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November 2014

MMBD4448

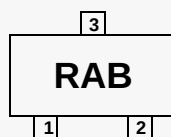
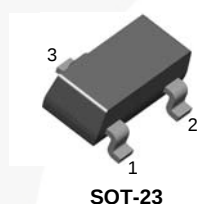
High Conductance Fast Diode

Features

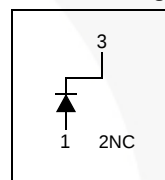
- 350 mW Power Dissipation Package
- High Breakdown Voltage, Fast Switching Speed
- Typical Capacitance < 1.5 pF.

Description

The high breakdown voltage, fast switching speed and high forward conductance of the MMBD4448 diode packaged in a SOT-23 surface mount package makes it desirable a general-purpose diode.



Connection Diagram



Ordering Information

Part Number	Top Mark	Package	Packing Method
MMBD4448	RAB	SOT-23 3L	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter		Value	Unit
V_{RRM}	Maximum Repetitive Reverse Voltage		100	V
W_{IV}	Working Inverse Voltage		75	V
I_O	Average Rectified Current		200	mA
I_F	DC Forward Current		600	mA
i_f	Recurrent Peak Forward Current		700	mA
I_{FSM}	Peak Forward Surge Current	Pulse Width = 1.0 second	1.0	A
		Pulse Width = 1.0 microsecond	2.0	
T_{STG}	Storage Temperature Range		-55 to +150	$^\circ\text{C}$
T_J	Operating Junction Temperature		-55 to +150	$^\circ\text{C}$

Thermal Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Total Power Dissipation at $T_A = 25^\circ\text{C}$	350	mW
	Linear Derating Factor from $T_A = 25^\circ\text{C}$	2.8	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	$^\circ\text{C/W}$

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
V_R	Breakdown Voltage	$I_R = 5.0 \mu\text{A}$	75		V
		$I_R = 100 \mu\text{A}$	100		
I_R	Reverse Current	$V_R = 20 \text{ V}$		25	nA
		$V_R = 20 \text{ V}, T_A = 150^\circ\text{C}$		50	μA
		$V_R = 75 \text{ V}$		5.0	μA
V_F	Forward Voltage	$I_F = 5 \text{ mA}$	620	720	mV
		$I_F = 100 \text{ mA}$		1.0	V
C_T	Capacitance	$V_R = 0 \text{ V}, f = 1.0 \text{ MHz}$		2.0	pF
T_{RR}	Reverse Recovery Time	$I_F = 10 \text{ mA}, I_R = 10 \text{ mA},$ $I_{RR} = 1.0 \text{ mA}, R_L = 100 \Omega$		4.0	ns
V_{FRM}	Peak Forward Recovery Voltage	$I_F = 50 \text{ mA},$ Peak Square Wave		2.5	V

