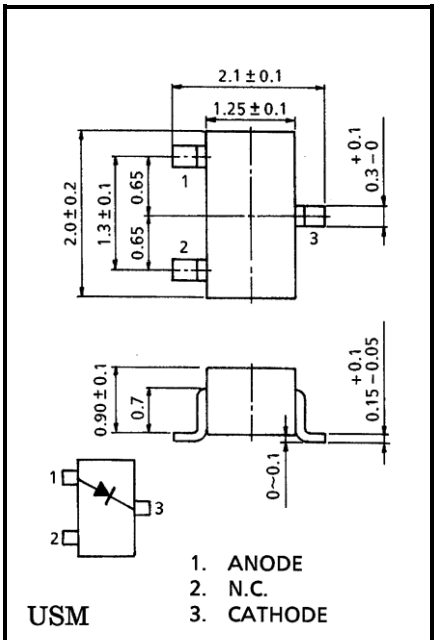
TOSHIBA Diode Silicon Epitaxial Planar Type

# 1SS397

High Voltage, High Speed Switching Applications

- Small package : SC-70
- Low forward voltage : $V_F$ = 1.0 V (typ.)
- High voltage : $V_R$ = 400 V (min)
- Fast reverse recovery time : $t_{rr}$ = 0.5 μs (typ.)
- Small total capacitance : $C_T$ = 2.5 pF (typ.)

Unit: mm




| | |
|---|---|
| JEDEC | — |
| JEITA | SC-70 |
| TOSHIBA | 1-2P1D |

Weight: 0.006g (typ.)

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

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Maximum (peak) reverse Voltage | $V_{RM}$ | 420 | V |
| Reverse voltage | $V_R$ | 400 | 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 1, 3) | 200 | mW |
| | $P_D$ (Note 2) | 100 | |
| Junction temperature | $T_j$ (Note 1) | 150 | °C |
| | $T_j$ (Note 2) | 125 | |
| Storage temperature range | $T_{stg}$ (Note 1) | −55 to 150 | °C |
| | $T_{stg}$ (Note 2) | −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 1: For devices with the ordering part number ending in LF(T.
Note 2: For devices with the ordering part number in other than LF(T.
Note 3: Mounted on a FR4 board. (25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 0.5 $mm^2$ × 3)

## Electrical Characteristics (Ta = 25°C)

| Characteristic | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Forward voltage | $V_{F\ (1)}$ | $I_F$ = 10 mA | — | 0.8 | — | V |
| | $V_{F\ (2)}$ | $I_F$ = 100 mA | — | 1.0 | 1.3 | |
| Reverse current | $I_{R\ (1)}$ | $V_R$ = 300 V | — | — | 0.1 | μA |
| | $I_{R\ (2)}$ | $V_R$ = 400 V | — | — | 1.0 | |
| Total capacitance | $C_T$ | $V_R$ = 0 V, f = 1 $MH_Z$ | — | 2.5 | 5.0 | pF |
| Reverse recovery time | $t_{rr}$ | $I_F$ = 10 mA (Fig.1) | — | 0.5 | — | μs |

Start of commercial production
1995-10

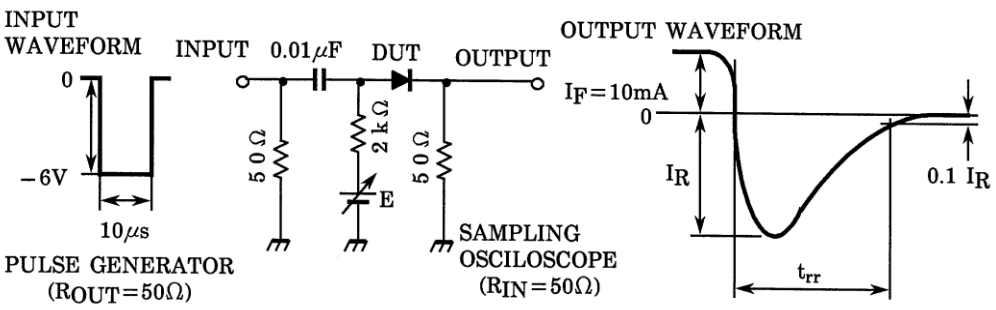
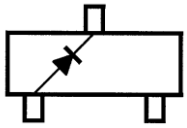
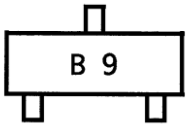



**Fig.1 Reverse Recovery Time ($t_{rr}$) Test Circuit**

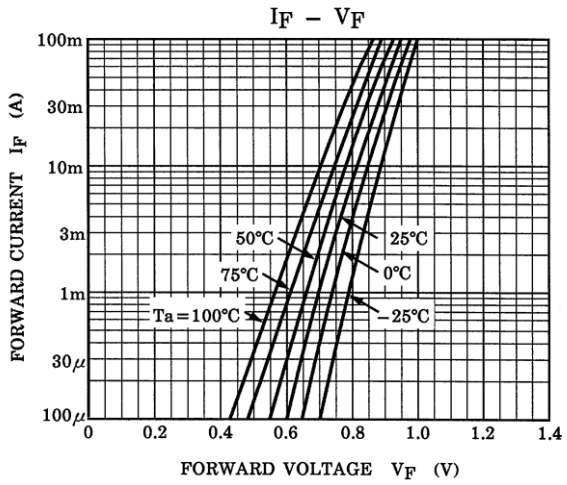
## Equivalent Circuit (Top View)

