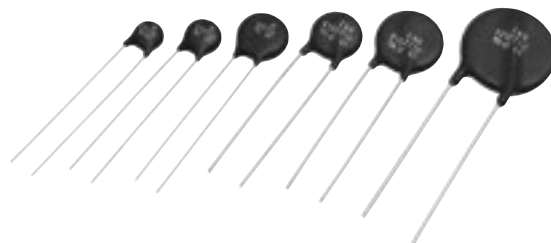


### "ZNR" Transient/Surge Absorbers

Type: **D**

Series: **V**

"ZNR" Transient/Surge Absorber, Series V, Type D features large surge current and energy handling capability for absorbing transient overvoltage in a compact size.



#### ■ Features

- Large withstanding surge current capability in compact sizes
- Large "Energy Handling Capability" absorbing transient overvoltages in compact sizes
- Wide range of varistor voltages
- The standard products shown below have received UL, CSA and VDE standards  
Varistor voltage 82-150V : UL, VDE  
Varistor voltage 200V over : UL, CSA, VDE  
(cf. Application Notes for UL/CSA, VDE recognized parts on page 322 to 323)
- RoHS compliant

#### ■ Related Standards

- UL 1414, UL 1449
- CSA C22.2 No.1 Class 2221 01
- VDE CECC42000, CECC42200, CECC42201, IEC61051
- "Type Designation(UL)", "Part Number(CSA)", "Style Ref. (VDE)"  
Are not registered by product Part No..  
(Refer to page 322, for the details)

#### ■ 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
- Relay or electromagnetic valve surge absorption

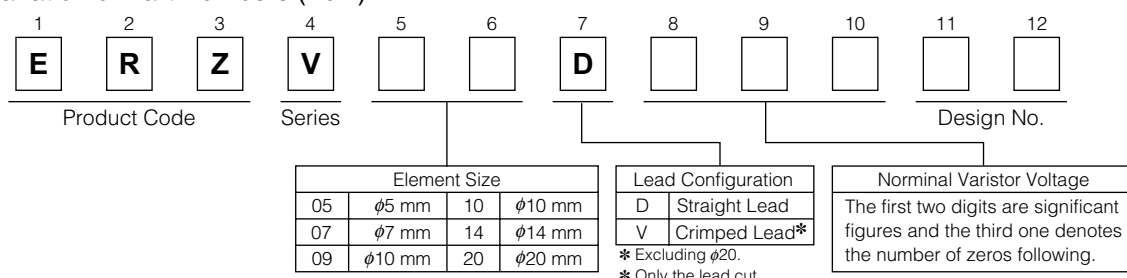
#### ■ Handling Precautions

Please see Pages 335 to 337

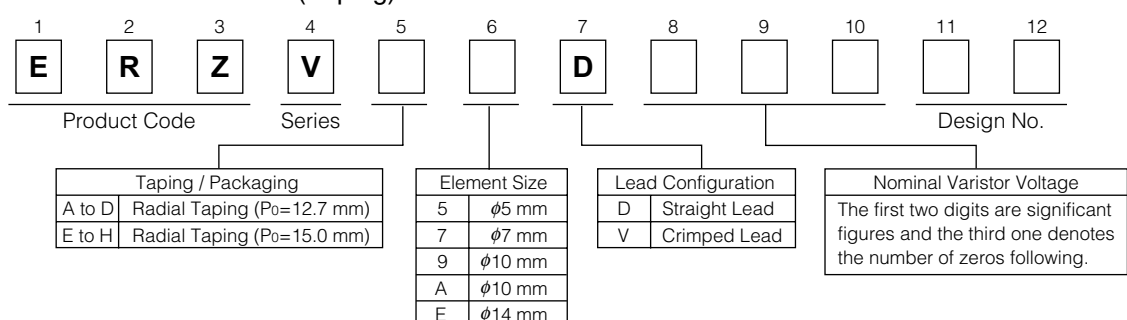
#### ■ Minimum Quantity / Packing Unit

Please see Page 360

#### ■ Explanation of Part Numbers (Bulk)



#### ■ Explanation of Part Numbers (Taping)



## ■ Reference Guide to Standard Products

| Part No.   | Varistor Voltage* | Maximum Allowable Voltage |        | Clamping Voltage @8/20μs |                    | Maximum Energy (J) |      | Maximum Peak Current @8/20μs(A) |         | Recommended Applications                   |
|------------|-------------------|---------------------------|--------|--------------------------|--------------------|--------------------|------|---------------------------------|---------|--------------------------------------------|
|            | (V)               | ACrms (V)                 | DC (V) | max.(V)                  | I <sub>p</sub> (A) | 10/1000 μs         | 2 ms | 1 time                          | 2 times |                                            |
| ERZV05D180 | 18<br>(16–20)     | 11                        | 14     | 40                       | 1                  | 0.6                | 0.4  | 250                             | 125     | For the low voltage circuit                |
| ERZV07D180 |                   |                           |        | 36                       | 2.5                | 1.1                | 0.9  | 500                             | 250     |                                            |
| ERZV09D180 |                   |                           |        | 36                       | 5                  | 2.6                | 2.2  | 1000                            | 500     |                                            |
| ERZV10D180 |                   |                           |        | 36                       | 5                  | 2.6                | 2.2  | 1000                            | 500     |                                            |
| ERZV14D180 |                   |                           |        | 36                       | 10                 | 5.2                | 4.3  | 2000                            | 1000    |                                            |
| ERZV20D180 |                   |                           |        | 36                       | 20                 | 13                 | 12   | 3000                            | 2000    |                                            |
| ERZV05D220 | 22<br>(20–24)     | 14                        | 18     | 48                       | 1                  | 0.7                | 0.5  | 250                             | 125     |                                            |
| ERZV07D220 |                   |                           |        | 43                       | 2.5                | 1.3                | 1.1  | 500                             | 250     |                                            |
| ERZV09D220 |                   |                           |        | 43                       | 5                  | 3.2                | 2.6  | 1000                            | 500     |                                            |
| ERZV10D220 |                   |                           |        | 43                       | 5                  | 3.2                | 2.6  | 1000                            | 500     |                                            |
| ERZV14D220 |                   |                           |        | 43                       | 10                 | 6.3                | 5.3  | 2000                            | 1000    |                                            |
| ERZV20D220 |                   |                           |        | 43                       | 20                 | 16                 | 14   | 3000                            | 2000    |                                            |
| ERZV05D270 | 27<br>(24–30)     | 17                        | 22     | 60                       | 1                  | 0.9                | 0.7  | 250                             | 125     |                                            |
| ERZV07D270 |                   |                           |        | 53                       | 2.5                | 1.6                | 1.3  | 500                             | 250     |                                            |
| ERZV09D270 |                   |                           |        | 53                       | 5                  | 3.9                | 3.2  | 1000                            | 500     |                                            |
| ERZV10D270 |                   |                           |        | 53                       | 5                  | 3.9                | 3.2  | 1000                            | 500     |                                            |
| ERZV14D270 |                   |                           |        | 53                       | 10                 | 7.8                | 6.5  | 2000                            | 1000    |                                            |
| ERZV20D270 |                   |                           |        | 53                       | 20                 | 19                 | 17   | 3000                            | 2000    |                                            |
| ERZV05D330 | 33<br>(30–36)     | 20                        | 26     | 73                       | 1                  | 1.1                | 0.8  | 250                             | 125     |                                            |
| ERZV07D330 |                   |                           |        | 65                       | 2.5                | 2.0                | 1.6  | 500                             | 250     |                                            |
| ERZV09D330 |                   |                           |        | 65                       | 5                  | 4.8                | 4.0  | 1000                            | 500     |                                            |
| ERZV10D330 |                   |                           |        | 65                       | 5                  | 4.8                | 4.0  | 1000                            | 500     |                                            |
| ERZV14D330 |                   |                           |        | 65                       | 10                 | 9.5                | 7.9  | 2000                            | 1000    |                                            |
| ERZV20D330 |                   |                           |        | 65                       | 20                 | 24                 | 21   | 3000                            | 2000    |                                            |
| ERZV05D390 | 39<br>(35–43)     | 25                        | 31     | 86                       | 1                  | 1.2                | 0.9  | 250                             | 125     |                                            |
| ERZV07D390 |                   |                           |        | 77                       | 2.5                | 2.4                | 1.9  | 500                             | 250     |                                            |
| ERZV09D390 |                   |                           |        | 77                       | 5                  | 5.6                | 4.7  | 1000                            | 500     |                                            |
| ERZV10D390 |                   |                           |        | 77                       | 5                  | 5.6                | 4.7  | 1000                            | 500     |                                            |
| ERZV14D390 |                   |                           |        | 77                       | 10                 | 11                 | 9.4  | 2000                            | 1000    |                                            |
| ERZV20D390 |                   |                           |        | 77                       | 20                 | 28                 | 25   | 3000                            | 2000    |                                            |
| ERZV05D470 | 47<br>(42–52)     | 30                        | 38     | 104                      | 1                  | 1.5                | 1.1  | 250                             | 125     |                                            |
| ERZV07D470 |                   |                           |        | 93                       | 2.5                | 2.8                | 2.3  | 500                             | 250     |                                            |
| ERZV09D470 |                   |                           |        | 93                       | 5                  | 6.8                | 5.6  | 1000                            | 500     |                                            |
| ERZV10D470 |                   |                           |        | 93                       | 5                  | 6.8                | 5.6  | 1000                            | 500     |                                            |
| ERZV14D470 |                   |                           |        | 93                       | 10                 | 14                 | 11   | 2000                            | 1000    |                                            |
| ERZV20D470 |                   |                           |        | 93                       | 20                 | 34                 | 30   | 3000                            | 2000    |                                            |
| ERZV05D560 | 56<br>(50–62)     | 35                        | 45     | 123                      | 1                  | 1.8                | 1.3  | 250                             | 125     |                                            |
| ERZV07D560 |                   |                           |        | 110                      | 2.5                | 3.4                | 2.7  | 500                             | 250     |                                            |
| ERZV09D560 |                   |                           |        | 110                      | 5                  | 8.1                | 6.7  | 1000                            | 500     |                                            |
| ERZV10D560 |                   |                           |        | 110                      | 5                  | 8.1                | 6.7  | 1000                            | 500     |                                            |
| ERZV14D560 |                   |                           |        | 110                      | 10                 | 16                 | 13   | 2000                            | 1000    |                                            |
| ERZV20D560 |                   |                           |        | 110                      | 20                 | 41                 | 36   | 3000                            | 2000    |                                            |
| ERZV05D680 | 68<br>(61–75)     | 40                        | 56     | 150                      | 1                  | 2.2                | 1.6  | 250                             | 125     |                                            |
| ERZV07D680 |                   |                           |        | 135                      | 2.5                | 4.1                | 3.3  | 500                             | 250     |                                            |
| ERZV09D680 |                   |                           |        | 135                      | 5                  | 9.8                | 8.2  | 1000                            | 500     |                                            |
| ERZV10D680 |                   |                           |        | 135                      | 5                  | 9.8                | 8.2  | 1000                            | 500     |                                            |
| ERZV14D680 |                   |                           |        | 135                      | 10                 | 20                 | 16   | 2000                            | 1000    |                                            |
| ERZV20D680 |                   |                           |        | 135                      | 20                 | 49                 | 44   | 3000                            | 2000    |                                            |
| ERZV05D820 | 82<br>(74–90)     | 50                        | 65     | 145                      | 5                  | 3.5                | 2.5  | 800                             | 600     | Telephone, Communication Line<br>(DC 48 V) |
| ERZV07D820 |                   |                           |        | 135                      | 10                 | 7                  | 5    | 1750                            | 1250    |                                            |
| ERZV09D820 |                   |                           |        | 135                      | 25                 | 14                 | 10   | 3500                            | 2500    |                                            |
| ERZV10D820 |                   |                           |        | 135                      | 25                 | 14                 | 10   | 3500                            | 2500    |                                            |
| ERZV14D820 |                   |                           |        | 135                      | 50                 | 28                 | 20   | 6000                            | 5000    |                                            |
| ERZV20D820 |                   |                           |        | 135                      | 100                | 56                 | 40   | 10000                           | 7000    |                                            |

