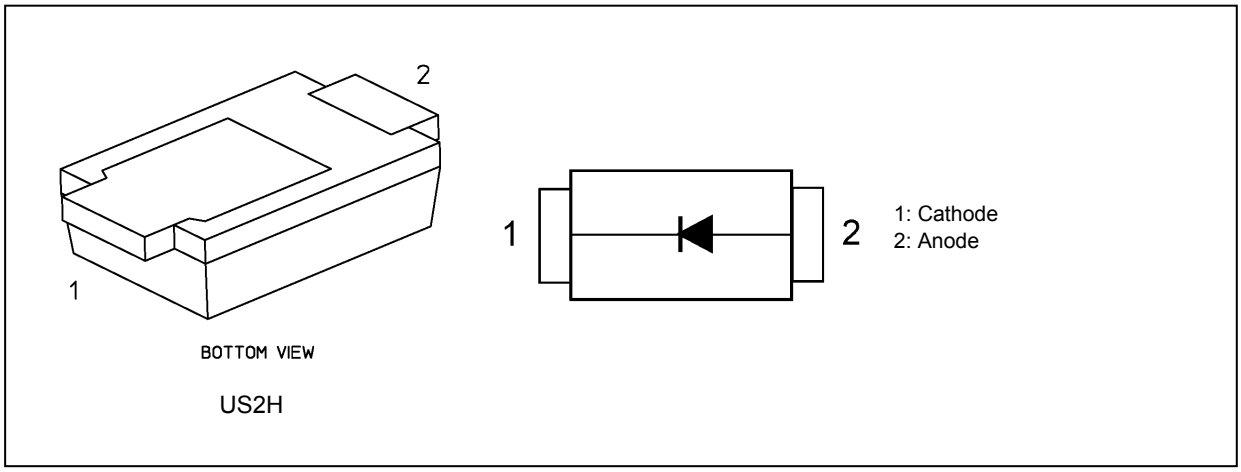
Schottky Barrier Diode Silicon Epitaxial

# CUHS20F30

## 1. Applications

- High-Speed Switching

## 2. Packaging and Internal Circuit




## 3. Absolute Maximum Ratings (Note) (Unless otherwise specified, $T_a$ = 25 °C)

| Characteristics | Symbol | Note | Rating | Unit |
|---|---|---|---|---|
| Reverse voltage | $V_R$ | | 30 | V |
| Average rectified current | $I_O$ | (Note 1) | 2 | A |
| Non-repetitive peak forward surge current | $I_{FSM}$ | (Note 2) | 10 | A |
| Junction temperature | $T_j$ | | 150 | °C |
| Storage temperature | $T_{stg}$ | | -55 to 150 | °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).

Note 1: Mounted on an FR4 board.
(25.4 mm × 25.4 mm × 1.6 mm, Cu Pad: 645 mm²)

Note 2: Pulse width 10 ms

Start of commercial production
2019-04

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## 4. Electrical Characteristics (Unless otherwise specified, $T_a$ = 25 °C)

| Characteristics | Symbol | Note | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|---|
| Forward voltage | $V_F$ (1) | (Note 1) | $I_F$ = 500 mA | — | 0.31 | 0.37 | V |
| | $V_F$ (2) | | $I_F$ = 1 A | — | 0.35 | 0.41 | |
| | $V_F$ (3) | | $I_F$ = 2 A | — | 0.40 | 0.47 | |
| Reverse current | $I_R$ (1) | (Note 1) | $V_R$ = 10 V | — | 15 | — | μA |
| | $I_R$ (2) | | $V_R$ = 30 V | — | 25 | 60 | |
| Total capacitance | $C_t$ | | $V_R$ = 0 V, f = 1 MHz | — | 380 | — | pF |

Note 1: Pulse measurement.

## 5. Marking

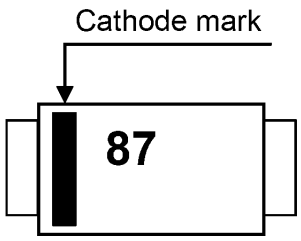



Fig. 5.1 Marking

| Marking Code | Part Number |
|---|---|
| 87 | CUHS20F30 |

## 6. Usage Considerations

- Schottky barrier diodes (SBDs) have reverse leakage greater than other types of diodes. This makes SBDs more susceptible to thermal runaway under high-temperature and high-voltage conditions. Thus, both forward and reverse power losses of SBDs should be considered for thermal and safety design.

