

TOSHIBA Diode Silicon Epitaxial Planar Type

HN1D01F

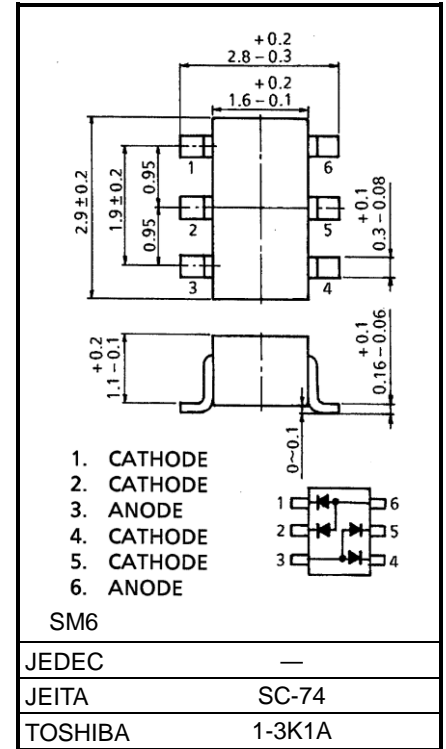
Ultra High Speed Switching Application

Unit: mm

- HN1D01F is composed of 2 unit of anode common.
- Low forward voltage : $V_F(3) = 0.92 \text{ V (typ.)}$
- Fast reverse recovery time : $t_{rr} = 1.6 \text{ ns (typ.)}$
- Small total capacitance : $C_T = 2.2 \text{ pF (typ.)}$

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

| 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 (10 ms) | I_{FSM} | 2 (*) | A |
| Power dissipation | P_D (Note 3) | 300 | mW |
| 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 | |



Weight: 0.015 g (typ.)

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.

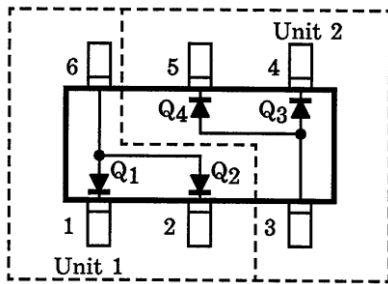
(*) These are the Absolute Maximum Ratings for a single diode (Q1 or Q2 or Q3 or Q4). If Unit 1 and Unit 2 are used independently or simultaneously, the Absolute Maximum Ratings per diode are 75% of those of a single diode.

Electrical Characteristics (Q_1, Q_2, Q_3, Q_4 Common, $T_a = 25^\circ\text{C}$)

| Characteristic | Symbol | Test Circuit | Test Condition | Min | Typ. | Max | Unit |
|-----------------------|----------|--------------|--|-----|------|------|---------------|
| Forward voltage | $V_F(1)$ | — | $I_F = 1 \text{ mA}$ | — | 0.61 | — | V |
| | $V_F(2)$ | — | $I_F = 10 \text{ mA}$ | — | 0.74 | — | |
| | $V_F(3)$ | — | $I_F = 100 \text{ mA}$ | — | 0.92 | 1.20 | |
| Reverse current | $I_R(1)$ | — | $V_R = 30 \text{ V}$ | — | — | 0.1 | μA |
| | $I_R(2)$ | — | $V_R = 80 \text{ V}$ | — | — | 0.5 | |
| Total capacitance | C_T | — | $V_R = 0 \text{ V}, f = 1 \text{ MHz}$ | — | 2.2 | 4.0 | pF |
| Reverse recovery time | t_{rr} | — | $I_F = 10 \text{ mA (Fig. 1)}$ | — | 1.6 | 4.0 | ns |

Start of commercial production
1992-05

Pin Assignment (Top View)



