

# Zener diode

## PTZ20B

### ●Applications

Voltage regulation

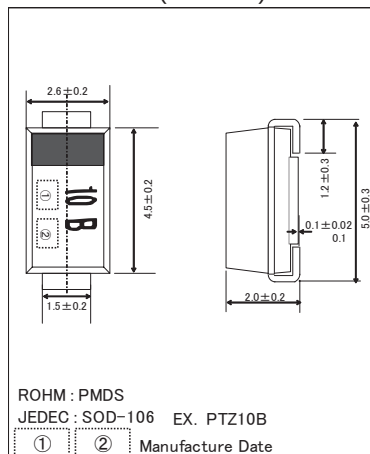
### ●Features

- 1) Small power mold type. (PMDS)
- 2) High ESD tolerance

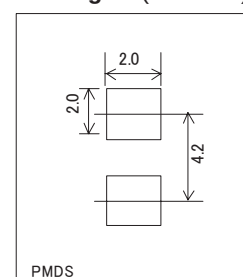
### ●Construction

Silicon epitaxial planar

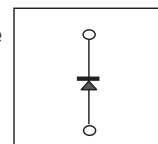
### ●Dimensions (Unit : mm)



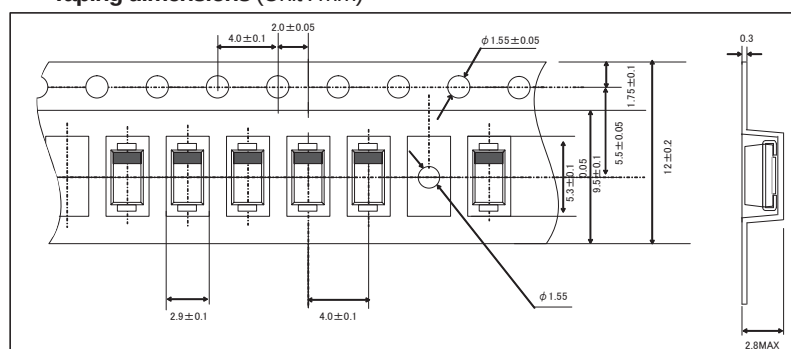
### ●Land size figure (Unit : mm)



### ●Structure



### ●Taping dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

| Parameter            | Symbol | Limits      | Unit |
|----------------------|--------|-------------|------|
| Power dissipation    | P      | 1000        | mW   |
| Junction temperature | Tj     | 150         | °C   |
| Storage temperature  | Tstg   | -55 to +150 | °C   |

