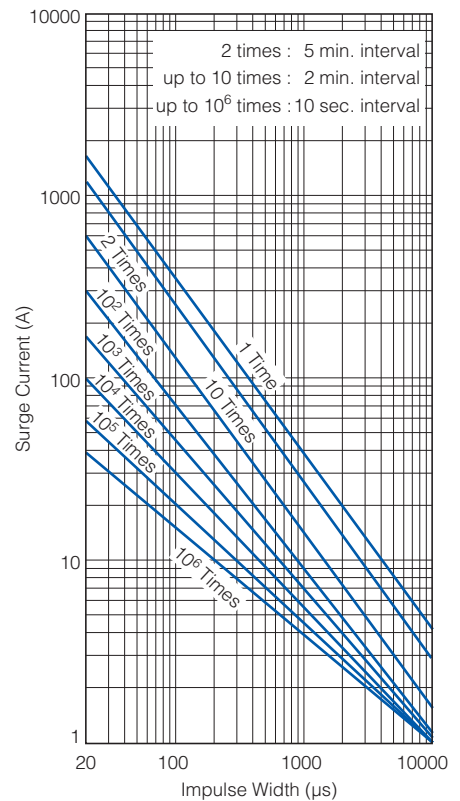
ERZV07D180 to ERZV07D680



ERZV07D820 to ERZV07D511



ERZV07D820 to ERZV07D511



9 Series

Ratings and Characteristics

● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

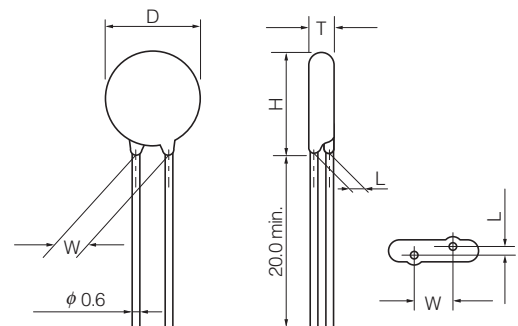
| Part No. | Varistor Voltage | Maximum Allowable Voltage | | Clamping Voltage (max.) *Ip | Rated Power (W) | Maximum Energy | | Maximum Peak Current (8/20 μs) | | Capacitance (max.) at 1 kHz (pF) |
|------------|------------------|---------------------------|--------|-----------------------------|-----------------|------------------|------------|--------------------------------|-------------|----------------------------------|
| | | ACrms (V) | DC (V) | | | (10/1000 μs) (J) | (2 ms) (J) | 1 time (A) | 2 times (A) | |
| ERZV09D180 | 18(16 to 20) | 11 | 14 | 36 | 0.05 | 2.6 | 2.2 | 1000 | 500 | 16000 |
| ERZV09D220 | 22(20 to 24) | 14 | 18 | 43 | 0.05 | 3.2 | 2.6 | 1000 | 500 | 11000 |
| ERZV09D270 | 27(24 to 30) | 17 | 22 | 53 | 0.05 | 3.9 | 3.2 | 1000 | 500 | 8000 |
| ERZV09D330 | 33(30 to 36) | 20 | 26 | 65 | 0.05 | 4.8 | 4.0 | 1000 | 500 | 6300 |
| ERZV09D390 | 39(35 to 43) | 25 | 31 | 77 | 0.05 | 5.6 | 4.7 | 1000 | 500 | 5200 |
| ERZV09D470 | 47(42 to 52) | 30 | 38 | 93 | 0.05 | 6.8 | 5.6 | 1000 | 500 | 4600 |
| ERZV09D560 | 56(50 to 62) | 35 | 45 | 110 | 0.05 | 8.1 | 6.7 | 1000 | 500 | 3750 |
| ERZV09D680 | 68(61 to 75) | 40 | 56 | 135 | 0.05 | 9.8 | 8.2 | 1000 | 500 | 2800 |
| ERZV09D820 | 82(74 to 90) | 50 | 65 | 135 | 0.4 | 14 | 10 | 3500 | 2500 | 2000 |
| ERZV09D101 | 100(90 to 110) | 60 | 85 | 165 | 0.4 | 17 | 12 | 3500 | 2500 | 1700 |
| ERZV09D121 | 120(108 to 132) | 75 | 100 | 200 | 0.4 | 20 | 14.5 | 3500 | 2500 | 1400 |
| ERZV09D151 | 150(135 to 165) | 95 | 125 | 250 | 0.4 | 25 | 18 | 3500 | 2500 | 1100 |
| ERZV09D201 | 200(185 to 225) | 130 | 170 | 340 | 0.4 | 35 | 25 | 3500 | 2500 | 430 |
| ERZV09D221 | 220(198 to 242) | 140 | 180 | 360 | 0.4 | 39 | 27.5 | 3500 | 2500 | 410 |
| ERZV09D241 | 240(216 to 264) | 150 | 200 | 395 | 0.4 | 42 | 30 | 3500 | 2500 | 380 |
| ERZV09D271 | 270(247 to 303) | 175 | 225 | 455 | 0.4 | 49 | 35 | 3500 | 2500 | 350 |
| ERZV09D331 | 330(297 to 363) | 210 | 270 | 545 | 0.4 | 58 | 42 | 3500 | 2500 | 300 |
| ERZV09D361 | 360(324 to 396) | 230 | 300 | 595 | 0.4 | 65 | 45 | 3500 | 2500 | 300 |
| ERZV09D391 | 390(351 to 429) | 250 | 320 | 650 | 0.4 | 70 | 50 | 3500 | 2500 | 300 |
| ERZV09D431 | 430(387 to 473) | 275 | 350 | 710 | 0.4 | 80 | 55 | 3500 | 2500 | 270 |
| ERZV09D471 | 470(423 to 517) | 300 | 385 | 775 | 0.4 | 85 | 60 | 3500 | 2500 | 230 |
| ERZV09D511 | 510(459 to 561) | 320 | 410 | 845 | 0.4 | 92 | 67 | 3500 | 2500 | 210 |

*Ip Measuring current of clamping voltage 180 to 680 : 5 A, 820 to 511 : 25 A

Dimensions in mm (not to scale)

* Refer to page 24 to 26 about leads cut type and taping.

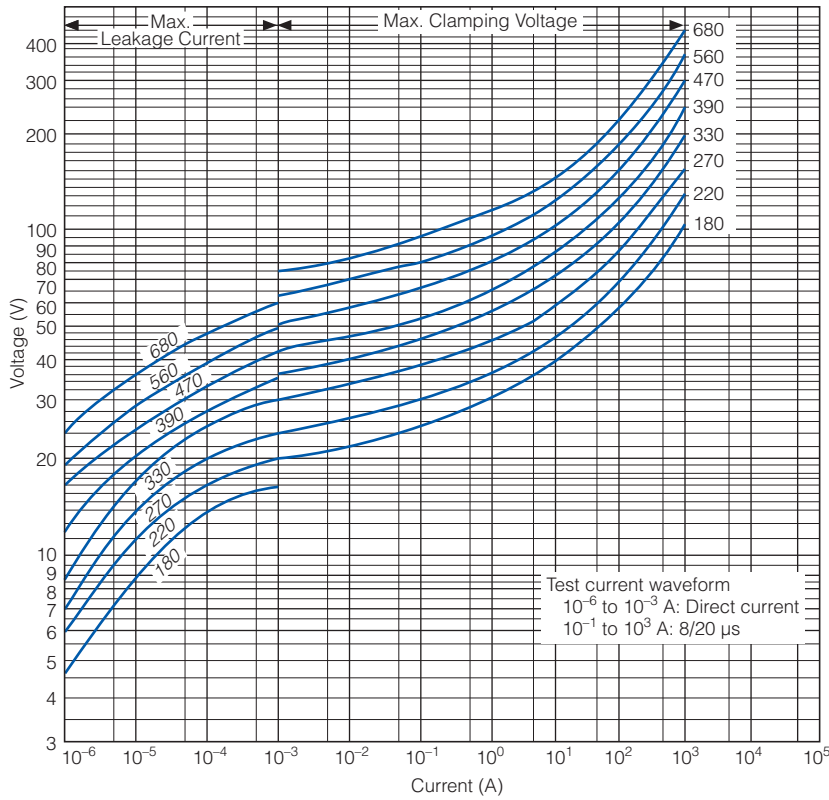
| Part No. | D max. | T max. | W±1.0 | H max. | L±1.0 |
|------------|--------|--------|-------|--------|-------|
| ERZV09D180 | 11.5 | 3.8 | 5.0 | 14.0 | 1.3 |
| ERZV09D220 | 11.5 | 4.0 | 5.0 | 14.0 | 1.4 |
| ERZV09D270 | 11.5 | 4.2 | 5.0 | 14.0 | 1.5 |
| ERZV09D330 | 11.5 | 4.5 | 5.0 | 14.0 | 1.7 |
| ERZV09D390 | 11.5 | 4.0 | 5.0 | 14.0 | 1.7 |
| ERZV09D470 | 11.5 | 4.2 | 5.0 | 14.0 | 1.8 |
| ERZV09D560 | 11.5 | 4.4 | 5.0 | 14.0 | 1.9 |
| ERZV09D680 | 11.5 | 4.5 | 5.0 | 14.0 | 2.2 |
| ERZV09D820 | 11.5 | 3.8 | 5.0 | 14.0 | 1.6 |
| ERZV09D101 | 11.5 | 3.9 | 5.0 | 14.0 | 1.8 |
| ERZV09D121 | 11.5 | 4.1 | 5.0 | 14.0 | 2.0 |
| ERZV09D151 | 11.5 | 4.4 | 5.0 | 14.0 | 2.2 |
| ERZV09D201 | 11.5 | 4.1 | 5.0 | 14.0 | 1.7 |
| ERZV09D221 | 11.5 | 4.2 | 5.0 | 14.0 | 1.8 |
| ERZV09D241 | 11.5 | 4.3 | 5.0 | 14.0 | 1.9 |
| ERZV09D271 | 11.5 | 4.5 | 5.0 | 14.0 | 2.0 |
| ERZV09D331 | 11.5 | 4.8 | 5.0 | 14.0 | 2.3 |
| ERZV09D361 | 11.5 | 5.0 | 5.0 | 14.0 | 2.5 |
| ERZV09D391 | 11.5 | 5.1 | 5.0 | 14.0 | 2.6 |
| ERZV09D431 | 11.5 | 5.3 | 5.0 | 14.0 | 2.8 |
| ERZV09D471 | 11.5 | 5.6 | 5.0 | 14.0 | 3.1 |
| ERZV09D511 | 11.5 | 5.8 | 5.0 | 14.0 | 3.2 |



