# 10 Series

■ Ratings and Characteristics

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

ERZV10D180 to ERZV10D680

| Part No. | Varistor Voltage | Maximum Allowable Voltage | | Clamping Voltage (max.) | Rated Power | Maximum Energy | | Maximum Peak Current (8/20 µs) | | Capacitance (max.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (10/1000 µs) | (2 ms) | 1 time | 2 times | |
| | $V_{1\ mA}$ (V) | ACrms (V) | DC (V) | $V_{5\ A}$ (V) | (W) | (J) | (J) | (A) | (A) | @1 kHz (pF) |
| ERZV10D180 | 18 (16–20) | 11 | 14 | 36 | 0.05 | 2.6 | 2.2 | 1000 | 500 | 16000 |
| ERZV10D220 | 22 (20–24) | 14 | 18 | 43 | 0.05 | 3.2 | 2.6 | 1000 | 500 | 11000 |
| ERZV10D270 | 27 (24–30) | 17 | 22 | 53 | 0.05 | 3.9 | 3.2 | 1000 | 500 | 8000 |
| ERZV10D330 | 33 (30–36) | 20 | 26 | 65 | 0.05 | 4.8 | 4.0 | 1000 | 500 | 6300 |
| ERZV10D390 | 39 (35–43) | 25 | 31 | 77 | 0.05 | 5.6 | 4.7 | 1000 | 500 | 5200 |
| ERZV10D470 | 47 (42–52) | 30 | 38 | 93 | 0.05 | 6.8 | 5.6 | 1000 | 500 | 4600 |
| ERZV10D560 | 56 (50–62) | 35 | 45 | 110 | 0.05 | 8.1 | 6.7 | 1000 | 500 | 3750 |
| ERZV10D680 | 68 (61–75) | 40 | 56 | 135 | 0.05 | 9.8 | 8.2 | 1000 | 500 | 2800 |

ERZV10D820 to ERZV10D182CS

| Part No. | Varistor Voltage | Maximum Allowable Voltage | | Clamping Voltage (max.) | Rated Power | Maximum Energy | | Maximum Peak Current (8/20 µs) | | Capacitance (max.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (10/1000 µs) | (2 ms) | 1 time | 2 times | |
| | $V_{1\ mA}$ (V) | ACrms (V) | DC (V) | $V_{25\ A}$ (V) | (W) | (J) | (J) | (A) | (A) | @1 kHz (pF) |
| ERZV10D820 | 82( 74– 90) | 50 | 65 | 135 | 0.4 | 14 | 10 | 3500 | 2500 | 2000 |
| ERZV10D101 | 100( 90– 110) | 60 | 85 | 165 | 0.4 | 17 | 12 | 3500 | 2500 | 1700 |
| ERZV10D121 | 120( 108– 132) | 75 | 100 | 200 | 0.4 | 20 | 14.5 | 3500 | 2500 | 1400 |
| ERZV10D151 | 150( 135– 165) | 95 | 125 | 250 | 0.4 | 25 | 18 | 3500 | 2500 | 1100 |
| ERZV10D201 | 200( 185– 225) | 130 | 170 | 340 | 0.4 | 35 | 25 | 3500 | 2500 | 430 |
| ERZV10D221 | 220( 198– 242) | 140 | 180 | 360 | 0.4 | 39 | 27.5 | 3500 | 2500 | 410 |
| ERZV10D241 | 240( 216– 264) | 150 | 200 | 395 | 0.4 | 42 | 30 | 3500 | 2500 | 380 |
| ERZV10D271 | 270( 247– 303) | 175 | 225 | 455 | 0.4 | 49 | 35 | 3500 | 2500 | 350 |
| ERZV10D331 | 330( 297– 363) | 210 | 270 | 545 | 0.4 | 58 | 42 | 3500 | 2500 | 300 |
| ERZV10D361 | 360( 324– 396) | 230 | 300 | 595 | 0.4 | 65 | 45 | 3500 | 2500 | 300 |
| ERZV10D391 | 390( 351– 429) | 250 | 320 | 650 | 0.4 | 70 | 50 | 3500 | 2500 | 300 |
| ERZV10D431 | 430( 387– 473) | 275 | 350 | 710 | 0.4 | 80 | 55 | 3500 | 2500 | 270 |
| ERZV10D471 | 470( 423– 517) | 300 | 385 | 775 | 0.4 | 85 | 60 | 3500 | 2500 | 230 |
| ERZV10D511 | 510( 459– 561) | 320 | 410 | 845 | 0.4 | 92 | 67 | 3500 | 2500 | 210 |
| ERZV10D621 | 620( 558– 682) | 385 | 505 | 1025 | 0.4 | 92 | 67 | 3500 | 2500 | 190 |
| ERZV10D681 | 680( 612– 748) | 420 | 560 | 1120 | 0.4 | 92 | 67 | 3500 | 2500 | 170 |
| ERZV10D751 | 750( 675– 825) | 460 | 615 | 1240 | 0.4 | 100 | 70 | 3500 | 2500 | 160 |
| ERZV10D821 | 820( 738– 902) | 510 | 670 | 1355 | 0.4 | 110 | 80 | 3500 | 2500 | 140 |
| ERZV10D911 | 910( 819–1001) | 550 | 745 | 1500 | 0.4 | 130 | 90 | 3500 | 2500 | 120 |
| ERZV10D102 | 1000( 900–1100) | 625 | 825 | 1650 | 0.4 | 140 | 100 | 3500 | 2500 | 110 |
| ERZV10D112 | 1100( 990–1210) | 680 | 895 | 1815 | 0.4 | 155 | 110 | 3500 | 2500 | 110 |
| ERZV10D182CS | 1800(1700–1980) | 1000 | 1465 | 2970 | 0.4 | 247 | 183 | 3500 | 2500 | 70* |