Marking

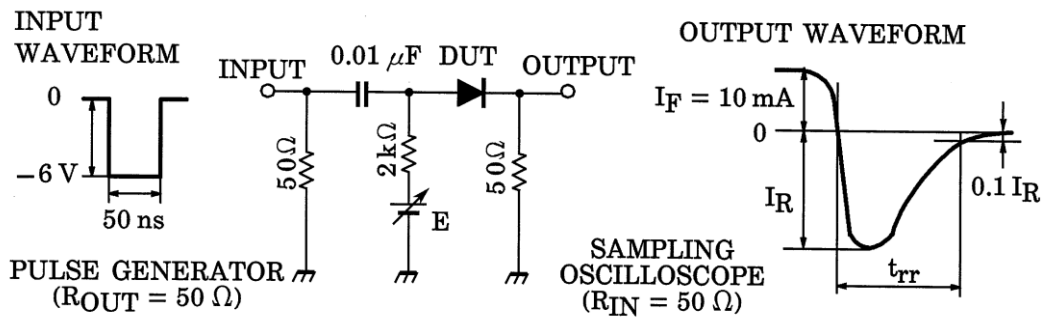
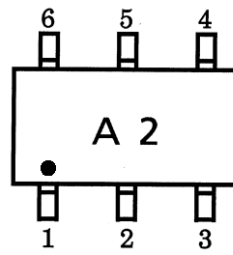
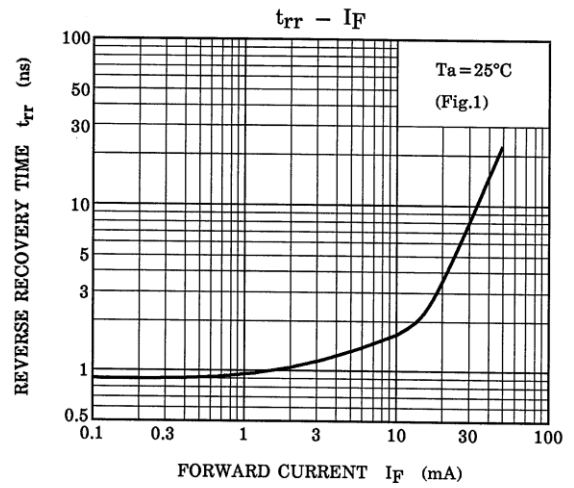
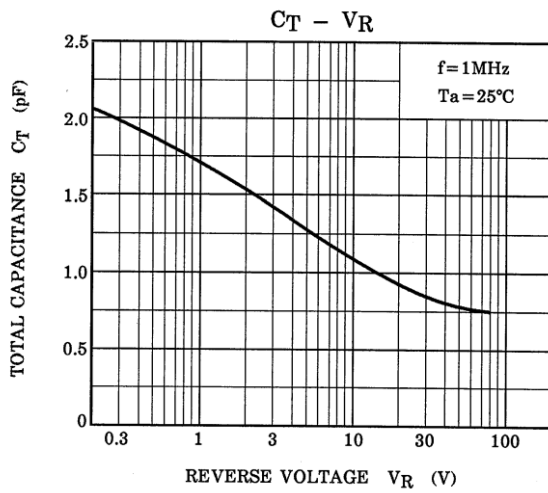
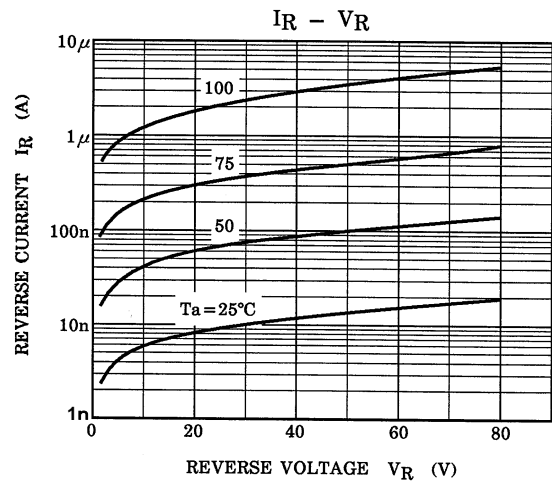
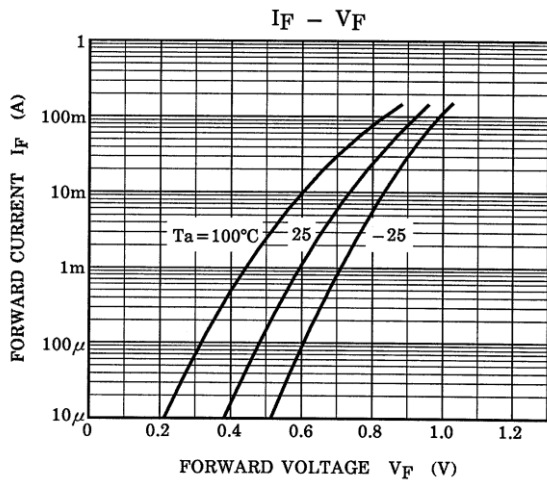


Fig.1 Reverse Recovery Time (t_{rr}) Test Circuit

Characteristics Curves (Q₁, Q₂, Q₃, Q₄ Common, Ta = 25°C)



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

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