Typical Characteristics

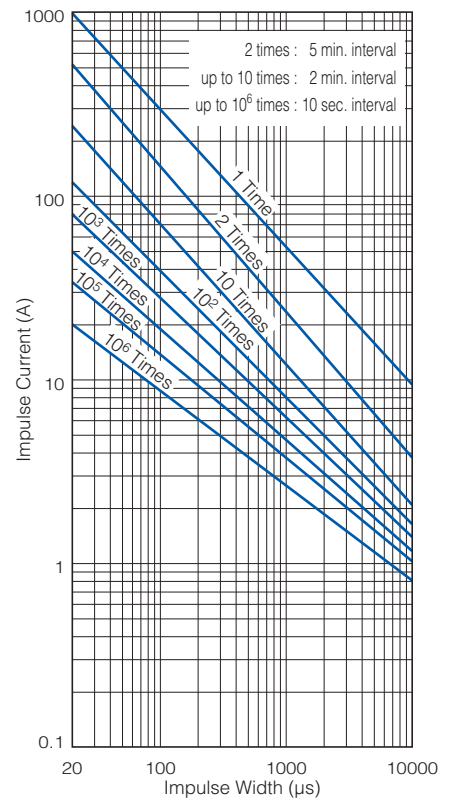
Voltage vs. Current

ERZV09D180 to ERZV09D680

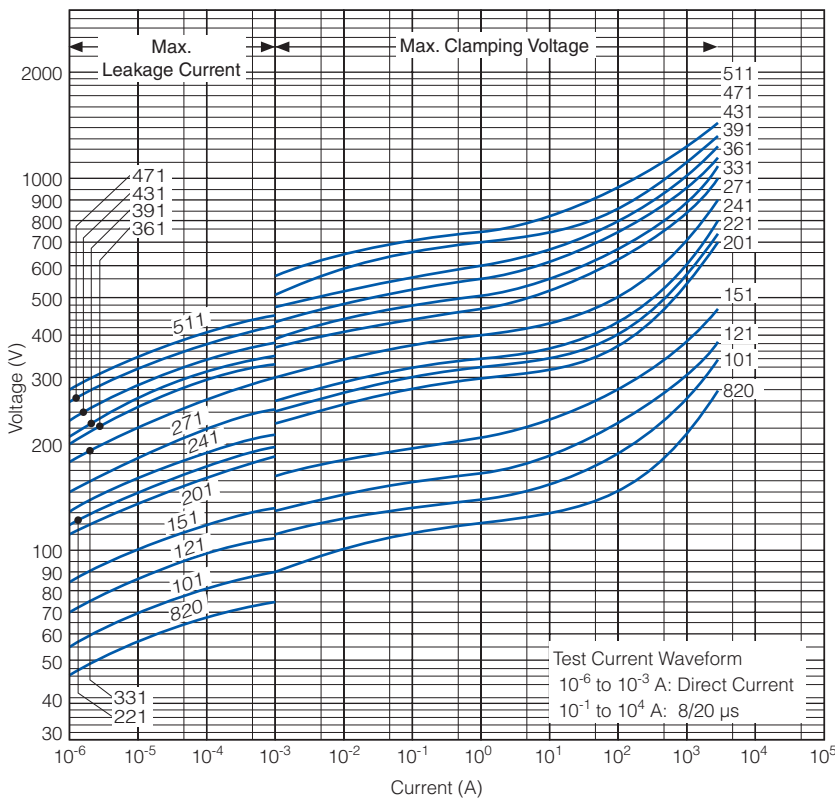


Impulse Derating (Relation between impulse width and impulse current multiple)

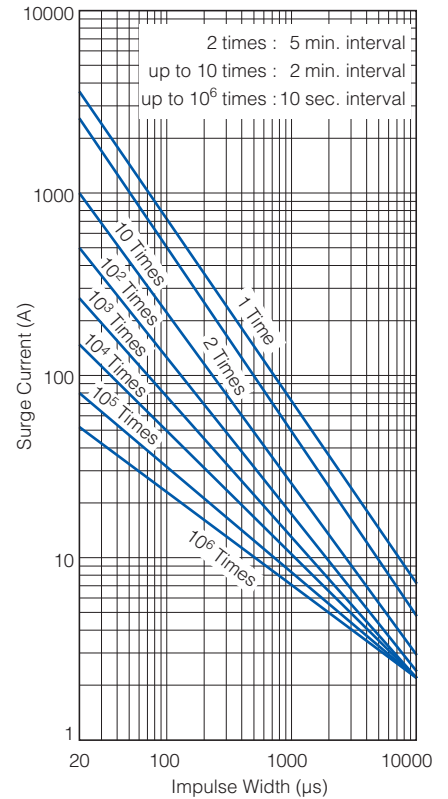
ERZV09D180 to ERZV09D680



ERZV09D820 to ERZV09D511



ERZV09D820 to ERZV09D511



10 Series

Ratings and Characteristics

● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

| Part No. | Varistor Voltage $V_{1\text{ mA}}$ (V) | Maximum Allowable Voltage | | Clamping Voltage (max.) **I _p (V) | Rated Power (W) | Maximum Energy | | Maximum Peak Current (8/20 μs) | | Capacitance (max.) at 1 kHz (pF) |
|--------------|---|---------------------------|--------|--|--------------------|----------------|--------|-----------------------------------|---------|-------------------------------------|
| | | ACrms (V) | DC (V) | | | (10/1000 μs) | (2 ms) | 1 time | 2 times | |
| | | | | | | (J) | (J) | (A) | (A) | |
| ERZV10D180 | 18(16 to 20) | 11 | 14 | 36 | 0.05 | 2.6 | 2.2 | 1000 | 500 | 16000 |
| ERZV10D220 | 22(20 to 24) | 14 | 18 | 43 | 0.05 | 3.2 | 2.6 | 1000 | 500 | 11000 |
| ERZV10D270 | 27(24 to 30) | 17 | 22 | 53 | 0.05 | 3.9 | 3.2 | 1000 | 500 | 8000 |
| ERZV10D330 | 33(30 to 36) | 20 | 26 | 65 | 0.05 | 4.8 | 4.0 | 1000 | 500 | 6300 |
| ERZV10D390 | 39(35 to 43) | 25 | 31 | 77 | 0.05 | 5.6 | 4.7 | 1000 | 500 | 5200 |
| ERZV10D470 | 47(42 to 52) | 30 | 38 | 93 | 0.05 | 6.8 | 5.6 | 1000 | 500 | 4600 |
| ERZV10D560 | 56(50 to 62) | 35 | 45 | 110 | 0.05 | 8.1 | 6.7 | 1000 | 500 | 3750 |
| ERZV10D680 | 68(61 to 75) | 40 | 56 | 135 | 0.05 | 9.8 | 8.2 | 1000 | 500 | 2800 |
| ERZV10D820 | 82(74 to 90) | 50 | 65 | 135 | 0.4 | 14 | 10 | 3500 | 2500 | 2000 |
| ERZV10D101 | 100(90 to 110) | 60 | 85 | 165 | 0.4 | 17 | 12 | 3500 | 2500 | 1700 |
| ERZV10D121 | 120(108 to 132) | 75 | 100 | 200 | 0.4 | 20 | 14.5 | 3500 | 2500 | 1400 |
| ERZV10D151 | 150(135 to 165) | 95 | 125 | 250 | 0.4 | 25 | 18 | 3500 | 2500 | 1100 |
| ERZV10D201 | 200(185 to 225) | 130 | 170 | 340 | 0.4 | 35 | 25 | 3500 | 2500 | 430 |
| ERZV10D221 | 220(198 to 242) | 140 | 180 | 360 | 0.4 | 39 | 27.5 | 3500 | 2500 | 410 |
| ERZV10D241 | 240(216 to 264) | 150 | 200 | 395 | 0.4 | 42 | 30 | 3500 | 2500 | 380 |
| ERZV10D271 | 270(247 to 303) | 175 | 225 | 455 | 0.4 | 49 | 35 | 3500 | 2500 | 350 |
| ERZV10D331 | 330(297 to 363) | 210 | 270 | 545 | 0.4 | 58 | 42 | 3500 | 2500 | 300 |
| ERZV10D361 | 360(324 to 396) | 230 | 300 | 595 | 0.4 | 65 | 45 | 3500 | 2500 | 300 |
| ERZV10D391 | 390(351 to 429) | 250 | 320 | 650 | 0.4 | 70 | 50 | 3500 | 2500 | 300 |
| ERZV10D431 | 430(387 to 473) | 275 | 350 | 710 | 0.4 | 80 | 55 | 3500 | 2500 | 270 |
| ERZV10D471 | 470(423 to 517) | 300 | 385 | 775 | 0.4 | 85 | 60 | 3500 | 2500 | 230 |
| ERZV10D511 | 510(459 to 561) | 320 | 410 | 845 | 0.4 | 92 | 67 | 3500 | 2500 | 210 |
| ERZV10D561 | 560(504 to 616) | 350 | 450 | 930 | 0.4 | 92 | 67 | 3500 | 2500 | 200 |
| ERZV10D621 | 620(558 to 682) | 385 | 505 | 1025 | 0.4 | 92 | 67 | 3500 | 2500 | 190 |
| ERZV10D681 | 680(612 to 748) | 420 | 560 | 1120 | 0.4 | 92 | 67 | 3500 | 2500 | 170 |
| ERZV10D751 | 750(675 to 825) | 460 | 615 | 1240 | 0.4 | 100 | 70 | 3500 | 2500 | 160 |
| ERZV10D821 | 820(738 to 902) | 510 | 670 | 1355 | 0.4 | 110 | 80 | 3500 | 2500 | 140 |
| ERZV10D911 | 910(819 to 1001) | 550 | 745 | 1500 | 0.4 | 130 | 90 | 3500 | 2500 | 120 |
| ERZV10D102 | 1000(900 to 1100) | 625 | 825 | 1650 | 0.4 | 140 | 100 | 3500 | 2500 | 110 |
| ERZV10D112 | 1100(990 to 1210) | 680 | 895 | 1815 | 0.4 | 155 | 110 | 3500 | 2500 | 110 |
| ERZV10D182CS | 1800(1700 to 1980) | 1000 | 1465 | 2970 | 0.4 | 247 | 183 | 3500 | 2500 | 70* |

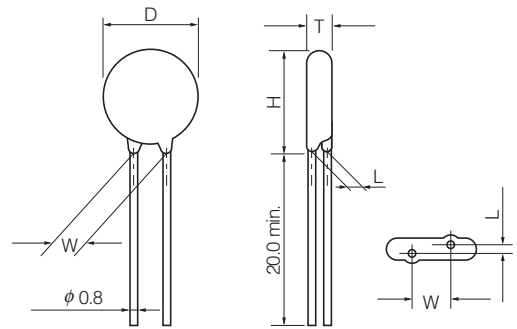
* Measured at 1 MHz **I_p Measuring current of clamping voltage 180 to 680 : 5 A, 820 to 182 : 25 A

Dimensions in mm (not to scale)

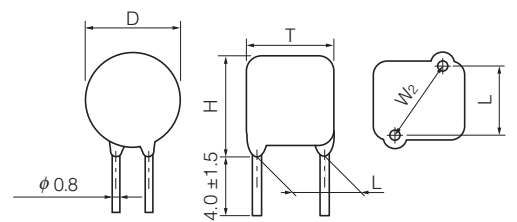
* Refer to page 24 to 26 about leads cut type and taping.