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

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.   | Varistor Voltage* | Maximum Allowable Voltage |        | Clamping Voltage @8/20μs |                    | Maximum Energy (J) |      | Maximum Peak Current @8/20μs(A) |         | Recommended Applications                                                      |
|------------|-------------------|---------------------------|--------|--------------------------|--------------------|--------------------|------|---------------------------------|---------|-------------------------------------------------------------------------------|
|            | (V)               | ACrms (V)                 | DC (V) | max.(V)                  | I <sub>p</sub> (A) | 10/1000 μs         | 2 ms | 1 time                          | 2 times |                                                                               |
| ERZV05D101 | 100<br>(90–110)   | 60                        | 85     | 175                      | 5                  | 4                  | 3    | 800                             | 600     | Telephone, Communication Line<br>(DC 48 V)                                    |
| ERZV07D101 |                   |                           |        | 165                      | 10                 | 8.5                | 6    | 1750                            | 1250    |                                                                               |
| ERZV09D101 |                   |                           |        | 165                      | 25                 | 17                 | 12   | 3500                            | 2500    |                                                                               |
| ERZV10D101 |                   |                           |        | 165                      | 25                 | 17                 | 12   | 3500                            | 2500    |                                                                               |
| ERZV14D101 |                   |                           |        | 165                      | 50                 | 35                 | 25   | 6000                            | 5000    |                                                                               |
| ERZV20D101 |                   |                           |        | 165                      | 100                | 70                 | 50   | 10000                           | 7000    |                                                                               |
| ERZV05D121 | 120<br>(108–132)  | 75                        | 100    | 210                      | 5                  | 5                  | 3.5  | 800                             | 600     |                                                                               |
| ERZV07D121 |                   |                           |        | 200                      | 10                 | 10                 | 7    | 1750                            | 1250    |                                                                               |
| ERZV09D121 |                   |                           |        | 200                      | 25                 | 20                 | 14.5 | 3500                            | 2500    |                                                                               |
| ERZV10D121 |                   |                           |        | 200                      | 25                 | 20                 | 14.5 | 3500                            | 2500    |                                                                               |
| ERZV14D121 |                   |                           |        | 200                      | 50                 | 42                 | 30   | 6000                            | 5000    |                                                                               |
| ERZV20D121 |                   |                           |        | 200                      | 100                | 85                 | 60   | 10000                           | 7000    |                                                                               |
| ERZV05D151 | 150<br>(135–165)  | 95                        | 125    | 260                      | 5                  | 6.5                | 4.5  | 800                             | 600     |                                                                               |
| ERZV07D151 |                   |                           |        | 250                      | 10                 | 13                 | 9    | 1750                            | 1250    |                                                                               |
| ERZV09D151 |                   |                           |        | 250                      | 25                 | 25                 | 18   | 3500                            | 2500    |                                                                               |
| ERZV10D151 |                   |                           |        | 250                      | 25                 | 25                 | 18   | 3500                            | 2500    |                                                                               |
| ERZV14D151 |                   |                           |        | 250                      | 50                 | 53                 | 37.5 | 6000                            | 5000    |                                                                               |
| ERZV20D151 |                   |                           |        | 250                      | 100                | 106                | 75   | 10000                           | 7000    |                                                                               |
| ERZV05D201 | 200<br>(185–225)  | 130                       | 170    | 355                      | 5                  | 8.5                | 6    | 800                             | 600     | AC 100 V Line–Line Applications                                               |
| ERZV07D201 |                   |                           |        | 340                      | 10                 | 17.5               | 12.5 | 1750                            | 1250    |                                                                               |
| ERZV09D201 |                   |                           |        | 340                      | 25                 | 35                 | 25   | 3500                            | 2500    |                                                                               |
| ERZV10D201 |                   |                           |        | 340                      | 25                 | 35                 | 25   | 3500                            | 2500    |                                                                               |
| ERZV14D201 |                   |                           |        | 340                      | 50                 | 70                 | 50   | 6000                            | 5000    |                                                                               |
| ERZV20D201 |                   |                           |        | 340                      | 100                | 140                | 100  | 10000                           | 7000    |                                                                               |
| ERZV05D221 | 220<br>(198–242)  | 140                       | 180    | 380                      | 5                  | 9                  | 6.5  | 800                             | 600     |                                                                               |
| ERZV07D221 |                   |                           |        | 360                      | 10                 | 19                 | 13.5 | 1750                            | 1250    |                                                                               |
| ERZV09D221 |                   |                           |        | 360                      | 25                 | 39                 | 27.5 | 3500                            | 2500    |                                                                               |
| ERZV10D221 |                   |                           |        | 360                      | 25                 | 39                 | 27.5 | 3500                            | 2500    |                                                                               |
| ERZV14D221 |                   |                           |        | 360                      | 50                 | 78                 | 55   | 6000                            | 5000    |                                                                               |
| ERZV20D221 |                   |                           |        | 360                      | 100                | 155                | 110  | 10000                           | 7000    |                                                                               |
| ERZV05D241 | 240<br>(216–264)  | 150                       | 200    | 415                      | 5                  | 10.5               | 7.5  | 800                             | 600     | AC 100 V to 120 V, Line–Line Applications                                     |
| ERZV07D241 |                   |                           |        | 395                      | 10                 | 21                 | 15   | 1750                            | 1250    |                                                                               |
| ERZV09D241 |                   |                           |        | 395                      | 25                 | 42                 | 30   | 3500                            | 2500    |                                                                               |
| ERZV10D241 |                   |                           |        | 395                      | 25                 | 42                 | 30   | 3500                            | 2500    |                                                                               |
| ERZV14D241 |                   |                           |        | 395                      | 50                 | 84                 | 60   | 6000                            | 5000    |                                                                               |
| ERZV20D241 |                   |                           |        | 395                      | 100                | 168                | 120  | 10000                           | 7000    |                                                                               |
| ERZV05D271 | 270<br>(247–303)  | 175                       | 225    | 475                      | 5                  | 11                 | 8    | 800                             | 600     |                                                                               |
| ERZV07D271 |                   |                           |        | 455                      | 10                 | 24                 | 17   | 1750                            | 1250    |                                                                               |
| ERZV09D271 |                   |                           |        | 455                      | 25                 | 49                 | 35   | 3500                            | 2500    |                                                                               |
| ERZV10D271 |                   |                           |        | 455                      | 25                 | 49                 | 35   | 3500                            | 2500    |                                                                               |
| ERZV14D271 |                   |                           |        | 455                      | 50                 | 99                 | 70   | 6000                            | 5000    |                                                                               |
| ERZV20D271 |                   |                           |        | 455                      | 100                | 190                | 135  | 10000                           | 7000    |                                                                               |
| ERZV05D331 | 330<br>(297–363)  | 210                       | 270    | 570                      | 5                  | 13                 | 9.5  | 800                             | 600     | AC 100 V to 120 V, Line–Line Applications                                     |
| ERZV07D331 |                   |                           |        | 545                      | 10                 | 28                 | 20   | 1750                            | 1250    |                                                                               |
| ERZV09D331 |                   |                           |        | 545                      | 25                 | 58                 | 42   | 3500                            | 2500    |                                                                               |
| ERZV10D331 |                   |                           |        | 545                      | 25                 | 58                 | 42   | 3500                            | 2500    |                                                                               |
| ERZV14D331 |                   |                           |        | 545                      | 50                 | 115                | 80   | 6000                            | 4500    |                                                                               |
| ERZV20D331 |                   |                           |        | 545                      | 100                | 228                | 160  | 10000                           | 6500    |                                                                               |
| ERZV05D361 | 360<br>(324–396)  | 230                       | 300    | 620                      | 5                  | 16                 | 11   | 800                             | 600     | Telephone Line Applications,<br>(250 V Insulation Resistance Test Applicable) |
| ERZV07D361 |                   |                           |        | 595                      | 10                 | 32                 | 23   | 1750                            | 1250    |                                                                               |
| ERZV09D361 |                   |                           |        | 595                      | 25                 | 65                 | 45   | 3500                            | 2500    |                                                                               |
| ERZV10D361 |                   |                           |        | 595                      | 25                 | 65                 | 45   | 3500                            | 2500    |                                                                               |
| ERZV14D361 |                   |                           |        | 595                      | 50                 | 130                | 90   | 6000                            | 4500    |                                                                               |
| ERZV20D361 |                   |                           |        | 595                      | 100                | 255                | 180  | 10000                           | 6500    |                                                                               |

