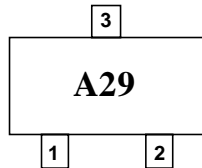
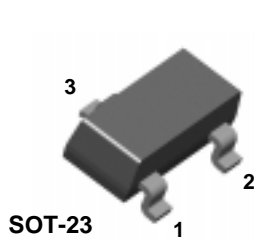
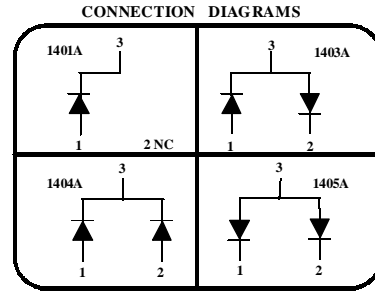


# MMBD1401A / 1403A / 1404A / 1405A



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



## High Voltage General Purpose Diode

Sourced from Process 2V.

### 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 Pulse width = 1.0 microsecond	1.0 2.0	A 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
		MMBD1401A-1405A*	
$P_D$	Total Device Dissipation Derate above 25°C	350 2.8	mW 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 in2

High Voltage General Purpose Diode  
(continued)

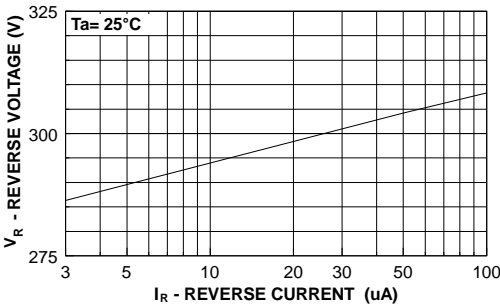
Electrical Characteristics

TA = 25°C unless otherwise noted

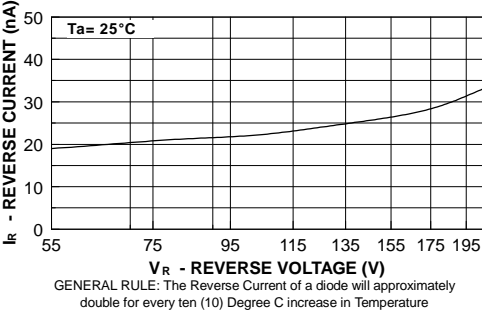
Symbol	Parameter	Test Conditions	Min	Max	Units
B <sub>V</sub>	Breakdown Voltage	I <sub>R</sub> = 100 μA	250		V
I <sub>R</sub>	Reverse Current	V <sub>R</sub> = 120 V V <sub>R</sub> = 175 V		40 100	nA nA
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> = 10 mA I <sub>F</sub> = 50 mA I <sub>F</sub> = 200 mA I <sub>F</sub> = 300 mA MMBD1401A / 1403A MMBD1404A / 1405A MMBD1401A / 1403A MMBD1404A / 1405A	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 = 1.0 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

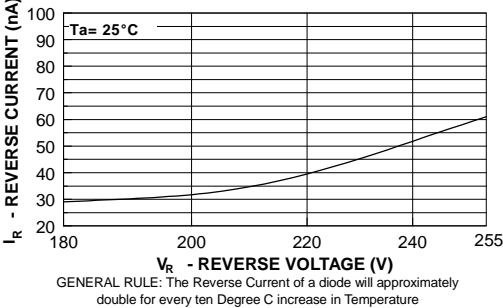
REVERSE VOLTAGE vs REVERSE CURRENT  
BV - 1.0 to 100 uA



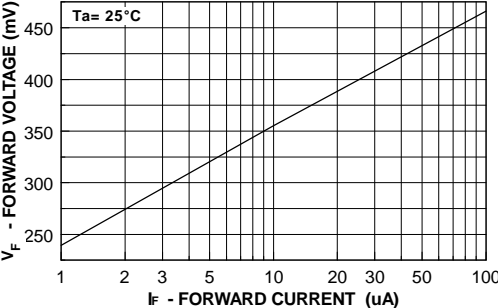
REVERSE CURRENT vs REVERSE VOLTAGE  
IR - 55 to 205 V



REVERSE CURRENT vs REVERSE VOLTAGE  
IR - 180 to 255 V



FORWARD VOLTAGE vs FORWARD CURRENT  
VF - 1.0 to 100 uA



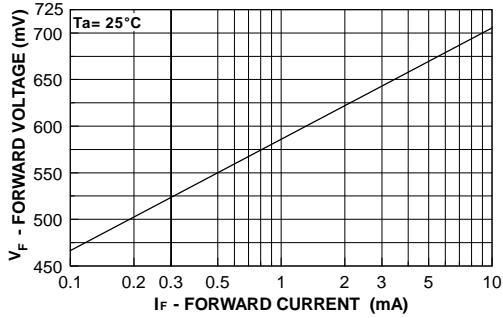
# High Voltage General Purpose Diode

(continued)