| Part No. | D max. | T max. | W±1.0 | H max. | L±1.0 |
|--------------|--------|--------|-------|--------|------------|
| ERZV10D180 | 11.5 | 4.6 | 7.5 | 14.5 | 1.3 |
| ERZV10D220 | 11.5 | 4.7 | 7.5 | 14.5 | 1.4 |
| ERZV10D270 | 11.5 | 4.8 | 7.5 | 14.5 | 1.5 |
| ERZV10D330 | 11.5 | 5.0 | 7.5 | 14.5 | 1.7 |
| ERZV10D390 | 11.5 | 4.9 | 7.5 | 14.5 | 1.6 |
| ERZV10D470 | 11.5 | 5.0 | 7.5 | 14.5 | 1.7 |
| ERZV10D560 | 11.5 | 5.1 | 7.5 | 14.5 | 1.8 |
| ERZV10D680 | 11.5 | 5.3 | 7.5 | 14.5 | 2.0 |
| ERZV10D820 | 11.5 | 4.5 | 7.5 | 14.5 | 1.6 |
| ERZV10D101 | 11.5 | 4.7 | 7.5 | 14.5 | 1.8 |
| ERZV10D121 | 11.5 | 4.9 | 7.5 | 14.5 | 2.0 |
| ERZV10D151 | 11.5 | 5.2 | 7.5 | 14.5 | 2.3 |
| ERZV10D201 | 11.5 | 4.8 | 7.5 | 14.5 | 1.9 |
| ERZV10D221 | 11.5 | 4.9 | 7.5 | 14.5 | 2.0 |
| ERZV10D241 | 11.5 | 5.0 | 7.5 | 14.5 | 2.1 |
| ERZV10D271 | 11.5 | 5.2 | 7.5 | 14.5 | 2.3 |
| ERZV10D331 | 11.5 | 5.5 | 7.5 | 14.5 | 2.6 |
| ERZV10D361 | 11.5 | 5.7 | 7.5 | 14.5 | 2.8 |
| ERZV10D391 | 11.5 | 5.8 | 7.5 | 14.5 | 2.9 |
| ERZV10D431 | 11.5 | 6.0 | 7.5 | 14.5 | 3.1 |
| ERZV10D471 | 11.5 | 6.2 | 7.5 | 14.5 | 3.3 |
| ERZV10D511 | 11.5 | 6.4 | 7.5 | 14.5 | 3.5 |
| ERZV10D561 | 12.5 | 6.7 | 7.5 | 15.5 | 3.8 |
| ERZV10D621 | 12.5 | 7.1 | 7.5 | 15.5 | 4.2 |
| ERZV10D681 | 12.5 | 7.4 | 7.5 | 15.5 | 4.5 |
| ERZV10D751 | 12.5 | 7.8 | 7.5 | 15.5 | 4.9 |
| ERZV10D821 | 12.5 | 8.1 | 7.5 | 15.5 | 5.2 |
| ERZV10D911 | 12.5 | 8.6 | 7.5 | 15.5 | 5.7 |
| ERZV10D102 | 12.5 | 9.1 | 7.5 | 15.5 | 6.2 |
| ERZV10D112 | 12.5 | 9.7 | 7.5 | 15.5 | 6.8 |
| ERZV10D182CS | 13.5 | 14.4 | 11.0* | 16.5 | 10.0(±1.5) |

*: W₂



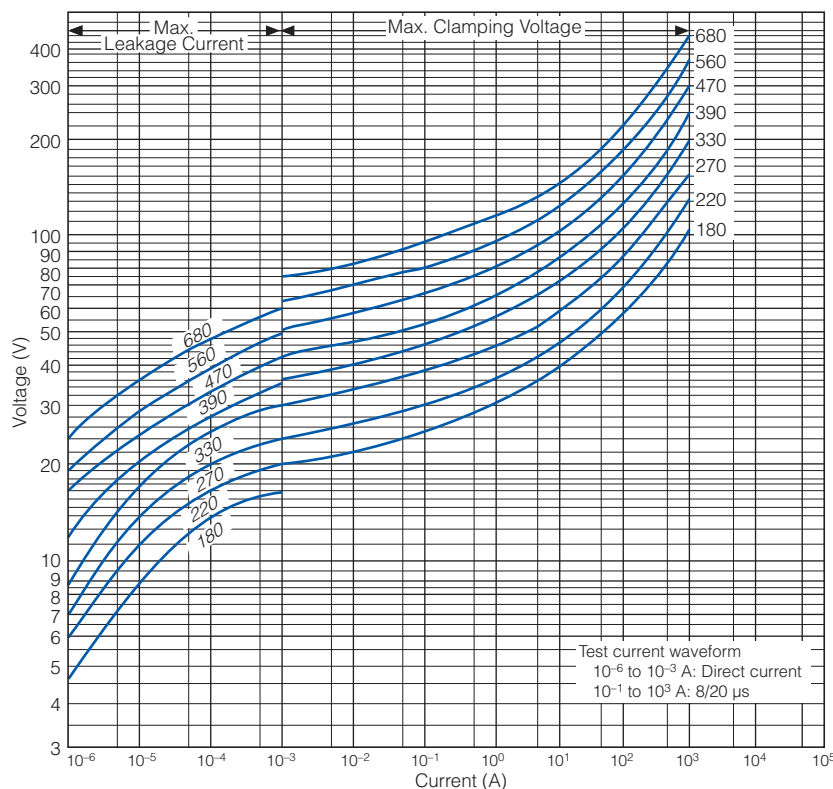
(ERZV10D182CS)



Typical Characteristics

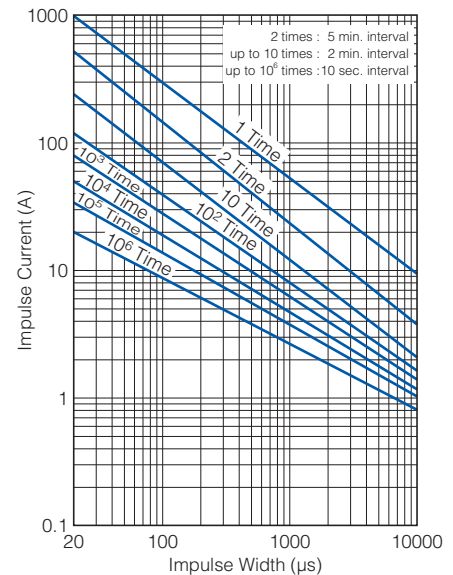
Voltage vs. Current

ERZV10D180 to ERZV10D680



Impulse Derating (Relation between impulse width and impulse current multiple)

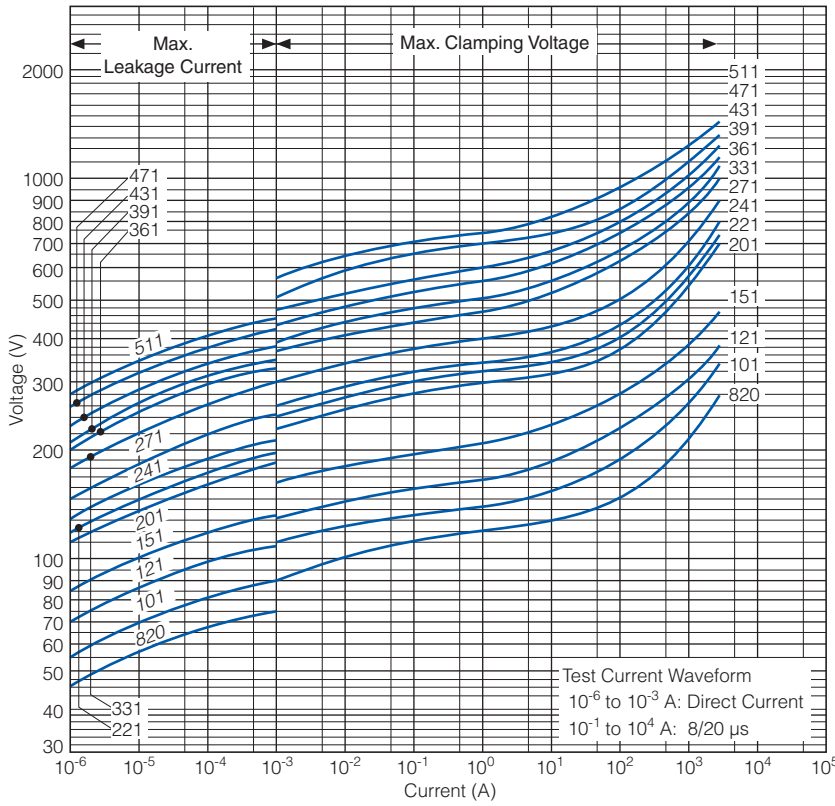
ERZV10D180 to ERZV10D680



Typical Characteristics

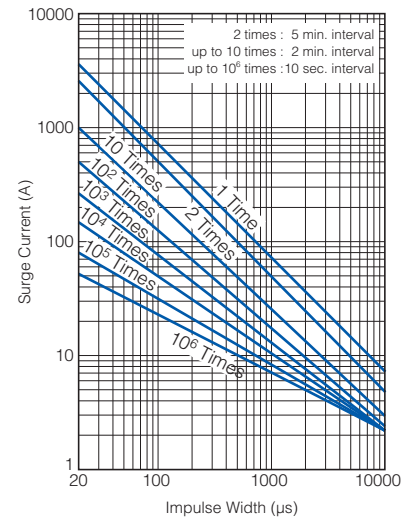
Voltage vs. Current

ERZV10D820 to ERZV10D511

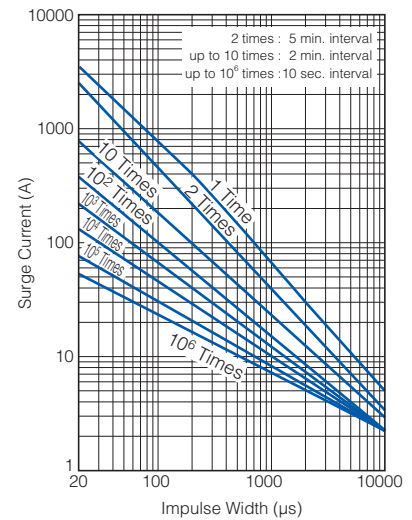


Impulse Derating (Relation between impulse width and impulse current multiple)

