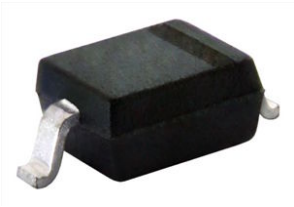
# Small Signal Fast Switching Diode



## FEATURES

- Silicon epitaxial planar diode
- Fast switching diodes
- AEC-Q101 qualified available
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

## MARKING (example only)


22610

Bar = cathode marking
XY = type code

## DESIGN SUPPORT TOOLS click logo to get started

3D Models Available

## MECHANICAL DATA

**Case:** SOD-323

**Weight:** approx. 4.3 mg

**Packaging codes / options:**

18/10K per 13" reel (8 mm tape), 10K/box

08/3K per 7" reel (8 mm tape), 15K/box

**PARTS TABLE**

| PART | ORDERING CODE | CIRCUIT CONFIGURATION | TYPE MARKING | REMARKS |
|---|---|---|---|---|
| 1N4148WS | 1N4148WS-E3-08 or 1N4148WS-E3-18 | Single | A2 | Tape and reel |
| | 1N4148WS-HE3-08 or 1N4148WS-HE3-18 | | | |

**ABSOLUTE MAXIMUM RATINGS** ($T_{amb}$ = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Reverse voltage | | $V_R$ | 75 | V |
| Repetitive peak reverse voltage | | $V_{RRM}$ | 100 | |
| Average rectified current half wave rectification with resistive load (1) | f ≥ 50 Hz | $I_{F(AV)}$ | 150 | mA |
| Surge forward current | t < 1 s and $T_j$ = 25 °C | $I_{FSM}$ | 350 | |
| Power dissipation (1) | | $P_{tot}$ | 200 | mW |

**Note**

(1) Valid provided that electrodes are kept at ambient temperature.

**THERMAL CHARACTERISTICS** ($T_{amb}$ = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Thermal resistance junction to ambient air (1) | | $R_{thJA}$ | 650 | K/W |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature range | | $T_{stg}$ | -65 to +150 | °C |
| Operating temperature range | | $T_{op}$ | -55 to +150 | °C |

**Note**

(1) Valid provided that electrodes are kept at ambient temperature

| **ELECTRICAL CHARACTERISTICS** ($T_{amb}$ = 25 °C, unless otherwise specified) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITION** | **SYMBOL** | **MIN.** | **TYP.** | **MAX.** | **UNIT** |
| Forward voltage | $I_F$ = 10 mA | $V_F$ | | | 1 | V |
| | $I_F$ = 100 mA | $V_F$ | | | 1.2 | V |
| Leakage current | $V_R$ = 20 V | $I_R$ | | | 25 | nA |
| | $V_R$ = 75 V | $I_R$ | | | 5 | µA |
| | $V_R$ = 100 V | $I_R$ | | | 100 | |
| | $V_R$ = 20 V, $T_j$ = 150 °C | $I_R$ | | | 50 | |
| Diode capacitance | $V_F$ = $V_R$ = 0 V | $C_D$ | | | 4 | pF |
| Voltage rise when switching ON | Tested with 50 mA pulses, $t_p$ = 0.1 µs, rise time < 30 ns, $f_p$ = (5 to 100) kHz | $V_{fr}$ | | | 2.5 | V |
| Reverse recovery time | $I_F$ = 10 mA, $i_R$ = 1 mA, $V_R$ = 6 V, $R_L$ = 100 Ω | $t_{rr}$ | | | 4 | ns |

