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November 2014

# MMBD4448

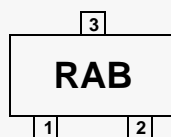
## High Conductance Fast Diode

### Features

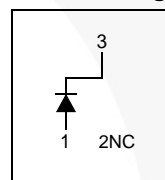
- 350 mW Power Dissipation Package
- High Breakdown Voltage, Fast Switching Speed
- Typical Capacitance < 1.5 pF.

### 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	$\mu\text{A}$
		$V_R = 75\ \text{V}$		5.0	$\mu\text{A}$
$V_F$	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

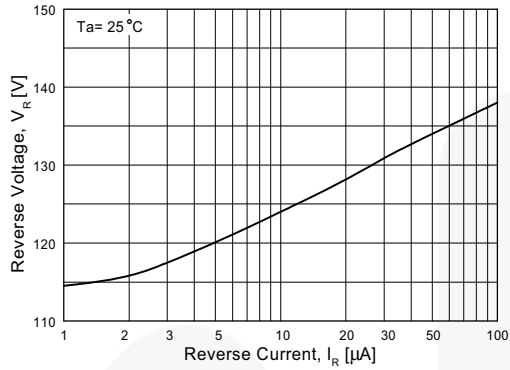


Figure 1. Reverse Voltage vs. Reverse Current  
BV - 1.0 to 100  $\mu$ A

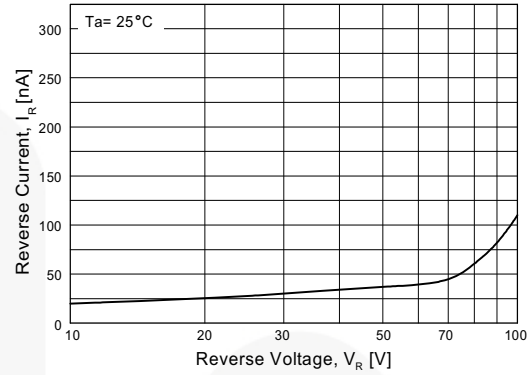


Figure 2. Reverse Current vs. Reverse Voltage  
IR - 10 to 100 V

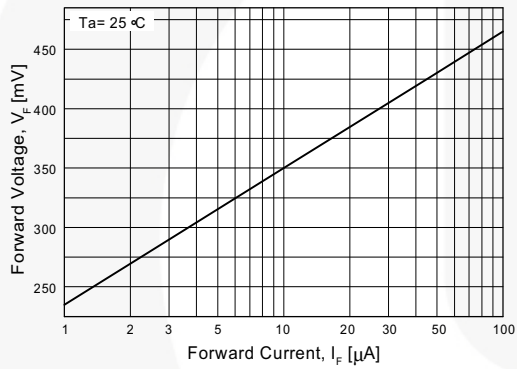


