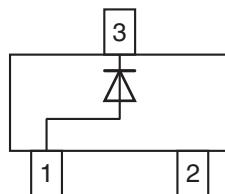
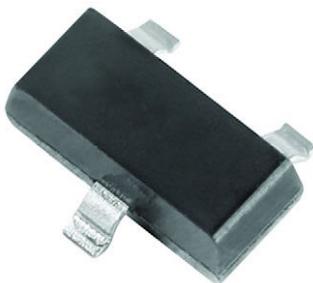


## Small Signal Switching Diode



**DESIGN SUPPORT TOOLS** click logo to get started



### 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

### FEATURES

- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion
- 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](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### PARTS TABLE

| PART     | ORDERING CODE                      | CIRCUIT CONFIGURATION | TYPE MARKING | REMARKS       |
|----------|------------------------------------|-----------------------|--------------|---------------|
| MMBD6050 | MMBD6050-E3-08 or MMBD6050-E3-18   | Single                | 5AM          | Tape and reel |
|          | MMBD6050-HE3-08 or MMBD6050-HE3-18 |                       |              |               |

### ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

| PARAMETER   | TEST CONDITION     | SYMBOL           | VALUE | UNIT  |
|---|--------------------|------------------|-------|-------|
| Continuous reverse voltage                                    |                    | V <sub>R</sub>   | 70    | V     |
| Forward current   |                    | I <sub>F</sub>   | 200   | mA    |
| Peak forward surge current                                    |                    | I <sub>FSM</sub> | 500   | mA    |
| Maximum power dissipation on FR-5 board <sup>(1)</sup>        |                    | P <sub>tot</sub> | 225   | mW    |
|   | Derate above 25 °C | P <sub>tot</sub> | 1.8   | mW/°C |
| Maximum power dissipation on alumina substrate <sup>(2)</sup> |                    | P <sub>tot</sub> | 300   | mW    |
|   | Derate above 25 °C | P <sub>tot</sub> | 2.4   | mW/°C |

#### Notes

<sup>(1)</sup> FR-5 = 1.0" x 0.75" x 0.062"

<sup>(2)</sup> Alumina = 0.4" x 0.3" x 0.024" 99.5 % alumina

### THERMAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

| PARAMETER                    | TEST CONDITION | SYMBOL            | VALUE       | UNIT |
|------------------------------|----------------|-------------------|-------------|------|
| Thermal resistance FR-5      |                | R <sub>thJA</sub> | 556         | °C/W |
| Junction to ambient alumina  |                | R <sub>thJA</sub> | 417         | °C/W |
| Maximum junction temperature |                | T <sub>j</sub>    | 150         | °C   |
| Storage temperature range    |                | T <sub>stg</sub>  | -55 to +150 | °C   |
| Operating temperature range  |                | T <sub>op</sub>   | -55 to +150 | °C   |

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

| PARAMETER                 | TEST CONDITION                                  | SYMBOL     | MIN. | TYP. | MAX. | UNIT |
|---------------------------|---|------------|------|------|------|------|
| Reverse breakdown voltage | $I_R = 100 \mu A$                               | $V_{(BR)}$ | 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   |

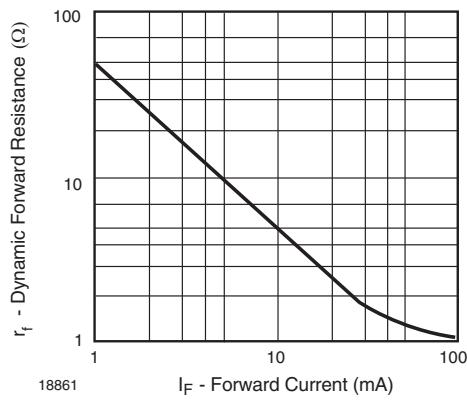
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25^{\circ}C$ , unless otherwise specified)