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

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

00 Sep. 2010

### ■ Reference Guide to Standard Products

| Part No.     | Varistor Voltage*   | Maximum Allowable Voltage |        | Clamping Voltage @8/20μs |                    | Maximum Energy (J) |      | Maximum Peak Current @8/20μs(A) |         | Recommended Applications                                                             |
|--------------|---------------------|---------------------------|--------|--------------------------|--------------------|--------------------|------|---------------------------------|---------|--------------------------------------------------------------------------------------|
|              | (V)                 | ACrms (V)                 | DC (V) | max.(V)                  | I <sub>p</sub> (A) | 10/1000 μs         | 2 ms | 1 time                          | 2 times |                                                                                      |
| ERZV05D391   | 390<br>(351–429)    | 250                       | 320    | 675                      | 5                  | 17                 | 12   | 800                             | 600     | AC 100 V to 120 V, Line–Line Applications                                            |
| ERZV07D391   |                     |                           |        | 650                      | 10                 | 35                 | 25   | 1750                            | 1250    |                                                                                      |
| ERZV09D391   |                     |                           |        | 650                      | 25                 | 70                 | 50   | 3500                            | 2500    |                                                                                      |
| ERZV10D391   |                     |                           |        | 650                      | 25                 | 70                 | 50   | 3500                            | 2500    | Telephone Line Applications,<br>(250 V Insulation Resistance Test Applicable)        |
| ERZV14D391   |                     |                           |        | 650                      | 50                 | 140                | 100  | 6000                            | 4500    |                                                                                      |
| ERZV20D391   |                     |                           |        | 650                      | 100                | 275                | 195  | 10000                           | 6500    |                                                                                      |
| ERZV05D431   | 430<br>(387–473)    | 275                       | 350    | 745                      | 5                  | 20                 | 13.5 | 800                             | 600     | AC 100 V to 220 V, Line–Line and<br>AC 100 V to 220 V, Line–Ground Applications      |
| ERZV07D431   |                     |                           |        | 710                      | 10                 | 40                 | 27.5 | 1750                            | 1250    |                                                                                      |
| ERZV09D431   |                     |                           |        | 710                      | 25                 | 80                 | 55   | 3500                            | 2500    |                                                                                      |
| ERZV10D431   |                     |                           |        | 710                      | 25                 | 80                 | 55   | 3500                            | 2500    |                                                                                      |
| ERZV14D431   |                     |                           |        | 710                      | 50                 | 155                | 110  | 6000                            | 4500    |                                                                                      |
| ERZV20D431   |                     |                           |        | 710                      | 100                | 303                | 215  | 10000                           | 6500    |                                                                                      |
| ERZV05D471   | 470<br>(423–517)    | 300                       | 385    | 810                      | 5                  | 21                 | 15   | 800                             | 600     | AC 100 V to 220 V, Line–Line and<br>AC 100 V to 220 V, Line–Ground Applications      |
| ERZV07D471   |                     |                           |        | 775                      | 10                 | 42                 | 30   | 1750                            | 1250    |                                                                                      |
| ERZV09D471   |                     |                           |        | 775                      | 25                 | 85                 | 60   | 3500                            | 2500    |                                                                                      |
| ERZV10D471   |                     |                           |        | 775                      | 25                 | 85                 | 60   | 3500                            | 2500    |                                                                                      |
| ERZV14D471   |                     |                           |        | 775                      | 50                 | 175                | 125  | 6000                            | 4500    |                                                                                      |
| ERZV20D471   |                     |                           |        | 775                      | 100                | 350                | 250  | 10000                           | 6500    |                                                                                      |
| ERZV07D511   | 510<br>(459–561)    | 320                       | 410    | 845                      | 10                 | 45                 | 32   | 1750                            | 1250    | AC 100 to 240 V, Line–Line Applications<br>AC 100 to 240 V, Line–Ground Applications |
| ERZV09D511   |                     |                           |        | 845                      | 25                 | 92                 | 67   | 3500                            | 2500    |                                                                                      |
| ERZV10D511   |                     |                           |        | 845                      | 25                 | 92                 | 67   | 3500                            | 2500    |                                                                                      |
| ERZV14D511   |                     |                           |        | 845                      | 50                 | 190                | 136  | 6000                            | 4500    |                                                                                      |
| ERZV20D511   |                     |                           |        | 845                      | 100                | 382                | 273  | 10000                           | 6500    |                                                                                      |
| ERZV10D621   | 620<br>(558–682)    | 385                       | 505    | 1025                     | 25                 | 92                 | 67   | 3500                            | 2500    |                                                                                      |
| ERZV14D621   |                     |                           |        | 1025                     | 50                 | 190                | 136  | 5000                            | 4500    |                                                                                      |
| ERZV20D621   |                     |                           |        | 1025                     | 100                | 382                | 273  | 7500                            | 6500    |                                                                                      |
| ERZV10D681   | 680<br>(612–748)    | 420                       | 560    | 1120                     | 25                 | 92                 | 67   | 3500                            | 2500    | AC 100 to 240 V, Line–Line Applications<br>AC 100 to 240 V, Line–Ground Applications |
| ERZV14D681   |                     |                           |        | 1120                     | 50                 | 190                | 136  | 5000                            | 4500    |                                                                                      |
| ERZV20D681   |                     |                           |        | 1120                     | 100                | 382                | 273  | 7500                            | 6500    |                                                                                      |
| ERZV10D751   | 750<br>(675–825)    | 460                       | 615    | 1240                     | 25                 | 100                | 70   | 3500                            | 2500    | AC 380 V, Line–Line and Line–Ground Applications<br>(For DC 500 V Insulating Test)   |
| ERZV14D751   |                     |                           |        | 1240                     | 50                 | 210                | 150  | 5000                            | 4500    |                                                                                      |
| ERZV20D751   |                     |                           |        | 1240                     | 100                | 420                | 300  | 7500                            | 6500    |                                                                                      |
| ERZV10D821   | 820<br>(738–902)    | 510                       | 670    | 1355                     | 25                 | 110                | 80   | 3500                            | 2500    | AC 380 V, Line–Line and Line–Ground Applications<br>(For DC 500 V Insulating Test)   |
| ERZV14D821   |                     |                           |        | 1355                     | 50                 | 235                | 165  | 5000                            | 4500    |                                                                                      |
| ERZV20D821   |                     |                           |        | 1355                     | 100                | 460                | 325  | 7500                            | 6500    |                                                                                      |
| ERZV10D911   | 910<br>(819–1001)   | 550                       | 745    | 1500                     | 25                 | 130                | 90   | 3500                            | 2500    | AC 415 V, Line–Line and Line–Ground Applications<br>(For DC 500 V Insulating Test)   |
| ERZV14D911   |                     |                           |        | 1500                     | 50                 | 255                | 180  | 5000                            | 4500    |                                                                                      |
| ERZV20D911   |                     |                           |        | 1500                     | 100                | 510                | 360  | 7500                            | 6500    |                                                                                      |
| ERZV10D102   | 1000<br>(900–1100)  | 625                       | 825    | 1650                     | 25                 | 140                | 100  | 3500                            | 2500    | AC 480 V, Line–Line and Line–Ground Applications<br>(For DC 500 V Insulating Test)   |
| ERZV14D102   |                     |                           |        | 1650                     | 50                 | 280                | 200  | 5000                            | 4500    |                                                                                      |
| ERZV20D102   |                     |                           |        | 1650                     | 100                | 565                | 400  | 7500                            | 6500    |                                                                                      |
| ERZV10D112   | 1100<br>(990–1210)  | 680                       | 895    | 1815                     | 25                 | 155                | 110  | 3500                            | 2500    | AC 480 V, Line–Line and Line–Ground Applications<br>(For DC 500 V Insulating Test)   |
| ERZV14D112   |                     |                           |        | 1815                     | 50                 | 310                | 220  | 5000                            | 4500    |                                                                                      |
| ERZV20D112   |                     |                           |        | 1815                     | 100                | 620                | 440  | 7500                            | 6500    |                                                                                      |
| ERZV10D182CS | 1800<br>(1700–1980) | 1000                      | 1465   | 2970                     | 25                 | 247                | 183  | 3500                            | 2500    | Line–Ground Applications<br>(For AC 1200 V Withstanding Test)                        |
| ERZV14D182CS |                     |                           |        | 2970                     | 50                 | 510                | 360  | 5000                            | 4500    |                                                                                      |
| ERZV20D182   |                     |                           |        | 2970                     | 100                | 1020               | 720  | 7500                            | 6500    |                                                                                      |

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

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.

00 Sep. 2010

## 5 Series

### ■ Ratings and Characteristics

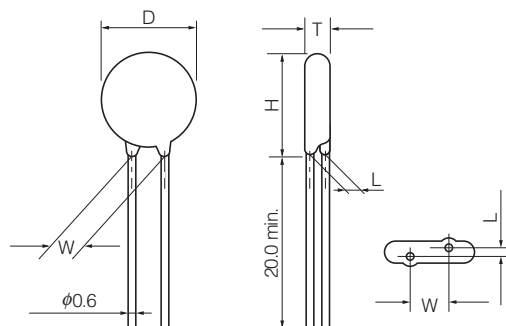
● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

| Part No.   | Varistor Voltage        | Maximum Allowable Voltage |        | Clamping Voltage (max.)<br>**I <sub>p</sub> | Rated Power | Maximum Energy |        | Maximum Peak Current (8/20 μs) |         | Capacitance (max.)<br>@1 kHz (pF) |
|------------|-------------------------|---------------------------|--------|---------------------------------------------|-------------|----------------|--------|--------------------------------|---------|-----------------------------------|
|            |                         |                           |        |                                             |             | (10/1000 μs)   | (2 ms) | 1 time                         | 2 times |                                   |
|            | V <sub>0.1</sub> mA (V) | ACrms (V)                 | DC (V) | (V)                                         | (W)         | (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<sub>p</sub> Measuring current of clamping voltage 180 to 680 : 1 A, 820 to 471 : 5 A

### ■ Dimensions in mm (not to scale) \* Refer to page 320 to 321 about leads cut type and taping.

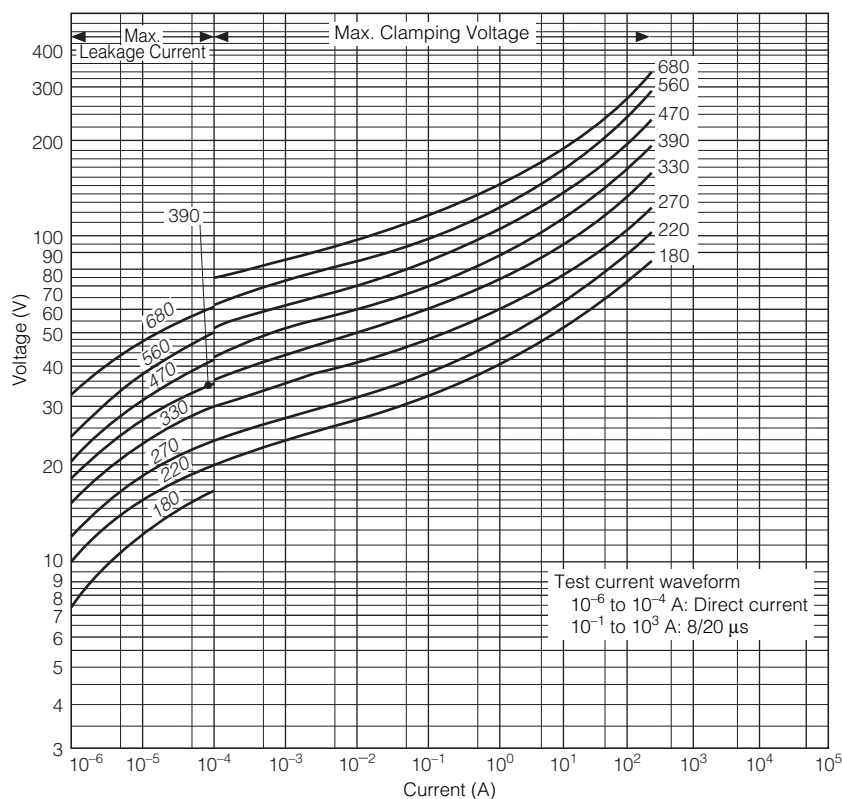
| Part No.   | D max. | T max. | W±1.0 | H max. | L±1.0 |
|------------|--------|--------|-------|--------|-------|
| ERZV05D180 | 7.0    | 4.5    | 5.0   | 10.0   | 1.5   |
| ERZV05D220 | 7.0    | 4.5    | 5.0   | 10.0   | 1.5   |
| ERZV05D270 | 7.0    | 4.5    | 5.0   | 10.0   | 1.5   |
| ERZV05D330 | 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   |



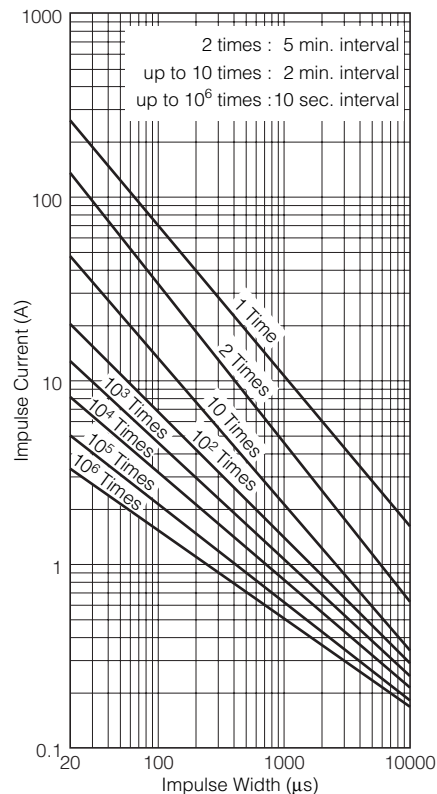
### Typical Characteristics Voltage vs. Current