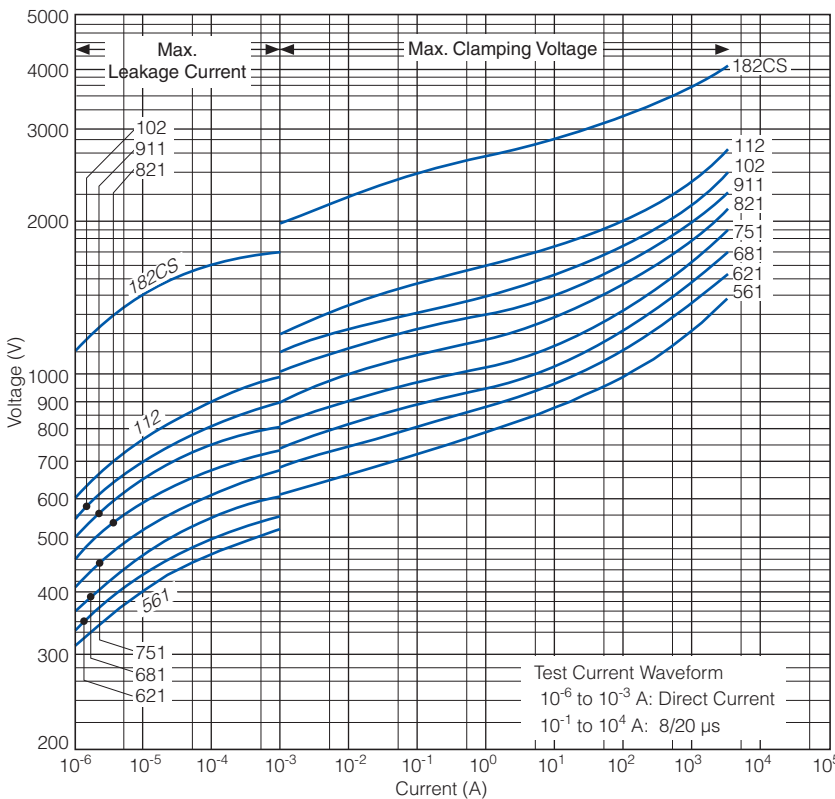
ERZV10D820 to ERZV10D511



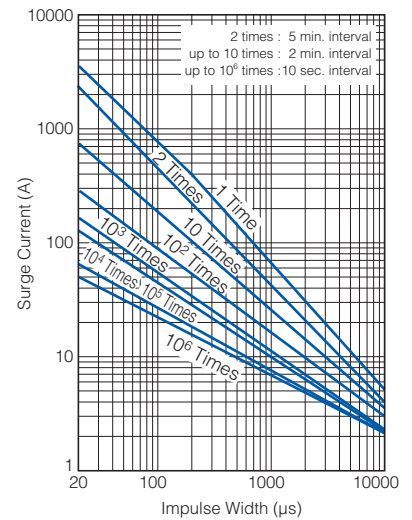
ERZV10D561 to ERZV10D112



ERZV10D561 to ERZV10D182CS



ERZV10D182CS



14 Series

Ratings and Characteristics

● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

| Part No. | Varistor Voltage | Maximum Allowable Voltage | | Clamping Voltage (max.) *Ip | Rated Power | Maximum Energy | | Maximum Peak Current (8/20 μs) | | Capacitance (max.) at 1 kHz (pF) |
|--------------|--------------------|---------------------------|------|-----------------------------|-------------|----------------------|-----------|--------------------------------|---------|-------------------------------------|
| | | | | | | (10/1000 μs) | (2 ms) | 1 time | 2 times | |
| | | | | | | V _{1mA} (V) | ACrms (V) | DC (V) | (V) | |
| ERZV14D180 | 18(16 to 20) | 11 | 14 | 36 | 0.1 | 5.2 | 4.3 | 2000 | 1000 | 25000 |
| ERZV14D220 | 22(20 to 24) | 14 | 18 | 43 | 0.1 | 6.3 | 5.3 | 2000 | 1000 | 20000 |
| ERZV14D270 | 27(24 to 30) | 17 | 22 | 53 | 0.1 | 7.8 | 6.5 | 2000 | 1000 | 16000 |
| ERZV14D330 | 33(30 to 36) | 20 | 26 | 65 | 0.1 | 9.5 | 7.9 | 2000 | 1000 | 12200 |
| ERZV14D390 | 39(35 to 43) | 25 | 31 | 77 | 0.1 | 11 | 9.4 | 2000 | 1000 | 7000 |
| ERZV14D470 | 47(42 to 52) | 30 | 38 | 93 | 0.1 | 14 | 11 | 2000 | 1000 | 6750 |
| ERZV14D560 | 56(50 to 62) | 35 | 45 | 110 | 0.1 | 16 | 13 | 2000 | 1000 | 6500 |
| ERZV14D680 | 68(61 to 75) | 40 | 56 | 135 | 0.1 | 20 | 16 | 2000 | 1000 | 5500 |
| ERZV14D820 | 82(74 to 90) | 50 | 65 | 135 | 0.6 | 28 | 20 | 6000 | 5000 | 3700 |
| ERZV14D101 | 100(90 to 110) | 60 | 85 | 165 | 0.6 | 35 | 25 | 6000 | 5000 | 3200 |
| ERZV14D121 | 120(108 to 132) | 75 | 100 | 200 | 0.6 | 42 | 30 | 6000 | 5000 | 2700 |
| ERZV14D151 | 150(135 to 165) | 95 | 125 | 250 | 0.6 | 53 | 37.5 | 6000 | 5000 | 2200 |
| ERZV14D201 | 200(185 to 225) | 130 | 170 | 340 | 0.6 | 70 | 50 | 6000 | 5000 | 770 |
| ERZV14D221 | 220(198 to 242) | 140 | 180 | 360 | 0.6 | 78 | 55 | 6000 | 5000 | 740 |
| ERZV14D241 | 240(216 to 264) | 150 | 200 | 395 | 0.6 | 84 | 60 | 6000 | 5000 | 700 |
| ERZV14D271 | 270(247 to 303) | 175 | 225 | 455 | 0.6 | 99 | 70 | 6000 | 5000 | 640 |
| ERZV14D331 | 330(297 to 363) | 210 | 270 | 545 | 0.6 | 115 | 80 | 6000 | 4500 | 580 |
| ERZV14D361 | 360(324 to 396) | 230 | 300 | 595 | 0.6 | 130 | 90 | 6000 | 4500 | 540 |
| ERZV14D391 | 390(351 to 429) | 250 | 320 | 650 | 0.6 | 140 | 100 | 6000 | 4500 | 500 |
| ERZV14D431 | 430(387 to 473) | 275 | 350 | 710 | 0.6 | 155 | 110 | 6000 | 4500 | 450 |
| ERZV14D471 | 470(423 to 517) | 300 | 385 | 775 | 0.6 | 175 | 125 | 6000 | 4500 | 400 |
| ERZV14D511 | 510(459 to 561) | 320 | 410 | 845 | 0.6 | 190 | 136 | 6000 | 4500 | 350 |
| ERZV14D561 | 560(504 to 616) | 350 | 450 | 930 | 0.6 | 190 | 136 | 5000 | 4500 | 340 |
| ERZV14D621 | 620(558 to 682) | 385 | 505 | 1025 | 0.6 | 190 | 136 | 5000 | 4500 | 330 |
| ERZV14D681 | 680(612 to 748) | 420 | 560 | 1120 | 0.6 | 190 | 136 | 5000 | 4500 | 320 |
| ERZV14D751 | 750(675 to 825) | 460 | 615 | 1240 | 0.6 | 210 | 150 | 5000 | 4500 | 310 |
| ERZV14D821 | 820(738 to 902) | 510 | 670 | 1355 | 0.6 | 235 | 165 | 5000 | 4500 | 280 |
| ERZV14D911 | 910(819 to 1001) | 550 | 745 | 1500 | 0.6 | 255 | 180 | 5000 | 4500 | 250 |
| ERZV14D102 | 1000(900 to 1100) | 625 | 825 | 1650 | 0.6 | 280 | 200 | 5000 | 4500 | 230 |
| ERZV14D112 | 1100(990 to 1210) | 680 | 895 | 1815 | 0.6 | 310 | 220 | 5000 | 4500 | 210 |
| ERZV14D182CS | 1800(1700 to 1980) | 1000 | 1465 | 2970 | 0.6 | 510 | 360 | 5000 | 4500 | 120 |

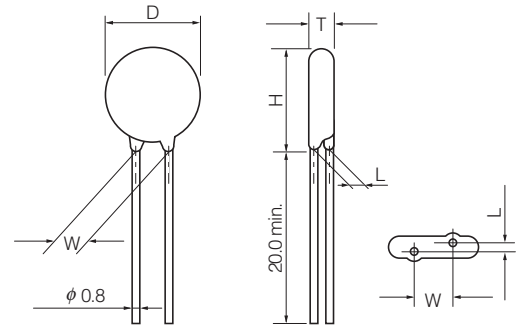
*Ip Measuring current of clamping voltage 180 to 680 : 10 A, 820 to 182 : 50 A

Dimensions in mm (not to scale)

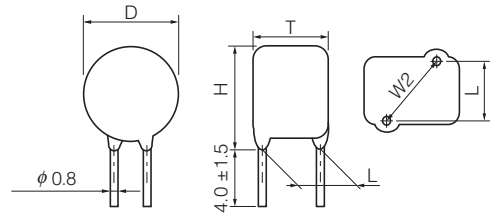
* Refer to page 24 to 26 about leads cut type and taping.

| Part No. | D max. | T max. | W±1.0 | H max. | L±1.0 |
|--------------|--------|--------|-------|--------|------------|
| ERZV14D180 | 15.5 | 4.6 | 7.5 | 18.5 | 1.3 |
| ERZV14D220 | 15.5 | 4.7 | 7.5 | 18.5 | 1.4 |
| ERZV14D270 | 15.5 | 4.8 | 7.5 | 18.5 | 1.5 |
| ERZV14D330 | 15.5 | 5.0 | 7.5 | 18.5 | 1.7 |
| ERZV14D390 | 15.5 | 4.9 | 7.5 | 18.5 | 1.6 |
| ERZV14D470 | 15.5 | 5.0 | 7.5 | 18.5 | 1.7 |
| ERZV14D560 | 15.5 | 5.1 | 7.5 | 18.5 | 1.8 |
| ERZV14D680 | 15.5 | 5.3 | 7.5 | 18.5 | 2.0 |
| ERZV14D820 | 15.5 | 4.5 | 7.5 | 18.5 | 1.6 |
| ERZV14D101 | 15.5 | 4.7 | 7.5 | 18.5 | 1.8 |
| ERZV14D121 | 15.5 | 4.9 | 7.5 | 18.5 | 2.0 |
| ERZV14D151 | 15.5 | 5.2 | 7.5 | 18.5 | 2.3 |
| ERZV14D201 | 15.5 | 4.8 | 7.5 | 18.5 | 1.9 |
| ERZV14D221 | 15.5 | 4.9 | 7.5 | 18.5 | 2.0 |
| ERZV14D241 | 15.5 | 5.0 | 7.5 | 18.5 | 2.1 |
| ERZV14D271 | 15.5 | 5.2 | 7.5 | 18.5 | 2.3 |
| ERZV14D331 | 15.5 | 5.5 | 7.5 | 18.5 | 2.6 |
| ERZV14D361 | 15.5 | 5.7 | 7.5 | 18.5 | 2.8 |
| ERZV14D391 | 15.5 | 5.8 | 7.5 | 18.5 | 2.9 |
| ERZV14D431 | 15.5 | 6.0 | 7.5 | 18.5 | 3.1 |
| ERZV14D471 | 15.5 | 6.2 | 7.5 | 18.5 | 3.3 |
| ERZV14D511 | 15.5 | 6.4 | 7.5 | 18.5 | 3.5 |
| ERZV14D561 | 16.0 | 6.7 | 7.5 | 19.0 | 3.8 |
| ERZV14D621 | 16.0 | 7.1 | 7.5 | 19.0 | 4.2 |
| ERZV14D681 | 16.0 | 7.4 | 7.5 | 19.0 | 4.5 |
| ERZV14D751 | 16.0 | 7.8 | 7.5 | 19.0 | 4.9 |
| ERZV14D821 | 16.0 | 8.1 | 7.5 | 19.0 | 5.2 |
| ERZV14D911 | 16.0 | 8.6 | 7.5 | 19.0 | 5.7 |
| ERZV14D102 | 16.0 | 9.1 | 7.5 | 19.0 | 6.2 |
| ERZV14D112 | 16.0 | 9.7 | 7.5 | 19.0 | 6.8 |
| ERZV14D182CS | 17.0 | 14.4 | 15.0* | 20.5 | 10.5(±2.0) |

*: W₂



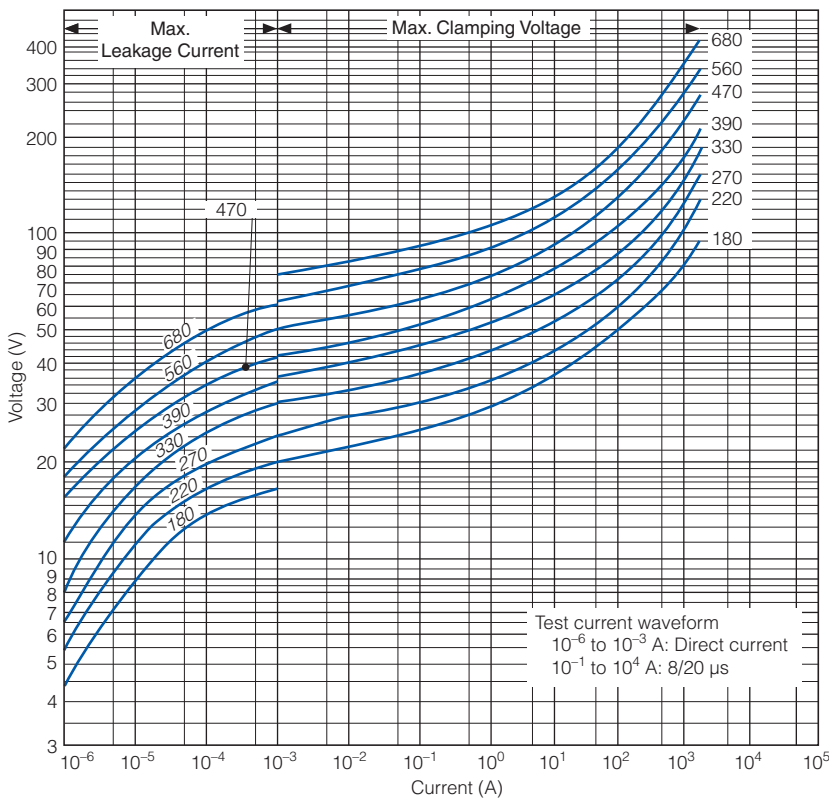
(ERZV14D182CS)