Fig. 1 - Dynamic Forward Resistance vs. Forward Current

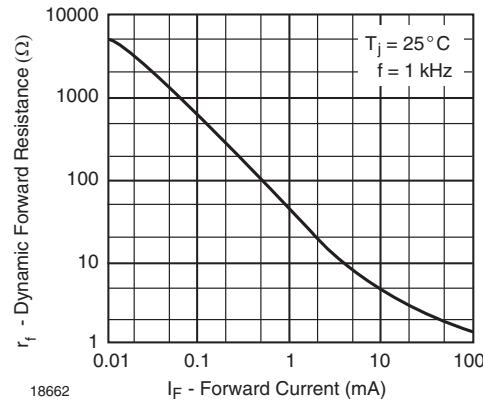


Fig. 3 - Dynamic Forward Resistance vs. Forward Current

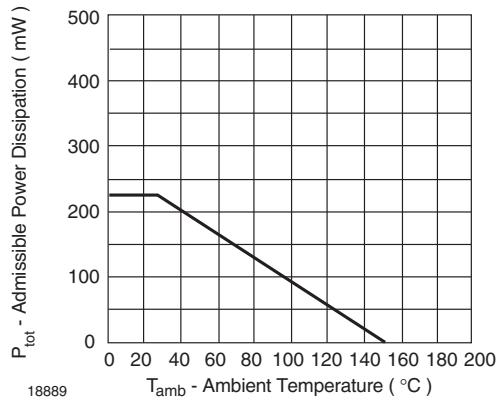


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

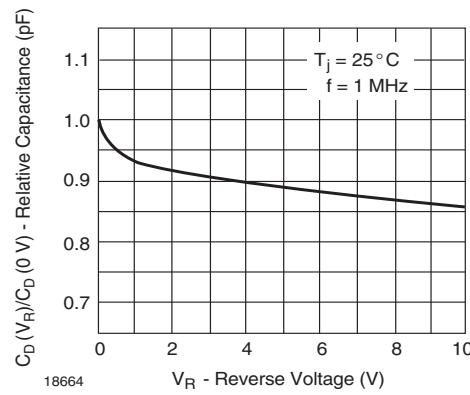


Fig. 4 - Relative Capacitance vs. Reverse Voltage

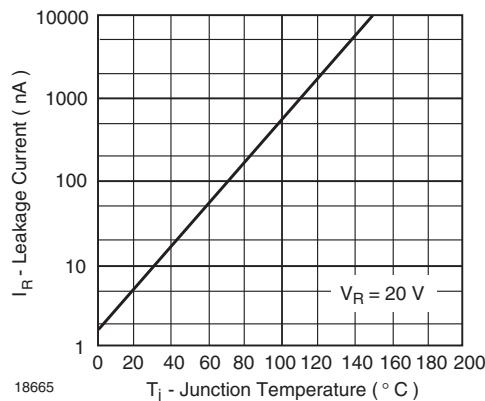


Fig. 5 - Leakage Current vs. Junction Temperature

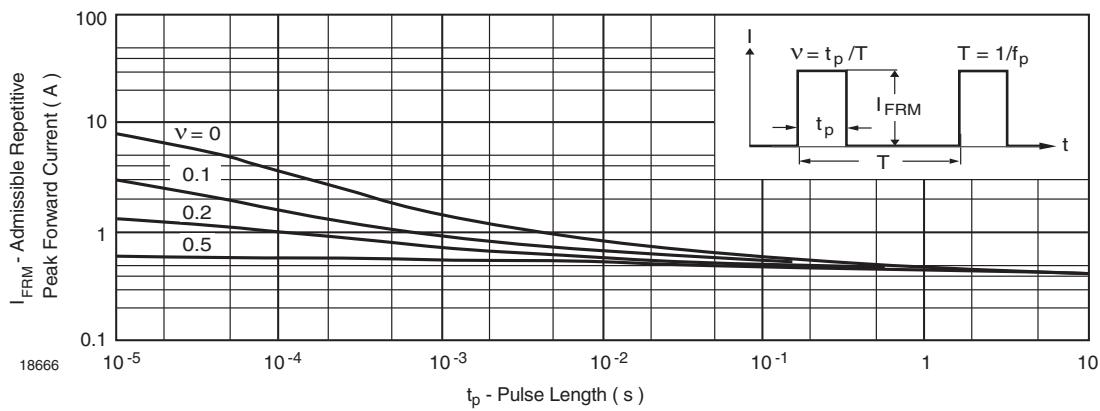
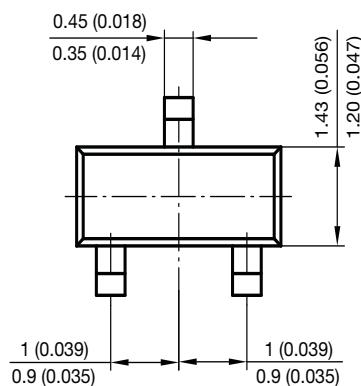
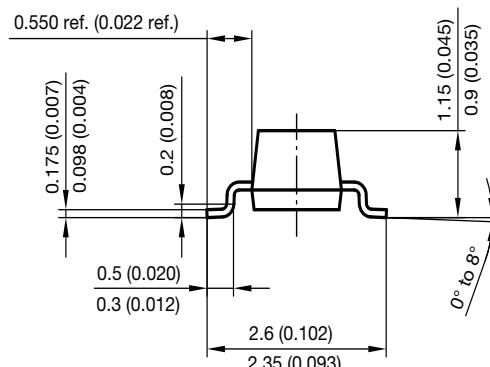
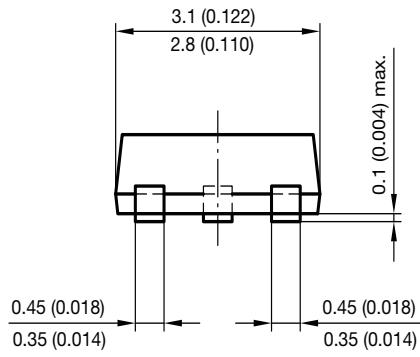
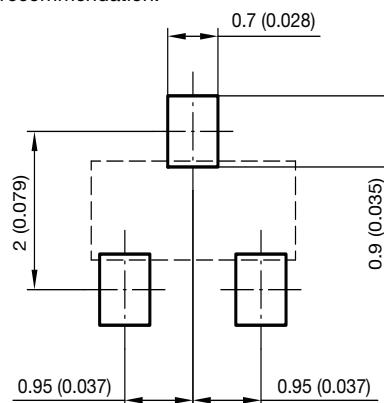


Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration

**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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