## TYPICAL CHARACTERISTICS ($T_{amb}$ = 25 °C, unless otherwise specified)

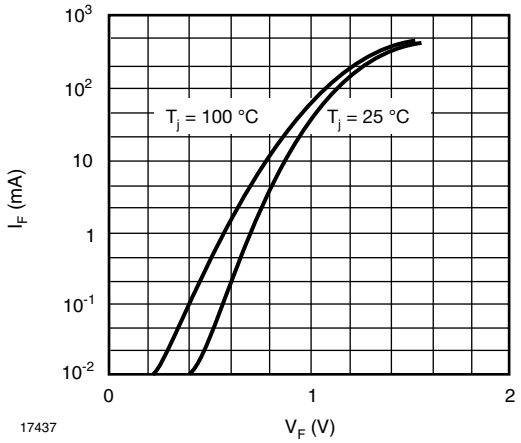



Fig. 1 - Forward Characteristics

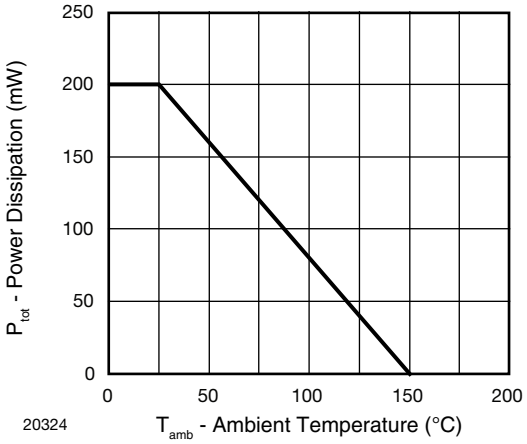



Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

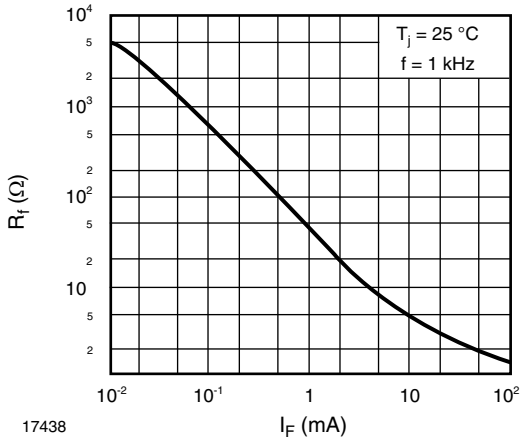



Fig. 2 - Dynamic Forward Resistance vs. Forward Current

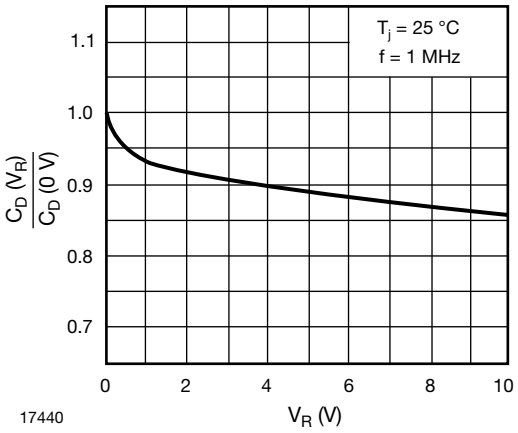



Fig. 4 - Relative Capacitance vs. Reverse Voltage

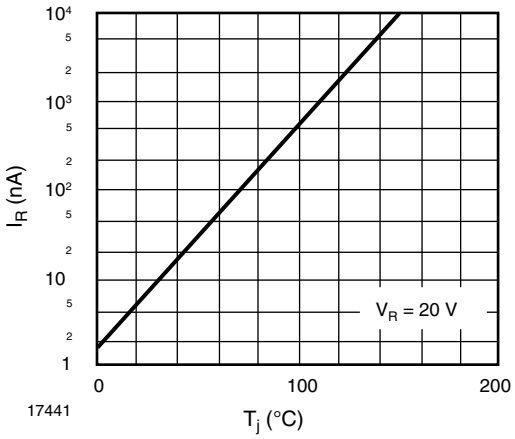