Typical Characteristics

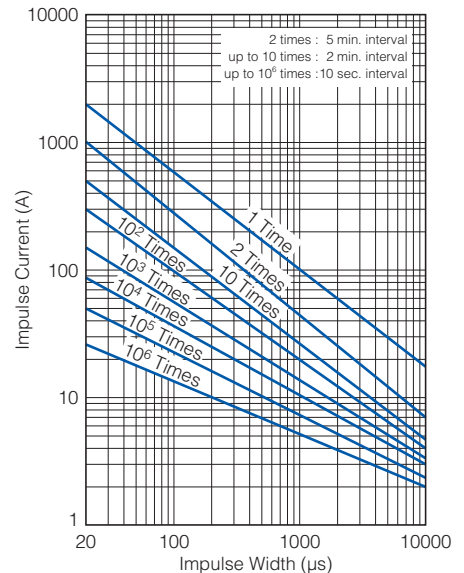
Voltage vs. Current

ERZV14D180 to ERZV14D680



Impulse Derating (Relation between impulse width and impulse current multiple)

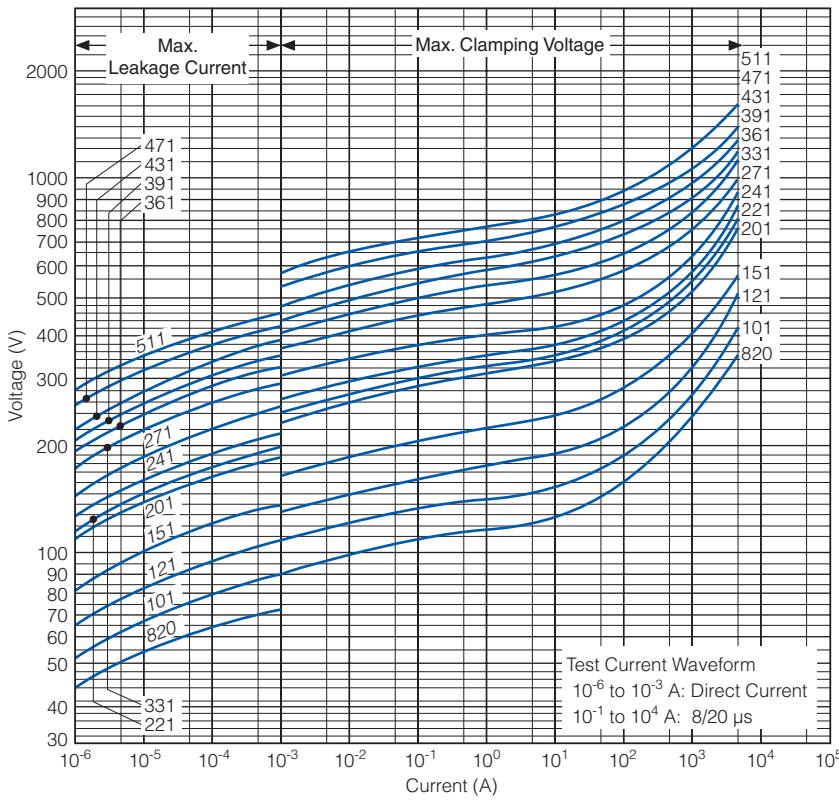
ERZV14D180 to ERZV14D680



Typical Characteristics

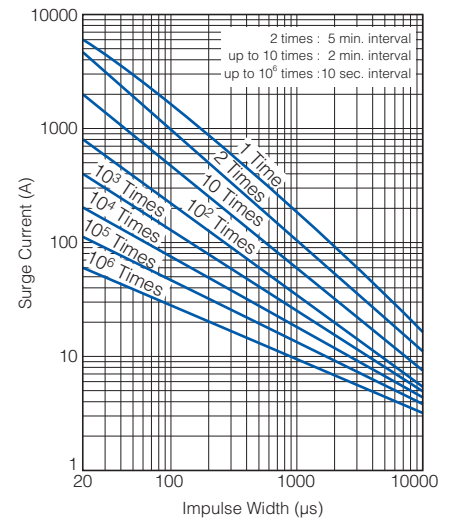
Voltage vs. Current

ERZV14D820 to ERZV14D511

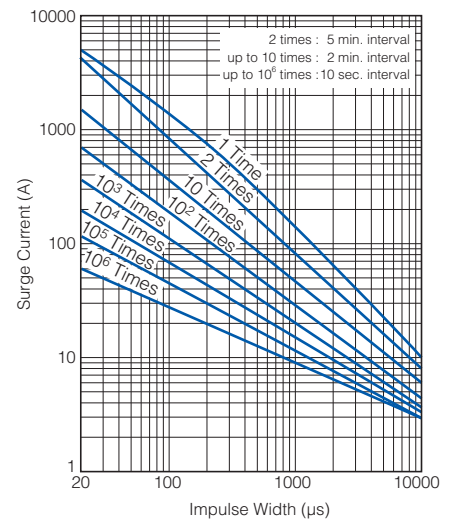


Impulse Derating (Relation between impulse width and impulse current multiple)

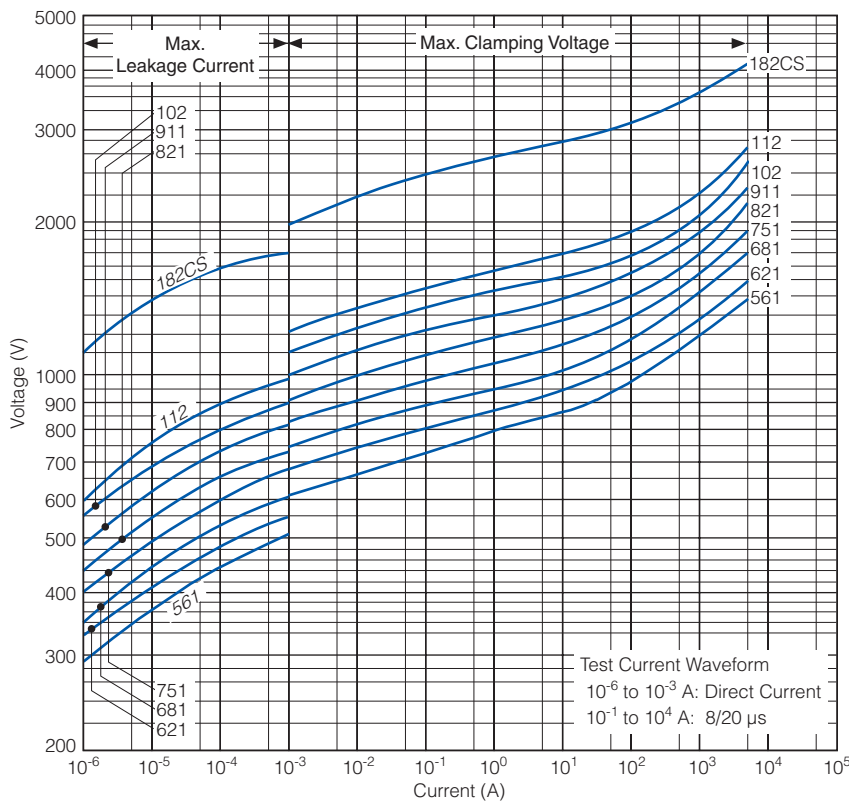
ERZV14D820 to ERZV14D511



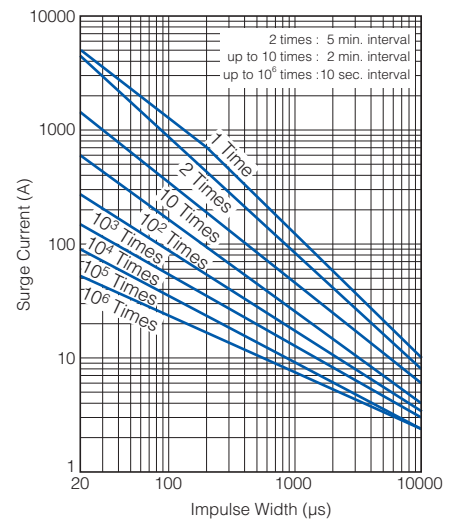
ERZV14D561 to ERZV14D112



ERZV14D561 to ERZV14D182CS



ERZV14D182CS



20 Series

Ratings and Characteristics

● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

| Part No. | Varistor Voltage | Maximum Allowable Voltage | | Clamping Voltage (max.) *Ip | Rated Power | Maximum Energy | | Maximum Peak Current (8/20 μs) | | Capacitance (max.) at 1 kHz (pF) |
|------------|--------------------|---------------------------|------|-----------------------------|-------------|-----------------------|-----------|--------------------------------|---------|-------------------------------------|
| | | | | | | (10/1000 μs) | (2 ms) | 1 time | 2 times | |
| | | | | | | V _{1 mA} (V) | ACrms (V) | DC (V) | (V) | |
| ERZV20D180 | 18(16 to 20) | 11 | 14 | 36 | 0.2 | 13 | 12 | 3000 | 2000 | 40000 |
| ERZV20D220 | 22(20 to 24) | 14 | 18 | 43 | 0.2 | 16 | 14 | 3000 | 2000 | 30000 |
| ERZV20D270 | 27(24 to 30) | 17 | 22 | 53 | 0.2 | 19 | 17 | 3000 | 2000 | 24500 |
| ERZV20D330 | 33(30 to 36) | 20 | 26 | 65 | 0.2 | 24 | 21 | 3000 | 2000 | 20000 |
| ERZV20D390 | 39(35 to 43) | 25 | 31 | 77 | 0.2 | 28 | 25 | 3000 | 2000 | 13800 |
| ERZV20D470 | 47(42 to 52) | 30 | 38 | 93 | 0.2 | 34 | 30 | 3000 | 2000 | 13500 |
| ERZV20D560 | 56(50 to 62) | 35 | 45 | 110 | 0.2 | 41 | 36 | 3000 | 2000 | 12200 |
| ERZV20D680 | 68(61 to 75) | 40 | 56 | 135 | 0.2 | 49 | 44 | 3000 | 2000 | 11500 |
| ERZV20D820 | 82(74 to 90) | 50 | 65 | 135 | 1.0 | 56 | 40 | 10000 | 7000 | 7500 |
| ERZV20D101 | 100(90 to 110) | 60 | 85 | 165 | 1.0 | 70 | 50 | 10000 | 7000 | 6500 |
| ERZV20D121 | 120(108 to 132) | 75 | 100 | 200 | 1.0 | 85 | 60 | 10000 | 7000 | 5500 |
| ERZV20D151 | 150(135 to 165) | 95 | 125 | 250 | 1.0 | 106 | 75 | 10000 | 7000 | 4500 |
| ERZV20D201 | 200(185 to 225) | 130 | 170 | 340 | 1.0 | 140 | 100 | 10000 | 7000 | 1700 |
| ERZV20D221 | 220(198 to 242) | 140 | 180 | 360 | 1.0 | 155 | 110 | 10000 | 7000 | 1600 |
| ERZV20D241 | 240(216 to 264) | 150 | 200 | 395 | 1.0 | 168 | 120 | 10000 | 7000 | 1500 |
| ERZV20D271 | 270(247 to 303) | 175 | 225 | 455 | 1.0 | 190 | 135 | 10000 | 7000 | 1300 |
| ERZV20D331 | 330(297 to 363) | 210 | 270 | 545 | 1.0 | 228 | 160 | 10000 | 6500 | 1100 |
| ERZV20D361 | 360(324 to 396) | 230 | 300 | 595 | 1.0 | 255 | 180 | 10000 | 6500 | 1100 |
| ERZV20D391 | 390(351 to 429) | 250 | 320 | 650 | 1.0 | 275 | 195 | 10000 | 6500 | 1100 |
| ERZV20D431 | 430(387 to 473) | 275 | 350 | 710 | 1.0 | 303 | 215 | 10000 | 6500 | 1000 |
| ERZV20D471 | 470(423 to 517) | 300 | 385 | 775 | 1.0 | 350 | 250 | 10000 | 6500 | 900 |
| ERZV20D511 | 510(459 to 561) | 320 | 410 | 845 | 1.0 | 382 | 273 | 10000 | 6500 | 800 |
| ERZV20D561 | 560(504 to 616) | 350 | 450 | 930 | 1.0 | 382 | 273 | 7500 | 6500 | 750 |
| ERZV20D621 | 620(558 to 682) | 385 | 505 | 1025 | 1.0 | 382 | 273 | 7500 | 6500 | 700 |
| ERZV20D681 | 680(612 to 748) | 420 | 560 | 1120 | 1.0 | 382 | 273 | 7500 | 6500 | 650 |
| ERZV20D751 | 750(675 to 825) | 460 | 615 | 1240 | 1.0 | 420 | 300 | 7500 | 6500 | 600 |
| ERZV20D821 | 820(738 to 902) | 510 | 670 | 1355 | 1.0 | 460 | 325 | 7500 | 6500 | 530 |
| ERZV20D911 | 910(819 to 1001) | 550 | 745 | 1500 | 1.0 | 510 | 360 | 7500 | 6500 | 500 |
| ERZV20D102 | 1000(900 to 1100) | 625 | 825 | 1650 | 1.0 | 565 | 400 | 7500 | 6500 | 450 |
| ERZV20D112 | 1100(990 to 1210) | 680 | 895 | 1815 | 1.0 | 620 | 440 | 7500 | 6500 | 400 |
| ERZV20D182 | 1800(1700 to 1980) | 1000 | 1465 | 2970 | 1.0 | 1020 | 720 | 7500 | 6500 | 250 |