Figure 3. Forward Voltage vs. Forward Current  
VF - 1.0 to 100  $\mu$ A

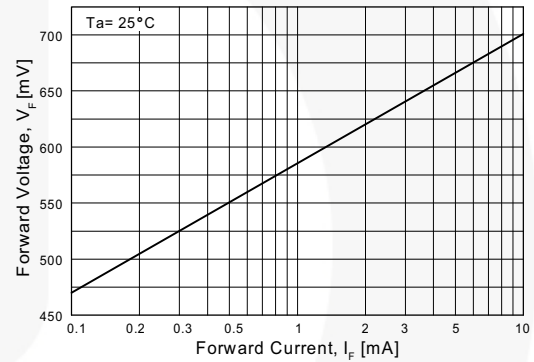


Figure 4. Forward Voltage vs. Forward Current  
VF - 0.1 to 10 mA

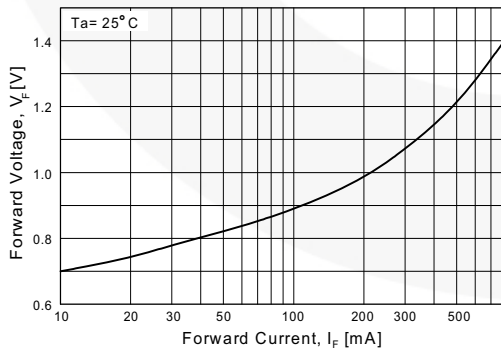


Figure 5. Forward Voltage vs. Forward Current  
VF - 10 to 800 mA

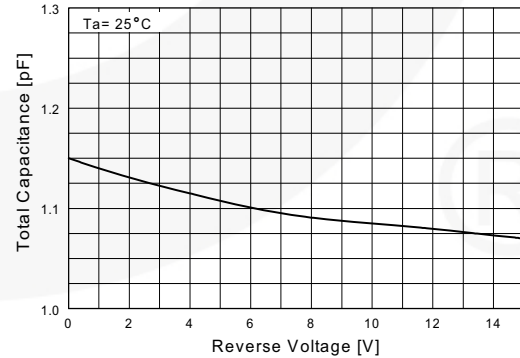
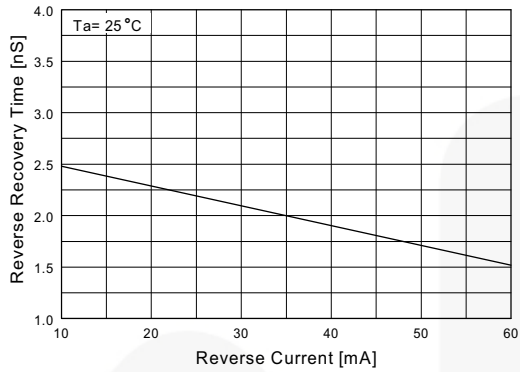
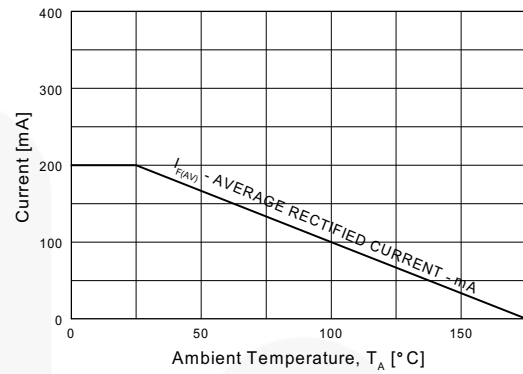


Figure 6. Total Capacitance vs. Reverse Voltage

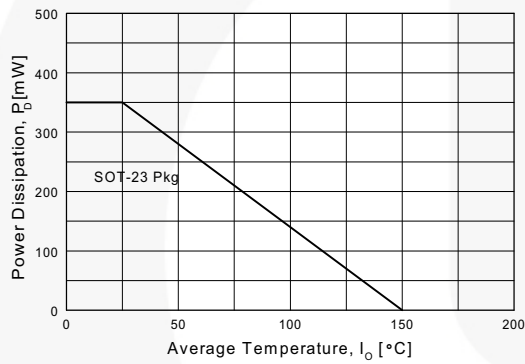
## Typical Performance Characteristics (Continued)



**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

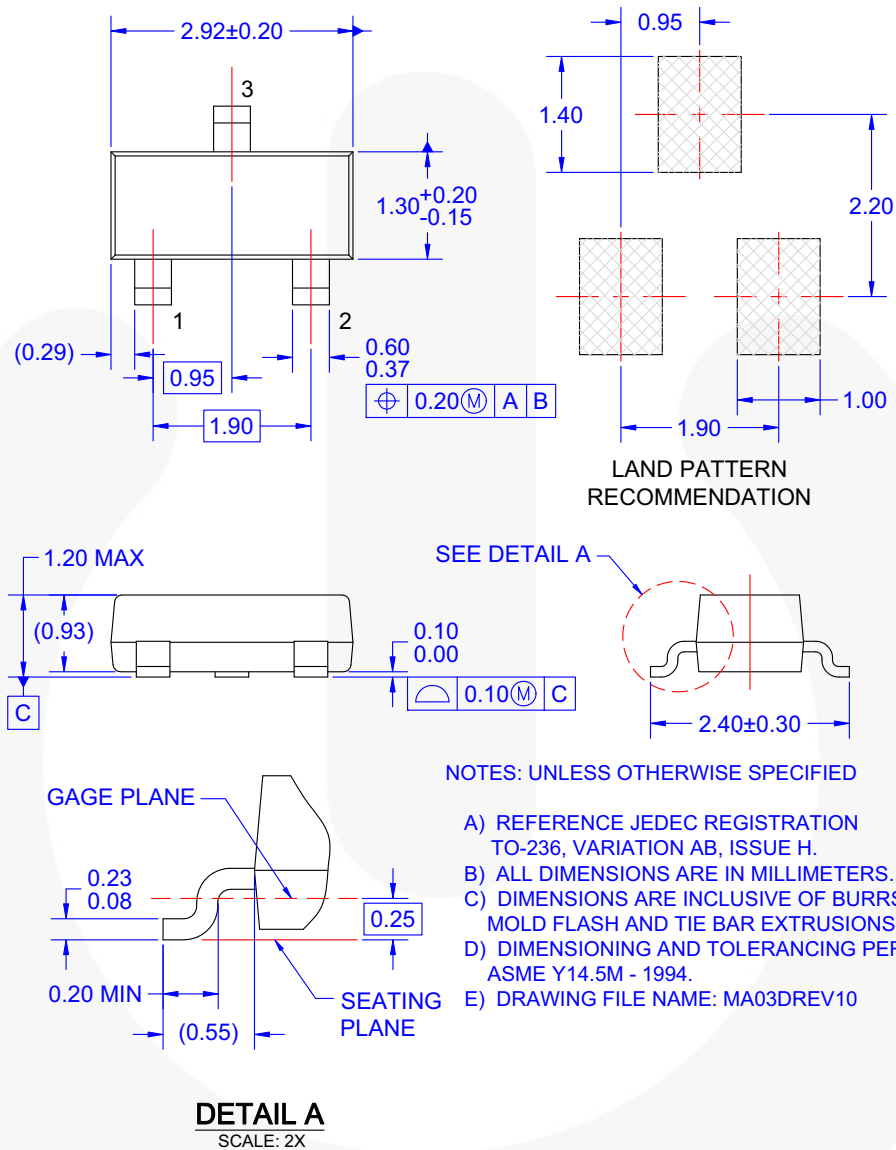



Figure 10. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE

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