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

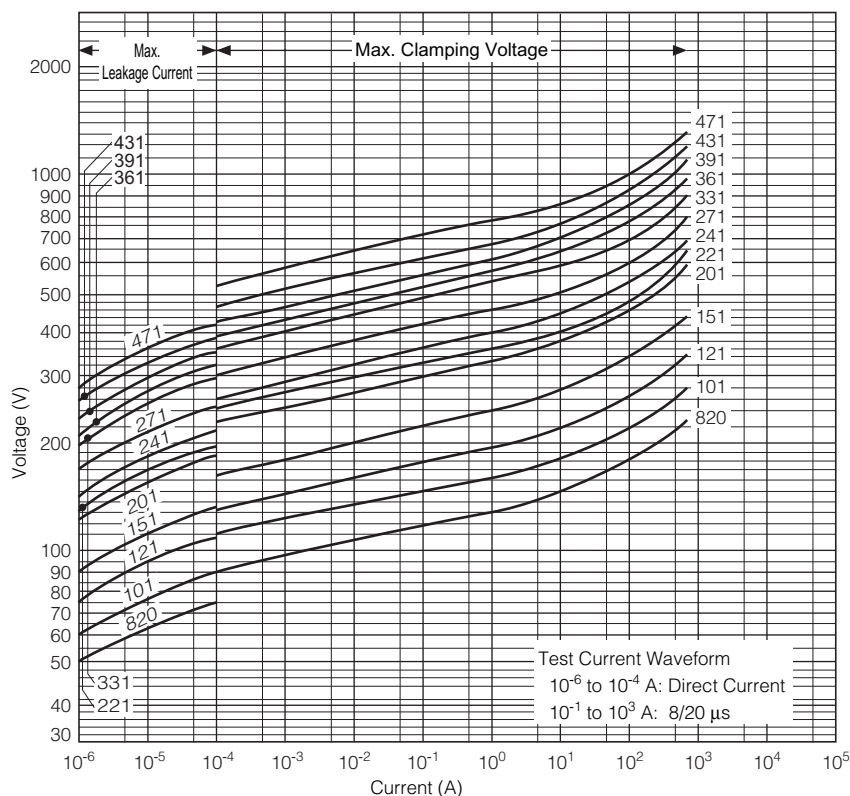
ERZV05D180 to ERZV05D680



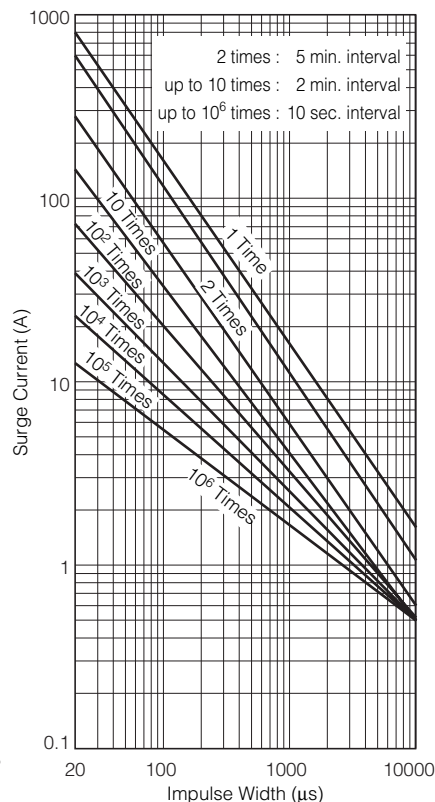
ERZV05D180 to ERZV05D680



ERZV05D820 to ERZV05D471



ERZV05D820 to ERZV05D471



## 7 Series

### ■ Ratings and Characteristics

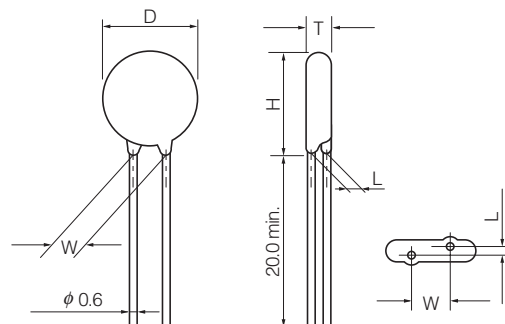
● Operating Temperature Range: -40 to 85 °C ● Storage Temperature Range: -40 to 125 °C

| Part No.   | Varistor Voltage      | Maximum Allowable Voltage |        | Clamping Voltage (max.)<br>**I <sub>p</sub> | Rated Power | Maximum Energy |        | Maximum Peak Current (8/20 μs) |         | Capacitance (max.)<br>@1 kHz (pF) |
|------------|-----------------------|---------------------------|--------|---------------------------------------------|-------------|----------------|--------|--------------------------------|---------|-----------------------------------|
|            |                       |                           |        |                                             |             | (10/1000 μs)   | (2 ms) | 1 time                         | 2 times |                                   |
|            | V <sub>1 mA</sub> (V) | ACrms (V)                 | DC (V) | (V)                                         | (W)         | (J)            | (J)    | (A)                            | (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<sub>p</sub> Measuring current of clamping voltage 180 to 680 : 25 A, 820 tp 511 : 10 A

### ■ Dimensions in mm (not to scale) \* Refer to page 320 to 321 about leads cut type and taping.

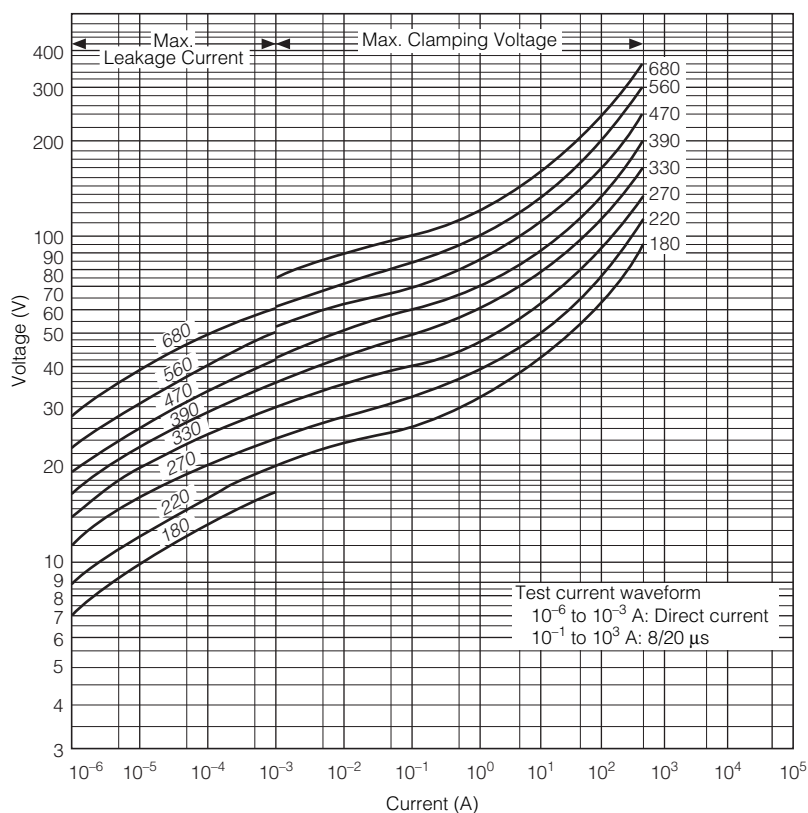
| Part No.   | D max. | T max. | W±1.0 | H max. | L±1.0 |
|------------|--------|--------|-------|--------|-------|
| ERZV07D180 | 8.5    | 4.5    | 5.0   | 11.5   | 1.3   |
| ERZV07D220 | 8.5    | 4.6    | 5.0   | 11.5   | 1.4   |
| ERZV07D270 | 8.5    | 4.7    | 5.0   | 11.5   | 1.5   |
| ERZV07D330 | 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   |



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.

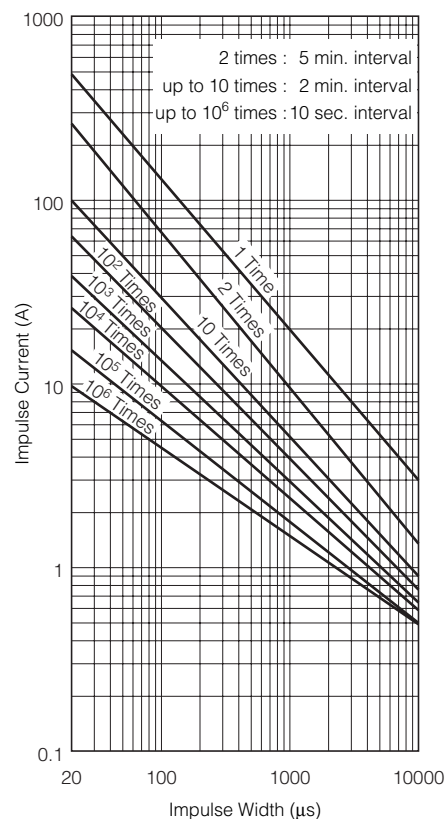
### Typical Characteristics Voltage vs. Current