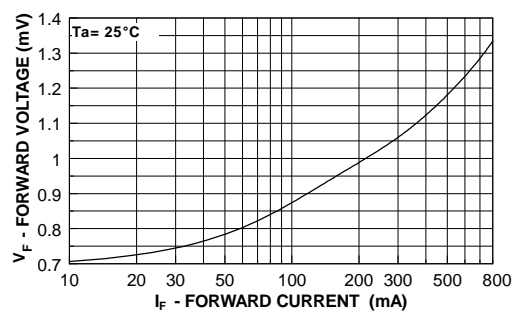
MMBD1401A / 1403A / 1404A / 1405A

## Typical Characteristics (continued)

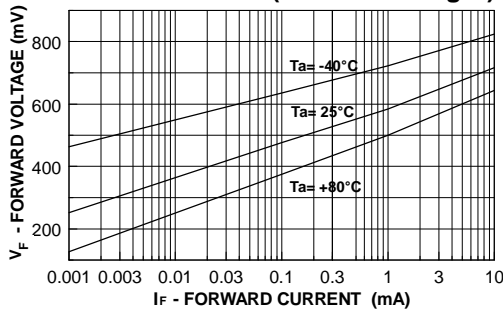
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 0.1 to 10 mA



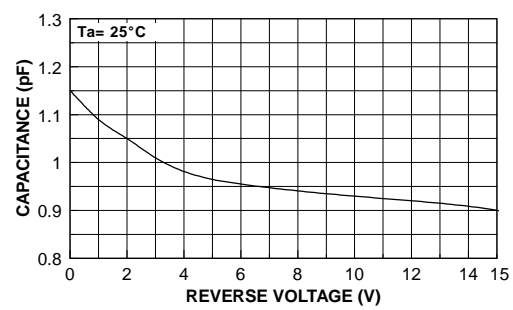
**FORWARD VOLTAGE vs FORWARD CURRENT**  
VF - 10 to 800 mA



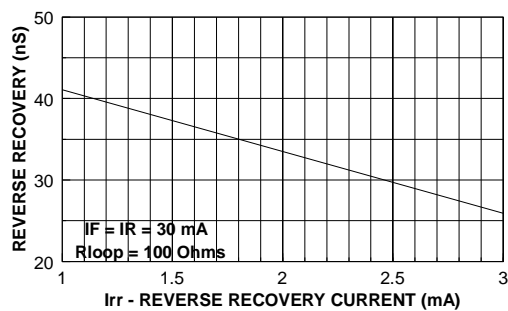
**Forward Voltage vs Ambient Temperature**  
VF - 1.0  $\mu$ A - 10 mA (-40 to +80 Deg C)



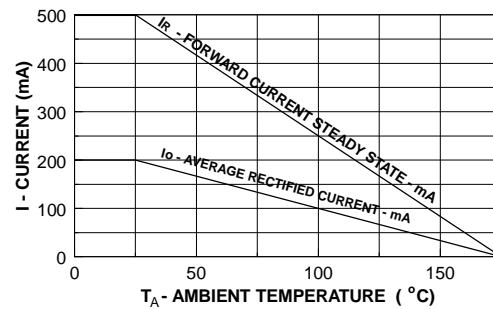
**CAPACITANCE vs REVERSE VOLTAGE**  
VR - 0 to 15 V



**REVERSE RECOVERY TIME vs REVERSE RECOVERY CURRENT ( $I_{rr}$ )**



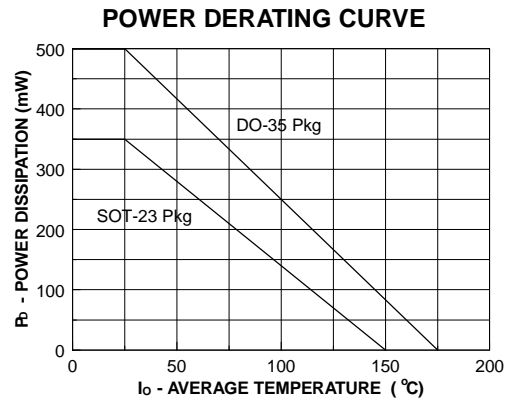
**Average Rectified Current ( $I_o$ ) & Forward Current ( $I_f$ ) versus Ambient Temperature ( $T_A$ )**



## High Voltage General Purpose Diode

(continued)

### Typical Characteristics (continued)



MMBD1401A / 1403A / 1404A / 1405A

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.