Fig. 5 - Leakage Current vs. Junction Temperature

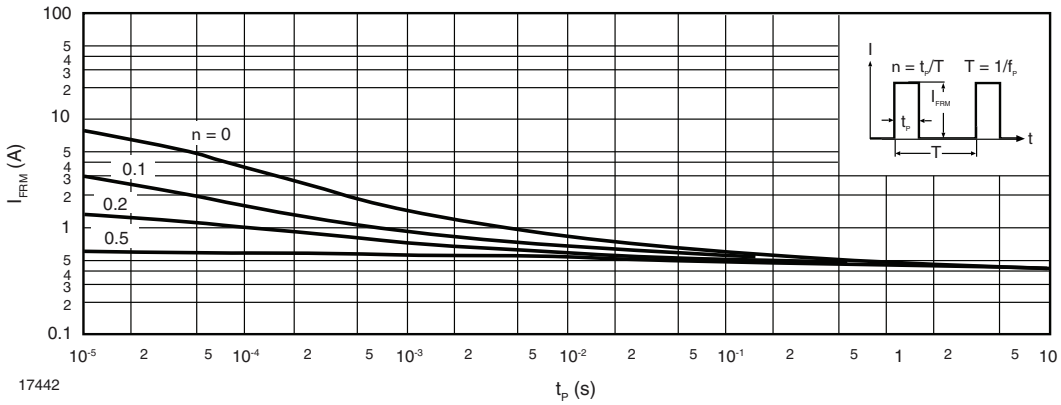
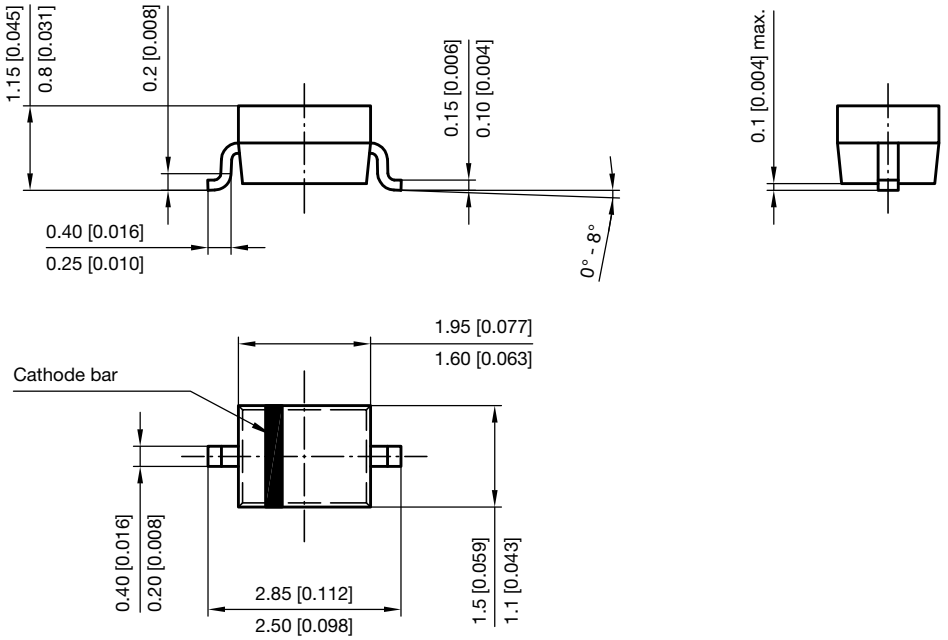
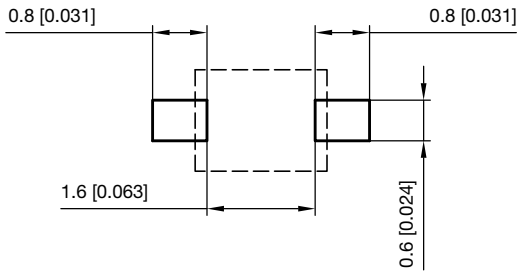



Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration

**PACKAGE DIMENSIONS** in millimeters (inches): **SOD-323**




Footprint recommendation:




Document no.: S8-V-3910.02-001 (4)
Created - Date: 24.August.2004
Rev. 6 - Date: 23.Sept.2016
17443

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