

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

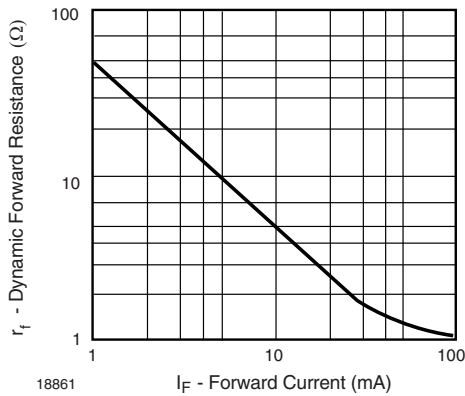
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Dynamic Forward Resistance vs. Forward Current

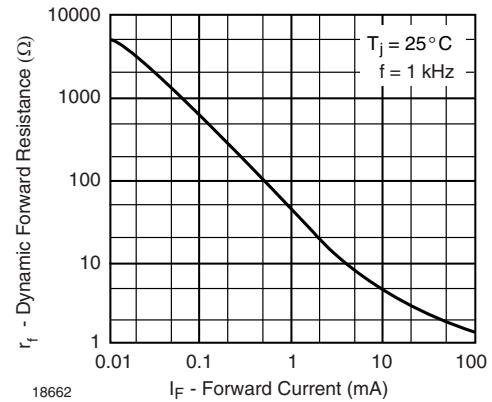


Fig. 3 - Dynamic Forward Resistance vs. Forward Current

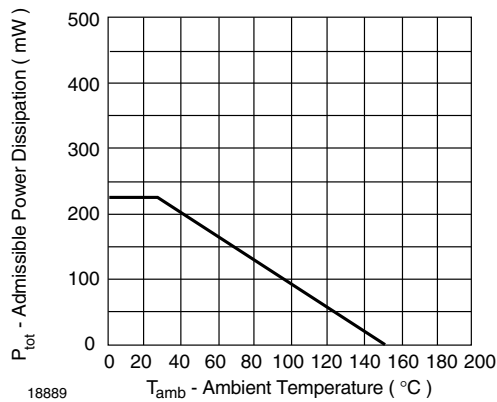


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

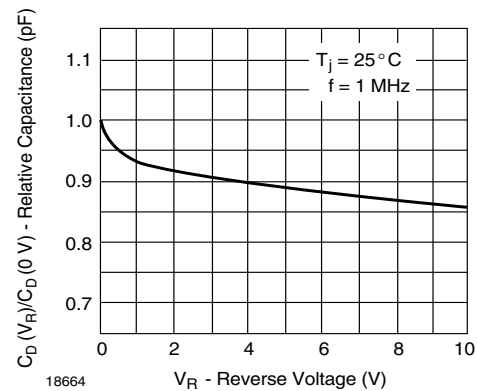


Fig. 4 - Relative Capacitance vs. Reverse Voltage

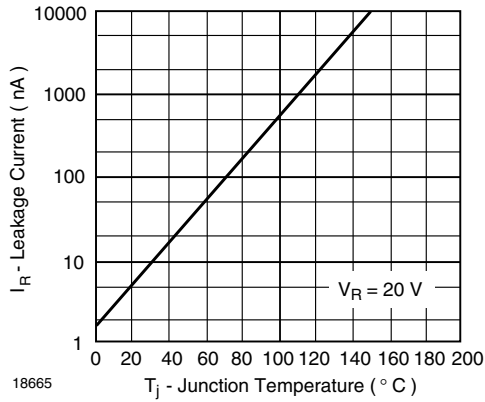


Fig. 5 - Leakage Current vs. Junction Temperature

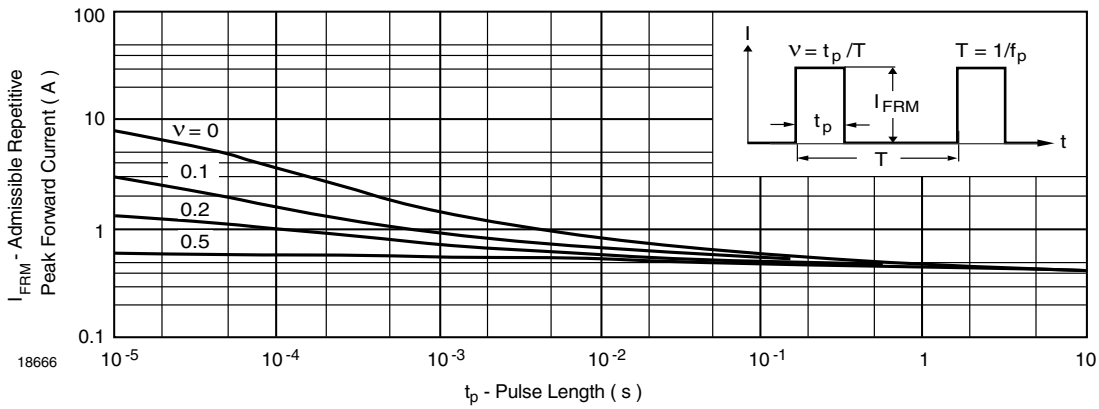
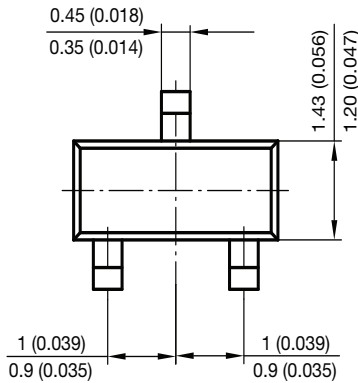
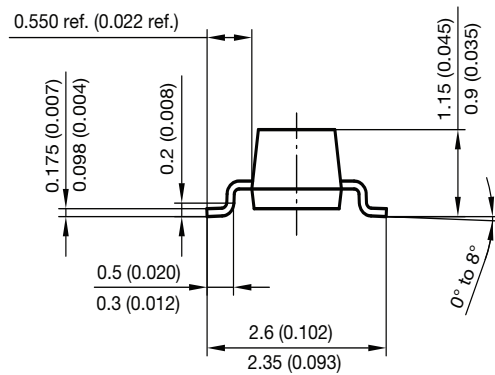
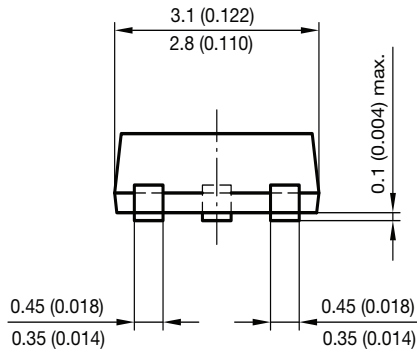


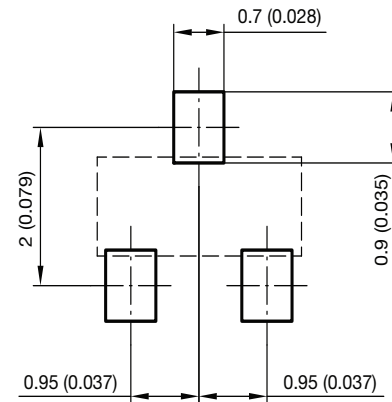
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



PACKAGE DIMENSIONS in millimeters (inches): SOT-23



Foot print recommendation:



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