## 7. Land Pattern Dimensions (for reference only)

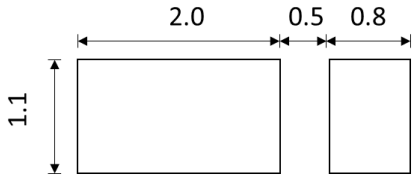



Fig. 7.1 Land Pattern Dimensions for Reference Only (Unit: mm)

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## 8. Characteristics Curves (Note)

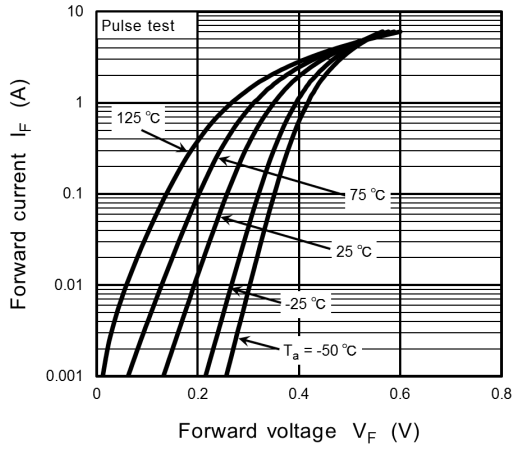



Fig. 8.1 $I_F$ - $V_F$

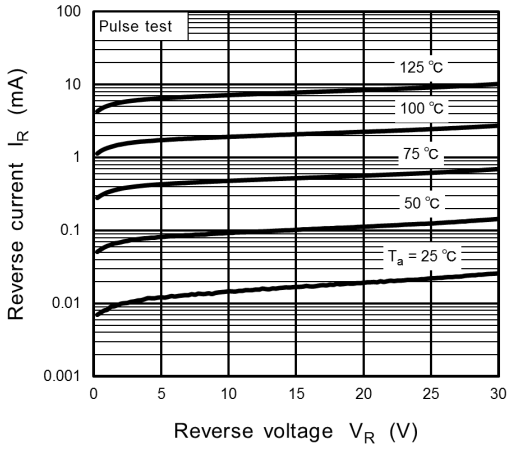



Fig. 8.2 $I_R$ - $V_R$

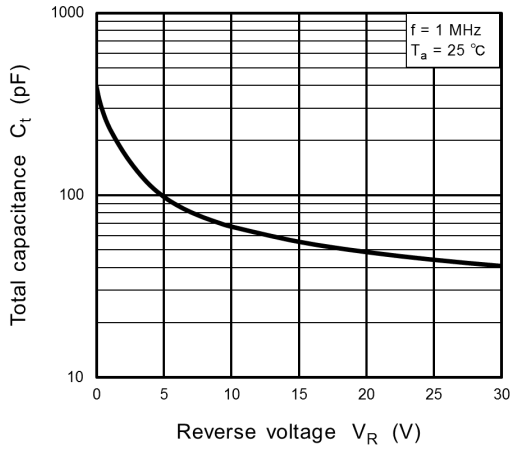



Fig. 8.3 $C_t$ - $V_R$

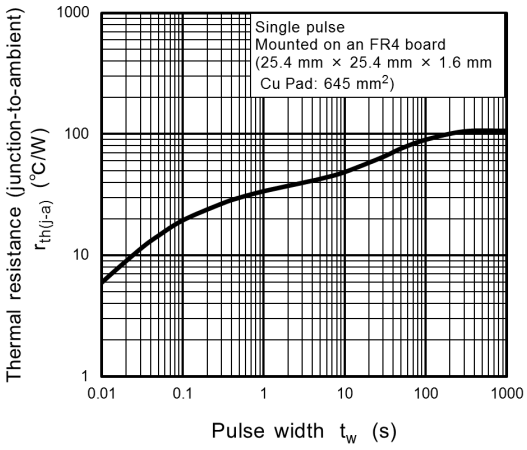



