

TOSHIBA ZENER DIODE SILICON DIFFUSED JUNCTION TYPE

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

CONSTANT VOLTAGE REGULATION

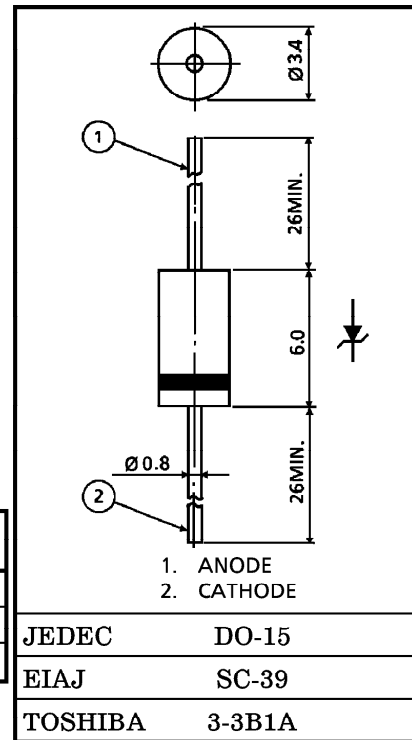
Unit in mm

TRANSIENT SUPPRESSORS

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

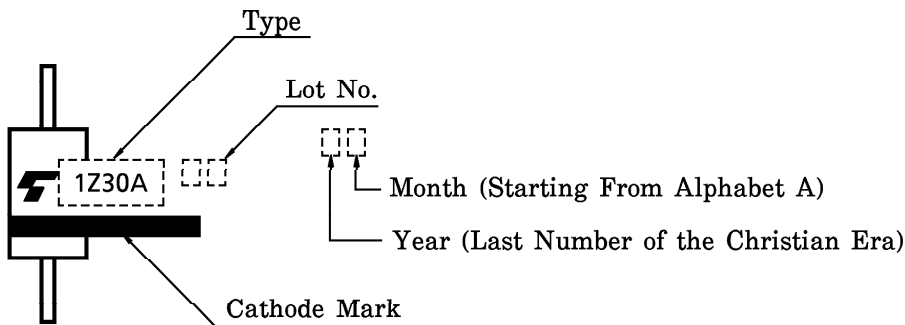
MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

| CHARACTERISTIC            | SYMBOL    | RATING    | UNIT       |
|---------------------------|-----------|-----------|------------|
| Power Dissipation         | P         | 1         | W          |
| Junction Temperature      | $T_j$     | -40 ~ 150 | $^\circ C$ |
| Storage Temperature Range | $T_{stg}$ | -40 ~ 150 | $^\circ C$ |



Weight : 0.42g

MARK



Color : Silver

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| TYPE   | ZENER CHARACTERISTICS   |      |      |                                    |                                | TEMPERATURE COEFFICIENT OF ZENER VOLTAGE $\alpha_T$ (mV/°C) |      | FORWARD VOLTAGE |                               | REVERSE CURRENT  |                               |
|--------|-------------------------|------|------|------------------------------------|--------------------------------|---|------|-----------------|-------------------------------|------------------|-------------------------------|
|        | ZENER VOLTAGE $V_Z$ (V) |      |      | ZENER IMPEDANCE $r_d$ ( $\Omega$ ) | MEASUREMENT CURRENT $I_Z$ (mA) | TYP.  | MAX. | $V_F$ (V)       | MEASUREMENT CURRENT $I_F$ (A) | $I_R$ ( $\mu$ A) | MEASUREMENT VOLTAGE $V_R$ (V) |
|        | MIN.                    | TYP. | MAX. | MAX.                               | MAX.                           |   |      |                 |                               |                  |                               |
| 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                          |

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| TYPE  | ZENER CHARACTERISTICS   |      |      |                                    |                                | TEMPERATURE COEFFICIENT OF ZENER VOLTAGE $\alpha_T$ (mV/°C) |      | FORWARD VOLTAGE |                               | REVERSE CURRENT   |                               |
|-------|-------------------------|------|------|------------------------------------|--------------------------------|---|------|-----------------|-------------------------------|-------------------|-------------------------------|
|       | ZENER VOLTAGE $V_Z$ (V) |      |      | ZENER IMPEDANCE $r_d$ ( $\Omega$ ) | MEASUREMENT CURRENT $I_Z$ (mA) | TYP.  | MAX. | $V_F$ (V)       | MEASUREMENT CURRENT $I_F$ (A) | $I_R$ ( $\mu A$ ) | MEASUREMENT VOLTAGE $V_R$ (V) |
|       | MIN.                    | TYP. | MAX. | MAX.                               |                                |   |      |                 |                               |                   |                               |
|       |                         |      |      |                                    |                                |   |      |                 |                               |                   |                               |
| 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                           |

