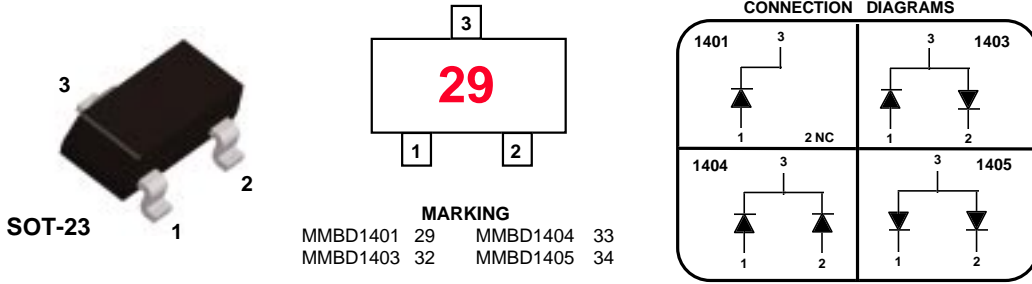


## MMBD1401 / 1403 / 1404 / 1405



### High Voltage General Purpose Diode

Sourced from Process 1H.

#### Absolute Maximum Ratings\*

TA = 25°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
$i_{f(surge)}$	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	°C
$T_J$	Operating Junction Temperature	150	°C

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

#### NOTES:

- 1) These ratings are based on a 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

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		MMBD1401/1403/1404/1405*	
$P_D$	Total Device Dissipation Derate above 25°C	350	mW
		2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/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<sup>2</sup>

## High Voltage General Purpose Diode

(continued)

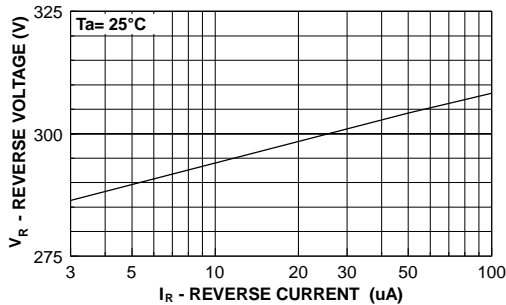
### Electrical Characteristics

TA = 25°C unless otherwise noted

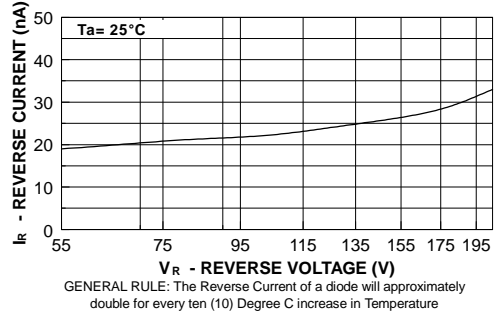
Symbol	Parameter	Test Conditions	Min	Max	Units
B <sub>V</sub>	Breakdown Voltage	I <sub>R</sub> = 100 μA	200		V
I <sub>R</sub>	Reverse Current	V <sub>R</sub> = 120 V V <sub>R</sub> = 175 V		40 100	nA
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> = 10 mA I <sub>F</sub> = 50 mA I <sub>F</sub> = 200 mA I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

### Typical Characteristics

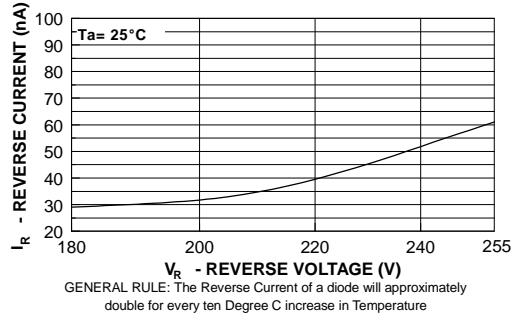
**REVERSE VOLTAGE vs REVERSE CURRENT**  
BV - 1.0 to 100 μA



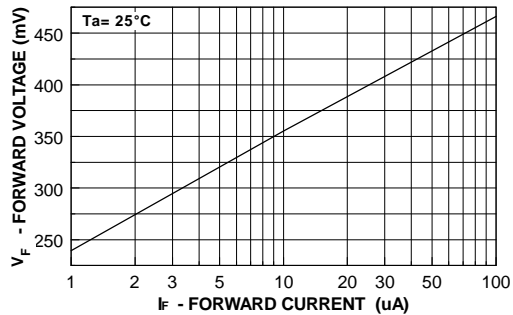
**REVERSE CURRENT vs REVERSE VOLTAGE**  
IR - 55 to 205 V



