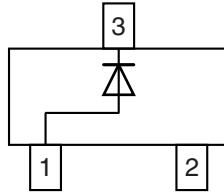
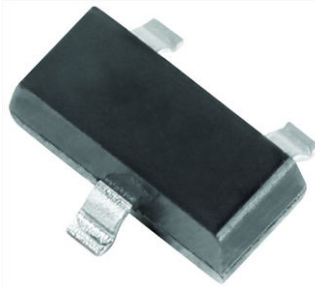


Small Signal Switching Diode



FEATURES

- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion.
- AEC-Q101 qualified
- 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

MECHANICAL DATA

Case: SOT-23

Weight: approx. 8.8 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 | INTERNAL CONSTRUCTION | TYPE MARKING | REMARKS |
| MMBD6050 | MMBD6050-E3-08 or MMBD6050-E3-18 | Single diode | 5AM | Tape and reel |
| | MMBD6050-HE3-08 or MMBD6050-HE3-18 | | | |

| ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | |
|---|--------------------|-----------|-------|-------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Continuous reverse voltage | | V_R | 70 | V |
| Forward current | | I_F | 200 | mA |
| Peak forward surge current | | I_{FSM} | 500 | mA |
| Maximum power dissipation on FR-5 board ⁽¹⁾ | | P_{tot} | 225 | mW |
| | Derate above 25 °C | P_{tot} | 1.8 | mW/°C |
| Maximum power dissipation on alumina substrate ⁽²⁾ | | P_{tot} | 300 | mW |
| | Derate above 25 °C | P_{tot} | 2.4 | mW/°C |

Notes

⁽¹⁾ FR-5 = 1.0" x 0.75" x 0.062".

⁽²⁾ Alumina = 0.4" x 0.3" x 0.024" 99.5 % alumina

| THERMAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | |
|--|----------------|------------|---------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Thermal resistance FR-5 | | R_{thJA} | 556 | °C/W |
| Junction to ambient alumina | | R_{thJA} | 417 | °C/W |
| Maximum junction temperature | | T_j | 150 | °C |
| Storage temperature range | | T_{stg} | - 55 to + 150 | °C |
| Operating temperature range | | T_{op} | - 55 to + 150 | °C |

| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|--|--|------------|------|------|------|------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Reverse breakdown voltage | $I_R = 100\text{ }\mu\text{A}$ | $V_{(BR)}$ | 70 | | | V |
| Forward voltage | $I_F = 1\text{ mA}$ | V_F | 0.55 | | 0.7 | V |
| | $I_F = 100\text{ mA}$ | V_F | 0.85 | | 1.1 | V |
| Reverse leakage current | $V_R = 50\text{ V}$ | I_R | | | 100 | nA |
| Reverse recovery time | $I_F = I_R = 10\text{ mA}$, $i_R = 1\text{ mA}$ | t_{rr} | | | 4 | ns |
| Diode capacitance | $V_R = 0$ | C_D | | | 2.5 | pF |

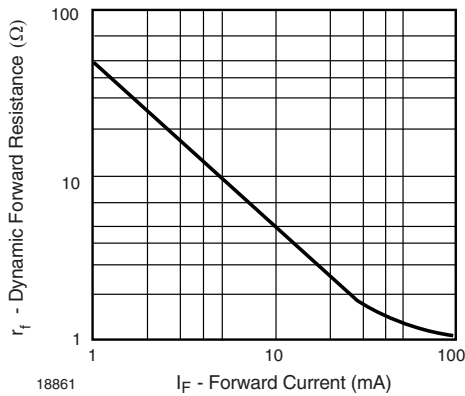
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Dynamic Forward Resistance vs. Forward Current

