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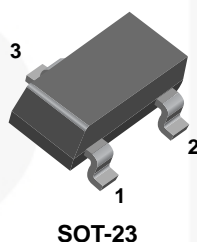
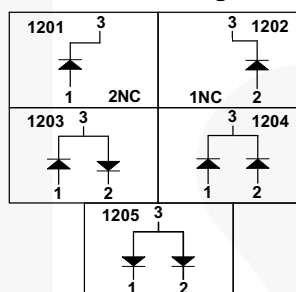
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July 2015

# MMBD1201 / MMBD1202 / MMBD1203 / MMBD1204 / MMBD1205

## Small Signal Diodes

**Connection Diagram**

### Ordering Information

Part Number	Top Mark	Package	Packing Method
MMBD1201	24	SOT-23 3L	Tape and Reel
MMBD1202	25	SOT-23 3L	Tape and Reel
MMBD1203	26	SOT-23 3L	Tape and Reel
MMBD1204	27	SOT-23 3L	Tape and Reel
MMBD1205	28	SOT-23 3L	Tape and Reel

### Absolute Maximum Ratings<sup>(1), (2)</sup>

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
$I_{F(AV)}$	Average Rectified Forward Current		200	mA
$I_{FSM}$	Non-Repetitive 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		150	$^\circ\text{C}$

**Notes:**

1. These ratings are based on a maximum junction temperature of  $150^\circ\text{C}$ .
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

MMBD1201 / MMBD1202 / MMBD1203 / MMBD1204 / MMBD1205 — Small Signal Diodes

## Thermal Characteristics

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

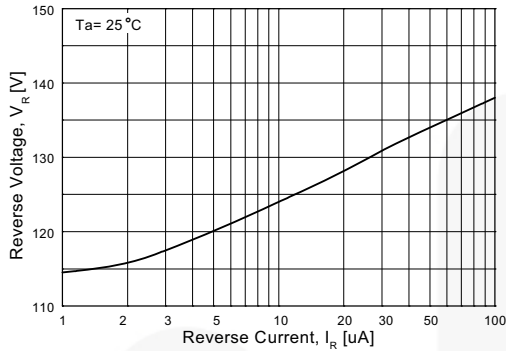
Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	350	mW
	Derate Above $25^\circ\text{C}$	2.8	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	$^\circ\text{C}/\text{W}$

## Electrical Characteristics

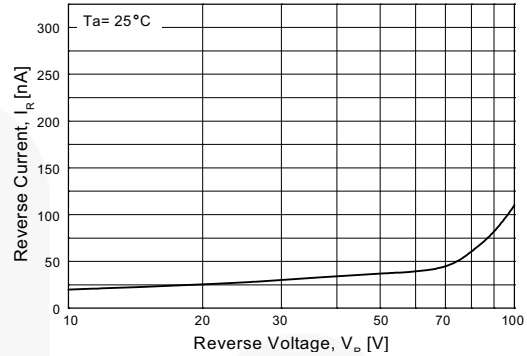
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_R$	Breakdown Voltage	$I_R = 100\ \mu\text{A}$	100		V
$V_F$	Forward Voltage	$I_F = 1.0\ \text{mA}$	550	600	mV
		$I_F = 10\ \text{mA}$	660	740	mV
		$I_F = 100\ \text{mA}$	820	920	mV
		$I_F = 200\ \text{mA}$	0.87	1.0	V
		$I_F = 300\ \text{mA}$		1.1	V
$I_R$	Reverse Current	$V_R = 20\ \text{V}$		25	nA
		$V_R = 50\ \text{V}$		50	nA
		$V_R = 50\ \text{V}$ , $T_A = 150^\circ\text{C}$		100	$\mu\text{A}$
$C_T$	Total Capacitance	$V_R = 0$ , $f = 1.0\ \text{MHz}$		2.0	pF
$t_{rr}$	Reverse Recovery Time	$I_F = I_R = 10\ \text{mA}$ , $I_{RR} = 1.0\ \text{mA}$ , $R_L = 100\ \Omega$		4.0	nS