* Measured at 1 MHz

## ■ Dimensions in mm (not to scale)

✻ Refer to page 100 to 101 about leads cut type and taping.

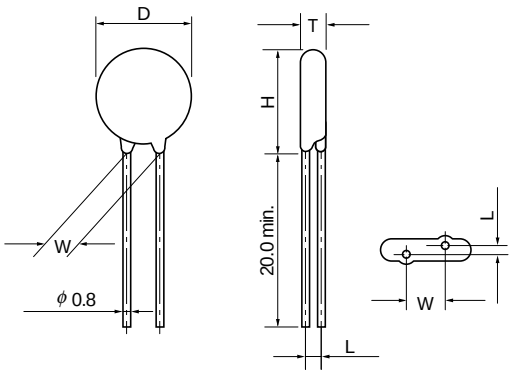
ERZV10D180 to ERZV10D680

| Part No. | D max. | T max. | W | H max. | L |
|---|---|---|---|---|---|
| ERZV10D180 | 11.5 | 4.6 | 7.5±1.0 | 14.5 | 1.3±1.0 |
| ERZV10D220 | 11.5 | 4.7 | 7.5±1.0 | 14.5 | 1.4±1.0 |
| ERZV10D270 | 11.5 | 4.8 | 7.5±1.0 | 14.5 | 1.5±1.0 |
| ERZV10D330 | 11.5 | 5.0 | 7.5±1.0 | 14.5 | 1.7±1.0 |
| ERZV10D390 | 11.5 | 4.9 | 7.5±1.0 | 14.5 | 1.6±1.0 |
| ERZV10D470 | 11.5 | 5.0 | 7.5±1.0 | 14.5 | 1.7±1.0 |
| ERZV10D560 | 11.5 | 5.1 | 7.5±1.0 | 14.5 | 1.8±1.0 |
| ERZV10D680 | 11.5 | 5.3 | 7.5±1.0 | 14.5 | 2.0±1.0 |

