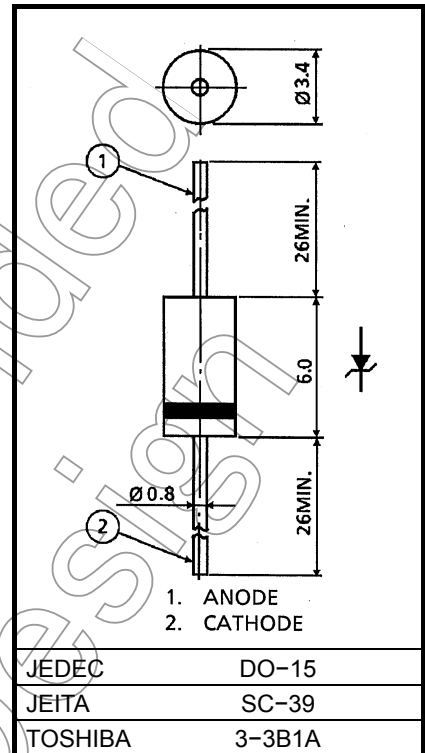


1Z6.2~1Z390, 1Z6.8A~1Z30A

Unit: mm

CONSTANT VOLTAGE REGULATION
TRANSIENT SUPPRESSORS

- Average Power Dissipation : $P = 1 \text{ W}$
- Peak Reverse Power Dissipation : $PRSM = 200 \text{ W}$ at $t_w = 200 \mu\text{s}$
- Zener Voltage : $V_Z = 6.2 \text{ V}$ to 390 V
- Tolerance of Zener Voltage
 1Z6.2 Series : $\pm 10\%$
 1Z6.8A Series : $\pm 5\%$
- Plastic Mold Package



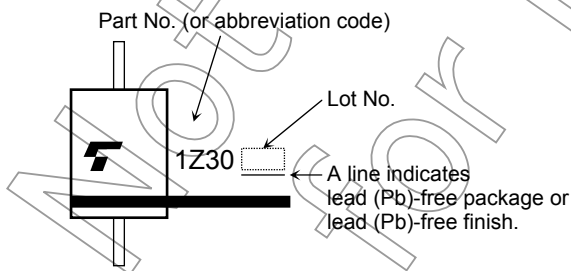
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---------------------------|------------------|------------|------|
| Power Dissipation | P | 1 | W |
| Junction Temperature | T _j | -40 to 150 | °C |
| Storage Temperature Range | T _{stg} | -40 to 150 | °C |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
 Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Weight: 0.42g

MARKING



| Abbreviation Code | Part No. |
|-------------------|----------|
| 1Z30 | 1Z30 |

ELECTRICAL CHARACTERISTICS (Ta=25°C)

