

TOSHIBA Diodes for Protecting Against ESD

## DF3A3.3CT

Unit :mm

## Product for Use Only as Protection against Electrostatic Discharge (ESD)

\*This product is for protection against electrostatic discharge (ESD) only and is not intended for any other usage, including without limitation, the constant voltage diode application.

- The mounting of two devices on an ultra-compact package allows the number of parts and the mounting cost to be reduced.

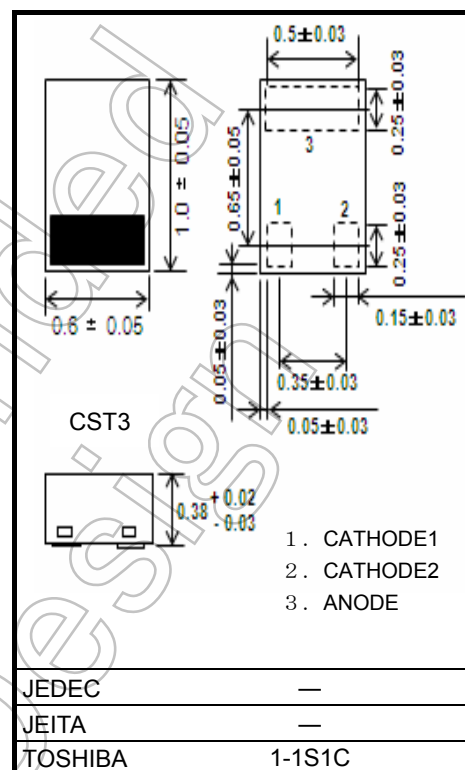
## Absolute Maximum Ratings (Ta = 25°C)

| Characteristic            | Symbol           | Rating     | Unit |
|---------------------------|------------------|------------|------|
| Power dissipation         | P                | 150*       | mW   |
| Junction temperature      | T <sub>j</sub>   | 150        | °C   |
| Storage temperature range | T <sub>stg</sub> | -55 to 150 | °C   |

\* : Mounted on FR4 board (10 mm × 10 mm × 1 mm)

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: 0.75 mg(typ.)

## Electrical Characteristics (Ta = 25°C)

| Characteristic                                      | Symbol         | Test Condition                 | Min | Typ. | Max | Unit |
|---|----------------|--------------------------------|-----|------|-----|------|
| Zener voltage                                       | V <sub>Z</sub> | I <sub>Z</sub> = 5mA           | 3.1 | 3.3  | 3.5 | V    |
| Dynamic impedance                                   | Z <sub>Z</sub> | I <sub>Z</sub> = 5mA           | —   | —    | 130 | Ω    |
| Reverse current                                     | I <sub>R</sub> | V <sub>R</sub> = 1V            | —   | —    | 20  | μA   |
| Terminal capacitance<br>(between Cathode and Anode) | C <sub>T</sub> | V <sub>R</sub> = 0 V, f = 1MHz | —   | 115  | —   | pF   |

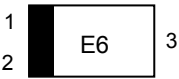
Start of commercial production  
2008-12

**Guaranteed Level of ESD Immunity**

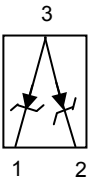
| Test Condition                      | ESD Immunity Level |
|-------------------------------------|--------------------|
| IEC61000-4-2<br>(Contact discharge) | $\pm 30\text{kV}$  |

Criterion: No damage to device elements

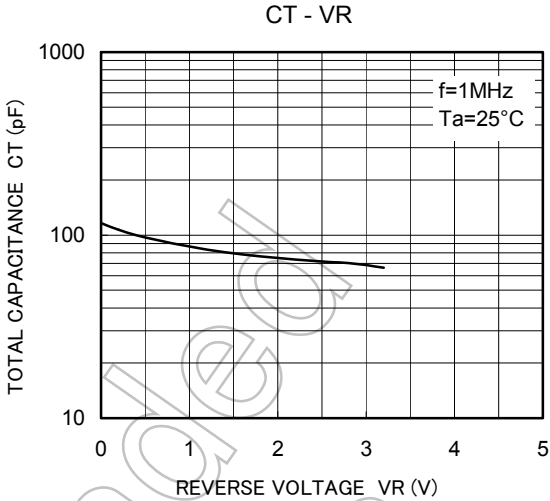
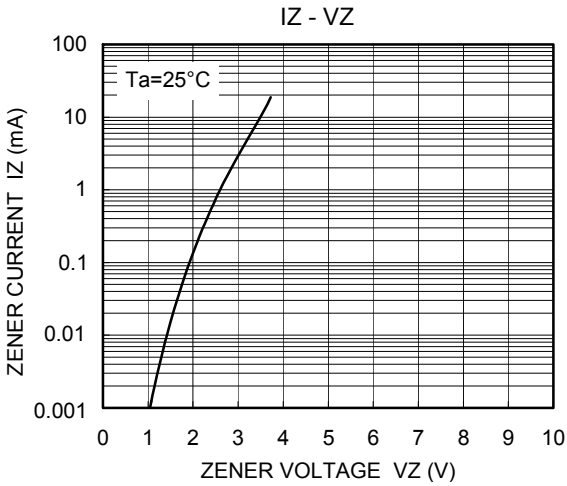
**Marking**



**Equivalent Circuit  
(top view)**



Not Recommended for New Design



Not Recommended for New Design

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