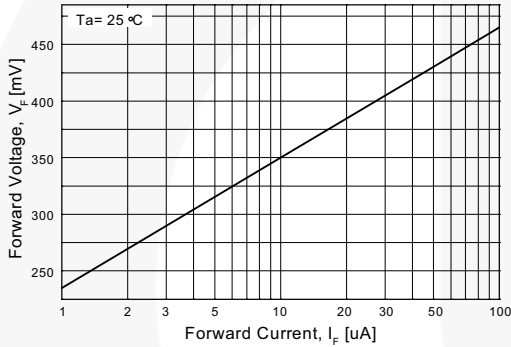
## Typical Performance Characteristics



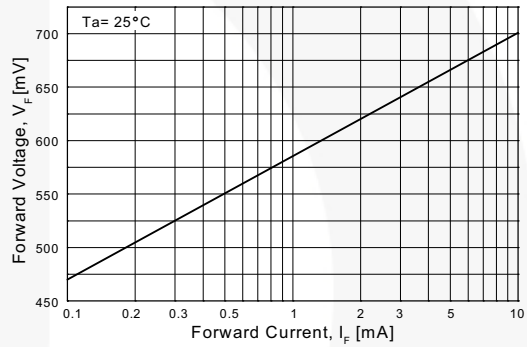
**Figure 1. Reverse Voltage vs. Reverse Current**  
 $V_R$  @  $I_R = 1.0$  to  $100 \mu A$



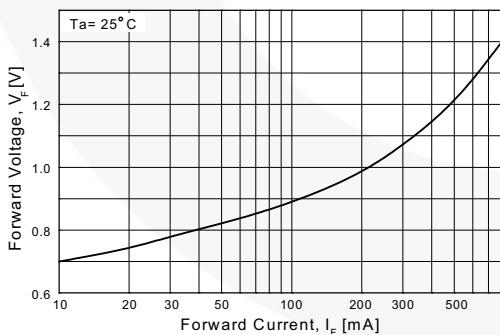
**Figure 2. Reverse Current vs. Reverse Voltage**  
 $I_R$  @  $V_R = 10$  to  $100 V$



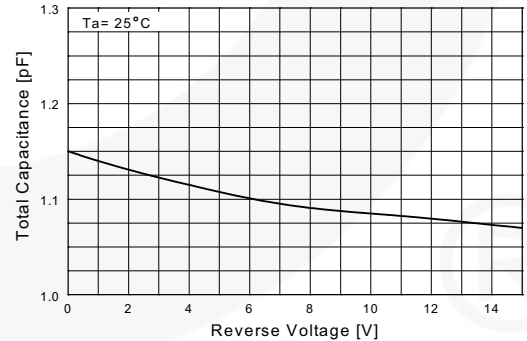
**Figure 3. Forward Voltage vs. Forward Current**  
 $V_F$  @  $I_F = 1.0$  to  $100 \mu A$



**Figure 4. Forward Voltage vs. Forward Current**  
 $V_F$  @  $I_F = 0.1$  to  $10 mA$



**Figure 5. Forward Voltage vs. Forward Current**  
 $V_F$  @  $I_F = 10$  to  $800 mA$



**Figure 6. Total Capacitance vs. Reverse Voltage**

## Typical Performance Characteristics (Continued)

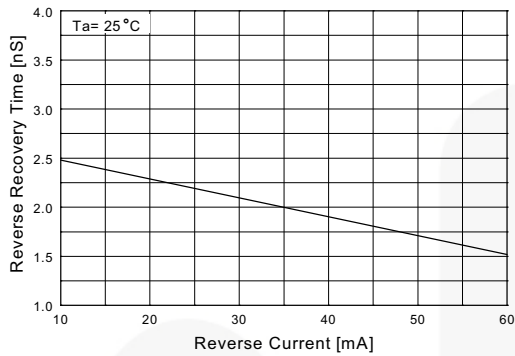


Figure 7. Reverse Recovery Time vs. Reverse Current

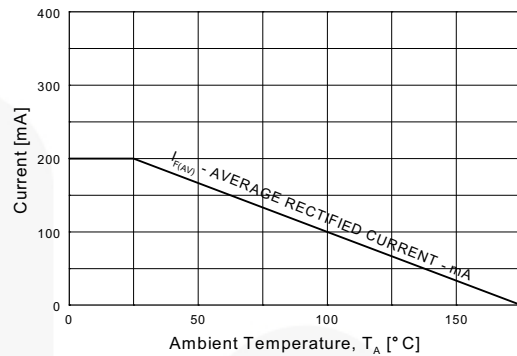


Figure 8. Average Rectified Current ( $I_{F(AV)}$ ) vs. Ambient Temperature ( $T_A$ )

