

TOSHIBA Diode Silicon Epitaxial Schottky Barrier Type

DSF05S30U

High Speed Switching Application

Unit: mm

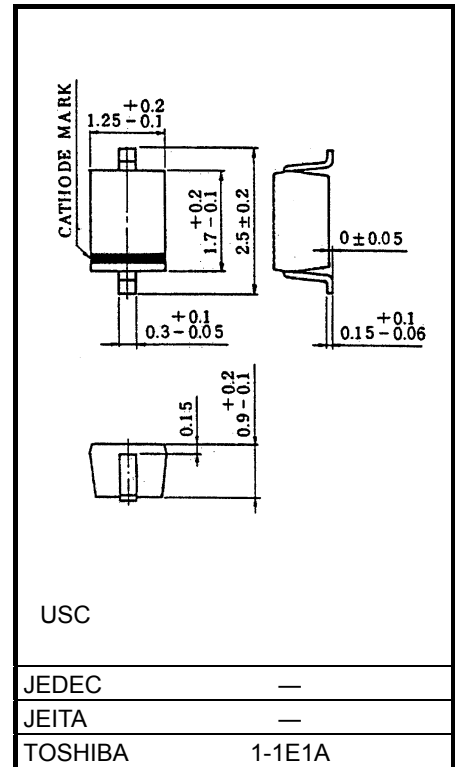
Absolute Maximum Ratings (Ta = 25°C)

| Characteristic | Symbol | Rating | Unit |
|---------------------------|-----------|------------|------|
| Reverse voltage | V_R | 30 | V |
| Average forward current | I_O | 500 * | mA |
| Surge current (10ms) | I_{FSM} | 5 | A |
| Junction temperature | T_j | 125 | °C |
| Storage temperature range | T_{stg} | -55 to 125 | °C |

*: Mounted on a glass-epoxy circuit board of 20 × 20 mm, pad dimensions of 4 × 4 mm.

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).

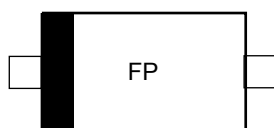


Weight: 4.5 mg (typ.)

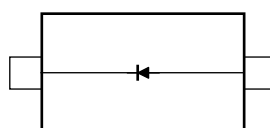
Electrical Characteristics (Ta = 25°C)

| Characteristic | Symbol | Test Circuit | Test Condition | Min | Typ. | Max | Unit |
|-------------------|------------|--------------|----------------------------|-----|------|------|------|
| Forward voltage | V_F (1) | — | $I_F = 10\text{mA}$ | — | 0.23 | — | V |
| | V_F (2) | — | $I_F = 200\text{mA}$ | — | 0.35 | — | |
| | V_F (3) | — | $I_F = 500\text{mA}$ | — | 0.40 | 0.45 | |
| Reverse current | $I_{R(1)}$ | — | $V_R = 30\text{V}$ | — | — | 50 | μA |
| Total capacitance | C_T | — | $V_R = 0, f = 1\text{MHz}$ | — | 120 | — | pF |

