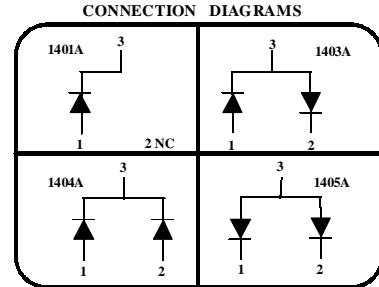
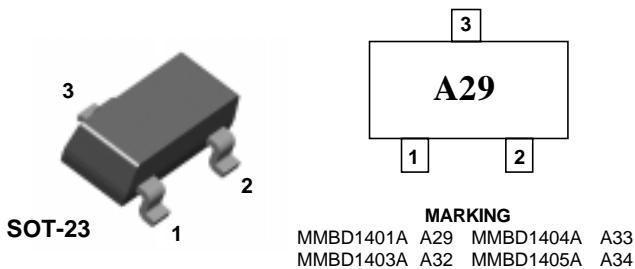


## MMBD1401A / 1403A / 1404A / 1405A



### High Voltage General Purpose Diode

Sourced from Process 2V.

#### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
W <sub>IV</sub>	Working Inverse Voltage	175	V
I <sub>O</sub>	Average Rectified Current	200	mA
I <sub>F</sub>	DC Forward Current	600	mA
i <sub>f</sub>	Recurrent Peak Forward Current	700	mA
i <sub>f(surge)</sub>	Peak Forward Surge Current Pulse width = 1.0 second Pulse width = 1.0 microsecond	1.0 2.0	A A
T <sub>stg</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>J</sub>	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
		MMBD1401A-1405A*	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
R <sub>θJA</sub>	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

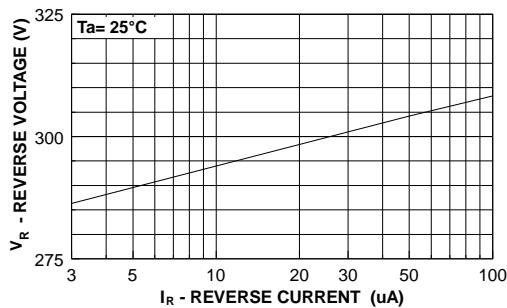
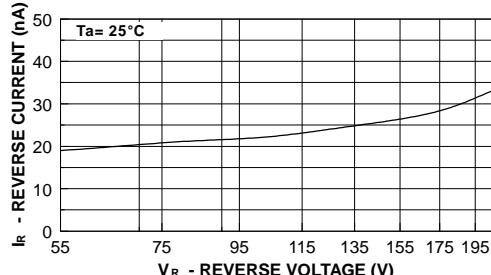
(continued)

## Electrical Characteristics

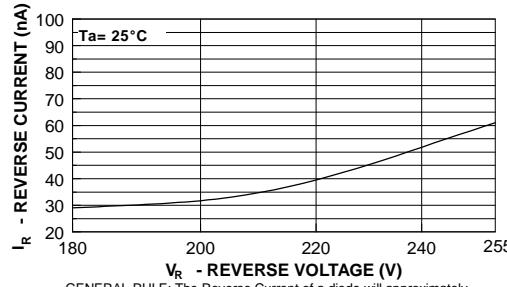
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
$B_V$	Breakdown Voltage	$I_R = 100 \mu A$	250		V
$I_R$	Reverse Current	$V_R = 120 V$ $V_R = 175 V$		40 100	nA nA
$V_F$	Forward Voltage	$I_F = 10 mA$ $I_F = 50 mA$ $I_F = 200 mA$ $I_F = 200 mA$ $I_F = 300 mA$ $I_F = 300 mA$	760	800 920 1.1 1.0 1.25 1.1	mV mV V V V V
$C_O$	Diode Capacitance	$V_R = 0, f = 1.0 \text{ MHz}$		2.0	pF
$T_{RR}$	Reverse Recovery Time	$I_F = I_R = 30 mA$ , $I_{RR} = 1.0 mA, R_L = 100\Omega$		50	nS