## Diodes

## ●Electrical characteristics (Ta=25°C)

| TYP.     | Symbol                |        |        |        |                                |        |                            |       |                                        |        |      | ESD breakdown voltage:<br>ESD(kV)                           |  |
|----------|-----------------------|--------|--------|--------|--------------------------------|--------|----------------------------|-------|----------------------------------------|--------|------|-------------------------------------------------------------|--|
|          | Zener voltage : Vz(V) |        |        |        | Operating resistance:<br>Zz(Ω) |        | Reverse current:<br>IR(μA) |       | Temperature coefficient:<br>*Vz(mV/°C) |        |      |                                                             |  |
|          | MIN.                  | TYP.   | MAX.   | Iz(mA) | Max.                           | Iz(mA) | MAX.                       | VR(V) | TYP.                                   | Iz(mA) | MIN. | Test Condition                                              |  |
| PTZ 3.6B | 3.600                 | 3.813  | 4.000  | 40     | 15                             | 40     | 60                         | 1.0   | -2.8                                   | 40     | 30kV | C=150pF<br>R=330Ω<br>forward<br>and<br>reverse:<br>10 times |  |
| PTZ 3.9B | 3.900                 | 4.136  | 4.400  | 40     | 15                             | 40     | 40                         | 1.0   | -2.4                                   | 40     |      |                                                             |  |
| PTZ 4.3B | 4.300                 | 4.572  | 4.800  | 40     | 15                             | 40     | 20                         | 1.0   | -2.1                                   | 40     |      |                                                             |  |
| PTZ 4.7B | 4.700                 | 4.924  | 5.200  | 40     | 10                             | 40     | 20                         | 1.0   | -1.7                                   | 40     |      |                                                             |  |
| PTZ 5.1B | 5.100                 | 5.368  | 5.700  | 40     | 8                              | 40     | 20                         | 1.0   | -0.6                                   | 40     |      |                                                             |  |
| PTZ 5.6B | 5.600                 | 5.856  | 6.300  | 40     | 8                              | 40     | 20                         | 1.5   | 1.4                                    | 40     |      |                                                             |  |
| PTZ 6.2B | 6.200                 | 6.509  | 7.000  | 40     | 6                              | 40     | 20                         | 3.0   | 2.5                                    | 40     |      |                                                             |  |
| PTZ 6.8B | 6.800                 | 7.280  | 7.700  | 40     | 6                              | 40     | 20                         | 3.5   | 3.2                                    | 40     |      |                                                             |  |
| PTZ 7.5B | 7.500                 | 7.889  | 8.400  | 40     | 4                              | 40     | 20                         | 4.0   | 4.2                                    | 40     |      |                                                             |  |
| PTZ 8.2B | 8.200                 | 8.655  | 9.300  | 40     | 4                              | 40     | 20                         | 5.0   | 5.0                                    | 40     |      |                                                             |  |
| PTZ 9.1B | 9.100                 | 9.747  | 10.200 | 40     | 6                              | 40     | 20                         | 6.0   | 5.9                                    | 40     |      |                                                             |  |
| PTZ 10B  | 10.000                | 10.310 | 11.200 | 40     | 6                              | 40     | 10                         | 7.0   | 6.9                                    | 40     |      |                                                             |  |
| PTZ 11B  | 11.000                | 11.510 | 12.300 | 20     | 8                              | 20     | 10                         | 8.0   | 7.9                                    | 20     |      |                                                             |  |
| PTZ 12B  | 12.000                | 12.500 | 13.500 | 20     | 8                              | 20     | 10                         | 9.0   | 8.7                                    | 20     |      |                                                             |  |
| PTZ 13B  | 13.300                | 13.820 | 15.000 | 20     | 10                             | 20     | 10                         | 10.0  | 10.1                                   | 20     |      |                                                             |  |
| PTZ 15B  | 14.700                | 15.350 | 16.500 | 20     | 10                             | 20     | 10                         | 11.0  | 11.8                                   | 20     |      |                                                             |  |
| PTZ 16B  | 16.200                | 16.860 | 18.300 | 20     | 12                             | 20     | 10                         | 12.0  | 13.3                                   | 20     |      |                                                             |  |
| PTZ 18B  | 18.000                | 19.000 | 20.300 | 20     | 12                             | 20     | 10                         | 13.0  | 15.0                                   | 20     |      |                                                             |  |
| PTZ 20B  | 20.000                | 20.820 | 22.400 | 20     | 14                             | 20     | 10                         | 15.0  | 17.4                                   | 20     |      |                                                             |  |
| PTZ 22B  | 22.000                | 23.850 | 24.500 | 10     | 14                             | 10     | 10                         | 17.0  | 19.4                                   | 10     |      |                                                             |  |
| PTZ 24B  | 24.000                | 25.310 | 27.600 | 10     | 16                             | 10     | 10                         | 19.0  | 21.6                                   | 10     |      |                                                             |  |
| PTZ 27B  | 27.000                | 28.700 | 30.800 | 10     | 16                             | 10     | 10                         | 21.0  | 24.6                                   | 10     |      |                                                             |  |
| PTZ 30B  | 30.000                | 31.570 | 34.000 | 10     | 18                             | 10     | 10                         | 23.0  | 27.5                                   | 10     |      |                                                             |  |
| PTZ 33B  | 33.000                | 34.950 | 37.000 | 10     | 18                             | 10     | 10                         | 25.0  | 30.8                                   | 10     |      |                                                             |  |
| PTZ 36B  | 36.000                | 39.240 | 40.000 | 10     | 20                             | 10     | 10                         | 27.0  | 37.0                                   | 10     |      |                                                             |  |

(1) The zener voltage(Vz) is measured 40ms after power is supplied.

