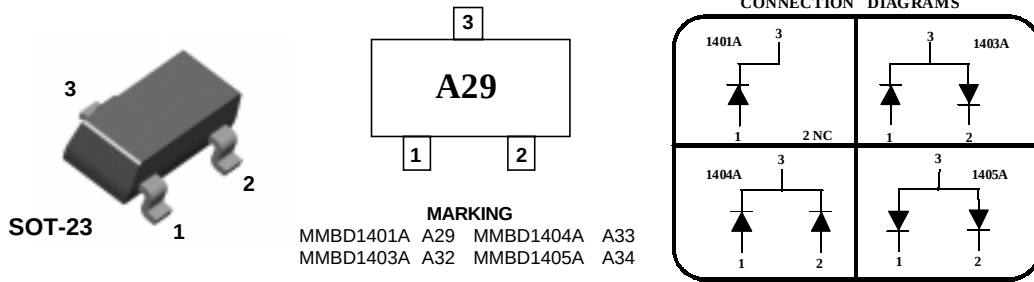


MMBD1401A / 1403A / 1404A / 1405A



High Voltage General Purpose Diode

Sourced from Process 2V.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
W_{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

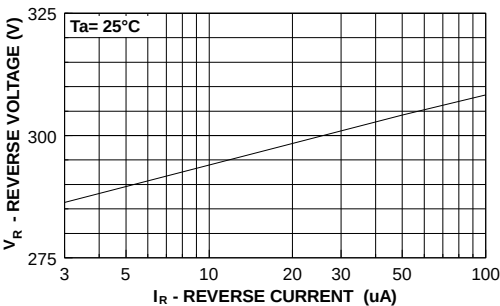
High Voltage General Purpose Diode
(continued)

Electrical Characteristics TA = 25°C unless otherwise noted

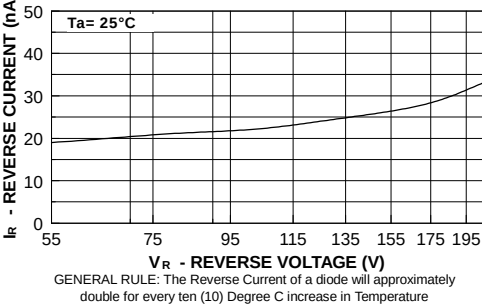
Symbol	Parameter	Test Conditions	Min	Max	Units
B _V	Breakdown Voltage	I _R = 100 μA	250		V
I _R	Reverse Current	V _R = 120 V V _R = 175 V		40 100	nA nA
V _F	Forward Voltage	I _F = 10 mA I _F = 50 mA I _F = 200 mA I _F = 200 mA I _F = 300 mA I _F = 300 mA	760	800 920 1.1 1.0 1.25 1.1	mV mV V V V V
C _O	Diode Capacitance	V _R = 0, f = 1.0 MHz		2.0	pF
T _{RR}	Reverse Recovery Time	I _F = I _R = 30 mA, I _{RR} = 1.0 mA, R _L = 100Ω		50	nS

Typical Characteristics

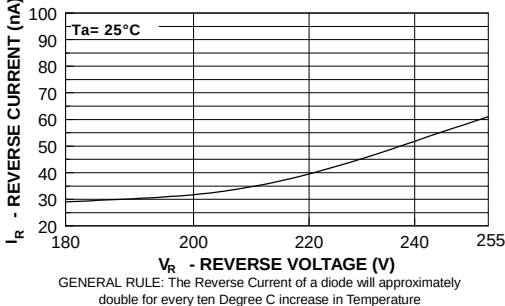
REVERSE VOLTAGE vs REVERSE CURRENT
BV - 1.0 to 100 uA



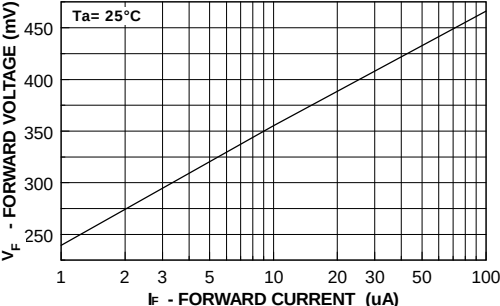
REVERSE CURRENT vs REVERSE VOLTAGE
IR - 55 to 205 V



REVERSE CURRENT vs REVERSE VOLTAGE
IR - 180 to 255 V



FORWARD VOLTAGE vs FORWARD CURRENT
VF - 1.0 to 100 uA

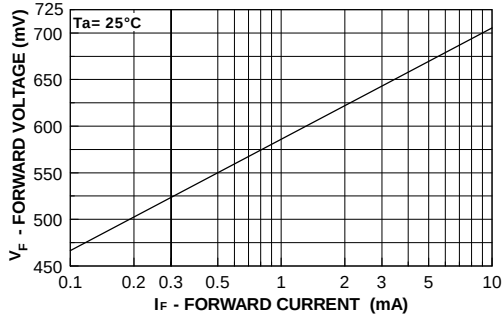


High Voltage General Purpose Diode (continued)

