

TOSHIBA Diode Silicon Epitaxial Planar Type

## 1SS403

### High Voltage Switching Applications

- AEC-Q101 Qualified (Note1)
- Two-pin small packages are suitable for higher mounting densities.
- Excellent in forward current and forward voltage characteristics :  $V_F(2) = 0.90\text{ V (typ.)}$
- Fast reverse recovery time :  $t_{rr} = 60\text{ ns (max)}$
- Small total capacitance :  $C_T = 1.5\text{ pF (typ.)}$

Note1: For detail information, please contact our sales.

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Characteristic                 | Symbol             | Rating     | Unit |
|--------------------------------|--------------------|------------|------|
| Maximum (peak) reverse voltage | $V_{RM}$           | 250        | V    |
| Reverse voltage                | $V_R$              | 200        | V    |
| Maximum (peak) forward current | $I_{FM}$           | 300        | mA   |
| Average forward current        | $I_O$              | 100        | mA   |
| Surge current (10ms)           | $I_{FSM}$          | 2          | A    |
| Power dissipation              | $P_D$ (Note 4)     | 200        | mW   |
| Junction temperature           | $T_j$ (Note 2)     | 150        | °C   |
|                                | $T_j$ (Note 3)     | 125        |      |
| Storage temperature range      | $T_{stg}$ (Note 2) | -55 to 150 | °C   |
|                                | $T_{stg}$ (Note 3) | -55 to 125 |      |

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).

Note 2: For devices with the ordering part number ending in H3F(T).

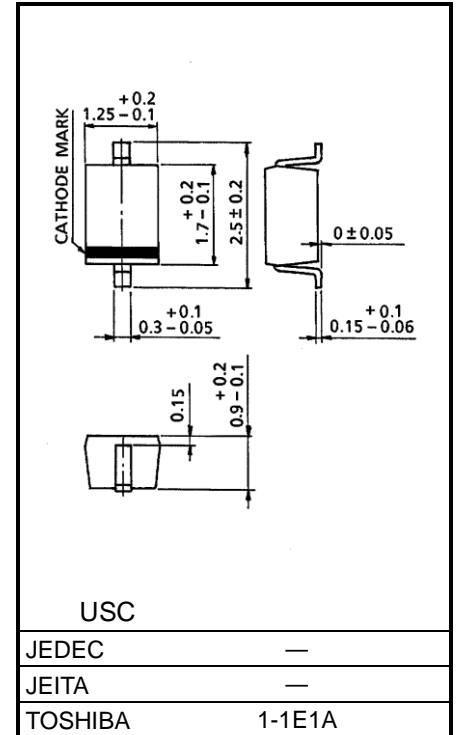
Note 3: For devices with the ordering part number in other than H3F(T).

Note 4: Mounted on a glass epoxy circuit board of 20 mm x 20 mm, Pad dimension of 4 mm x 4 mm.

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

| Characteristic        | Symbol   | Test Condition                       | Min | Typ. | Max | Unit |
|-----------------------|----------|--------------------------------------|-----|------|-----|------|
| Forward voltage       | $V_F(1)$ | $I_F = 10\text{ mA}$                 | —   | 0.72 | 1.0 | V    |
|                       | $V_F(2)$ | $I_F = 100\text{ mA}$                | —   | 0.90 | 1.2 |      |
| Reverse current       | $I_R(1)$ | $V_R = 50\text{ V}$                  | —   | —    | 0.1 | μA   |
|                       | $I_R(2)$ | $V_R = 200\text{ V}$                 | —   | —    | 1.0 |      |
| Total capacitance     | $C_T$    | $V_R = 0\text{ V}, f = 1\text{ MHz}$ | —   | 1.5  | 3.0 | pF   |
| Reverse recovery time | $t_{rr}$ | $I_F = 10\text{ mA (Fig. 1)}$        | —   | 10   | 60  | ns   |

Unit: mm



USC

JEDEC

JEITA

TOSHIBA

1-1E1A

Weight: 0.0045g (typ.)