ERZV07D180 to ERZV07D680

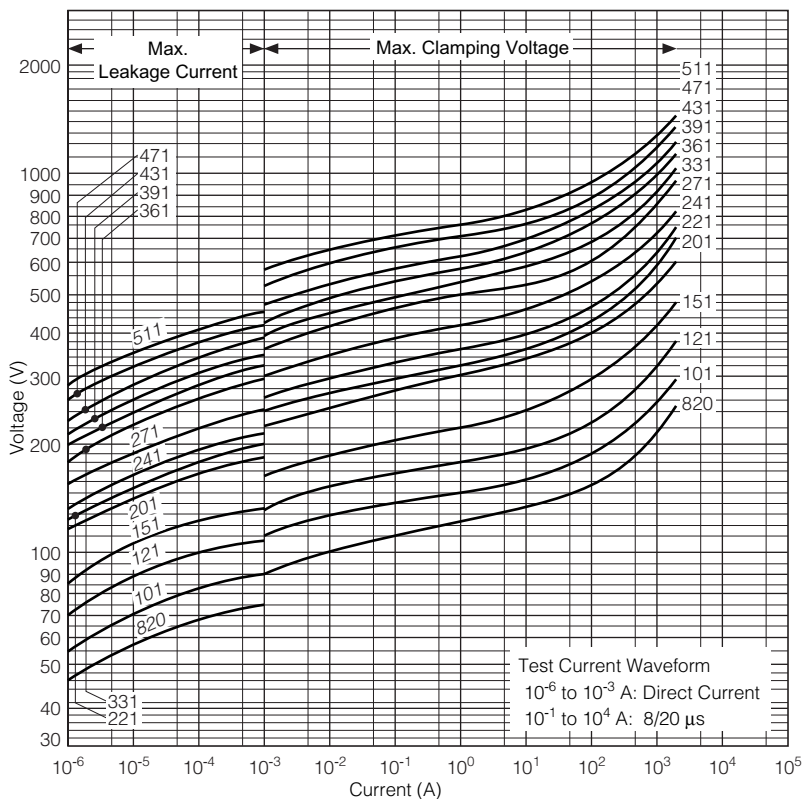


### Impulse Derating (Relation between impulse width and impulse current multiple)

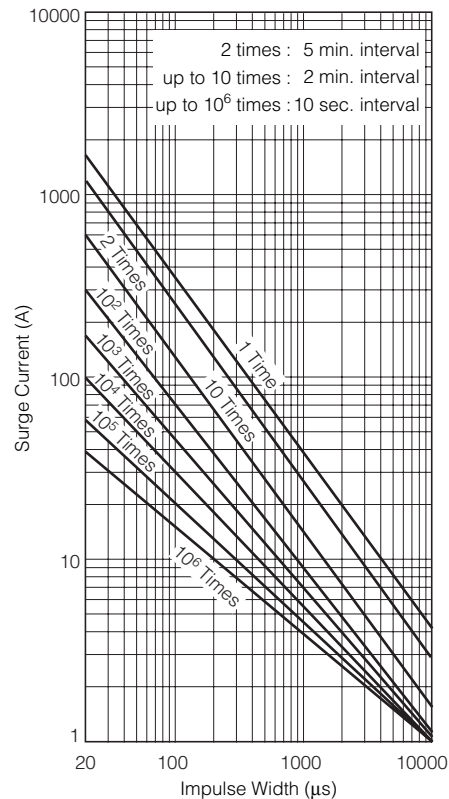
ERZV07D180 to ERZV07D680



ERZV07D820 to ERZV07D511



ERZV07D820 to ERZV07D511





# 9 Series

## ■ Ratings and Characteristics

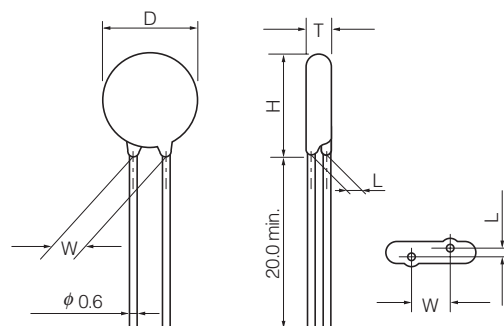
● Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

| Part No.   | Varistor Voltage      | Maximum Allowable Voltage |        | Clamping Voltage (max.)<br>*Ip | Rated Power | Maximum Energy |        | Maximum Peak Current (8/20 μs) |         | Capacitance (max.)<br>@1 kHz (pF) |
|------------|-----------------------|---------------------------|--------|--------------------------------|-------------|----------------|--------|--------------------------------|---------|-----------------------------------|
|            |                       |                           |        |                                |             | (10/1000 μs)   | (2 ms) | 1 time                         | 2 times |                                   |
|            | V <sub>1 mA</sub> (V) | ACrms (V)                 | DC (V) | (V)                            | (W)         | (J)            | (J)    | (A)                            | (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 320 to 321 about leads cut type and taping.

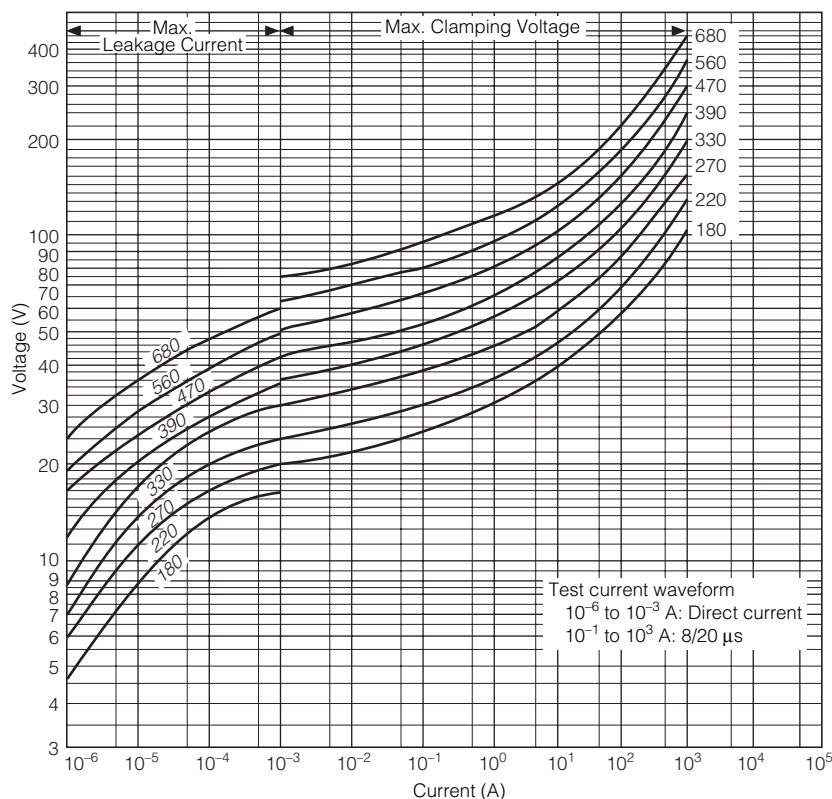
| Part No.   | D max. | T max. | W±1.0 | H max. | L±1.0 |
|------------|--------|--------|-------|--------|-------|
| ERZV09D180 | 11.5   | 3.8    | 5.0   | 14.0   | 1.3   |
| ERZV09D220 | 11.5   | 4.0    | 5.0   | 14.0   | 1.4   |
| ERZV09D270 | 11.5   | 4.2    | 5.0   | 14.0   | 1.5   |
| ERZV09D330 | 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   |



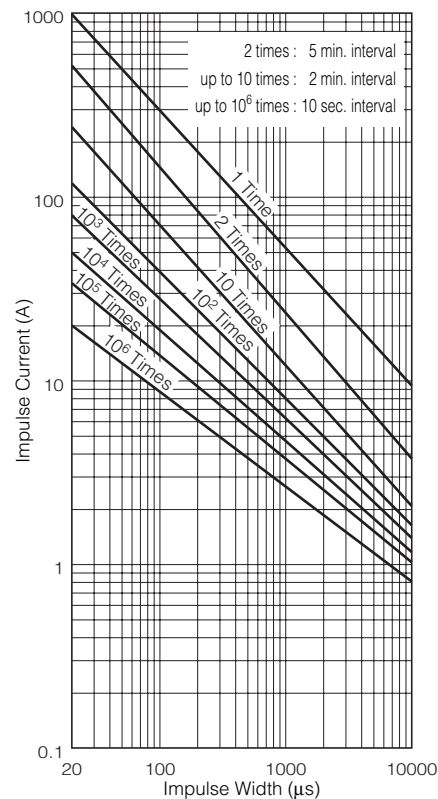
Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.  
Should a safety concern arise regarding this product, please be sure to contact us immediately.

### Typical Characteristics Voltage vs. Current

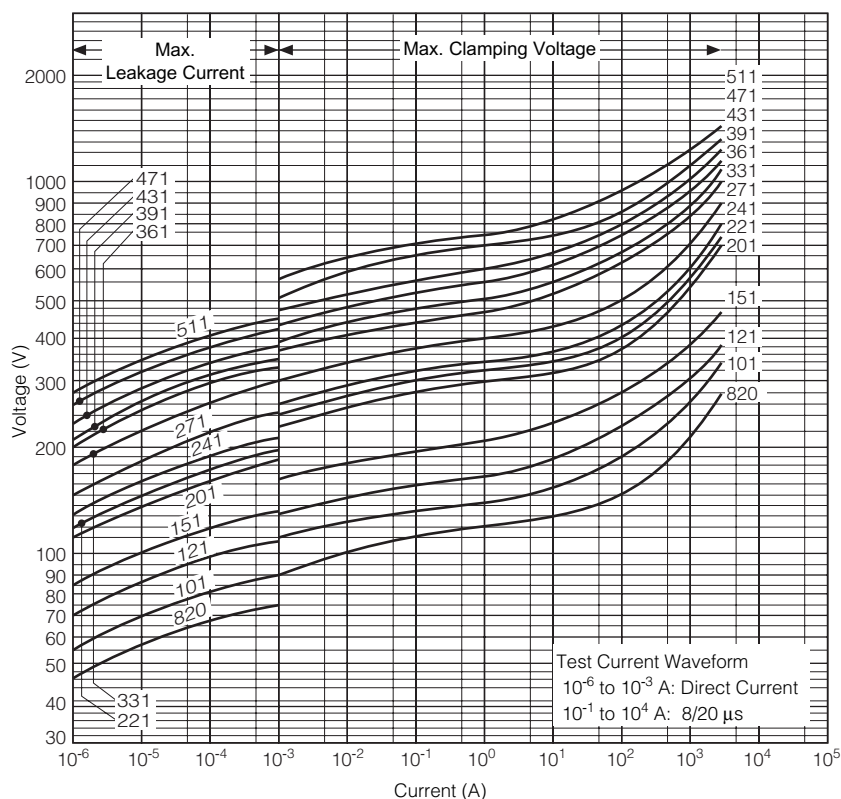
ERZV09D180 to ERZV09D680



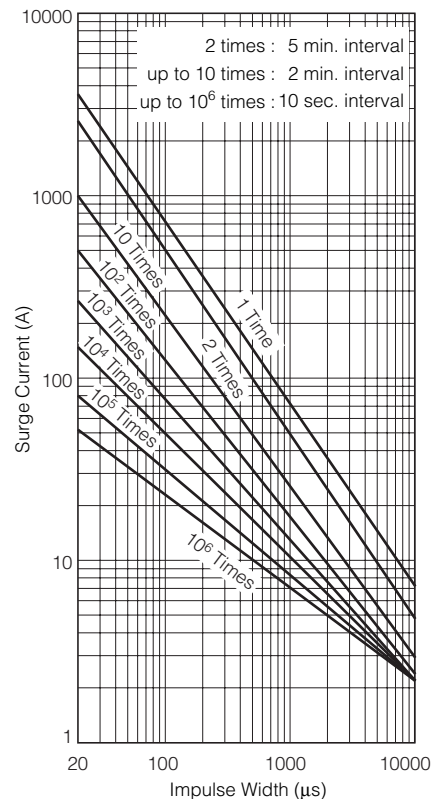
ERZV09D180 to ERZV09D680



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

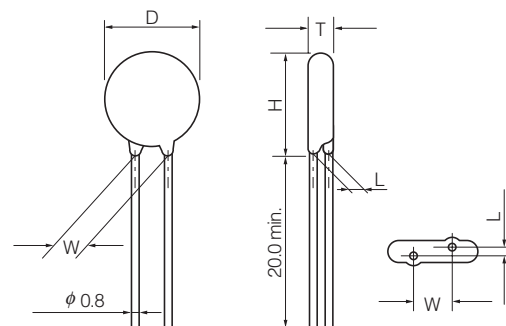
| Part No.     | Varistor Voltage      | Maximum Allowable Voltage |        | Clamping Voltage (max.)<br>**I <sub>p</sub> | Rated Power | Maximum Energy |        | Maximum Peak Current (8/20 μs) |         | Capacitance (max.)<br>@1 kHz (pF) |
|--------------|-----------------------|---------------------------|--------|---------------------------------------------|-------------|----------------|--------|--------------------------------|---------|-----------------------------------|
|              |                       |                           |        |                                             |             | (10/1000 μs)   | (2 ms) | 1 time                         | 2 times |                                   |
|              | V <sub>1</sub> mA (V) | ACrms (V)                 | DC (V) | (V)                                         | (W)         | (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                               |
| 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<sub>p</sub> Measuring current of clamping voltage 180 to 680 : 5 A, 820 to 182 : 25 A