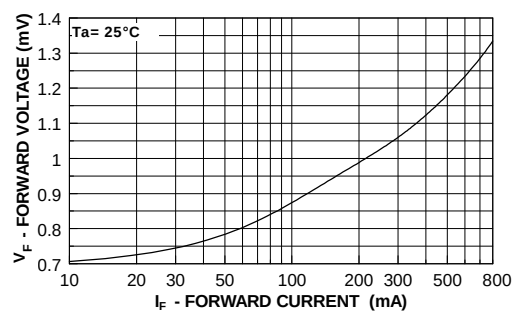
MMBD1401A / 1403A / 1404A / 1405A

Typical Characteristics (continued)

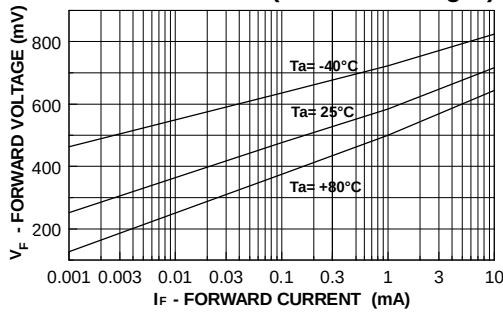
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 0.1 to 10 mA



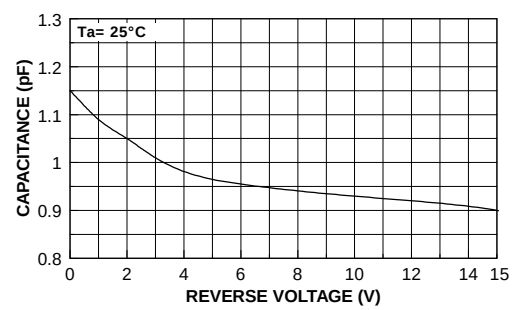
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 10 to 800 mA



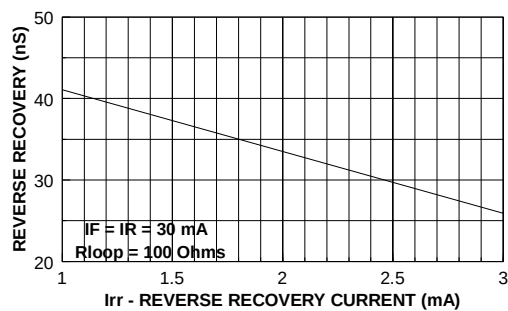
Forward Voltage vs Ambient Temperature
VF - 1.0 μ A - 10 mA (-40 to +80 Deg C)



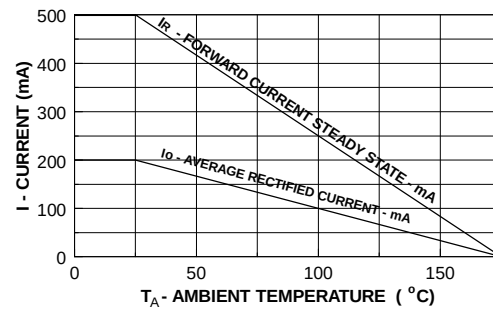
CAPACITANCE vs REVERSE VOLTAGE
VR - 0 to 15 V



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



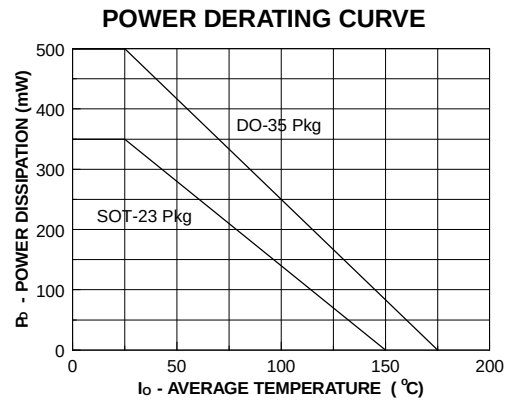
Average Rectified Current (I_o) & Forward Current (I_f) versus Ambient Temperature (T_A)



High Voltage General Purpose Diode

(continued)

Typical Characteristics (continued)



MMBD1401A / 1403A / 1404A / 1405A

TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACE ^x ™	ISOPLANAR™	UHC™
CoolFET™	MICROWIRE™	VCX™
CROSSVOLT™	POP™	
E ² CMOS™	PowerTrench™	
FACT™	QS™	
FACT Quiet Series™	Quiet Series™	
FAST®	SuperSOT™-3	
FAST ^r ™	SuperSOT™-6	
GTO™	SuperSOT™-8	
HiSeC™	TinyLogic™	

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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.