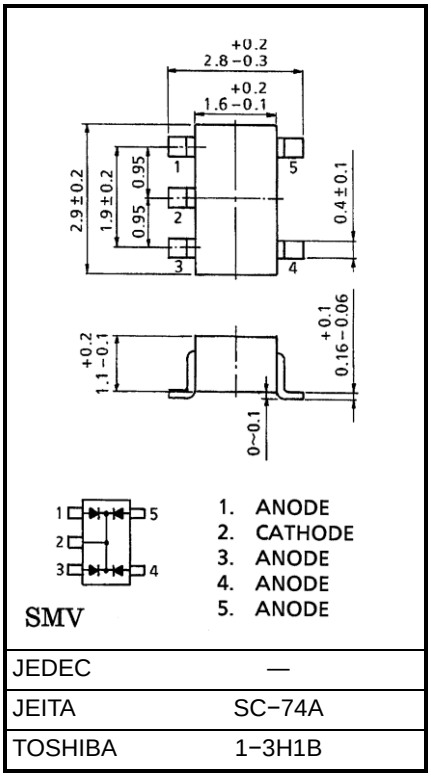
TOSHIBA Diode Silicon Epitaxial Planar Type

# 1SS309

## Ultra High Speed Switching Applications

- Small package : SC-74A
- Low forward voltage : $V_{F\ (3)}$ = 0.90V (typ.)
- Fast reverse recovery time : $t_{rr}$ = 1.6ns (typ.)
- Small total capacitance : $C_T$ = 0.9pF (typ.)

Unit: mm




| | |
|---|---|
| JEDEC | — |
| JEITA | SC−74A |
| TOSHIBA | 1−3H1B |

Weight: 0.014g (typ.)

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

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Maximum (peak) reverse voltage | $V_{RM}$ | 85 | V |
| Reverse voltage | $V_R$ | 80 | 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) | 300 | mW |
| | $P_D$ (Note 2) | 200 | |
| Junction temperature | $T_j$ (Note 1) | 150 | °C |
| | $T_j$ (Note 2) | 125 | |
| Storage temperature | $T_{stg}$ (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: Total rating.

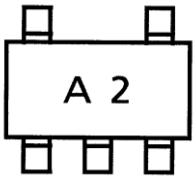
(*): Unit rating. Total rating = unit rating × 1.5

## Electrical Characteristics (Ta = 25°C)

| Characteristic | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Forward voltage | $V_{F\ (1)}$ | $I_F$ = 1 mA | — | 0.60 | — | V |
| | $V_{F\ (2)}$ | $I_F$ = 10 mA | — | 0.72 | — | |
| | $V_{F\ (3)}$ | $I_F$ = 100 mA | — | 0.90 | 1.20 | |
| Reverse current | $I_{R\ (1)}$ | $V_R$ = 30 V | — | — | 0.1 | μA |
| | $I_{R\ (2)}$ | $V_R$ = 80 V | — | — | 0.5 | |
| Total capacitance | $C_T$ | $V_R$ = 0 V, f = 1 MHz | — | 0.9 | 3.0 | pF |
| Reverse recovery time | $t_{rr}$ | $I_F$ = 10 mA, Fig.1 | — | 1.6 | 4.0 | ns |

