



Small Signal Fast Switching Diode



FEATURES

- Silicon epitaxial planar diode
- Fast switching diode
- 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



RoHS COMPLIANT

DESIGN SUPPORT TOOLS

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MECHANICAL DATA

Case: SOD-123

Weight: approx. 10.3 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 |
| 1N4151W | 1N4151W-E3-08 or 1N4151W-E3-18 | Single | A5 | Tape and reel |
| | 1N4151W-HE3-08 or 1N4151W-HE3-18 | | | |

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|--|------------------------------------|--------------------|-------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Reverse voltage | | V _R | 50 | V |
| Repetitive peak reverse voltage | | V _{RRM} | 75 | V |
| Average rectified current half wave rectification with resistive load ⁽¹⁾ | f ≥ 50 Hz | I _{F(AV)} | 150 | mA |
| Surge current | t < 1 s and T _j = 25 °C | I _{FSM} | 500 | mA |
| Power dissipation ⁽¹⁾ | | P _{tot} | 410 | mW |

| THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|--|----------------|-------------------|-------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Thermal resistance junction to ambient air ⁽¹⁾ | | R _{thJA} | 450 | 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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|---|--|------------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Forward voltage | $I_F = 50\text{ mA}$ | V_F | | | 1.0 | V |
| Leakage current | $V_R = 50\text{ V}$ | I_R | | | 50 | nA |
| | $V_R = 20\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$ | I_R | | | 50 | μA |
| Reverse breakdown voltage | $I_R = 5\text{ }\mu\text{A}$ (pulsed) | $V_{(BR)}$ | 75 | | | V |
| Diode capacitance | $V_F = V_R = 0\text{ V}$ | C_D | | | 2 | pF |
| Reverse recovery time | $I_F = 10\text{ mA}, I_R = 10\text{ mA}$ $i_R = 1\text{ mA}$ | t_{rr} | | | 4 | ns |
| | $I_F = 10\text{ mA}, i_R = 1\text{ mA}$ $V_R = 6\text{ V}, R_L = 100\text{ }\Omega$ | t_{rr} | | | 2 | ns |

