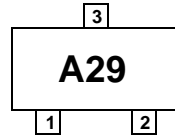
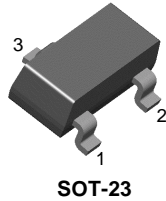
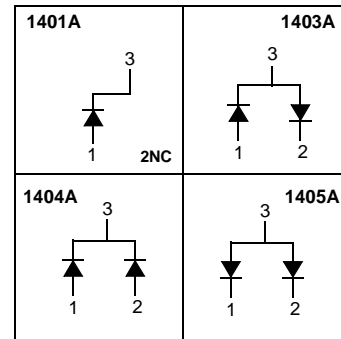


## MMBD1401A / 1403A / 1404A / 1405A



**MARKING**  
MMBD1401A A29 MMBD1404A A33  
MMBD1403A A32 MMBD1405A A34

### Connection Diagram



### High Voltage General Purpose Diode

Sourced from Process 2V.

### Absolute Maximum Ratings \* $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$W_{IV}$	Working Inverse Voltage	175	V
$I_O$	Average Rectified Current	200	mA
$I_F$	DC Forward Current	600	mA
$i_f$	Recurrent Peak Forward Current	700	mA
$i_{f(\text{surge})}$	Non-repetitive Peak Forward Surge Current		
	Pulse Width = 1.0 second	1.0	A
	Pulse Width = 1.0 microsecond	2.0	A
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature	150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of the diode may be impaired.

#### NOTES:

- 1) These ratings are based on maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics

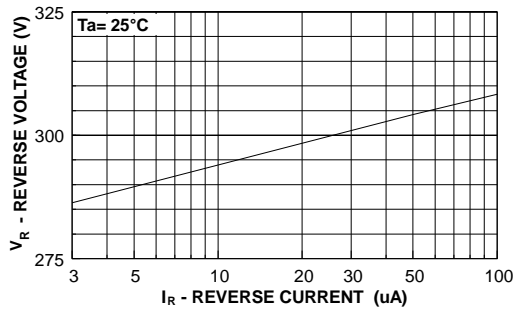
Symbol	Parameter	Max.	Units
		MMBD1401A - 1405A*	
$P_D$	Power Dissipation	350	mW
	Derate above 25 $^\circ\text{C}$	2.8	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

\* Device mounted on glass epoxy PCB 1.6" x 1.6" x 0.06"; mounting pad for the collector lead min. 0.93 in 2

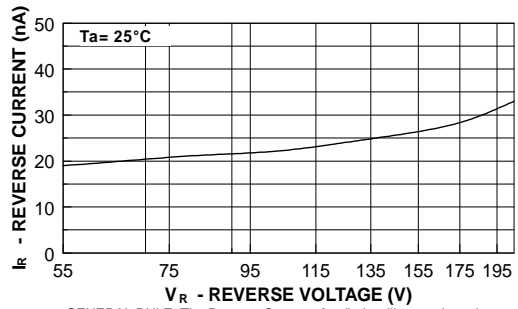
## Electrical Characteristics T<sub>A</sub>=25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Max.	Units
B <sub>V</sub>	Breakdown Voltage	I <sub>R</sub> = 100μA	250		V
I <sub>R</sub>	Reverse Leakage	V <sub>R</sub> = 120V V <sub>R</sub> = 175V		40 100	nA nA
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> = 10mA I <sub>F</sub> = 50mA I <sub>F</sub> = 200mA I <sub>F</sub> = 200mA I <sub>F</sub> = 300mA I <sub>F</sub> = 300mA	760	800 920 1.1 1.0 1.25 1.1	mV mV V V V V
C <sub>O</sub>	Diode Capacitance	V <sub>R</sub> = 0, f = 1.0MHz		2.0	pF
T <sub>RR</sub>	Reverse Recovery Time	I <sub>F</sub> = I <sub>R</sub> = 30mA I <sub>RR</sub> = 1.0mA, R <sub>L</sub> = 100Ω		50	nS

## Typical Characteristics

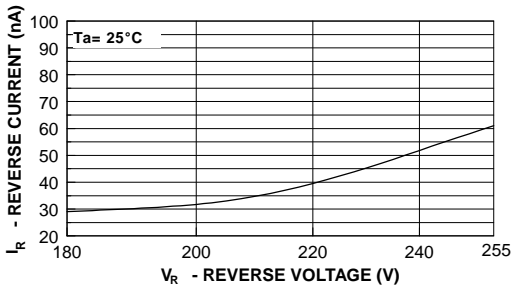


**Figure 1. Reverse Voltage vs Reverse Current**  
BV - 1.0 to 100μA



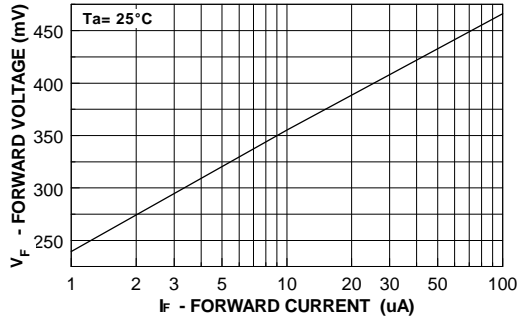
**Figure 2. Reverse Current vs Reverse Voltage**  
IR - 55 to 205V

GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature



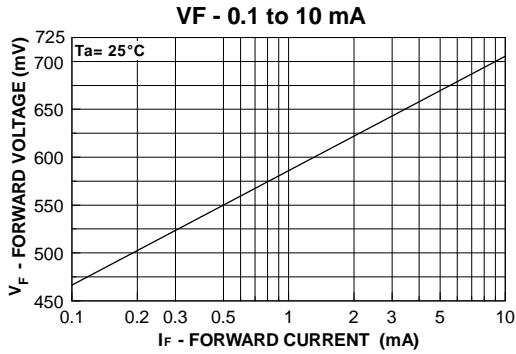
**Figure 3. Reverse Current vs Reverse Voltage**  
IR - 180 to 255V

GENERAL RULE: The Reverse Current of a diode will approximately double for every ten Degree C increase in Temperature

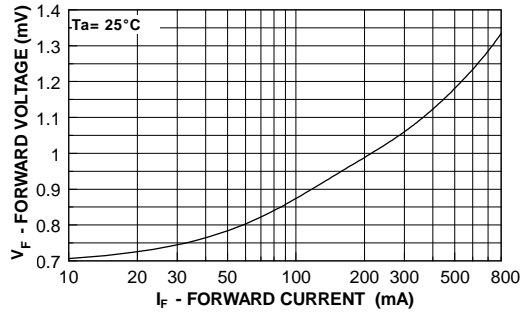


**Figure 4. Forward Voltage vs Forward Current**  
VF - 1.0 to 100μA

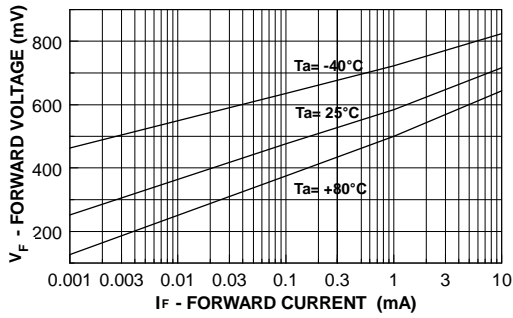
**Typical Characteristics** (Continued)



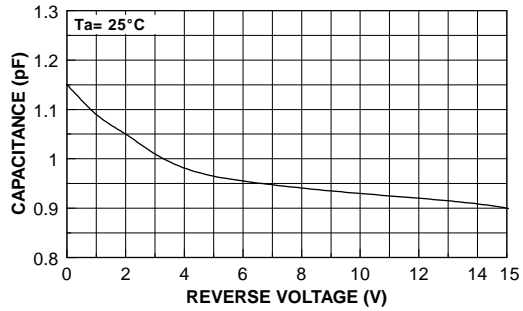
**Figure 5. Forward Voltage vs Forward Current**  
VF - 0.1 to 10mA



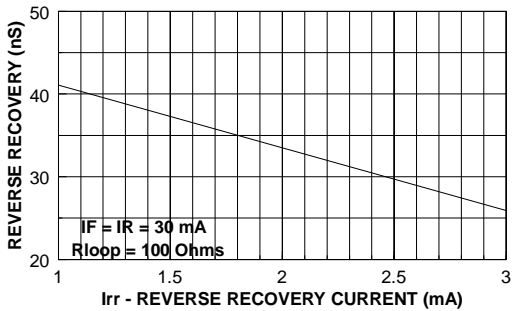
**Figure 6. Forward Voltage vs Forward Current**  
VF - 10 to 800mA



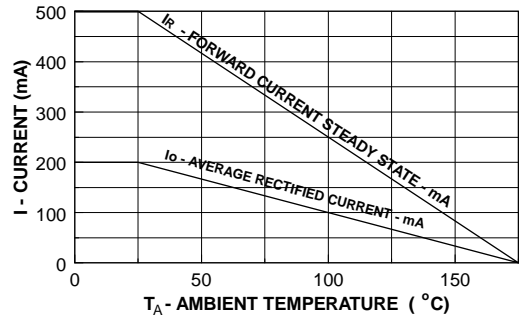
**Figure 7. Forward Voltage vs Ambient Temperature**  
VF - 1.0µA - 10mA (-40 to +80°C)



**Figure 8. Capacitance vs Reverse Voltage**  
VR - 0 to 5V



**Figure 9. Reverse Recovery Time vs**  
Reverse Recovery Current (I<sub>rr</sub>)



**Figure 10. Average Rectified Current(I<sub>O</sub>) &**  
Forward Current (I<sub>F</sub>) vs Ambient Temperature(T<sub>A</sub>)

# Typical Characteristics (Continued)

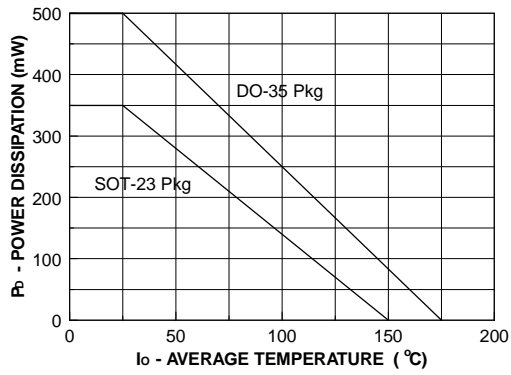


Figure 11. Power Derating Curve

MMBD1401A / 1403A / 1404A / 1405A

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