**REVERSE CURRENT vs REVERSE VOLTAGE**  
IR - 180 to 255 V



**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 1.0 to 100 μA



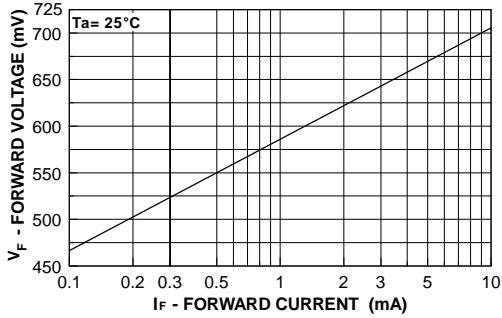
# High Voltage General Purpose Diode

(continued)

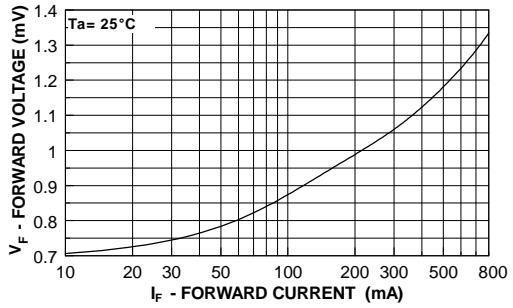
MMBD1401 / 1403 / 1404 / 1405

## Typical Characteristics (continued)

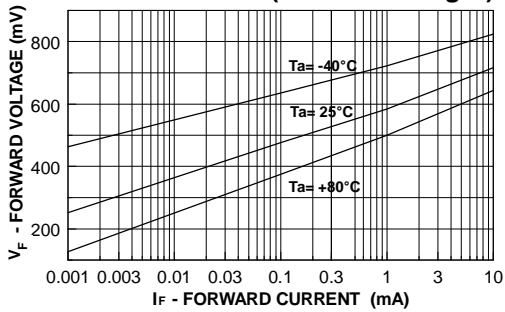
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 0.1 to 10 mA



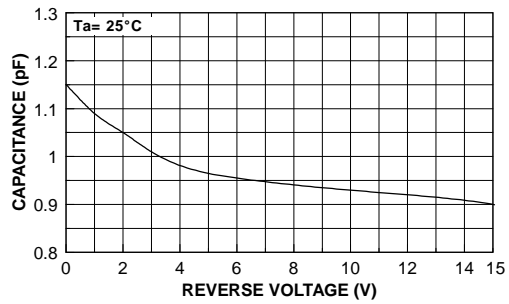
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 10 to 800 mA



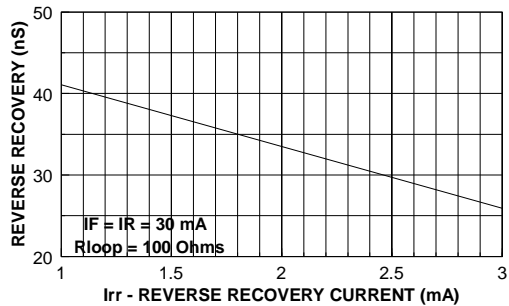
**Forward Voltage vs Ambient Temperature**  
VF - 1.0 uA - 10 mA (-40 to + 80 Deg C)



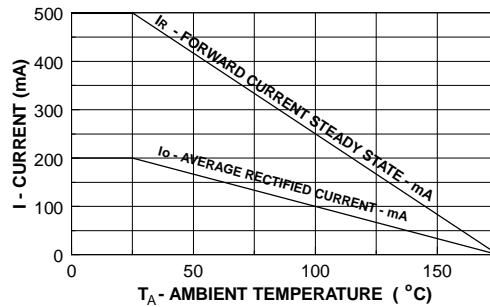
**CAPACITANCE vs REVERSE VOLTAGE**  
VR - 0 to 15 V



**REVERSE RECOVERY TIME vs REVERSE RECOVERY CURRENT (Irr)**



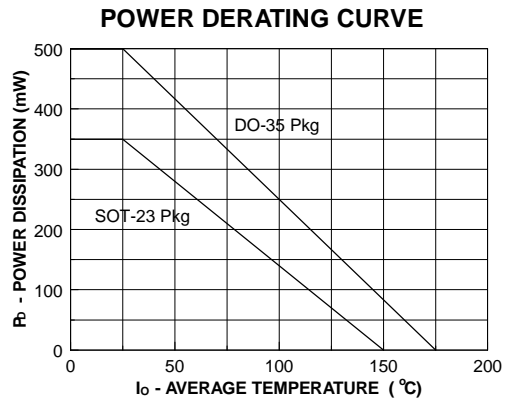
**Average Rectified Current (Io) & Forward Current (If) versus Ambient Temperature (TA)**



# High Voltage General Purpose Diode

(continued)

## Typical Characteristics (continued)



MMBD1401 / 1403 / 1404 / 1405

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FACT™	QS™
FACT Quiet Series™	Quiet Series™
FAST®	SuperSOT™-3
FASTr™	SuperSOT™-6
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