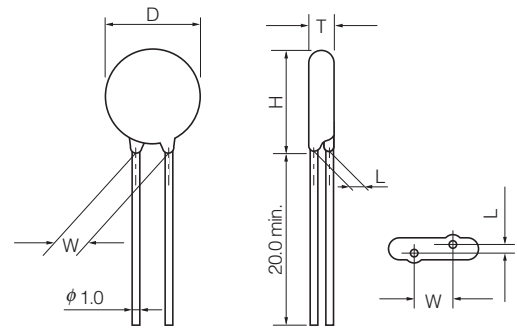
*Ip Measuring current of clamping voltage 180 to 680 : 20 A, 820 to 182 : 100 A

Dimensions in mm (not to scale)

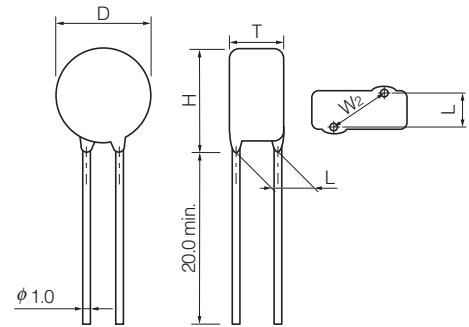
* Refer to page 24 to 26 about leads cut type and taping.

| Part No. | D max. | T max. | W±1.0 | H max. | L±1.0 |
|------------|--------|--------|-------|--------|------------|
| ERZV20D180 | 21.5 | 5.1 | 10.0 | 24.5 | 1.5 |
| ERZV20D220 | 21.5 | 5.2 | 10.0 | 24.5 | 1.6 |
| ERZV20D270 | 21.5 | 5.3 | 10.0 | 24.5 | 1.7 |
| ERZV20D330 | 21.5 | 5.5 | 10.0 | 24.5 | 1.9 |
| ERZV20D390 | 21.5 | 5.5 | 10.0 | 24.5 | 1.9 |
| ERZV20D470 | 21.5 | 5.6 | 10.0 | 24.5 | 2.0 |
| ERZV20D560 | 21.5 | 5.7 | 10.0 | 24.5 | 2.1 |
| ERZV20D680 | 21.5 | 5.8 | 10.0 | 24.5 | 2.2 |
| ERZV20D820 | 21.5 | 4.9 | 10.0 | 24.5 | 1.8 |
| ERZV20D101 | 21.5 | 5.1 | 10.0 | 24.5 | 2.0 |
| ERZV20D121 | 21.5 | 5.3 | 10.0 | 24.5 | 2.2 |
| ERZV20D151 | 21.5 | 5.6 | 10.0 | 24.5 | 2.5 |
| ERZV20D201 | 21.5 | 5.2 | 10.0 | 24.5 | 2.1 |
| ERZV20D221 | 21.5 | 5.3 | 10.0 | 24.5 | 2.2 |
| ERZV20D241 | 21.5 | 5.4 | 10.0 | 24.5 | 2.3 |
| ERZV20D271 | 21.5 | 5.6 | 10.0 | 24.5 | 2.5 |
| ERZV20D331 | 21.5 | 5.9 | 10.0 | 24.5 | 2.8 |
| ERZV20D361 | 21.5 | 6.1 | 10.0 | 24.5 | 3.0 |
| ERZV20D391 | 21.5 | 6.2 | 10.0 | 24.5 | 3.1 |
| ERZV20D431 | 21.5 | 6.4 | 10.0 | 24.5 | 3.3 |
| ERZV20D471 | 21.5 | 6.6 | 10.0 | 24.5 | 3.5 |
| ERZV20D511 | 21.5 | 6.8 | 10.0 | 24.5 | 3.7 |
| ERZV20D561 | 22.5 | 7.1 | 10.0 | 25.5 | 4.2 |
| ERZV20D621 | 22.5 | 7.5 | 10.0 | 25.5 | 4.4 |
| ERZV20D681 | 22.5 | 7.8 | 10.0 | 25.5 | 4.7 |
| ERZV20D751 | 22.5 | 8.2 | 10.0 | 25.5 | 5.1 |
| ERZV20D821 | 22.5 | 8.5 | 10.0 | 25.5 | 5.4 |
| ERZV20D911 | 22.5 | 9.0 | 10.0 | 25.5 | 5.9 |
| ERZV20D102 | 22.5 | 9.5 | 10.0 | 25.5 | 6.4 |
| ERZV20D112 | 22.5 | 10.1 | 10.0 | 25.5 | 7.0 |
| ERZV20D182 | 23.5 | 14.8 | 15.0* | 28.0 | 10.7(±2.0) |

*: W₂



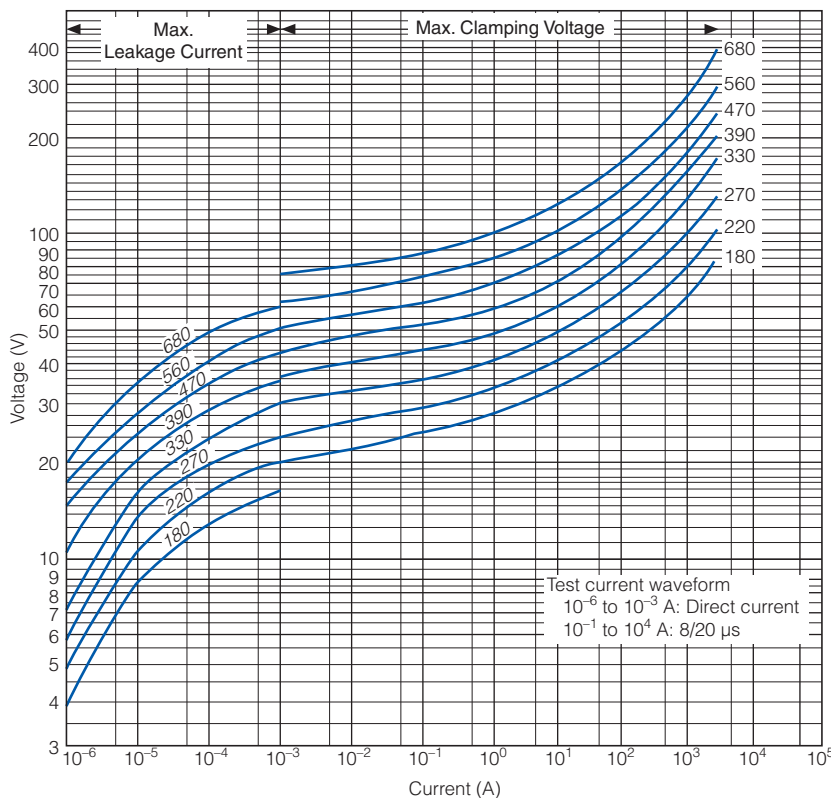
(ERZV20D182)



Typical Characteristics

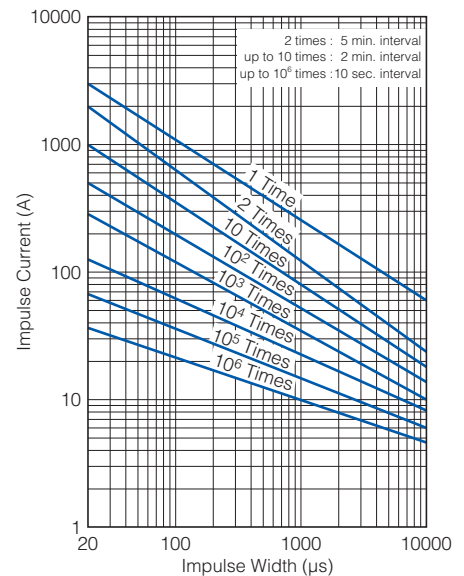
Voltage vs. Current

ERZV20D180 to ERZV20D680



Impulse Derating (Relation between impulse width and impulse current multiple)