Start of commercial production
1987-07

## Marking



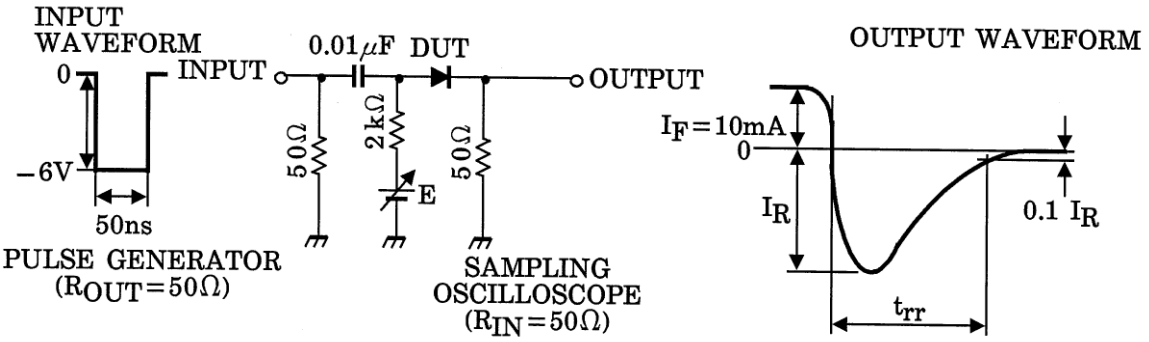
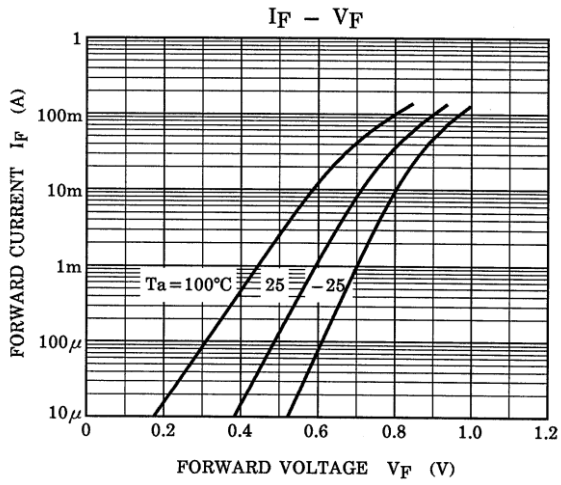
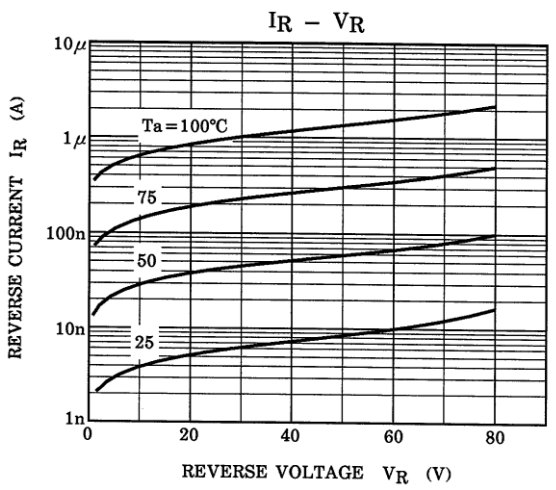
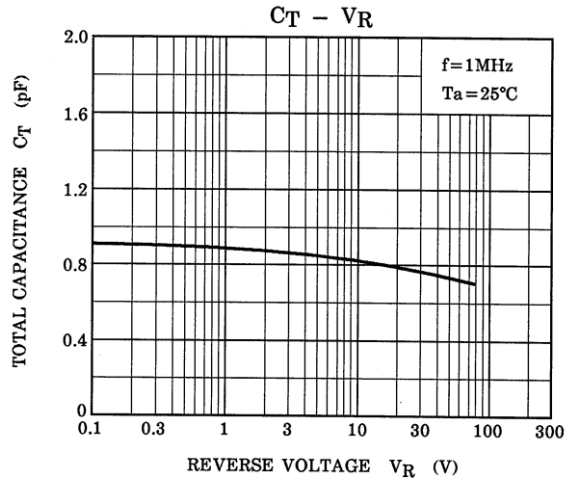



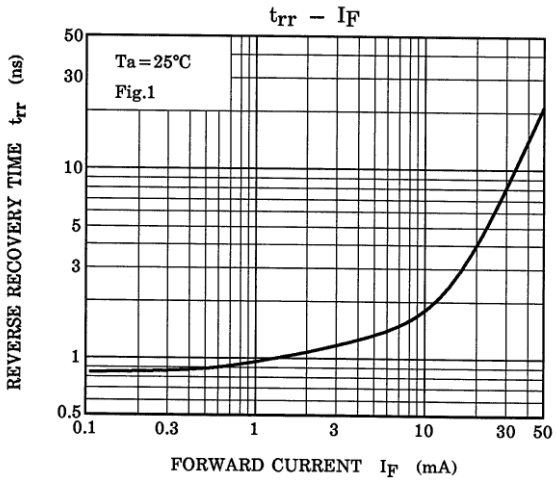

**Fig.1 Reverse recovery time ($t_{rr}$) test circuit**

## Characteristics Curves

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