| TYPE | ZENER CHARACTERISTICS | | | | | TEMPERATURE COEFFICIENT OF ZENER VOLTAGE α_T (mV / °C) | | FORWARD VOLTAGE | | REVERSE CURRENT | |
|--------|-------------------------|------|------|------------------------------------|--------------------------------|---|------|-----------------|-------------------------------|------------------|-------------------------------|
| | ZENER VOLTAGE V_Z (V) | | | ZENER IMPEDANCE r_d (Ω) | MEASUREMENT CURRENT I_Z (mA) | | | V_F (V) | MEASUREMENT CURRENT I_F (A) | I_R (μ A) | MEASUREMENT VOLTAGE V_R (V) |
| | MIN. | TYP. | MAX. | | | MAX. | TYP. | | | | |
| 1Z6.2 | 5.6 | 6.2 | 6.8 | 60 | 10 | 1.5 | 2 | 1.2 | 0.2 | 10 | 3 |
| 1Z6.8 | 6.2 | 6.8 | 7.4 | 60 | 10 | 3 | 4 | 1.2 | 0.2 | 10 | 2 |
| 1Z6.8A | 6.45 | 6.8 | 7.14 | | | | | | | | |
| 1Z7.5 | 6.8 | 7.5 | 8.3 | 30 | 10 | 4 | 5 | 1.2 | 0.2 | 10 | 4.5 |
| 1Z7.5A | 7.13 | 7.5 | 7.87 | | | | | | | | |
| 1Z8.2 | 7.4 | 8.2 | 9.1 | 30 | 10 | 4 | 6 | 1.2 | 0.2 | 10 | 4.9 |
| 1Z8.2A | 7.79 | 8.2 | 86.1 | | | | | | | | |
| 1Z9.1 | 8.2 | 9.1 | 10.1 | 30 | 10 | 5 | 8 | 1.2 | 0.2 | 10 | 5.5 |
| 1Z9.1A | 8.65 | 9.1 | 9.55 | | | | | | | | |
| 1Z10 | 9.0 | 10 | 11.0 | 30 | 10 | 6 | 9 | 1.2 | 0.2 | 10 | 6 |
| 1Z10A | 9.5 | 10 | 10.5 | | | | | | | | |
| 1Z11 | 9.9 | 11 | 12.1 | 30 | 10 | 7 | 11 | 1.2 | 0.2 | 10 | 7 |
| 1Z11A | 10.5 | 11 | 11.5 | | | | | | | | |
| 1Z12 | 10.8 | 12 | 13.2 | 30 | 10 | 8 | 13 | 1.2 | 0.2 | 10 | 8 |
| 1Z12A | 11.4 | 12 | 12.6 | | | | | | | | |
| 1Z13 | 11.7 | 13 | 14.3 | 30 | 10 | 9 | 14 | 1.2 | 0.2 | 10 | 9 |
| 1Z13A | 12.4 | 13 | 13.6 | | | | | | | | |
| 1Z15 | 13.5 | 15 | 16.5 | 30 | 10 | 11 | 17 | 1.2 | 0.2 | 10 | 10 |
| 1Z15A | 14.3 | 15 | 15.8 | | | | | | | | |
| 1Z16 | 14.4 | 16 | 17.6 | 30 | 10 | 12 | 19 | 1.2 | 0.2 | 10 | 11 |
| 1Z16A | 15.2 | 16 | 16.8 | | | | | | | | |
| 1Z18 | 16.2 | 18 | 19.8 | 30 | 10 | 14 | 23 | 1.2 | 0.2 | 10 | 13 |
| 1Z18A | 17.1 | 18 | 18.9 | | | | | | | | |
| 1Z20 | 18.0 | 20 | 22.0 | 30 | 10 | 16 | 26 | 1.2 | 0.2 | 10 | 14 |
| 1Z20A | 19.0 | 20 | 21 | | | | | | | | |
| 1Z22 | 19.8 | 22 | 24.2 | 30 | 10 | 18 | 28 | 1.2 | 0.2 | 10 | 16 |
| 1Z22A | 20.9 | 22 | 23.1 | | | | | | | | |
| 1Z24 | 21.6 | 24 | 26.4 | 30 | 10 | 20 | 32 | 1.2 | 0.2 | 10 | 17 |
| 1Z24A | 22.8 | 24 | 25.2 | | | | | | | | |
| 1Z27 | 24.3 | 27 | 29.7 | 30 | 10 | 23 | 36 | 1.2 | 0.2 | 10 | 19 |
| 1Z27A | 25.7 | 27 | 28.3 | | | | | | | | |
| 1Z30 | 27.0 | 30 | 33.0 | 30 | 10 | 25 | 40 | 1.2 | 0.2 | 10 | 21 |
| 1Z30A | 28.5 | 30 | 31.5 | | | | | | | | |
| 1Z33 | 29.7 | 33 | 36.3 | 30 | 10 | 26 | 41 | 1.2 | 0.2 | 10 | 26.4 |
| 1Z36 | 32.4 | 36 | 39.6 | 30 | 9 | 28 | 45 | 1.2 | 0.2 | 10 | 28.8 |
| 1Z43 | 38.7 | 43 | 47.3 | 40 | 7 | 33 | 53 | 1.2 | 0.2 | 10 | 34.4 |
| 1Z47 | 42.3 | 47 | 51.7 | 65 | 6 | 38 | 60 | 1.2 | 0.2 | 10 | 37.6 |