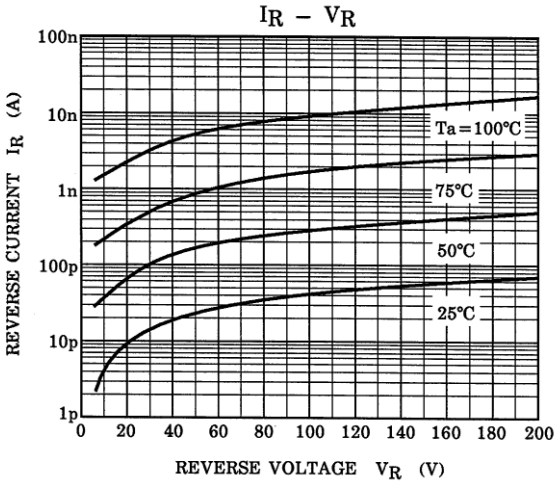


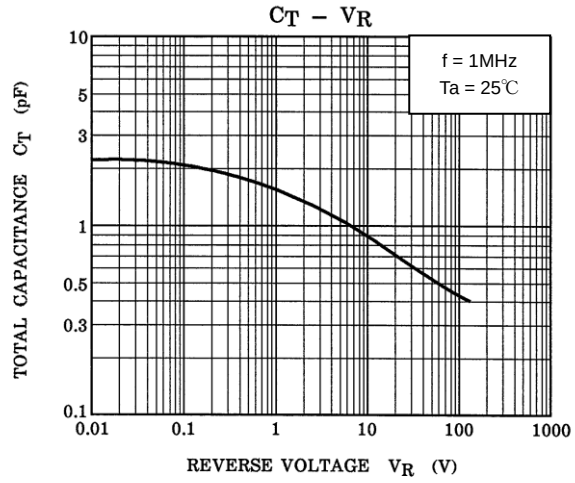
## Marking

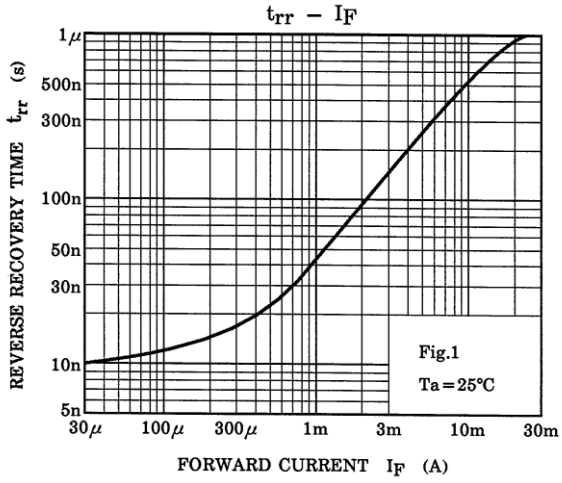


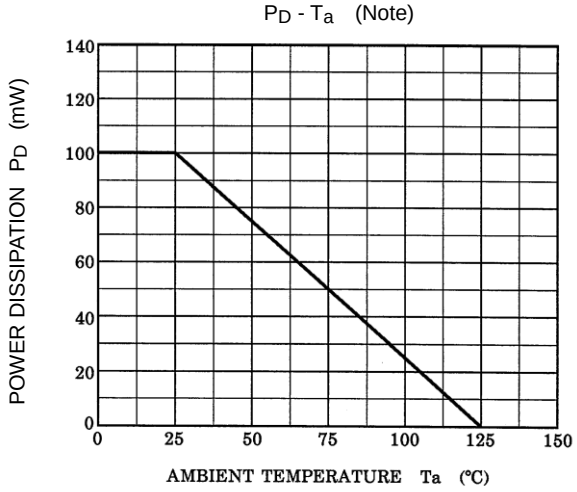
## Characteristics Curves



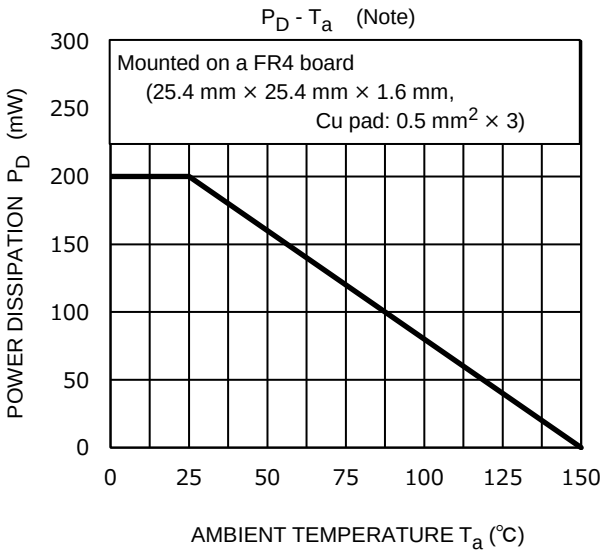




Note: Reference only with $T_j$ of 125 °C.




Note: Reference only with $T_j$ of 150 °C.

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

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