Marking

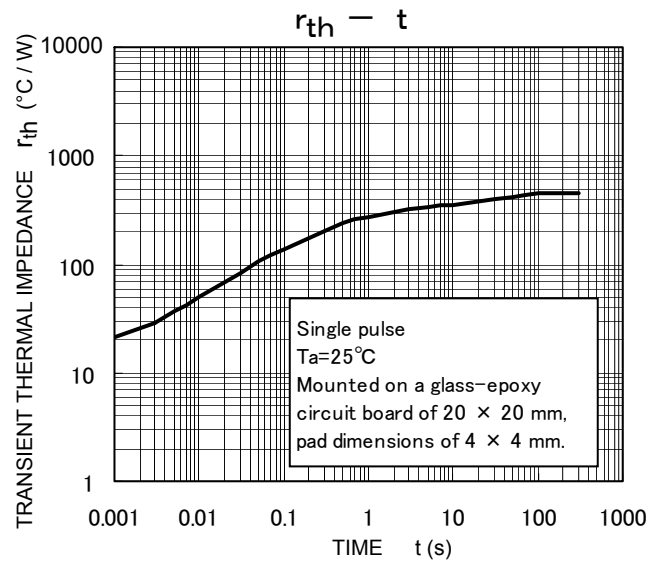
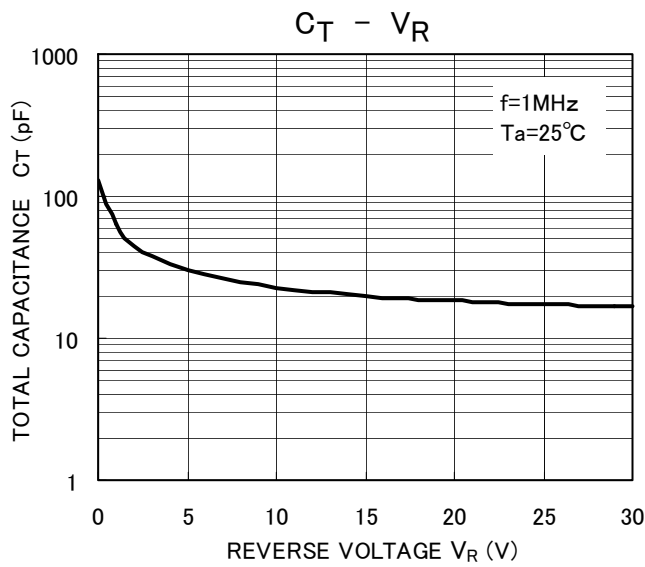
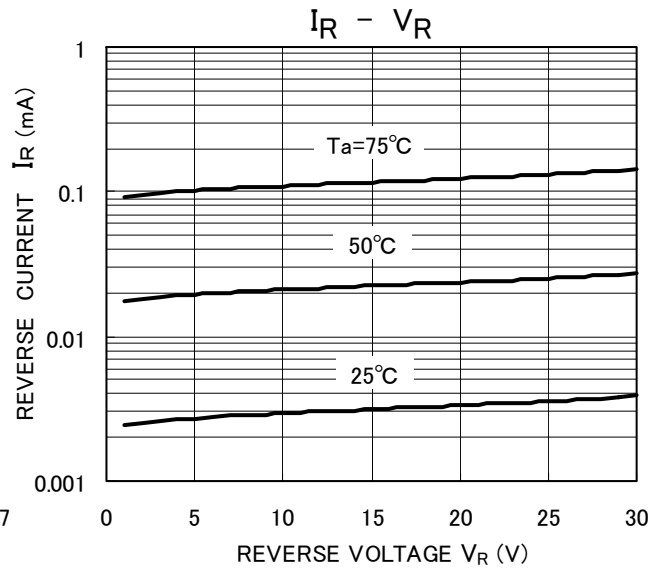
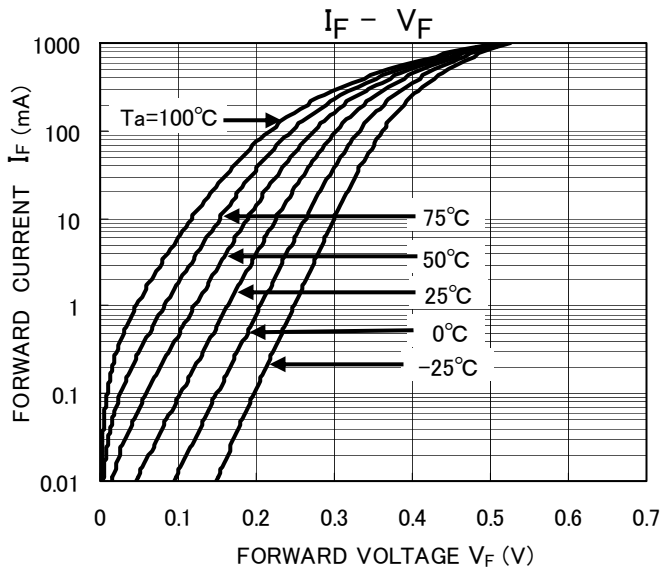


Equivalent Circuit (top view)



Handling Precaution

Schottky barrier diodes have reverse current characteristic compared to the other diodes.
There is a possibility SBD may cause thermal runaway when it is used under high temperature or high voltage.
Please take forward and reverse loss into consideration during design.



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