| TYPE | ZENER CHARACTERISTICS | | | | | TEMPERATURE COEFFICIENT OF ZENER VOLTAGE α_T (mV / °C) | | FORWARD VOLTAGE | | REVERSE CURRENT | |
|-------|-------------------------|------|------|------------------------------------|--------------------------------|---|------|-----------------|-------------------------------|------------------|-------------------------------|
| | ZENER VOLTAGE V_Z (V) | | | ZENER IMPEDANCE r_d (Ω) | MEASUREMENT CURRENT I_Z (mA) | | | V_F (V) | MEASUREMENT CURRENT I_F (A) | I_R (μ A) | MEASUREMENT VOLTAGE V_R (V) |
| | MIN. | TYP. | MAX. | | | MAX. | TYP. | | | | |
| 1Z51 | 45.9 | 51 | 56.1 | 65 | 6 | 43 | 68 | 1.2 | 0.2 | 10 | 40.8 |
| 1Z68 | 61.2 | 68 | 74.8 | 120 | 4 | 57 | 90 | 1.2 | 0.2 | 10 | 54.4 |
| 1Z75 | 67.5 | 75 | 82.5 | 150 | 4 | 66 | 104 | 1.2 | 0.2 | 10 | 60 |
| 1Z82 | 73.8 | 82 | 90.2 | 170 | 3 | 71 | 113 | 1.2 | 0.2 | 10 | 65.4 |
| 1Z100 | 90 | 100 | 110 | 300 | 3 | 87 | 138 | 1.2 | 0.2 | 10 | 80 |
| 1Z110 | 99 | 110 | 121 | 300 | 3 | 96 | 152 | 1.2 | 0.2 | 10 | 88 |
| 1Z150 | 135 | 150 | 165 | 450 | 2 | 136 | 212 | 1.2 | 0.2 | 10 | 120 |
| 1Z180 | 162 | 180 | 198 | 500 | 1.5 | 161 | 255 | 1.2 | 0.2 | 10 | 144 |
| 1Z330 | 297 | 330 | 363 | 5000 | 1 | 297 | 472 | 1.2 | 0.2 | 10 | 264 |
| 1Z390 | 351 | 390 | 429 | 10000 | 0.5 | 350 | 555 | 1.2 | 0.2 | 10 | 312 |