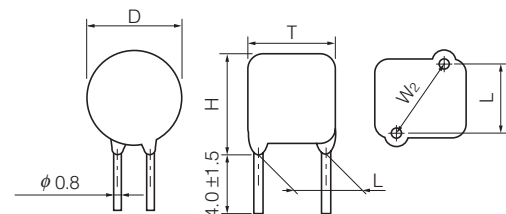
■ Dimensions in mm (not to scale) \* Refer to page 320 to 321 about leads cut type and taping.

| 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        |
| 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) |

※: W<sub>2</sub>

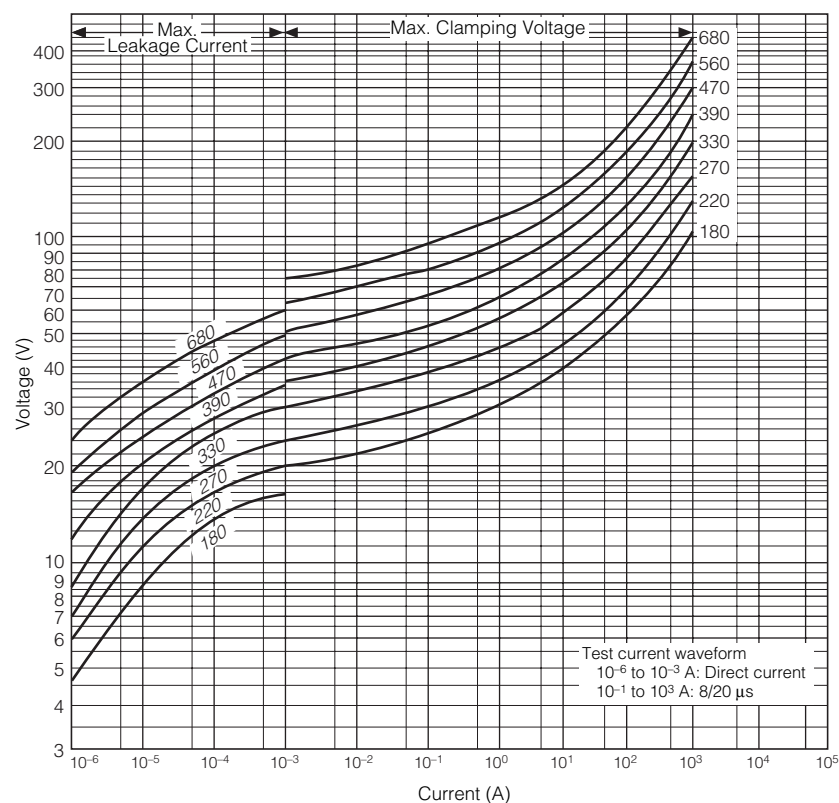


(ERZV10D182CS)



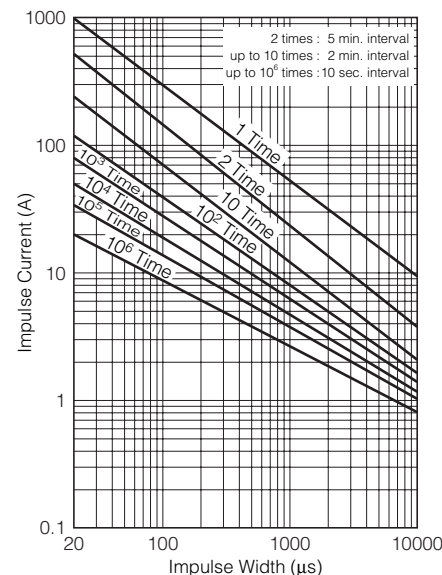
### ■ Typical Characteristics Voltage vs. Current

ERZV10D180 to ERZV10D680



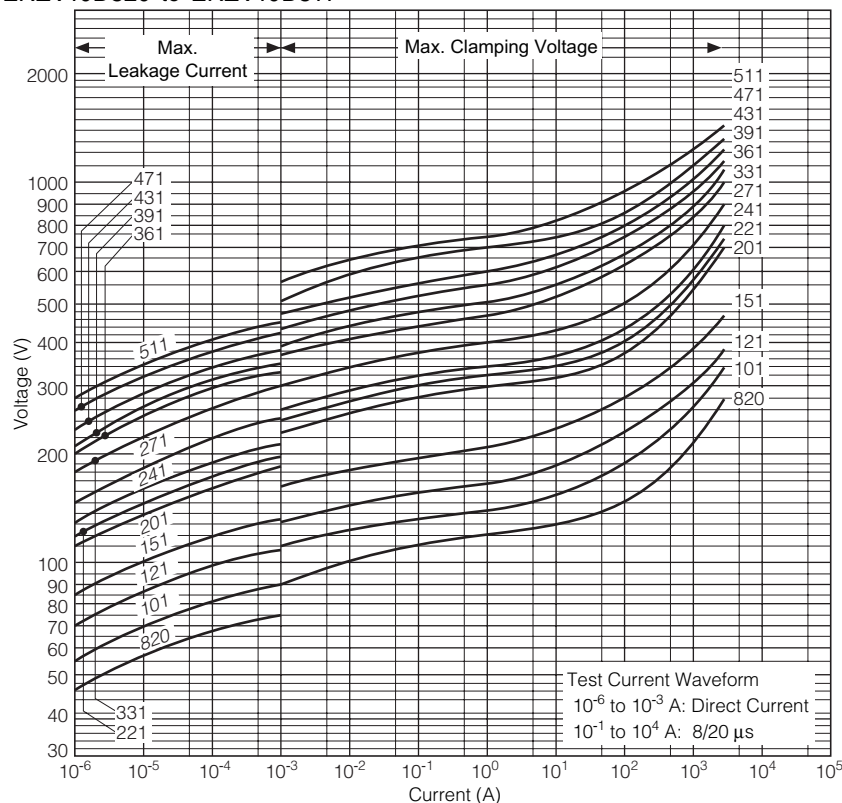
### Impulse Derating (Relation between impulse width and impulse current multiple)

ERZV10D180 to ERZV10D680



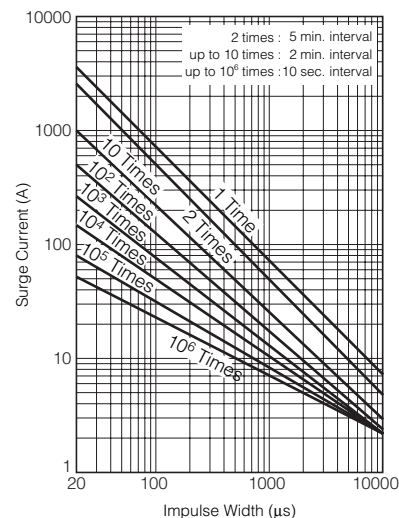
### ■ Typical Characteristics Voltage vs. Current

ERZV10D820 to ERZV10D511

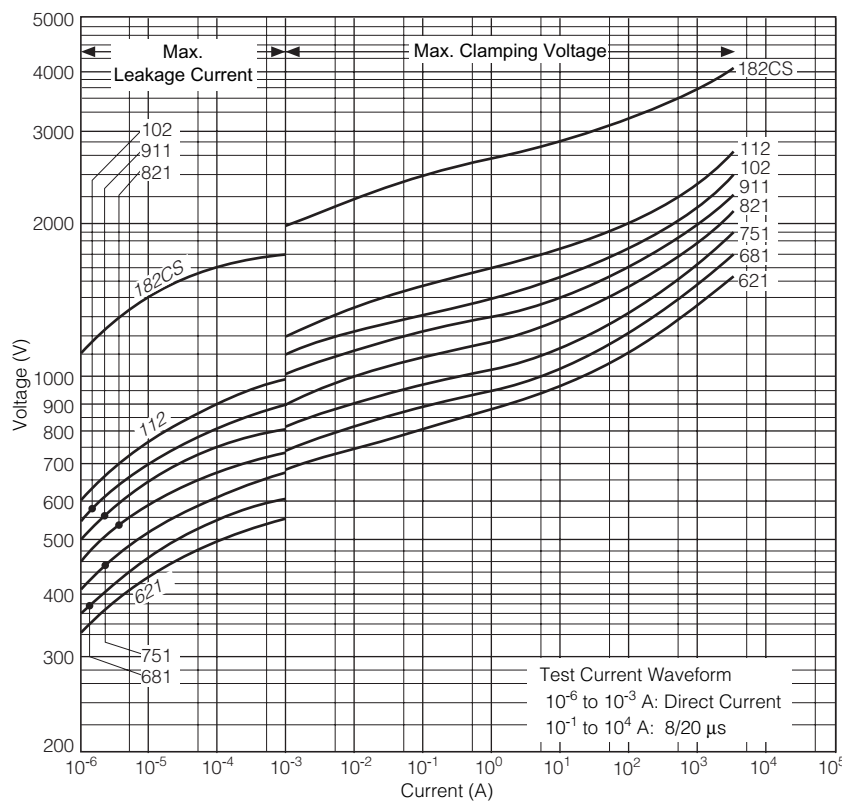


### Impulse Derating (Relation between impulse width and impulse current multiple)

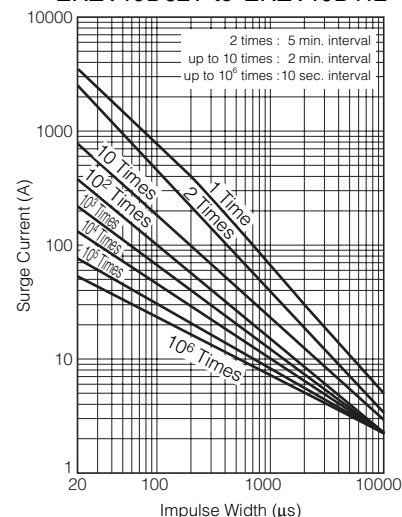
ERZV10D820 to ERZV10D511



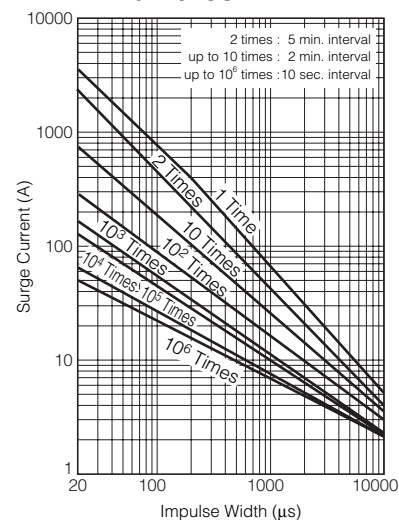
ERZV10D621 to ERZV10D182CS



ERZV10D621 to ERZV10D112



ERZV10D182CS



## 14 Series

## ■ Ratings and Characteristics

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

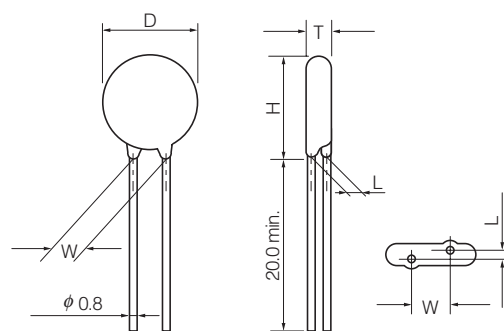
| Part No.     | Varistor Voltage      | Maximum Allowable Voltage |        | Clamping Voltage (max.)<br>*Ip | Rated Power | Maximum Energy |        | Maximum Peak Current (8/20 μs) |         | Capacitance (max.)<br>@1 kHz (pF) |
|--------------|-----------------------|---------------------------|--------|--------------------------------|-------------|----------------|--------|--------------------------------|---------|-----------------------------------|
|              |                       |                           |        |                                |             | (10/1000 μs)   | (2 ms) | 1 time                         | 2 times |                                   |
|              | V <sub>1</sub> mA (V) | ACrms (V)                 | DC (V) | (V)                            | (W)         | (J)            | (J)    | (A)                            | (A)     |                                   |
| 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                               |
| 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