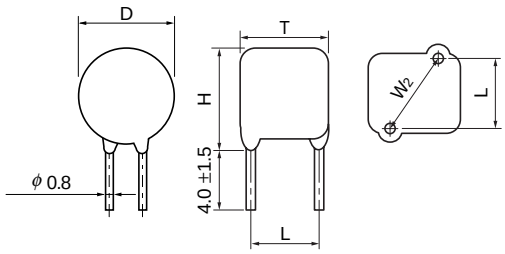
ERZV10D820 to ERZV10D182CS

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

✻: $W_2$



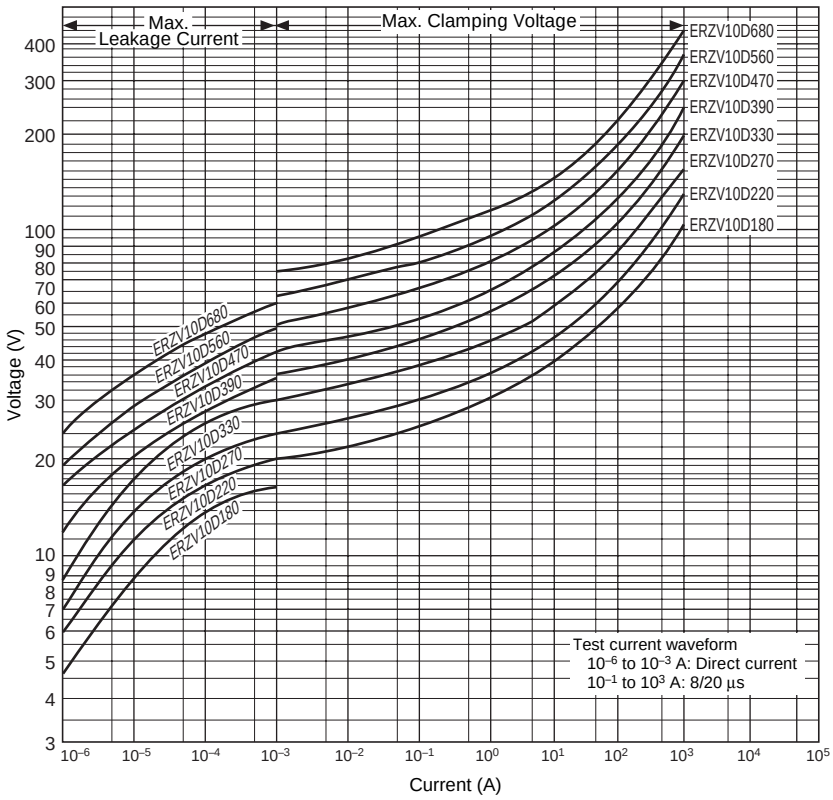

(ERZV10D182CS)