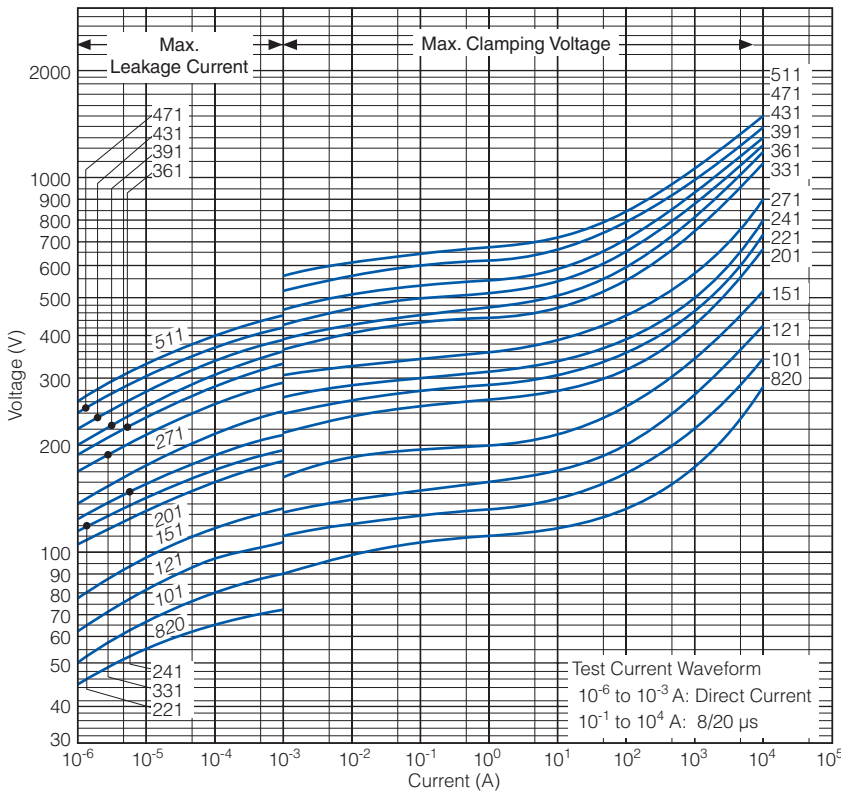
ERZV20D180 to ERZV20D680



Typical Characteristics

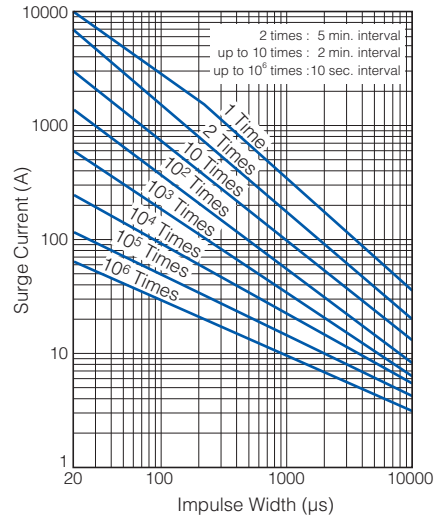
Voltage vs. Current

ERZV20D820 to ERZV20D511

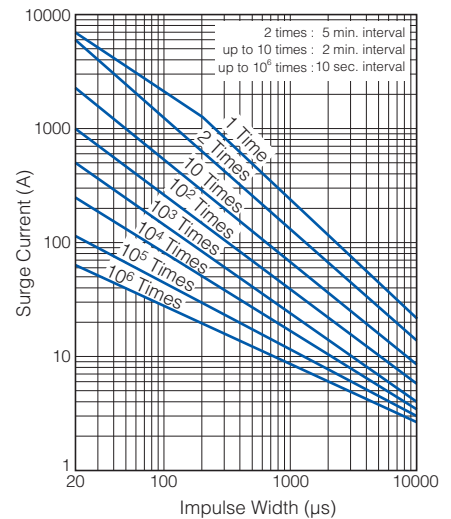


Impulse Derating (Relation between impulse width and impulse current multiple)

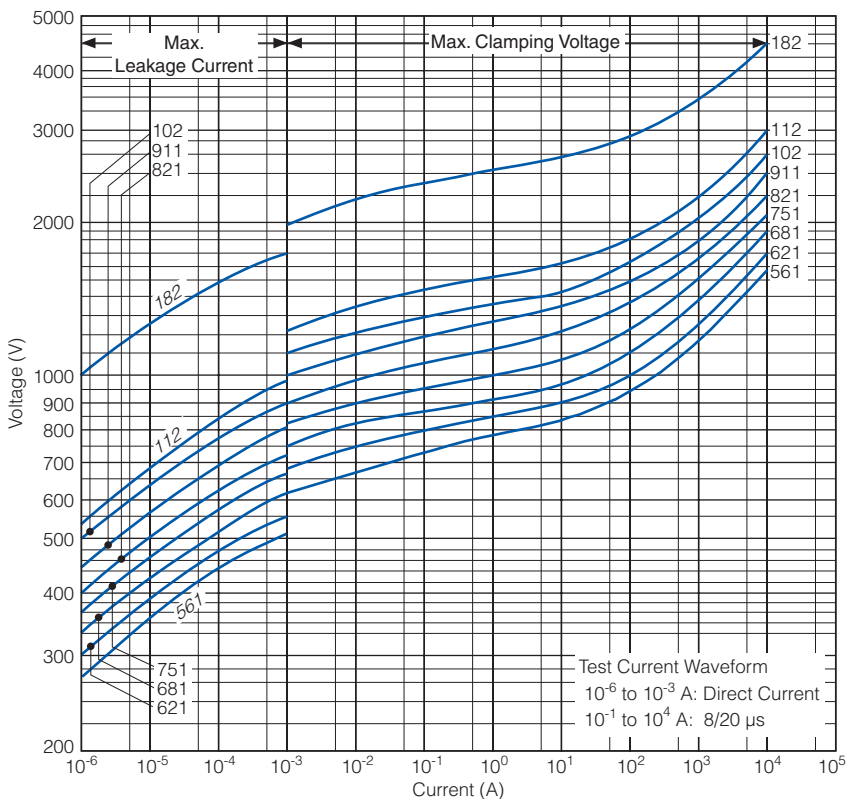
ERZV20D820 to ERZV20D511



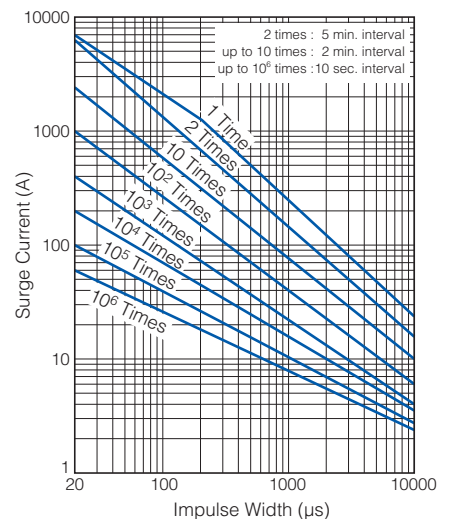
ERZV20D561 to ERZV20D112



ERZV20D561 to ERZV20D182



ERZV20D182

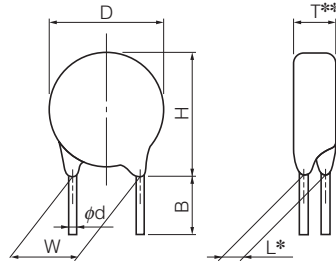


Straight Leads Cut Type (Bulk Type)

Ratings and Characteristics

* Refer to bulk standard type part no. (P9 to P23).

Dimensions in mm (not to scale)



notes * Dimension “L”: Conforms to each individual specification.
 ** Dimension “T”: Conforms to each individual specification.

Unit : mm

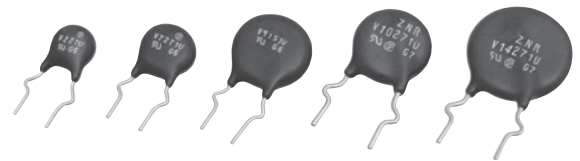
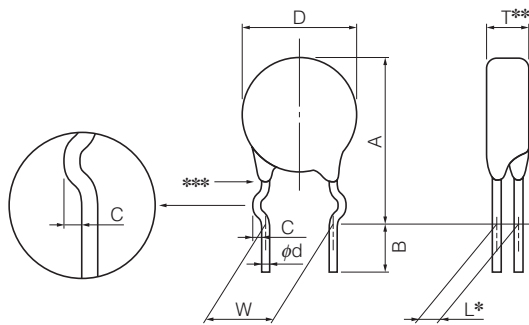
| Series | 5 | 7 | 9 | 10 | | | 14 | | |
|----------------------------|--|--|--|--|--|--|--|--|--|
| Symbol | 180 to 471 | 180 to 511 | 180 to 511 | 180 to 511 | 561 to 751 | 821 to 112 | 180 to 511 | 561 to 751 | 821 to 112 |
| D | 7.0 max. | 8.5 max. | 11.5 max. | 11.5 max. | 12.5 max. | 12.5 max. | 15.5 max. | 16.0 max. | 16.0 max. |
| H | 10.0 max. | 11.5 max. | 14.0 max. | 14.5 max. | 15.5 max. | 15.5 max. | 18.5 max. | 19.0 max. | 19.0 max. |
| W | 5.0±1.0 | 5.0±1.0 | 5.0±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 |
| ϕd | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} |
| B | 4.0±1.0 | 4.0±1.0 | 4.0±1.0 | 4.0±1.0 | 4.0±1.0 | 4.0±1.5 | 4.0±1.0 | 4.0±1.0 | 4.0±1.5 |
| Standard Products Part No. | ERZV05D□□□CS | ERZV07D□□□CS | ERZV09D□□□CS | ERZV10D□□□CS | ERZV10D□□□CS | ERZV10D□□□C1 | ERZV14D□□□CS | ERZV14D□□□CS | ERZV14D□□□C1 |

Crimped Leads Cut Type (Bulk Type)

Ratings and Characteristics

* Refer to bulk standard type part no. (P9 to P23).

Dimensions in mm (not to scale)



notes * Dimension “L”: Conforms to each individual specification.
 ** Dimension “T”: Conforms to each individual specification.
 *** Resin extensions : No resin below the center of the hook.

Unit : mm

| Series | 5 | 7 | 9 | 10 | | | 14 | | |
|----------------------------|--|--|--|--|--|--|--|--|--|
| Symbol | 180 to 471 | 180 to 511 | 180 to 511 | 180 to 511 | 561 to 751 | 821 to 112 | 180 to 511 | 561 to 751 | 821 to 112 |
| A | 13.0 max. | 14.5 max. | 17.5 max. | 17.5 max. | 19.0 max. | 20.0 max. | 21.0 max. | 22.0 max. | 23.5 max. |
| D | 7.0 max. | 8.5 max. | 11.5 max. | 11.5 max. | 12.5 max. | 12.5 max. | 15.5 max. | 16.0 max. | 16.0 max. |
| C | 1.2±0.4 | 1.2±0.4 | 1.2±0.4 | 1.4±0.4 | 1.4±0.4 | 1.4±0.4 | 1.4±0.4 | 1.4±0.4 | 1.4±0.4 |
| W | 5.0±1.0 | 5.0±1.0 | 5.0±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 | 7.5±1.0 |
| ϕd | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} |
| B | 4.0±1.0 | 4.0±1.0 | 4.0±1.0 | 4.0±1.0 | 4.0±1.0 | 4.0±1.5 | 4.0±1.0 | 4.0±1.0 | 4.0±1.5 |
| Standard Products Part No. | ERZV05V□□□CS | ERZV07V□□□CS | ERZV09V□□□CS | ERZV10V□□□CS | ERZV10V□□□CS | ERZV10V□□□C1 | ERZV14V□□□CS | ERZV14V□□□CS | ERZV14V□□□C1 |

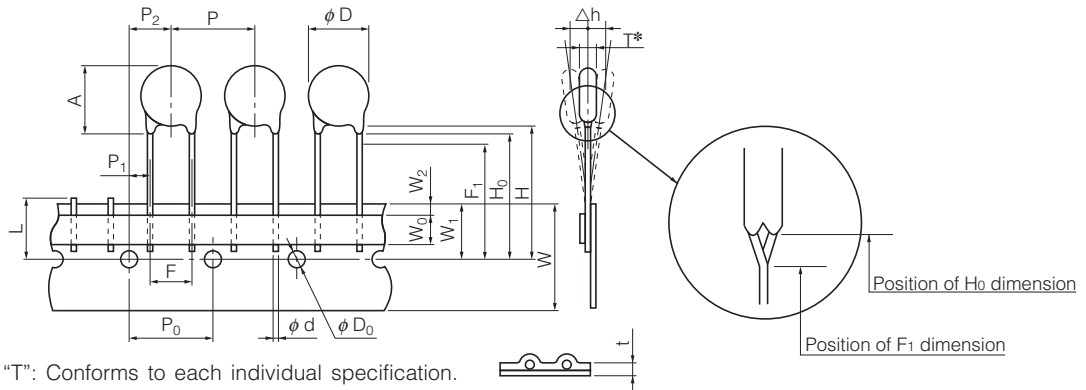
Taping Specifications for Automated Assembly (Straight Leads and Taping)

Ratings and Characteristics

* Refer to bulk standard type part no. (P9 to P23).