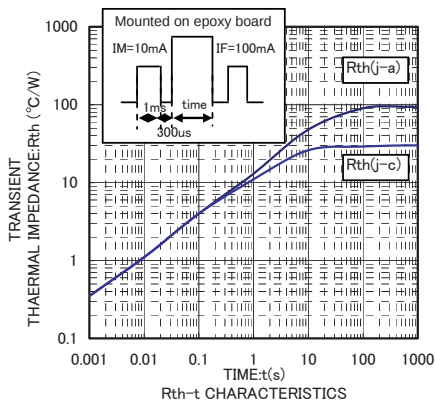
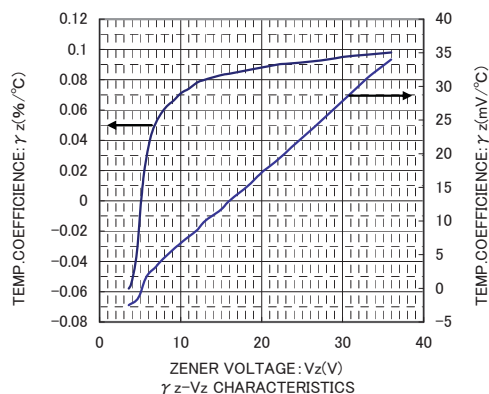
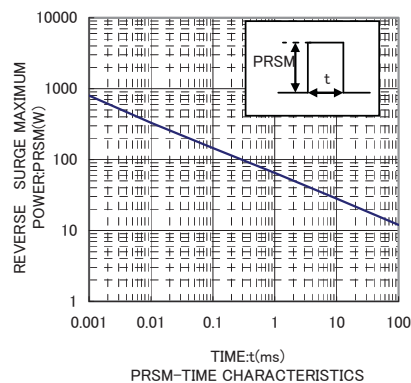
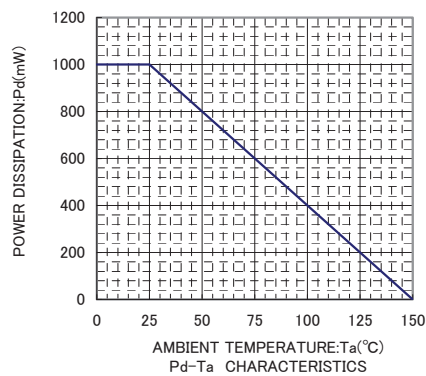
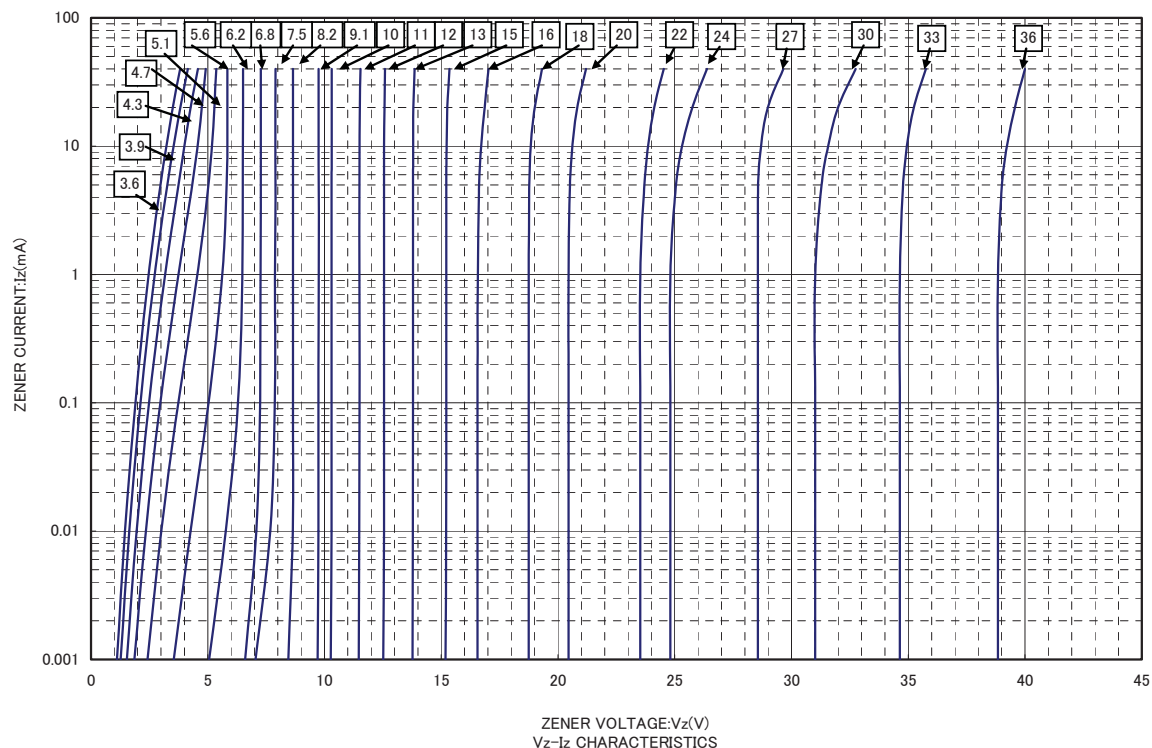
(2) The operating resistances(Zz,Zzk) are measured by superimposing a minute alternating current on the regulated current(Iz)