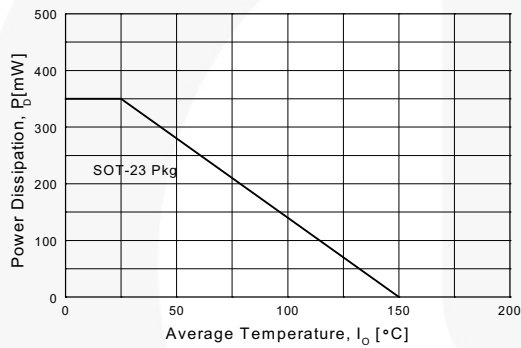
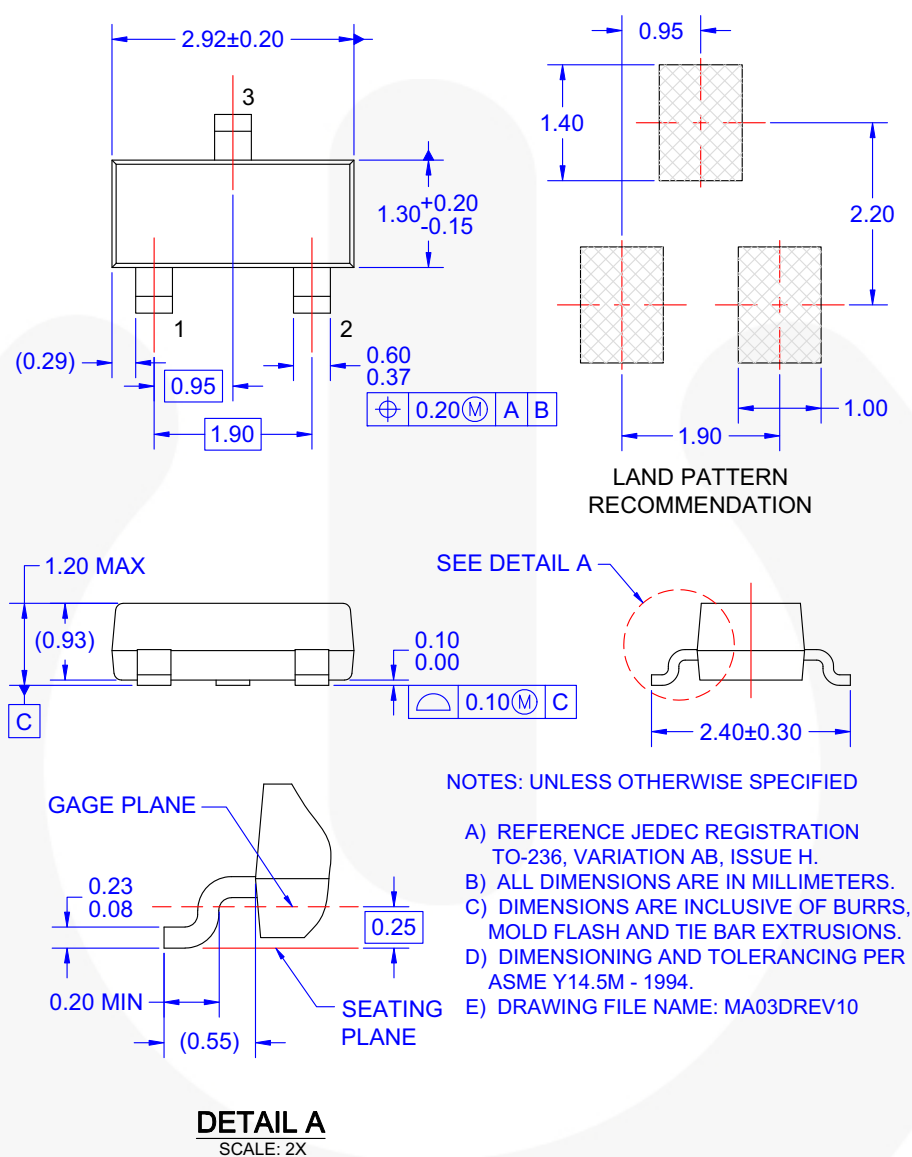


Figure 9. Power Derating Curve

## Physical Dimensions



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





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Тел: +7 (812) 336 43 04 (многоканальный)

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