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

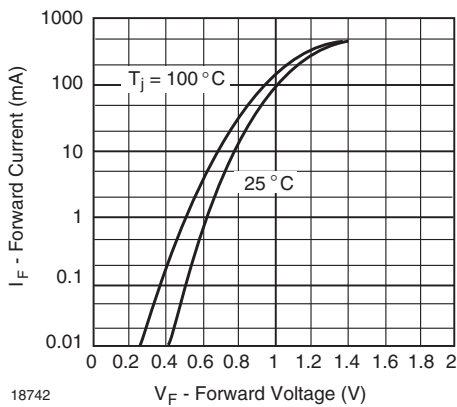


Fig. 1 - Forward Current vs. Forward Voltage

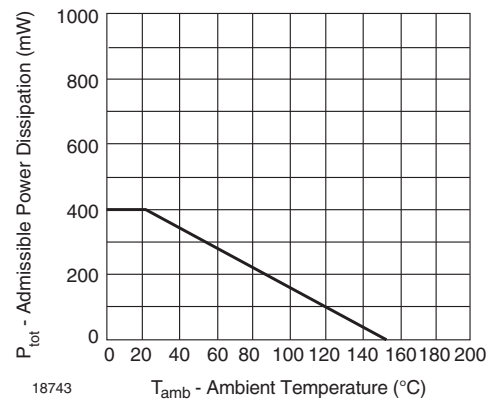


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

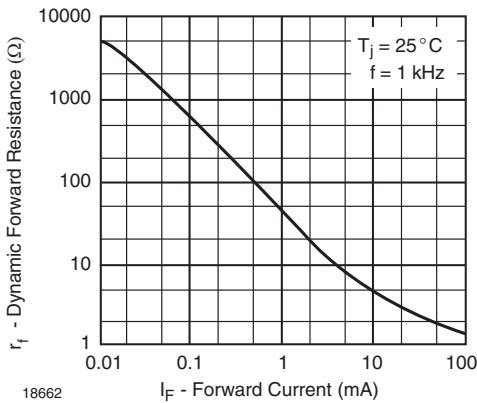


Fig. 2 - Dynamic Forward Resistance vs. Forward Current

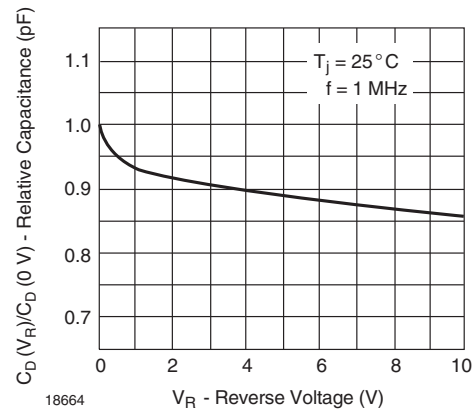


Fig. 4 - Relative Capacitance vs. Reverse Voltage

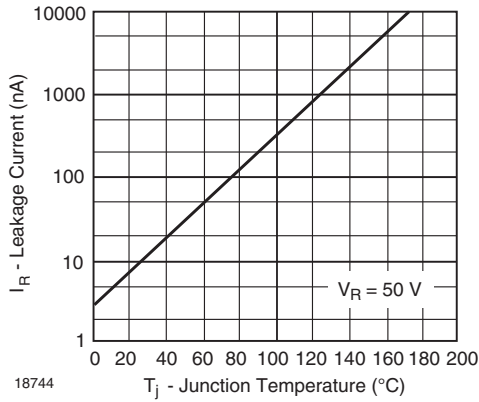


Fig. 5 - Leakage Current vs. Junction Temperature

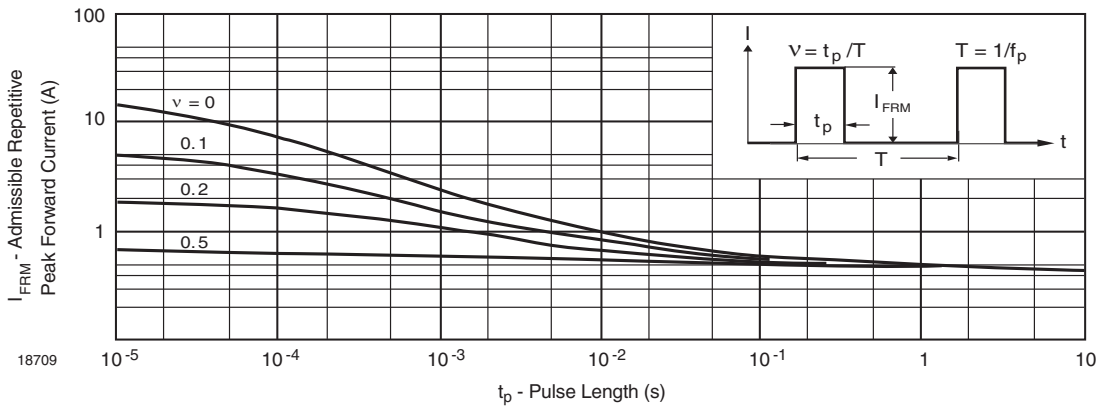
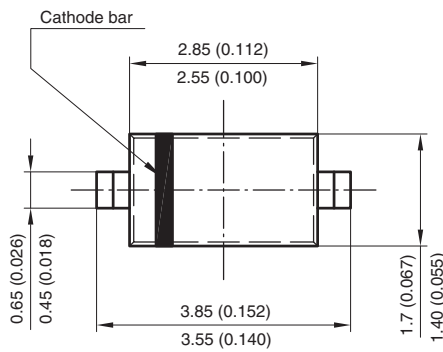
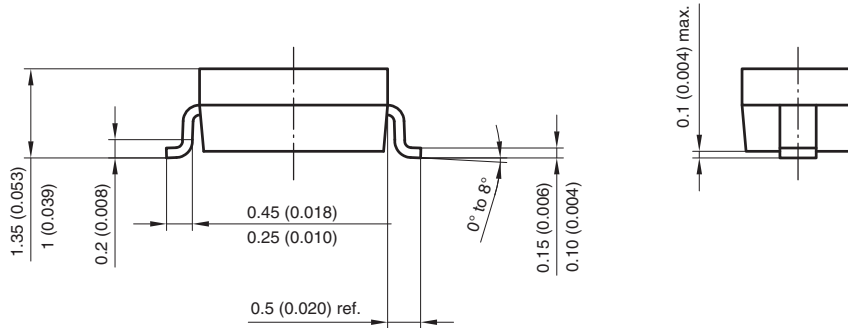


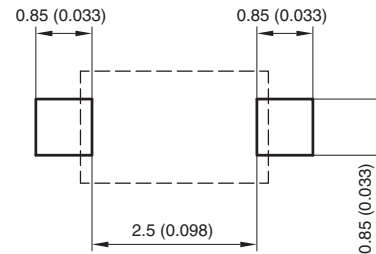
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



PACKAGE DIMENSIONS in millimeters (inches): SOD-123



Mounting Pad Layout



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