

## 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](http://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 <sup>(1)</sup>		$P_{tot}$	225	mW
	Derate above 25 °C	$P_{tot}$	1.8	mW/°C
Maximum power dissipation on alumina substrate <sup>(2)</sup>		$P_{tot}$	300	mW
	Derate above 25 °C	$P_{tot}$	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 ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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

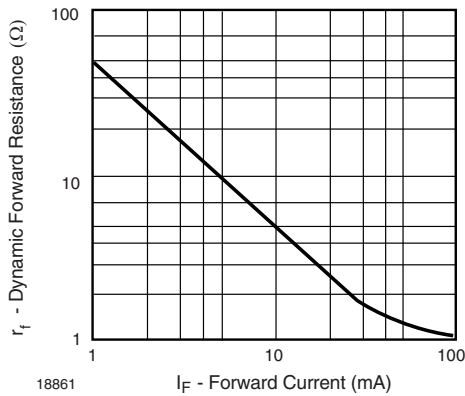
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Dynamic Forward Resistance vs. Forward Current

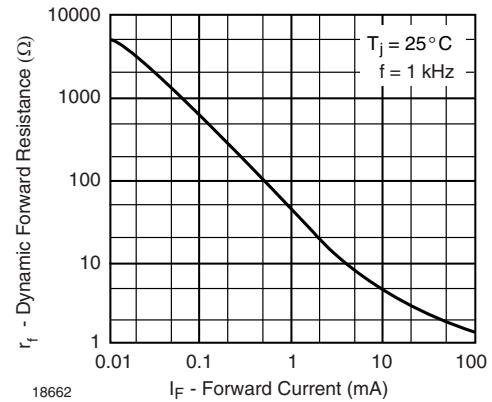


Fig. 3 - Dynamic Forward Resistance vs. Forward Current

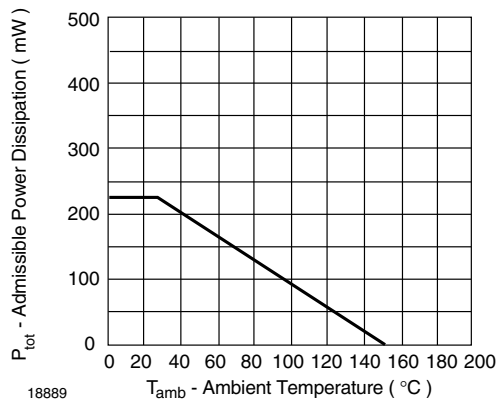


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

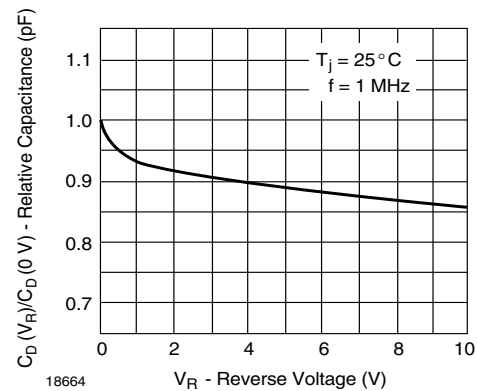


Fig. 4 - Relative Capacitance vs. Reverse Voltage

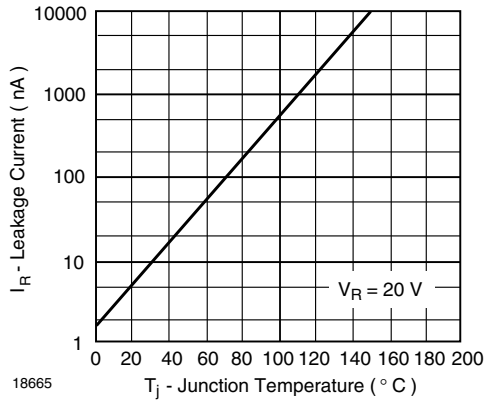


Fig. 5 - Leakage Current vs. Junction Temperature

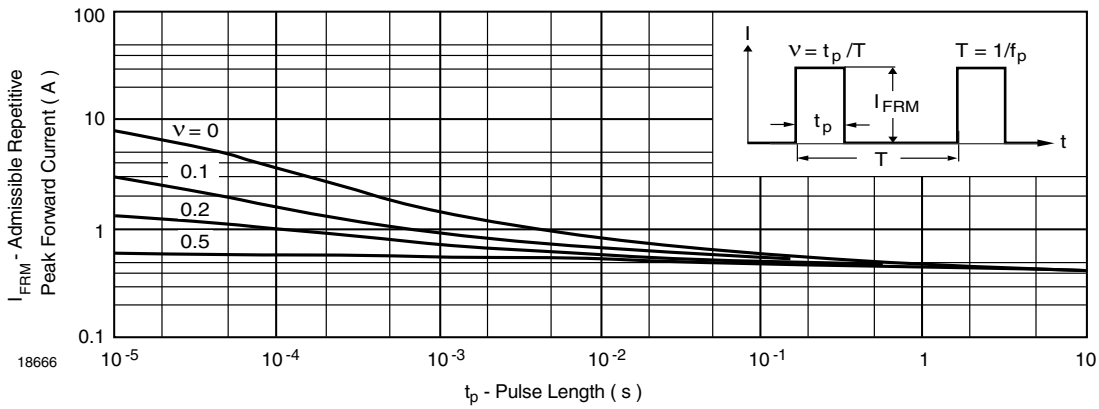
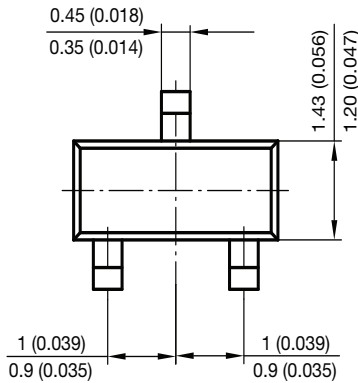
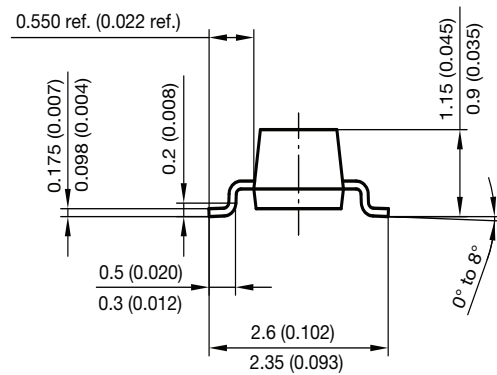
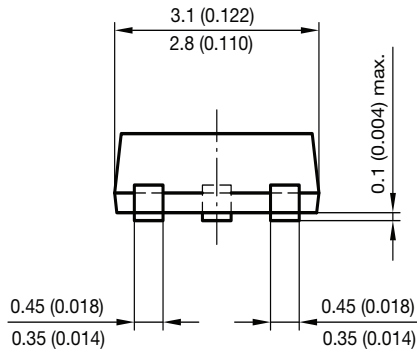


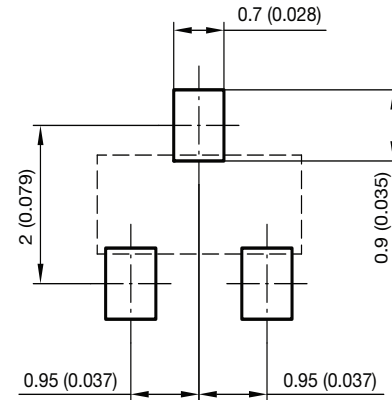
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



PACKAGE DIMENSIONS in millimeters (inches): SOT-23



Foot print recommendation:



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17418



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