## ●Marking (TYPE NO.)

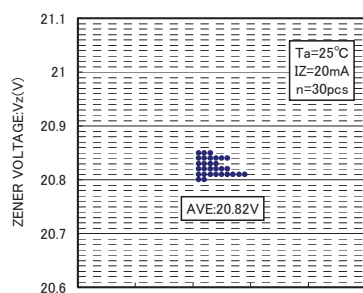
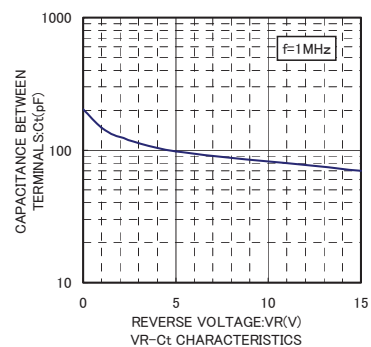
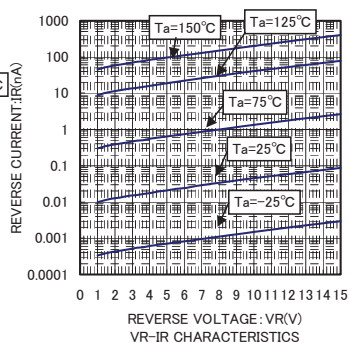
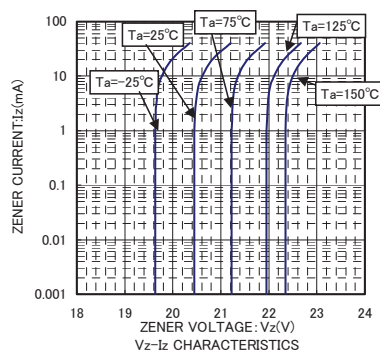
| TYPE     | TYPE NO. | TYPE     | TYPE NO. | TYPE    | TYPE NO. |
|----------|----------|----------|----------|---------|----------|
| PTZ 3.6B | 3.6B     | PTZ 8.2B | 8.2B     | PTZ 20B | 20B      |
| PTZ 3.9B | 3.9B     | PTZ 9.1B | 9.1B     | PTZ 22B | 22B      |
| PTZ 4.3B | 4.3B     | PTZ 10B  | 10B      | PTZ 24B | 24B      |
| PTZ 4.7B | 4.7B     | PTZ 11B  | 11B      | PTZ 27B | 27B      |
| PTZ 5.1B | 5.1B     | PTZ 12B  | 12B      | PTZ 30B | 30B      |
| PTZ 5.6B | 5.6B     | PTZ 13B  | 13B      | PTZ 33B | 33B      |
| PTZ 6.2B | 6.2B     | PTZ 15B  | 15B      | PTZ 36B | 36B      |
| PTZ 6.8B | 6.8B     | PTZ 16B  | 16B      |         |          |
| PTZ 7.5B | 7.5B     | PTZ 18B  | 18B      |         |          |

## Diodes

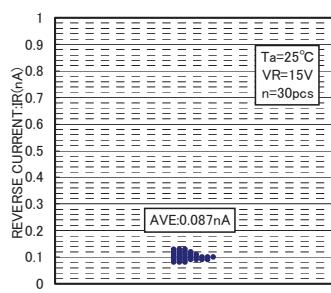
## ●Electrical characteristic curves (Ta=25°C)



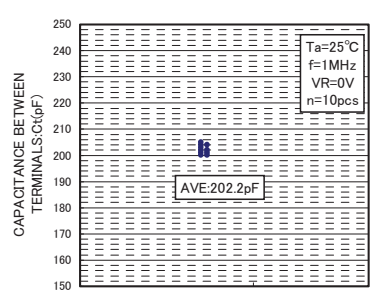
## Diodes



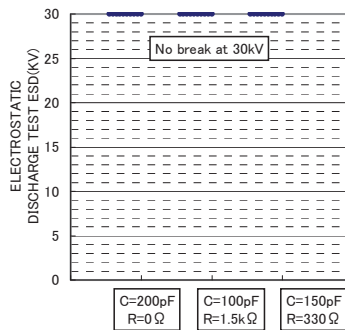
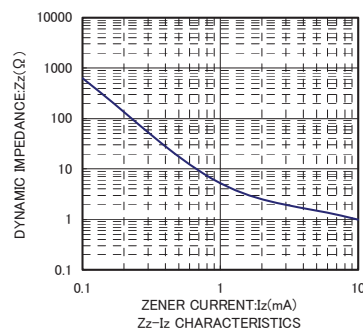
Vz DISPERSION MAP



IR DISPERSION MAP



Ct DISPERSION MAP



ESD DISPERSION MAP

### Notes

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