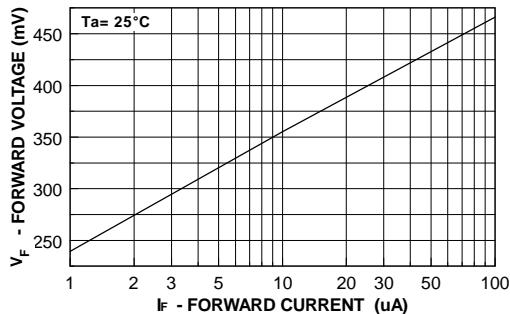
## Typical Characteristics

 REVERSE VOLTAGE vs REVERSE CURRENT  
BV - 1.0 to 100  $\mu A$ 

 REVERSE CURRENT vs REVERSE VOLTAGE  
IR - 55 to 205 V


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

 REVERSE CURRENT vs REVERSE VOLTAGE  
IR - 180 to 255 V


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

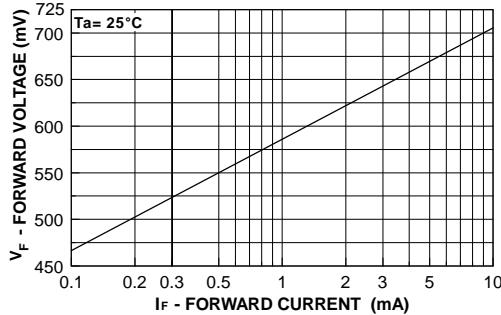
 FORWARD VOLTAGE vs FORWARD CURRENT  
VF - 1.0 to 100  $\mu A$ 


## High Voltage General Purpose Diode

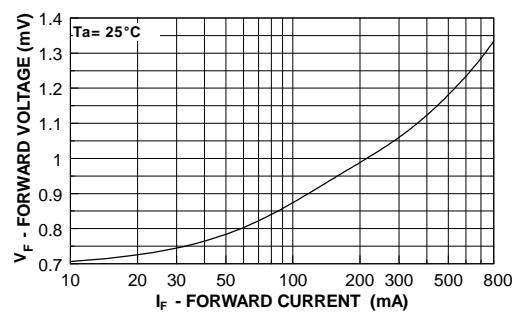
(continued)

### Typical Characteristics (continued)

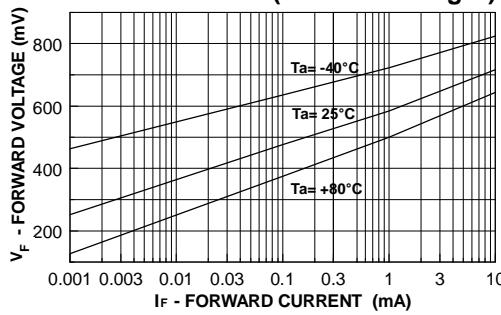
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 0.1 to 10 mA



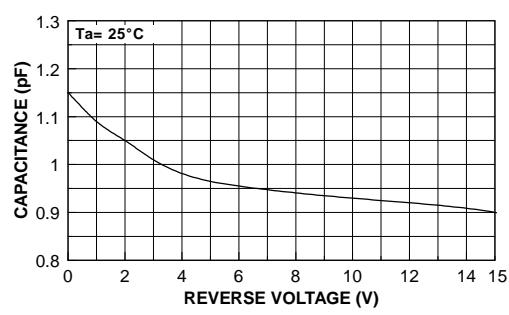
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 10 to 800 mA



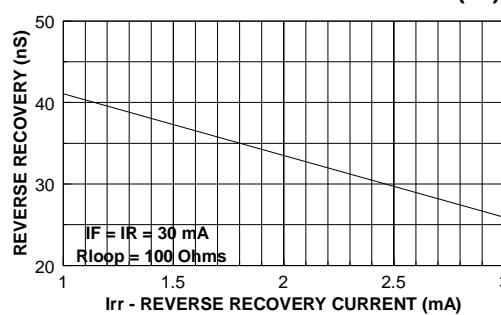
**Forward Voltage vs Ambient Temperature**  
VF - 1.0 uA - 10 mA (-40 to + 80 Deg C)



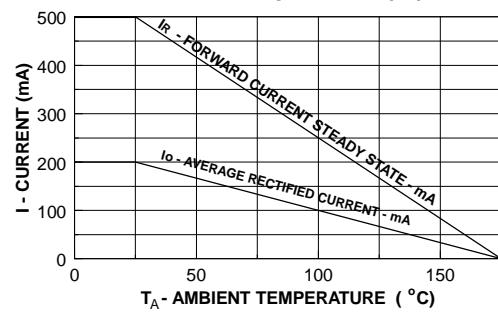
**CAPACITANCE vs REVERSE VOLTAGE**  
VR - 0 to 15 V



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



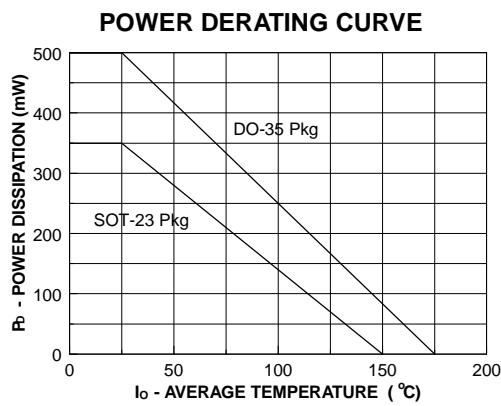
**Average Rectified Current (Io) &**  
**Forward Current (If) versus**  
**Ambient Temperature (Ta)**



## **High Voltage General Purpose Diode**

(continued)

### **Typical Characteristics** (continued)



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