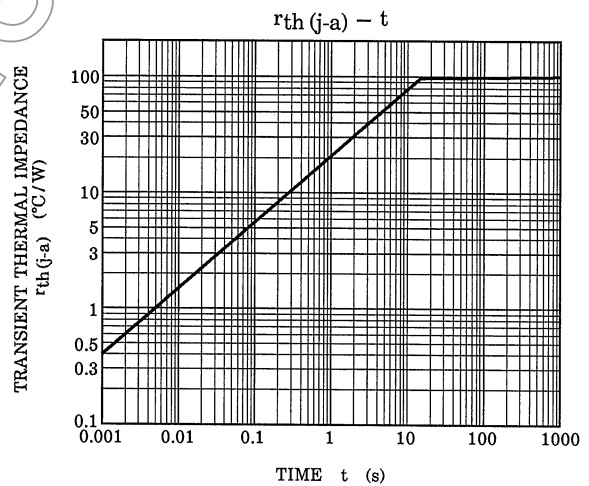
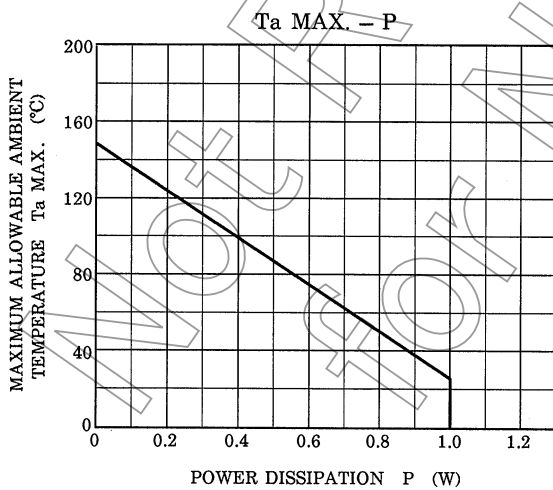
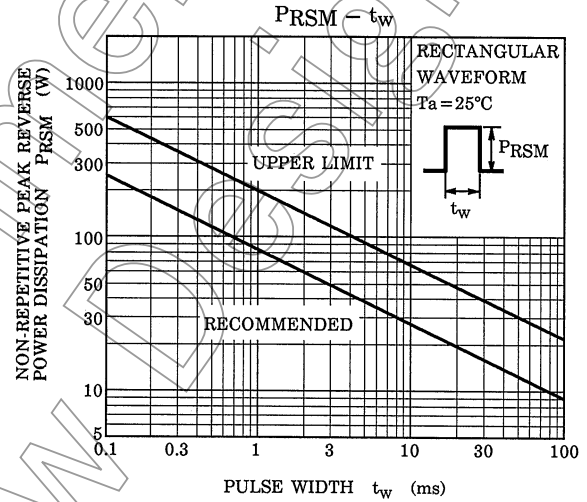
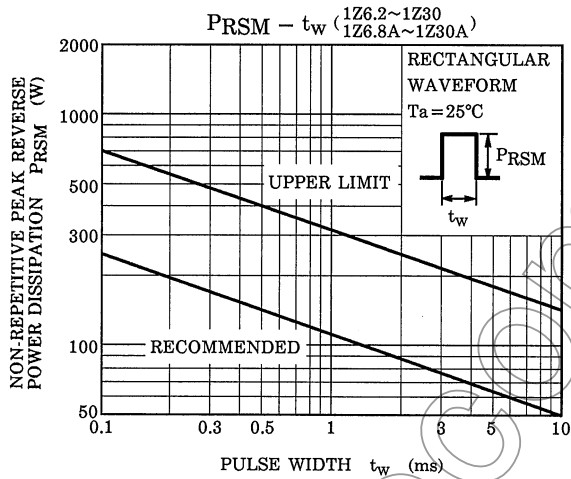
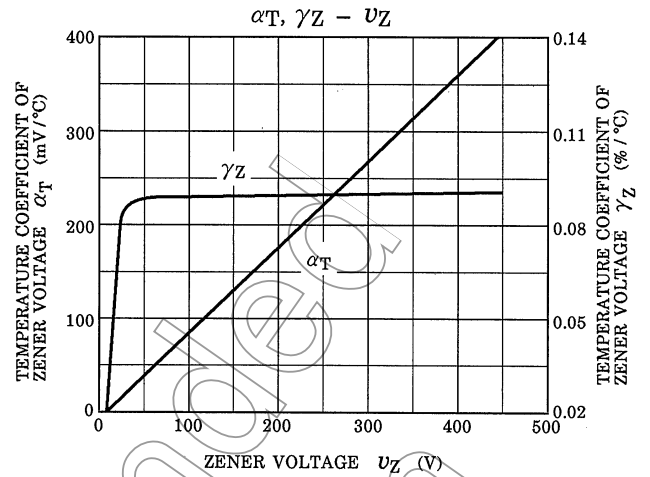
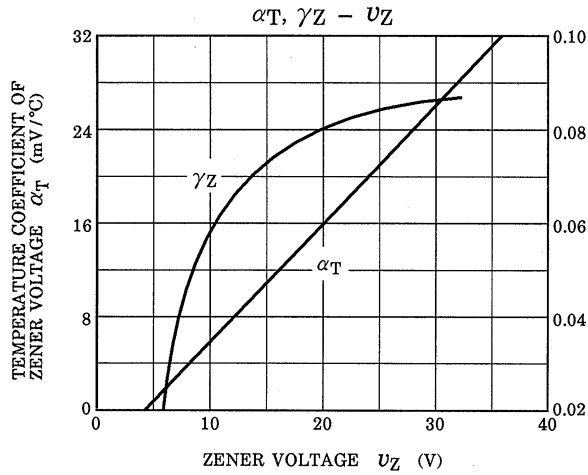
Handling Precaution

The absolute maximum ratings denote the absolute maximum ratings, which are rated values and must not be exceeded during operation, even for an instant. The following are the general derating methods that we recommend when you design a circuit with a device.

- P: We recommend that the worst case power dissipation be no greater than 50% of the absolute maximum rating of power dissipation. Carry out adequate heat design.
- PRSM: We recommend that a device be used within the recommended area in the figure, PRSM-tw.
- T_j: Derate this rating when using a device in order to ensure high reliability. We recommend that the device be used at a T_j of below 120°C.

Organic silicon is used as encapsulation material for this product, which is resin seal product. Therefore, it is difficult to seal siloxane coming from silicone completely in this product. When using this product, please consider above.

Please refer to the Rectifiers databook for further information.



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