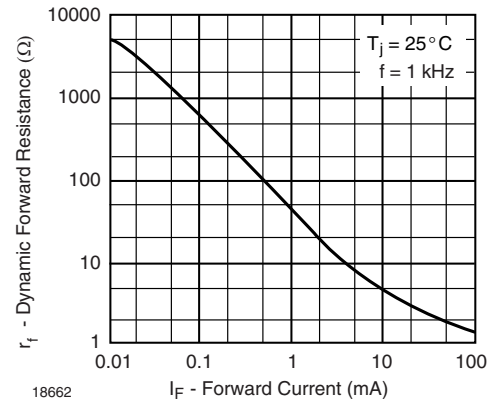


Fig. 3 - Dynamic Forward Resistance vs. Forward Current

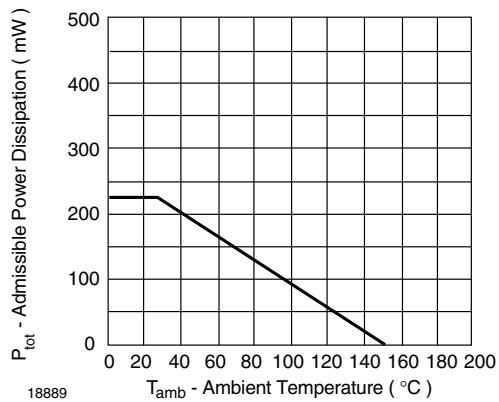


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

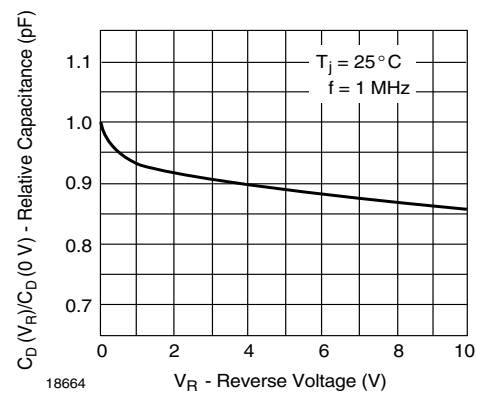


Fig. 4 - Relative Capacitance vs. Reverse Voltage

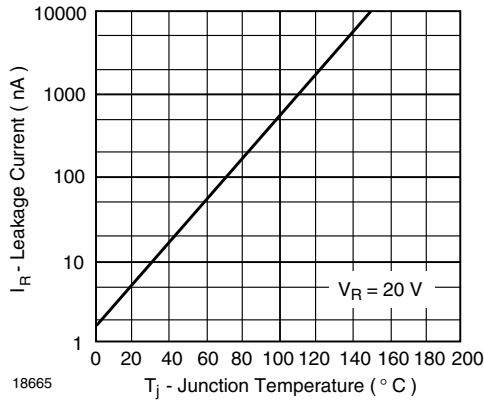


Fig. 5 - Leakage Current vs. Junction Temperature

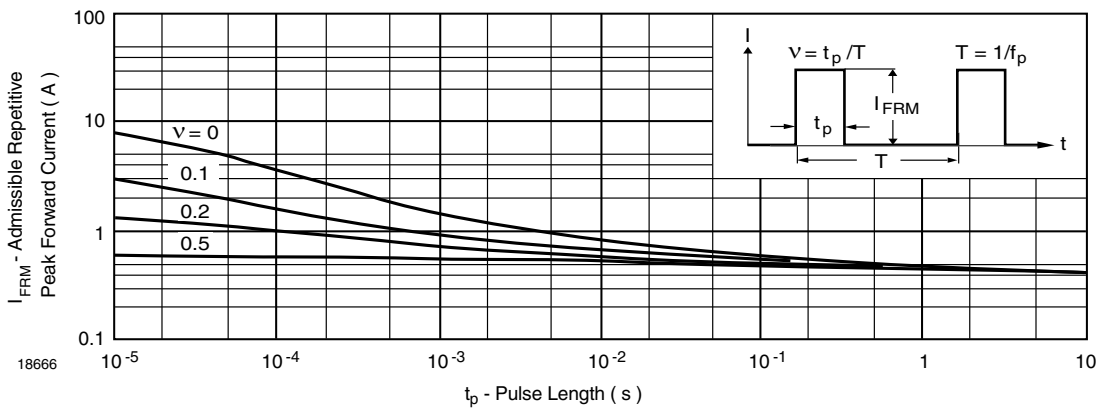
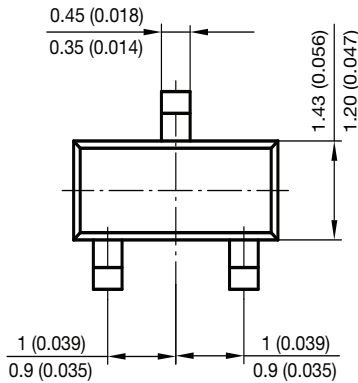
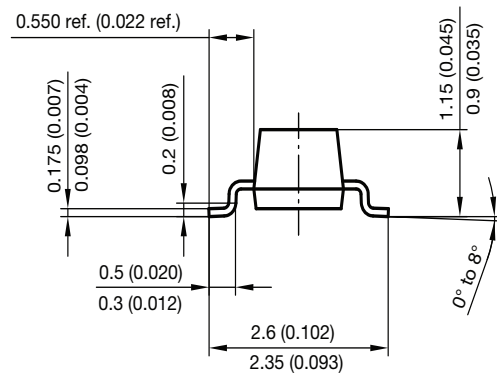
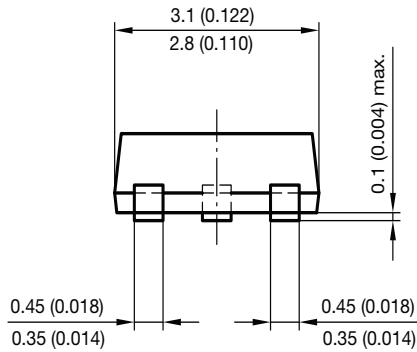


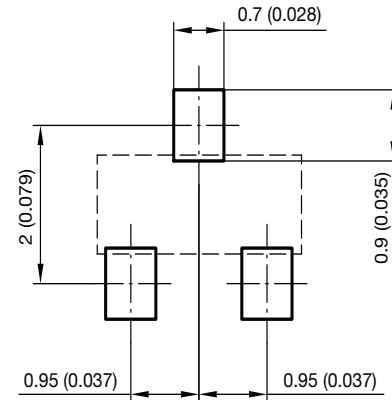
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



PACKAGE DIMENSIONS in millimeters (inches): SOT-23



Foot print recommendation:



Document no.: 6.541-5014.01-4
Rev. 8 - Date: 23.Sept.2009
17418



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