Typical Performance Characteristics

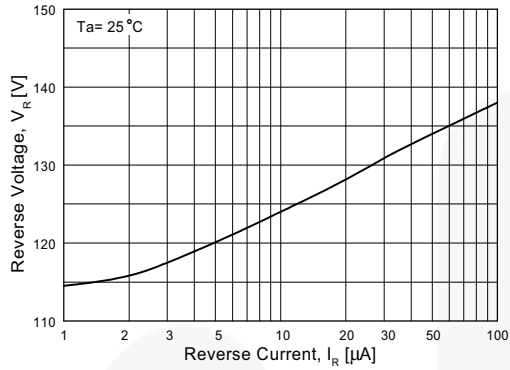


Figure 1. Reverse Voltage vs. Reverse Current
BV - 1.0 to 100 μ A

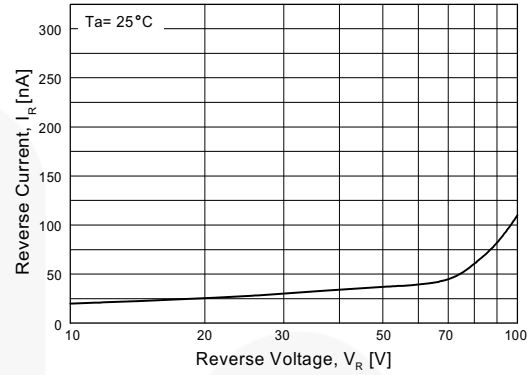


Figure 2. Reverse Current vs. Reverse Voltage
IR - 10 to 100 V

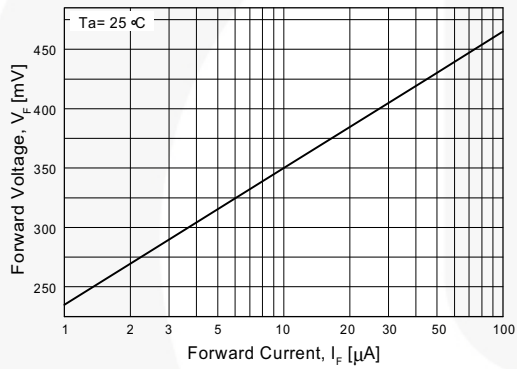


Figure 3. Forward Voltage vs. Forward Current
VF - 1.0 to 100 μ A

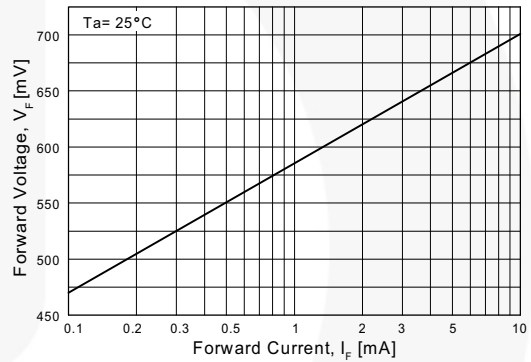


Figure 4. Forward Voltage vs. Forward Current
VF - 0.1 to 10 mA

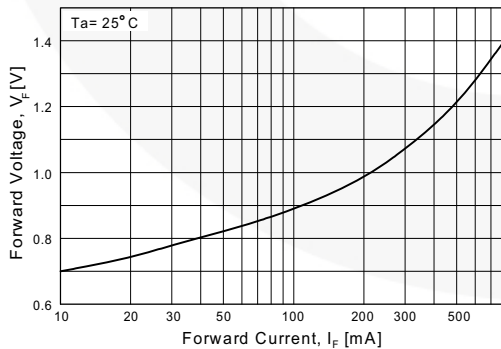


Figure 5. Forward Voltage vs. Forward Current
VF - 10 to 800 mA

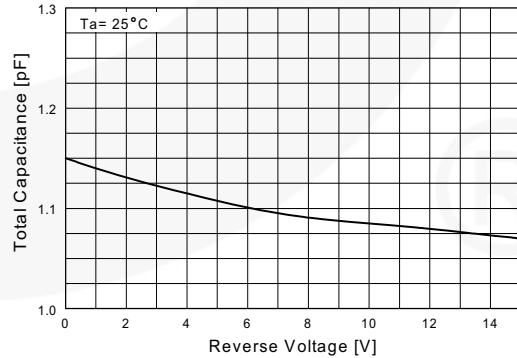


Figure 6. Total Capacitance vs. Reverse Voltage

Typical Performance Characteristics (Continued)

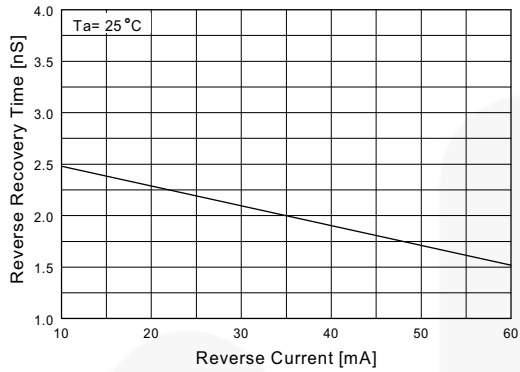


Figure 7. Reverse Recovery Time vs. Reverse Current
TRR - IR 10 mA to 60 mA

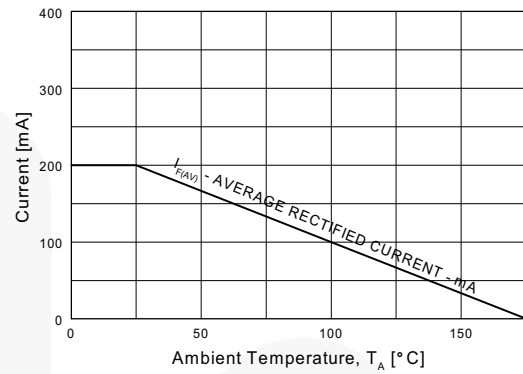


Figure 8. Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature (T_A)