Start of commercial production  
1998-10

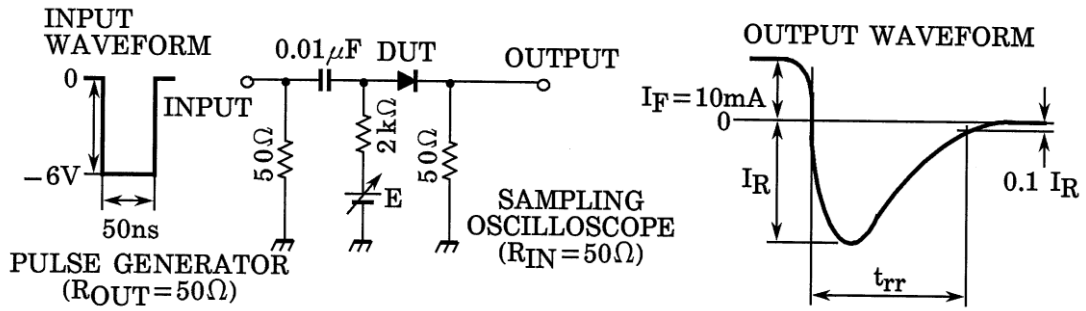
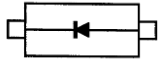


Fig.1 Reverse Recovery Time ( $t_{rr}$ ) Test Circuit

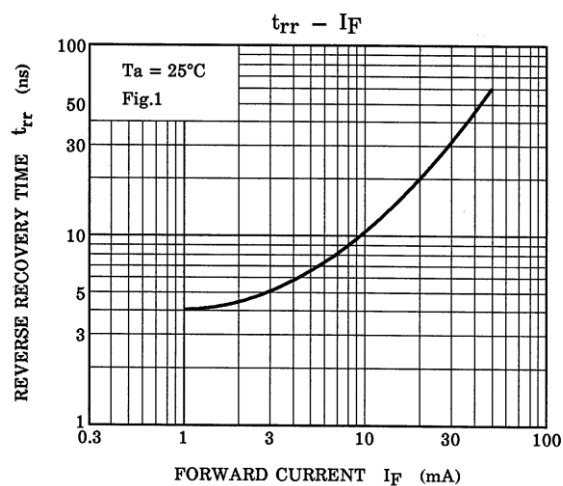
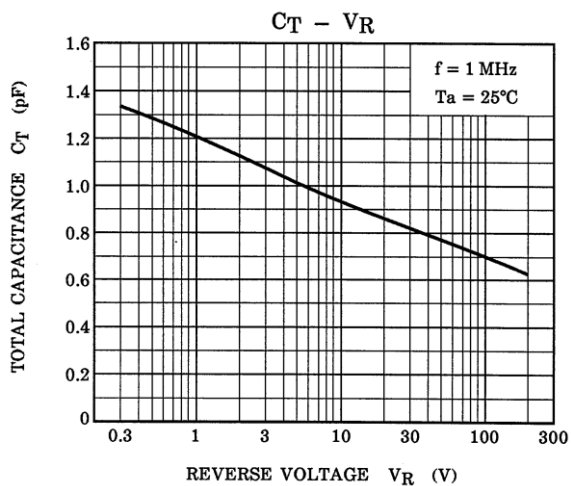
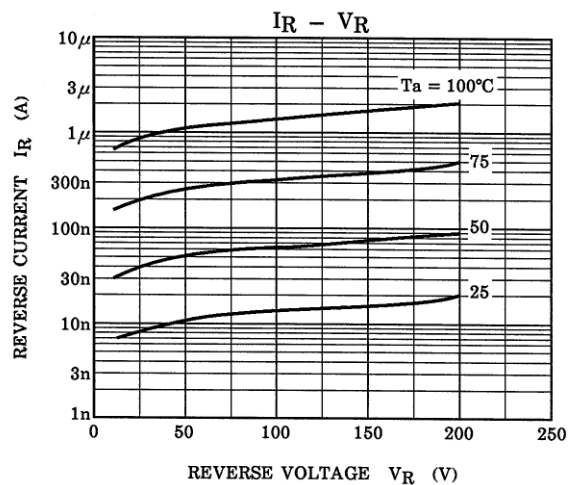
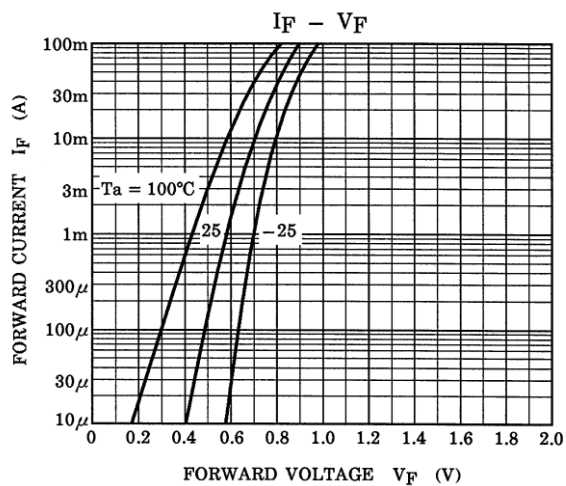
Equivalent Circuit (Top View)



Marking



### Characteristics Curves



The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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