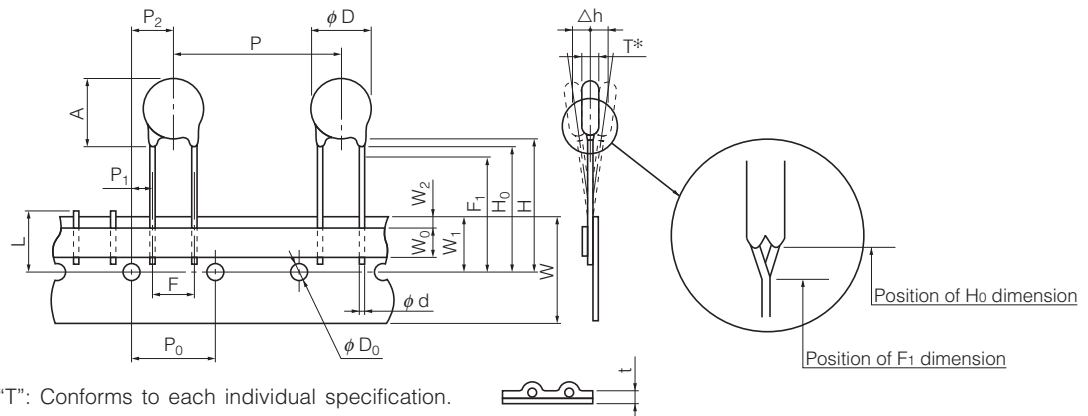
Taping Dimensions in mm (not to scale)

Type I-II



* Dimension “T”: Conforms to each individual specification.

Type III-IV



* Dimension “T”: Conforms to each individual specification.

Unit : mm

| Series | 5 | 7 | 9 | 10 | | | 14 | | |
|----------------------------|--|--|--|--|---|---|--|---|---|
| Varistor Voltage | 180 to 471 | 180 to 511 | 180 to 511 | 180 to 331 | 361 to 511 | 561 to 112 | 180 to 331 | 361 to 511 | 561 to 112 |
| Symbol | Type I | Type I | Type I | Type I | Type II | Type II | Type III | Type IV | Type IV |
| P | 12.7±1.0 | 12.7±1.0 | 12.7±1.0 | 15.0±1.0 | 15.0±1.0 | 15.0±1.0 | 30.0±1.0 | 30.0±1.0 | 30.0±1.0 |
| P ₀ | 12.7±0.3 | 12.7±0.3 | 12.7±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 |
| P ₁ | 3.85±0.70 | 3.85±0.70 | 3.85±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 |
| P ₂ | 6.35±1.30 | 6.35±1.30 | 6.35±1.30 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 |
| φ d | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} |
| F | 5.0±0.5 | 5.0±0.5 | 5.0±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 |
| Δh | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 |
| W | 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} | 18.0 ^{+1.0} _{-0.5} | 18.0 ^{+1.0} _{-0.5} | 18.0 ^{+1.0} _{-0.5} |
| W ₀ | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. |
| W ₁ | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 |
| W ₂ | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. |
| H | Approx. 20 | Approx. 20 | Approx. 20 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 |
| H ₀ | 17.0±0.5 | 17.0±0.5 | 17.0±0.5 | 18.0 ^{+2.0} ₀ | — | — | 18.0 ^{+2.0} ₀ | — | — |
| F ₁ | — | — | — | — | 16.00 ^{+0.75} _{-0.50} | 16.00 ^{+0.75} _{-0.50} | — | 16.00 ^{+0.75} _{-0.50} | 16.00 ^{+0.75} _{-0.50} |
| φ D ₀ | φ 4.0±0.2 | φ 4.0±0.2 | φ 4.0±0.2 | φ 4.0±0.2 | φ 4.0±0.2 | φ 4.0±0.2 | φ 4.0±0.2 | φ 4.0±0.2 | φ 4.0±0.2 |
| t | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 |
| L | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. |
| φ D | 7.0 max. | 8.5 max. | 11.5 max. | 11.5 max. | 11.5 max. | 12.5 max. | 15.5 max. | 15.5 max. | 16.0 max. |
| A | 10.0 max. | 11.5 max. | 14.0 max. | 14.5 max. | 14.5 max. | 15.5 max. | 18.5 max. | 18.5 max. | 19.0 max. |
| Standard Products Part No. | ERZVA5D□□□ | ERZVA7D□□□ | ERZVA9D□□□ | ERZVGAD□□□ | ERZVGAD□□□ | ERZVGAD□□□ | ERZVGED□□□ | ERZVGED□□□ | ERZVGED□□□ |

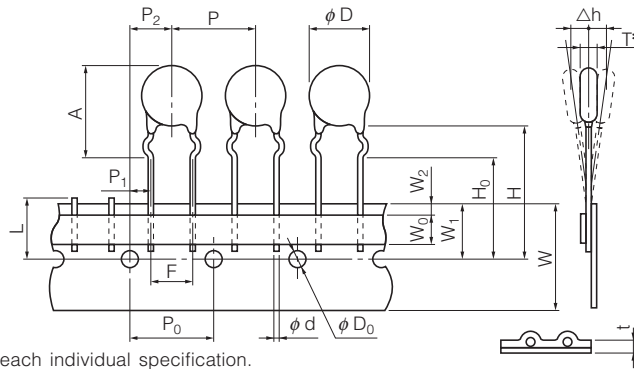
Taping Specifications for Automated Assembly (Crimped Leads and Taping)

Ratings and Characteristics

* Refer to bulk standard type part no. (P9 to P23).

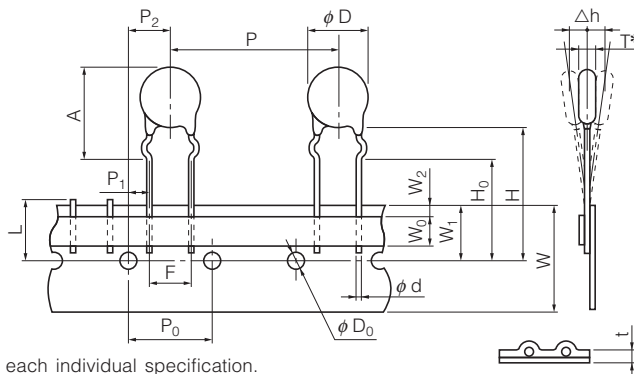
Taping Dimensions in mm (not to scale)

Type I



* Dimension "T": Conforms to each individual specification.

Type II



* Dimension "T": Conforms to each individual specification.

Unit : mm

| Series | 5 | 7 | 9 | 10 | | | 14 | | |
|----------------------------|--|--|--|--|--|--|--|--|--|
| Varistor Voltage | 180 to 471 | 180 to 511 | 180 to 511 | 180 to 331 | 361 to 511 | 561 to 112 | 180 to 331 | 361 to 511 | 561 to 112 |
| Symbol | Type I | Type I | Type I | Type I | Type I | Type I | Type II | Type II | Type II |
| P | 12.7±1.0 | 12.7±1.0 | 12.7±1.0 | 15.0±1.0 | 15.0±1.0 | 15.0±1.0 | 30.0±1.0 | 30.0±1.0 | 30.0±1.0 |
| P ₀ | 12.7±0.3 | 12.7±0.3 | 12.7±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 | 15.0±0.3 |
| P ₁ | 3.85±0.70 | 3.85±0.70 | 3.85±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 | 3.75±0.70 |
| P ₂ | 6.35±1.30 | 6.35±1.30 | 6.35±1.30 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 | 7.5±1.3 |
| φ d | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.60 ^{+0.06} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} | 0.80 ^{+0.08} _{-0.05} |
| F | 5.0±0.5 | 5.0±0.5 | 5.0±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 | 7.5±0.5 |
| Δh | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 | 0±2 |
| W | 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} | 18.0 ^{+1.0} _{-0.5} | 18.0 ^{+1.0} _{-0.5} | 18.0 ^{+1.0} _{-0.5} |
| W ₀ | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. | 5.0 min. |
| W ₁ | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 |
| W ₂ | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. | 3 max. |
| H | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 | Approx. 22 |
| H ₀ | 17.0±0.5 | 17.0±0.5 | 17.0±0.5 | 16.0±0.5 | 16.0±0.5 | 16.0±0.5 | 16.0±0.5 | 16.0±0.5 | 16.0±0.5 |
| φ D ₀ | φ4.0±0.2 | φ4.0±0.2 | φ4.0±0.2 | φ4.0±0.2 | φ4.0±0.2 | φ4.0±0.2 | φ4.0±0.2 | φ4.0±0.2 | φ4.0±0.2 |
| t | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 |
| L | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. | 11 max. |
| φ D | 7.0 max. | 8.5 max. | 11.5 max. | 11.5 max. | 11.5 max. | 12.5 max. | 15.5 max. | 15.5 max. | 16.0 max. |
| A | 13.0 max. | 14.5 max. | 17.5 max. | 17.5 max. | 17.5 max. | *(refer) | 21.0 max. | 21.0 max. | *(refer) |
| Standard Products Part No. | ERZVA5V□□□ | ERZVA7V□□□ | ERZVA9V□□□ | ERZVEAV□□□ | ERZVEAV□□□ | ERZVEAV□□□ | ERZVEEV□□□ | ERZVEEV□□□ | ERZVEEV□□□ |

* Dimension "A"

| | 10 Series | 14 Series |
|------------|-----------|-----------|
| ERZV□□V561 | 19.0 max. | 22.0 max. |
| ERZV□□V621 | 19.0 max. | 22.0 max. |
| ERZV□□V681 | 19.0 max. | 22.0 max. |
| ERZV□□V751 | 19.0 max. | 22.0 max. |

| | 10 Series | 14 Series |
|------------|-----------|-----------|
| ERZV□□V821 | 20.0 max. | 23.5 max. |
| ERZV□□V911 | 20.0 max. | 23.5 max. |
| ERZV□□V102 | 20.0 max. | 23.5 max. |
| ERZV□□V112 | 20.0 max. | 23.5 max. |

Application Note for Safety Standards

- Approvals products lists in "Reference Guide to Standard Products."
- UL, VDE and CSA : Registered in "Type name", it isn't registered in "Panasonic Part No."
- CQC : Registered in "Panasonic Part No."
- "Rated Voltages" are specified for UL recognized components in list shown below.

■ The AC Rated Voltage and Maximum Allowable Voltage

| Type Name | Maximum Allowable Voltage | | Rated Voltage (Vrms) | |
|-----------|---------------------------|--------|----------------------|----------------|
| | ACrms (V) | DC (V) | UL1449 | CSA C22.2 No.1 |
| V*820U | 50 | 65 | 45 | N/A |
| V*101U | 60 | 85 | 55 | N/A |
| V*121U | 75 | 100 | 68 | N/A |
| V*151U | 95 | 125 | 86 | N/A |
| V*201U | 130 | 170 | 118 | 118 |
| V*221U | 140 | 180 | 127 | 127 |
| V*241U | 150 | 200 | 136 | 136 |
| V*271U | 175 | 225 | 159 | 159 |
| V*331U | 210 | 270 | 189 | 189 |
| V*361U | 230 | 300 | 209 | 209 |
| V*391U | 250 | 320 | 227 | 227 |
| V*431U | 275 | 350 | 250 | 250 |
| V*471U | 300 | 385 | 272 | 272 |
| V*511U | 320 | 410 | 291 | 291 |
| V*561U | 350 | 450 | 320 | 320 |
| V*621U | 385 | 505 | 350 | 350 |
| V*681U | 420 | 560 | 381 | 381 |
| V*751U | 460 | 615 | 418 | 418 |
| V*821U | 510 | 670 | 463 | 463 |
| V*911U | 550 | 745 | 500 | 500 |
| V*102U | 625 | 825 | 568 | 568 |
| V*112U | 680 | 895 | 600 | 618 |
| V*182U | 1000 | 1465 | 600 | 909 |

*:5 Series is blank, 7 series is 7, 9 series is 9, 10 series is 10, 14 series is 14, 20 series is 20