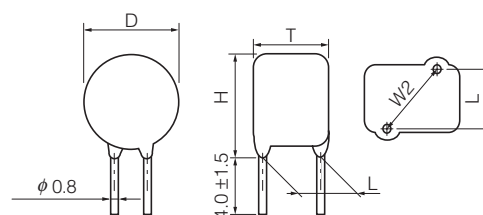
■ Dimensions in mm (not to scale) \* Refer to page 320 to 321 about leads cut type and taping.

| 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        |
| 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) |

※: W<sub>2</sub>

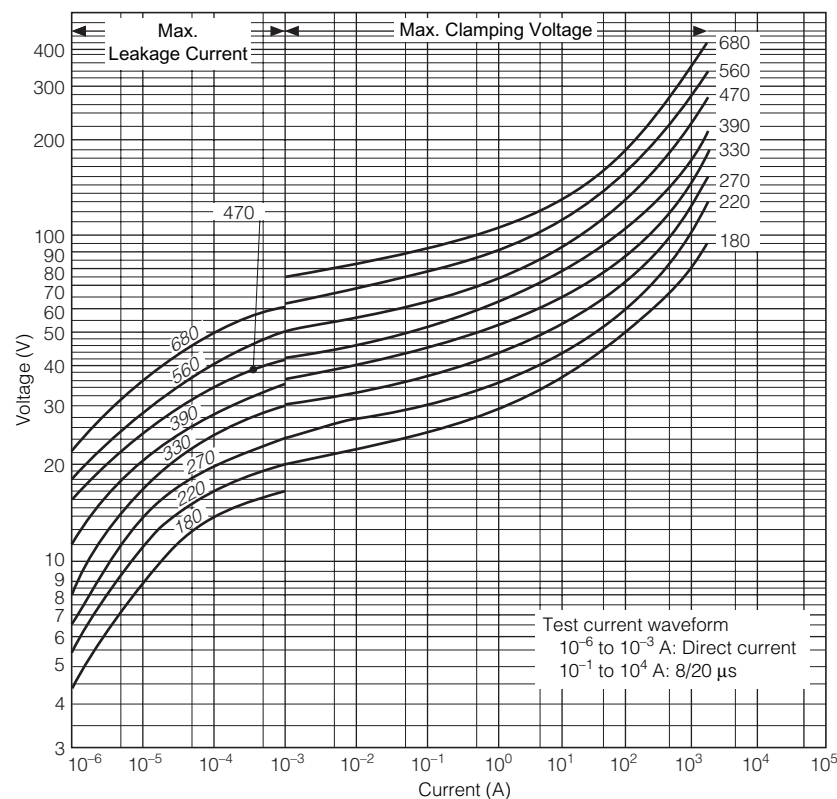


(ERZV14D182CS)



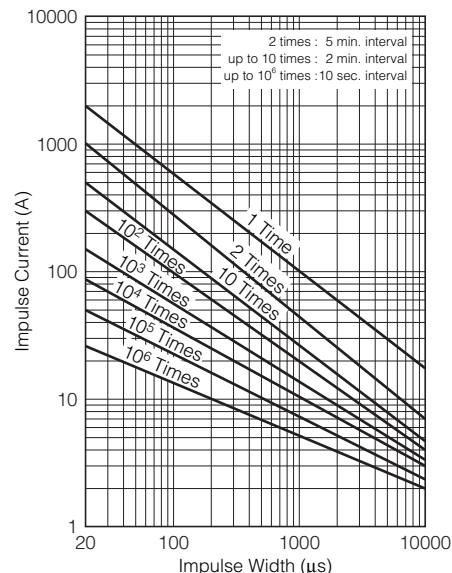
### ■ Typical Characteristics Voltage vs. Current

ERZV14D180 to ERZV14D680



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

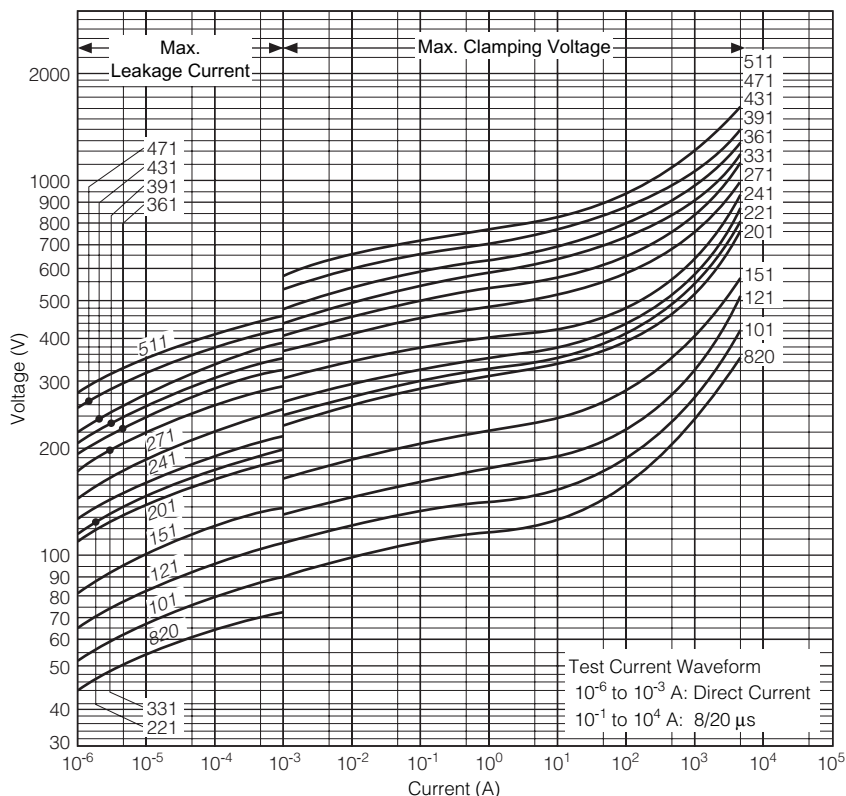
ERZV14D180 to ERZV14D680





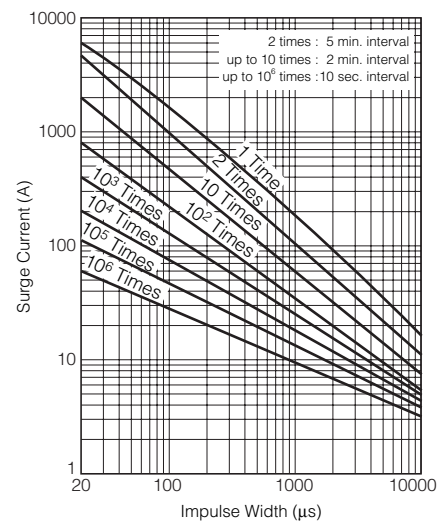
### Typical Characteristics Voltage vs. Current

ERZV14D820 to ERZV14D511

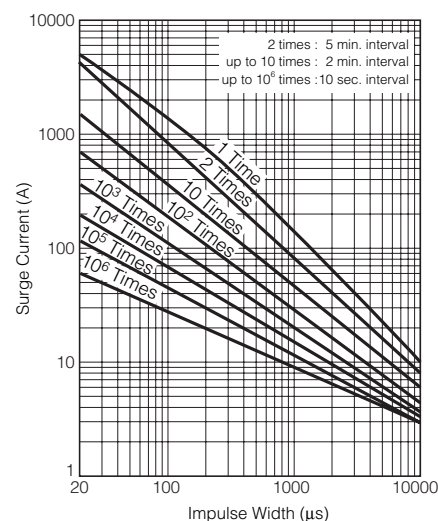


### Impulse Derating (Relation between impulse width and impulse current multiple)

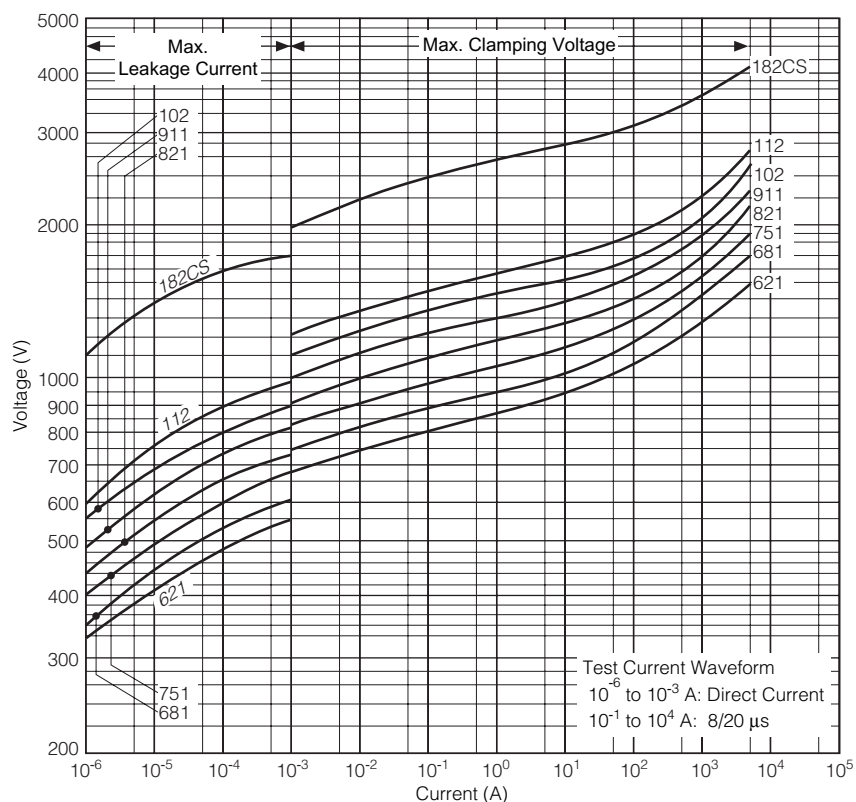
ERZV14D820 to ERZV14D511



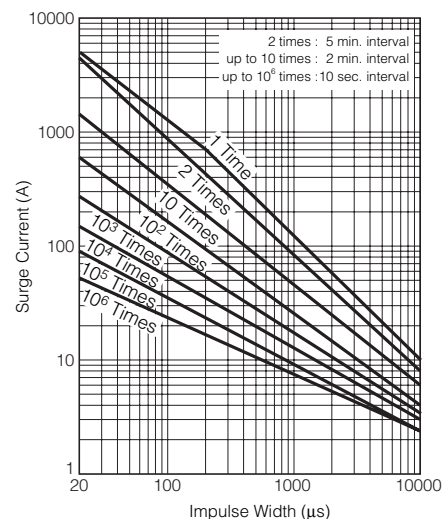
ERZV14D621 to ERZV14D112



ERZV14D621 to ERZV14D182CS



ERZV14D182CS





## 20 Series

## ■ Ratings and Characteristics

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

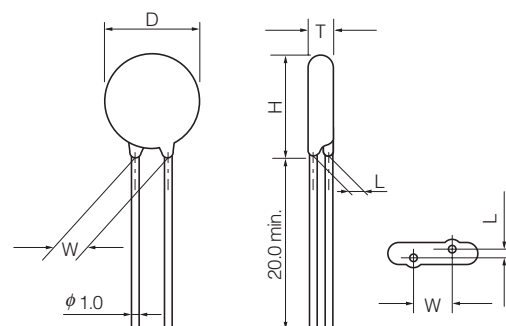
| Part No.   | Varistor Voltage      | Maximum Allowable Voltage |        | Clamping Voltage (max.)<br>*Ip | Rated Power | Maximum Energy |        | Maximum Peak Current (8/20 μs) |         | Capacitance (max.)<br>@1 kHz (pF) |
|------------|-----------------------|---------------------------|--------|--------------------------------|-------------|----------------|--------|--------------------------------|---------|-----------------------------------|
|            |                       |                           |        |                                |             | (10/1000 μs)   | (2 ms) | 1 time                         | 2 times |                                   |
|            | V <sub>1</sub> mA (V) | ACrms (V)                 | DC (V) | (V)                            | (W)         | (J)            | (J)    | (A)                            | (A)     |                                   |
| 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                               |
| ERZV20D621 | 620( to 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