## ■ Typical Characteristics

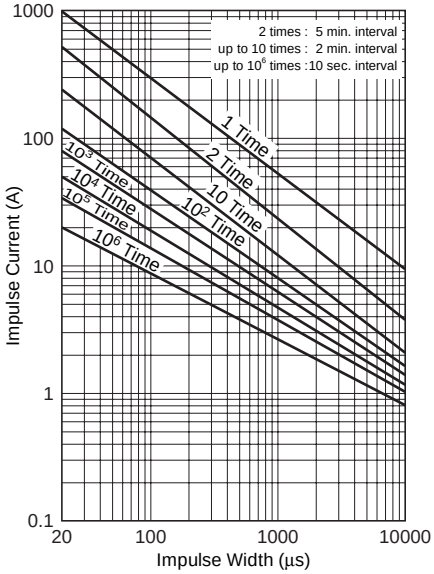
### Voltage vs. Current

ERZV10D180 to ERZV10D680




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

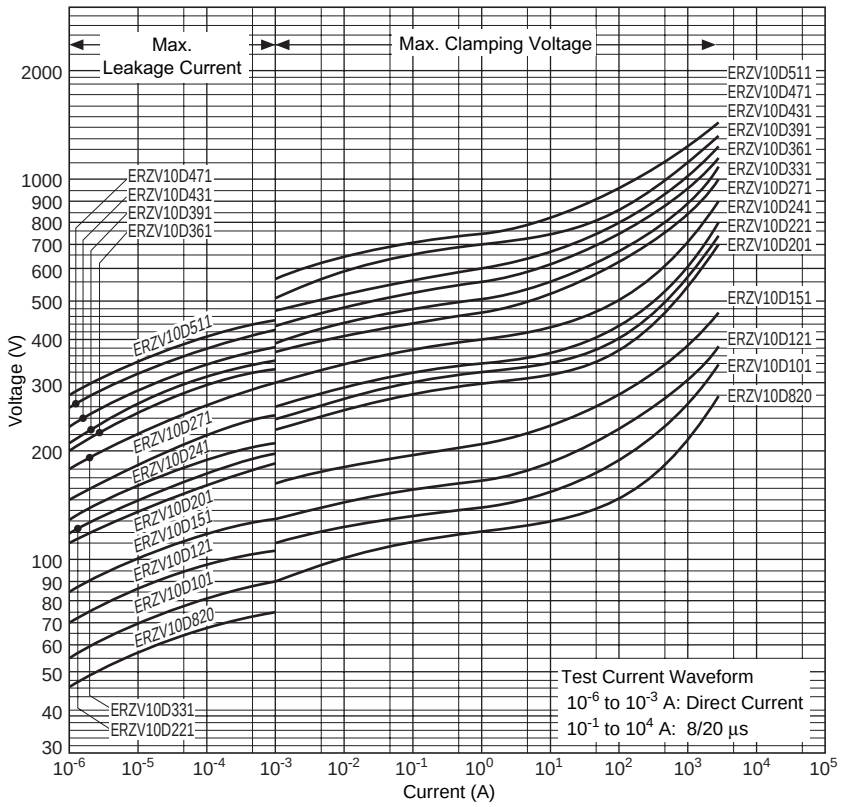
ERZV10D180 to ERZV10D680



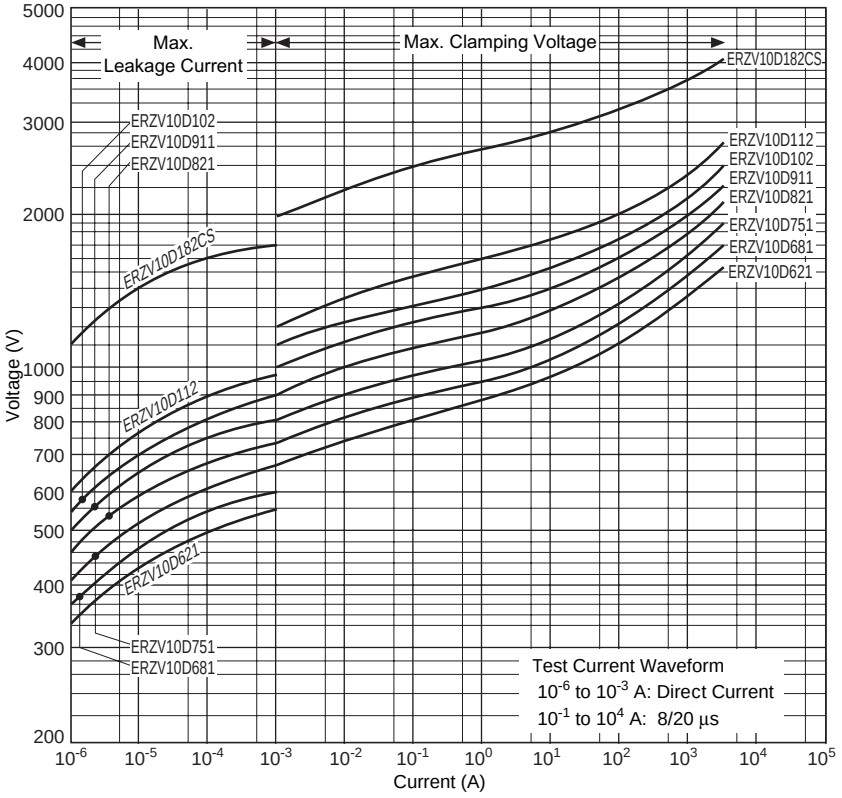
## ■ Typical Characteristics

**Voltage vs. Current**

ERZV10D820 to ERZV10D511

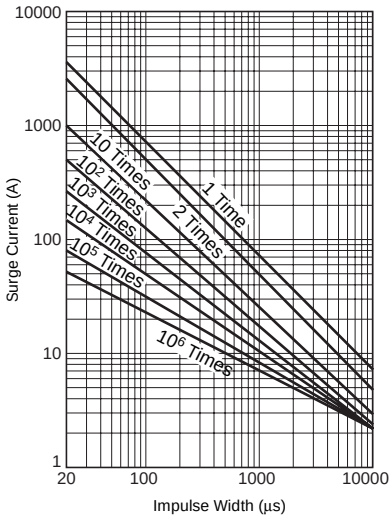



ERZV10D621 to ERZV10D182CS

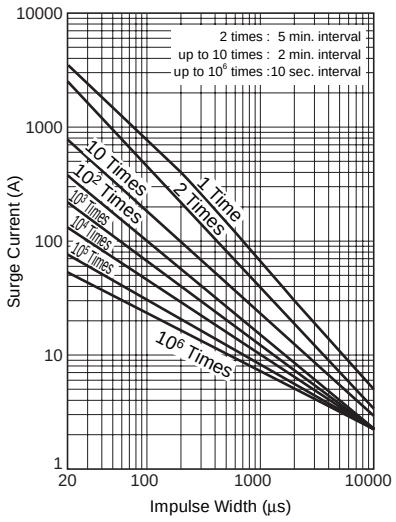



**Impulse Derating** (Relation between impulse width and impulse current multiple)

ERZV10D820 to ERZV10D511




ERZV10D621 to ERZV10D112




ERZV10D182CS