

# 1SS309

## Ultra High Speed Switching Applications

Unit: mm

- 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.)

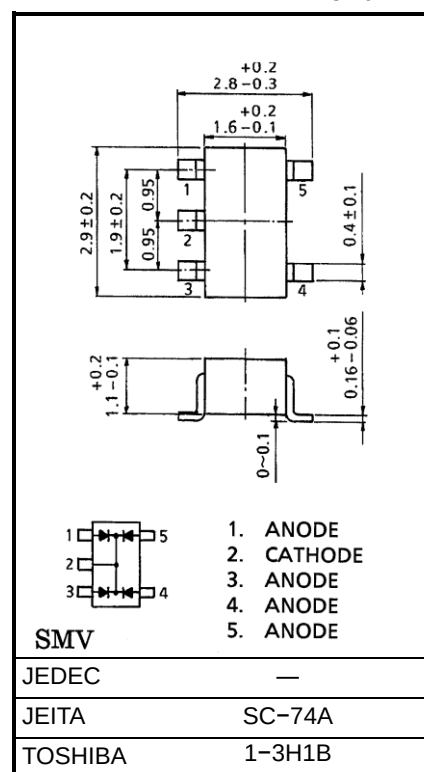
## Absolute Maximum Ratings ( $T_a = 25^\circ C$ )

| 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         | 200        | mW         |
| Junction temperature           | $T_j$     | 125        | $^\circ C$ |
| Storage temperature            | $T_{stg}$ | -55 to 125 | $^\circ C$ |

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).

\*: Unit rating. Total rating = unit rating  $\times$  1.5

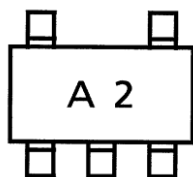
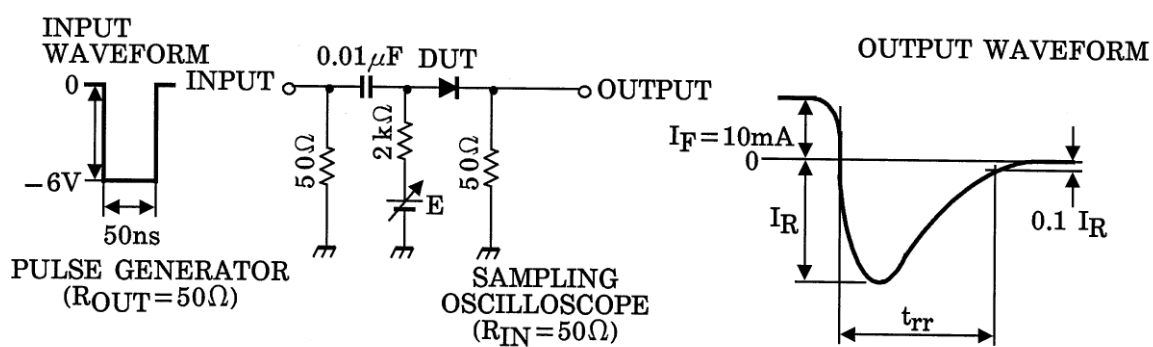


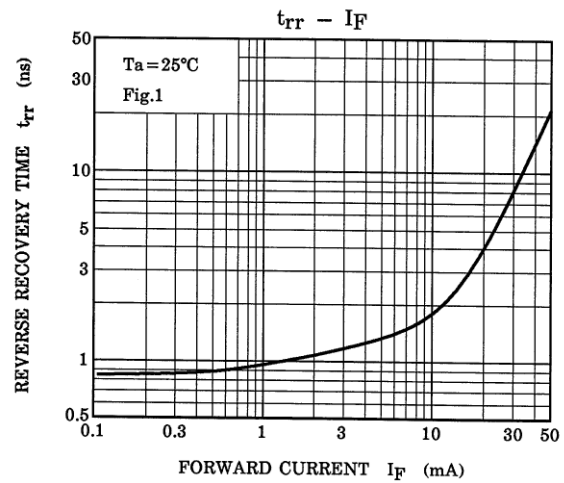
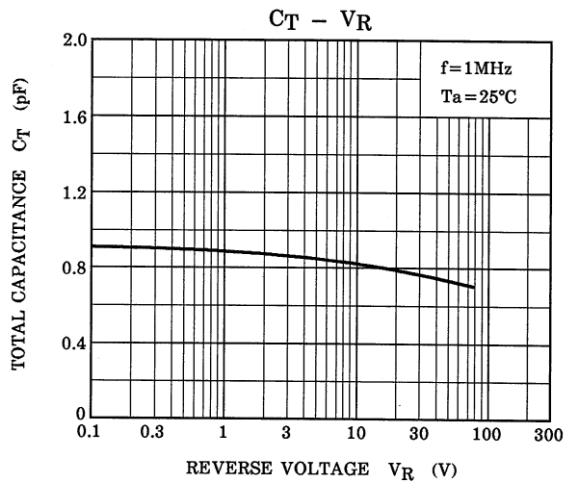
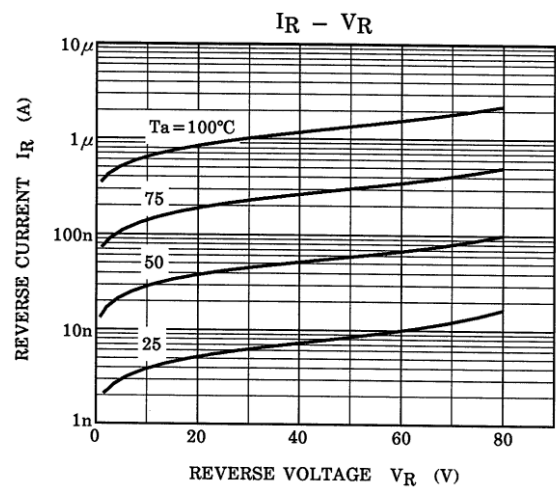
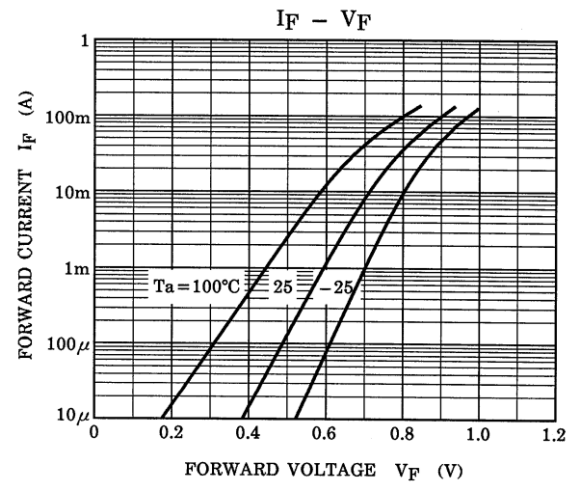
## Electrical Characteristics ( $T_a = 25^\circ C$ )

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

Start of commercial production  
1987-07

## Marking

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



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