Fig. 8.4 $r_{th}$ - $t_w$

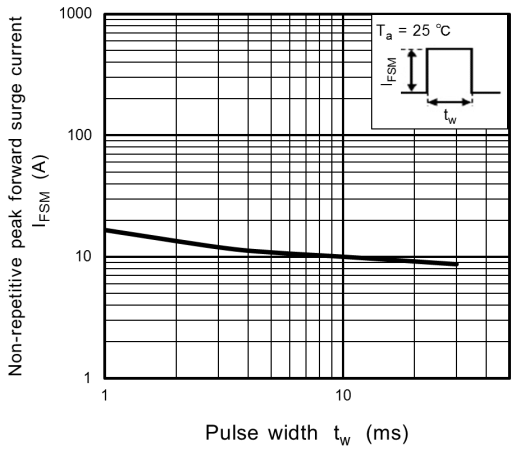



Fig. 8.5 $I_{FSM}$ - $t_w$

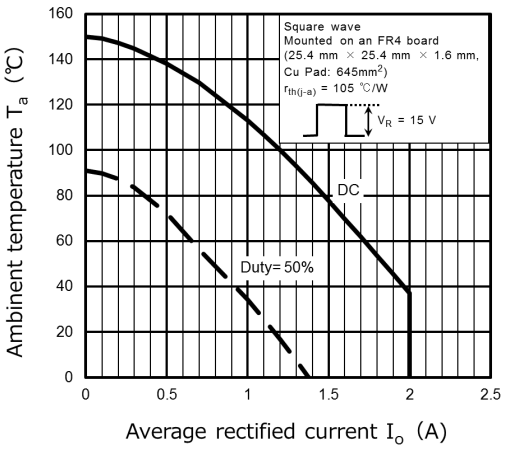


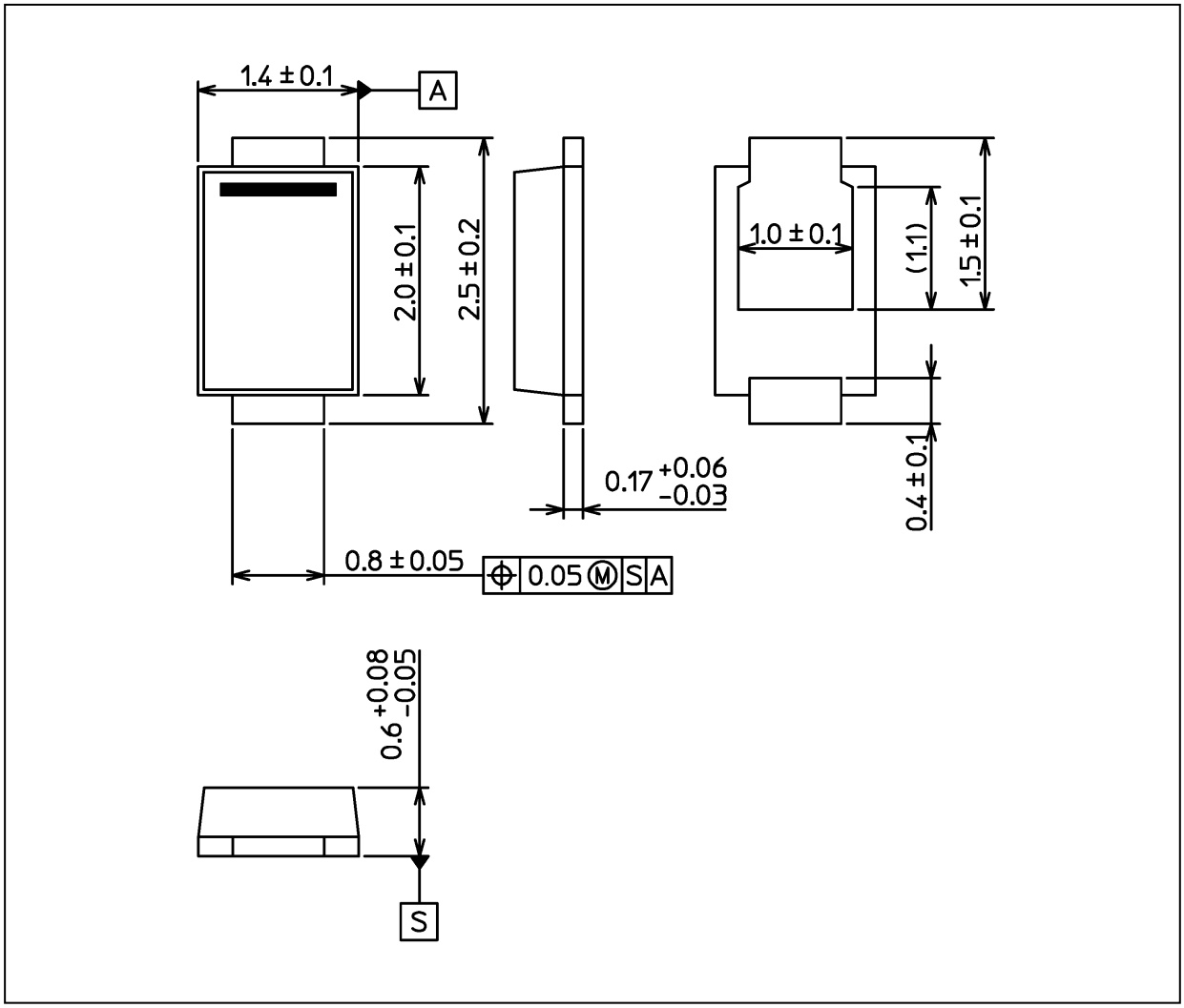

Fig. 8.6 $T_a$ - $I_O$

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

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## Package Dimensions

Unit: mm




Weight: 5.4 mg (typ.)

| Package Name(s) |
| --- |
| Nickname: US2H |

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