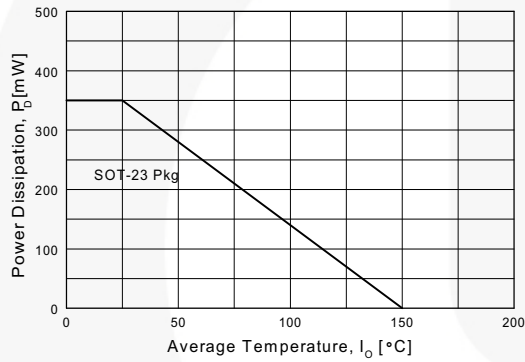


Figure 9. Power Derating Curve

Physical Dimensions

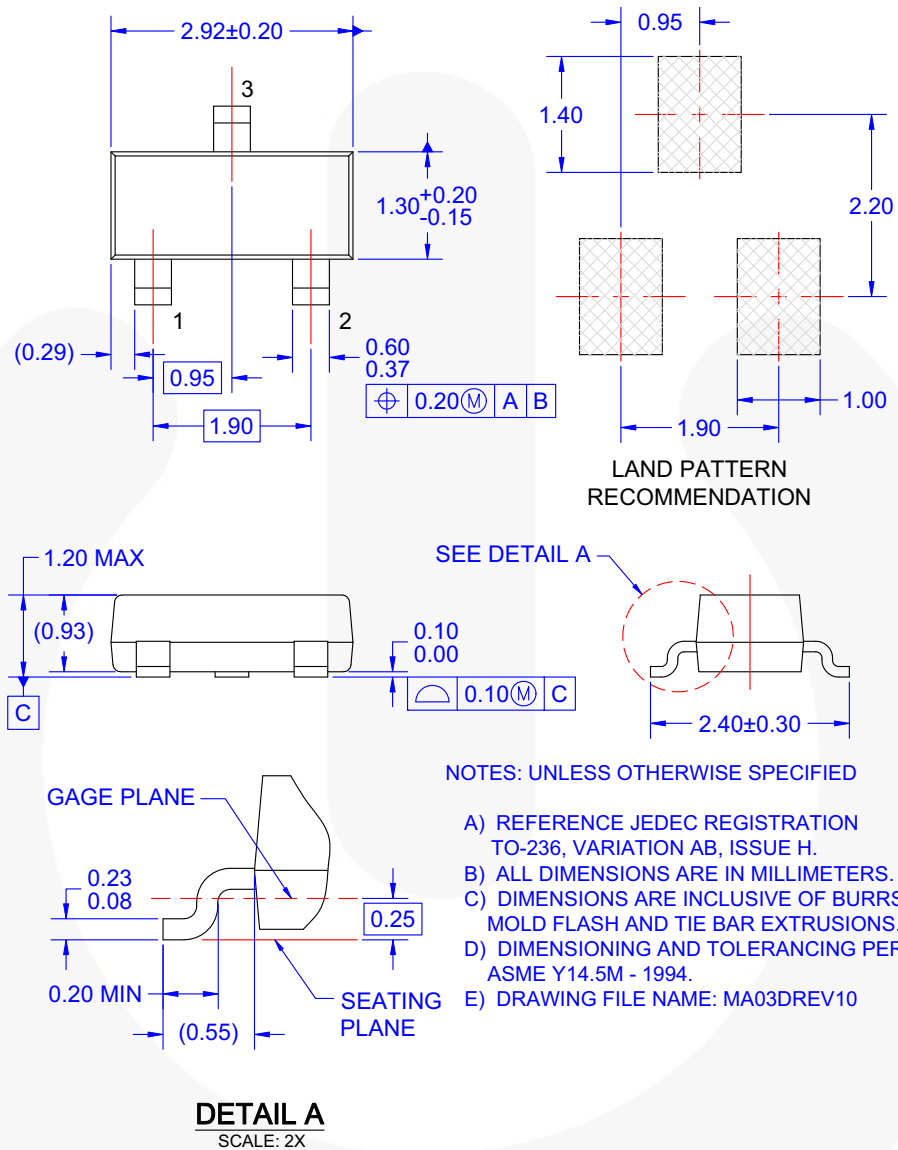


Figure 10. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE

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