

TOSHIBA Diodes for Protecting against ESD

# DF5A6.8LF

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

Unit: mm

\* 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.

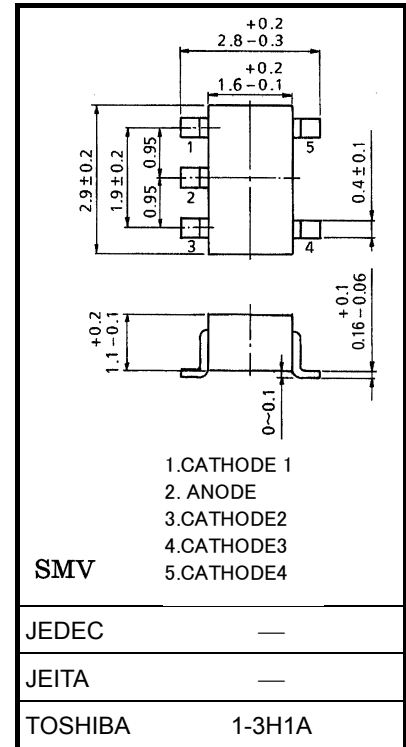
- The mounting of four devices on an ultra-compact package allows the number of parts and the mounting cost to be reduced.
- Low Terminal capacitance (between Cathode and Anode)  
:  $C_T = 6.0$  pF (typ.)

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

| Characteristics           | Symbol           | Rating     | Unit |
|---------------------------|------------------|------------|------|
| Power dissipation         | P                | 200        | mW   |
| Junction temperature      | T <sub>j</sub>   | 125        | °C   |
| Storage temperature range | T <sub>stg</sub> | -55 to 125 | °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: 0.014 g (typ.)

### Electrical Characteristics (Ta = 25°C)

| Characteristics                                  | Symbol          | Test Condition                  | Min | Typ. | Max | Unit |
|--|-----------------|---------------------------------|-----|------|-----|------|
| Zener voltage                                    | V <sub>Z</sub>  | I <sub>Z</sub> = 5 mA           | 6.5 | 6.8  | 7.1 | V    |
| Dynamic impedance                                | Z <sub>Z</sub>  | I <sub>Z</sub> = 5 mA           | —   | —    | 50  | Ω    |
| Knee dynamic impedance                           | Z <sub>ZK</sub> | I <sub>Z</sub> = 0.5 mA         | —   | —    | 100 | Ω    |
| Reverse current                                  | I <sub>R</sub>  | V <sub>R</sub> = 5 V            | —   | —    | 0.5 | μA   |
| Terminal capacitance (between Cathode and Anode) | C <sub>T</sub>  | V <sub>R</sub> = 0 V, f = 1 MHz | —   | 6.0  | —   | pF   |

### Guaranteed Level of ESD Immunity

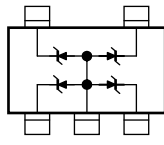
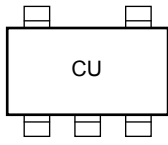
| Test Condition                   | ESD Immunity Level |
|----------------------------------|--------------------|
| IEC61000-4-2 (Contact discharge) | ± 8 kV             |

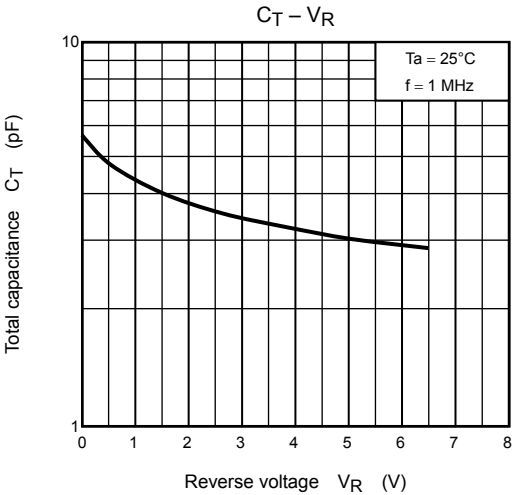
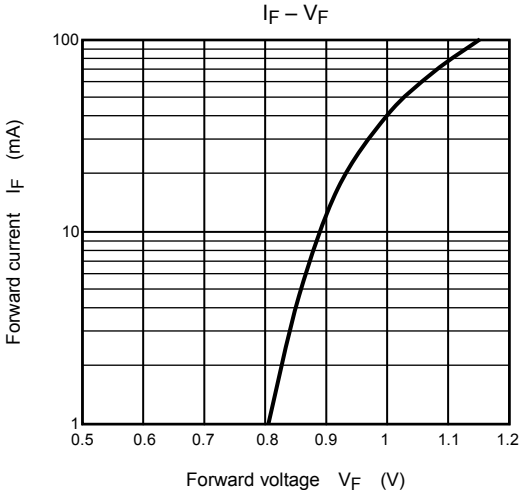
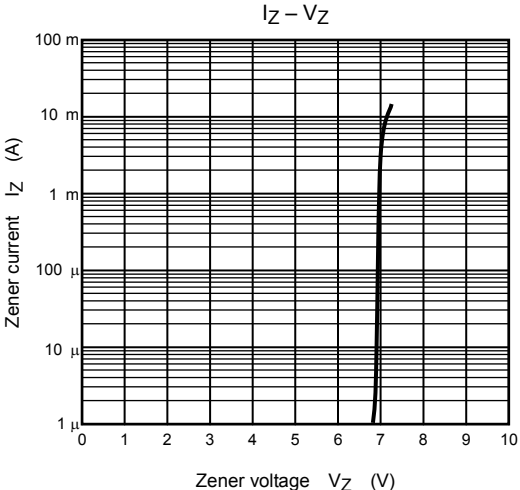
Criterion: No damage to device elements

Start of commercial production  
1999-04

## Marking

## Equivalent Circuit (top view)





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