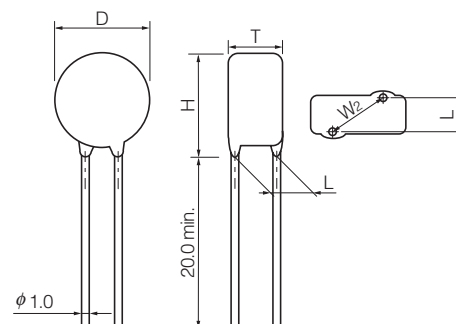
■ Dimensions in mm (not to scale) \* Refer to page 320 to 321 about leads cut type and taping.

| 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        |
| 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) |

\*: W<sub>2</sub>



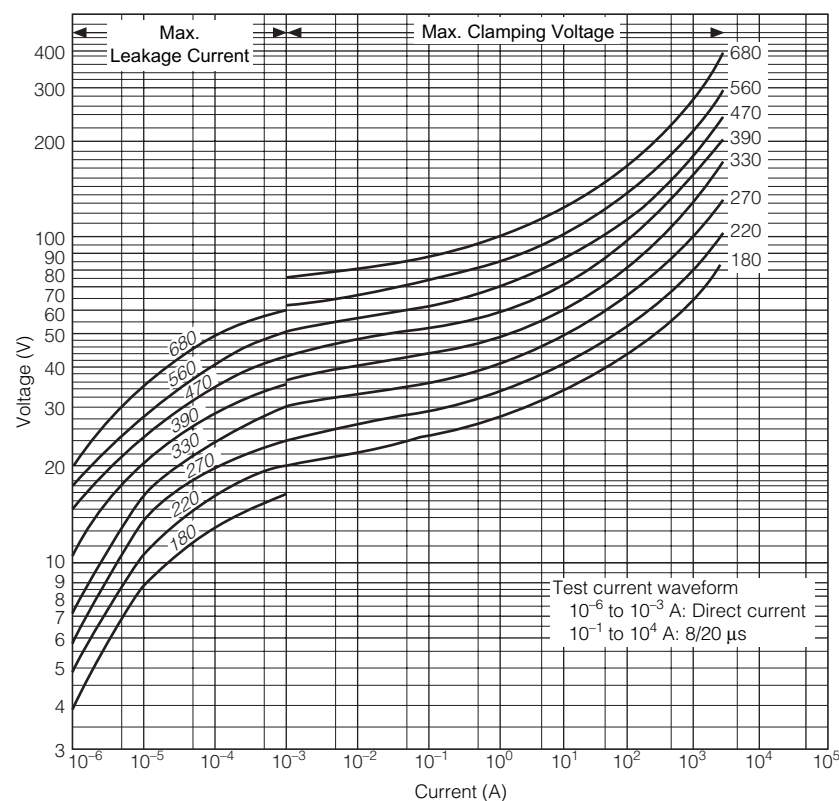
(ERZV20D182)



### ■ Typical Characteristics

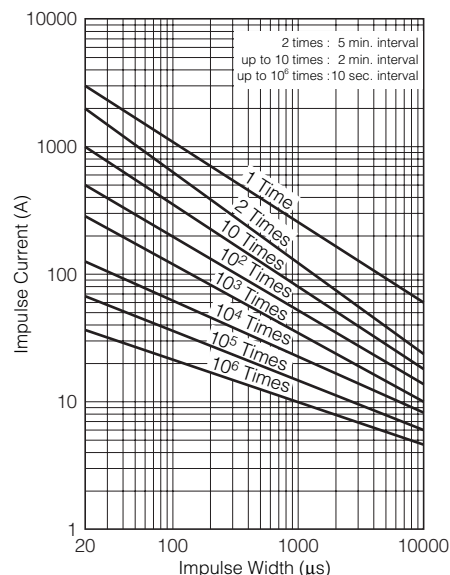
#### Voltage vs. Current

ERZV20D180 to ERZV20D680



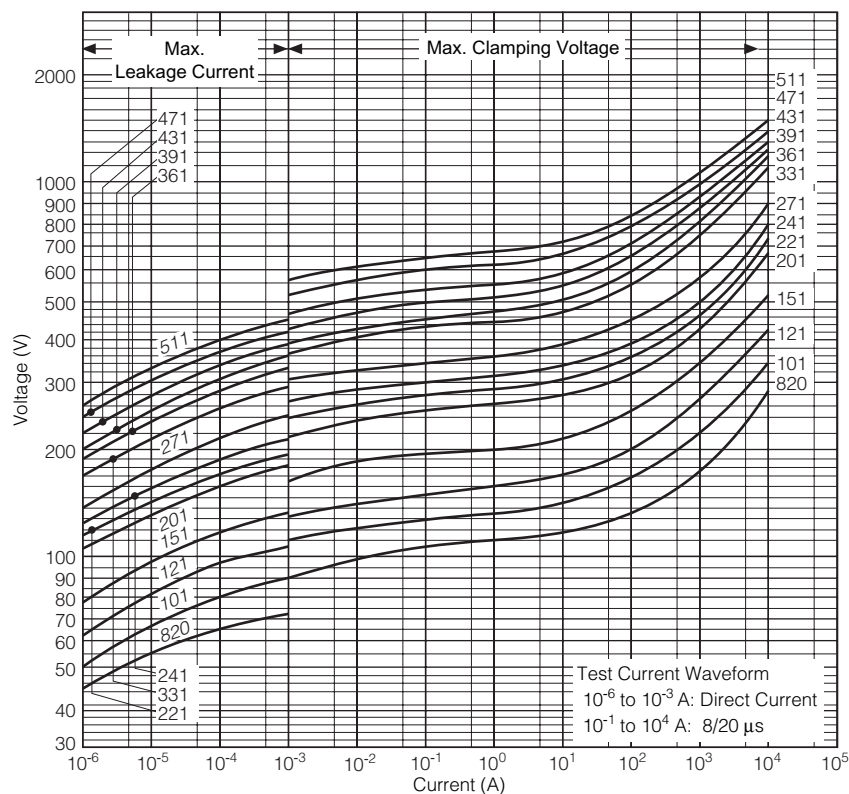
### Impulse Derating (Relation between impulse width and impulse current multiple)

ERZV20D180 to ERZV20D680

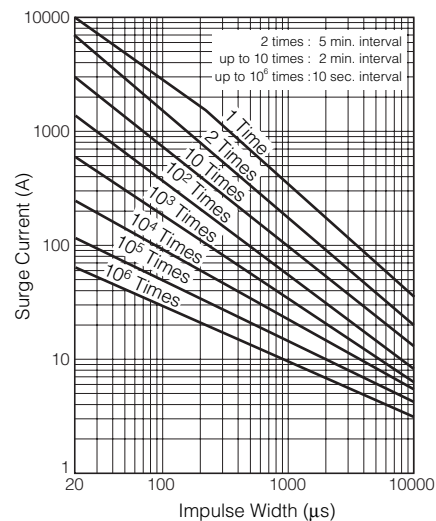


### Typical Characteristics Voltage vs. Current

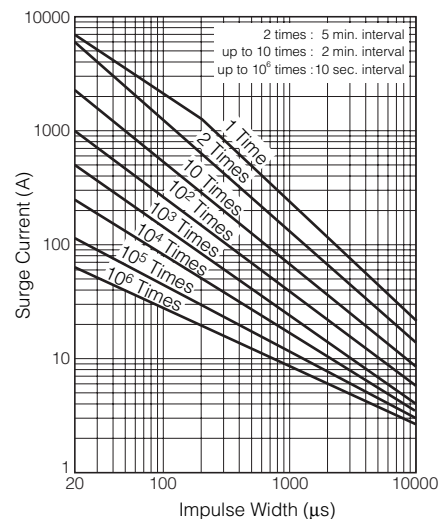
ERZV20D820 to ERZV20D511



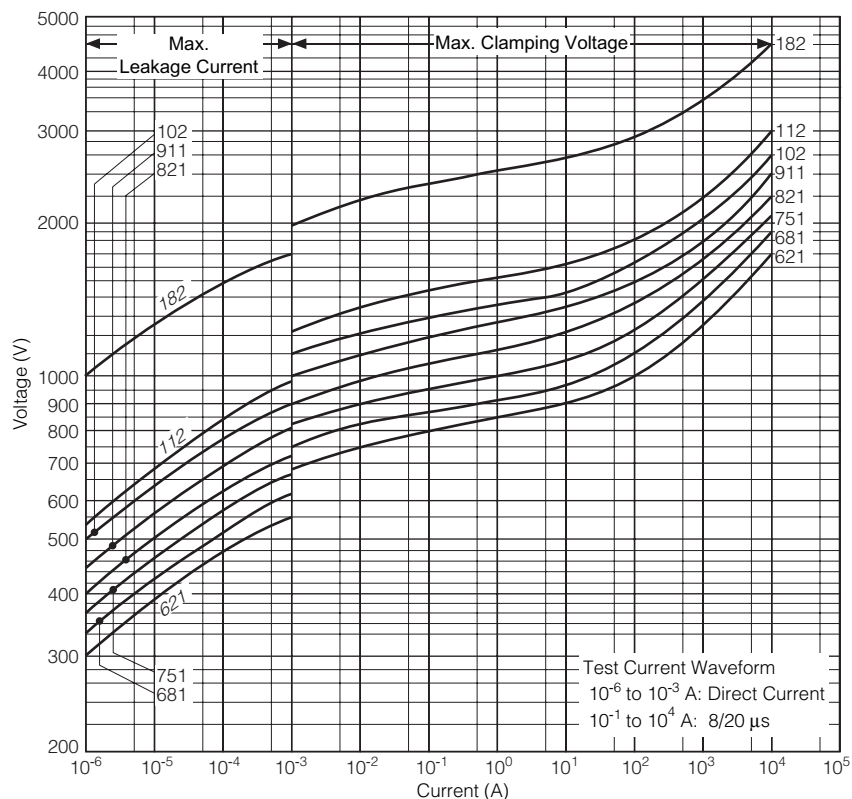
ERZV20D820 to ERZV20D511



ERZV20D621 to ERZV20D112



ERZV20D621 to ERZV20D182



ERZV20D182

