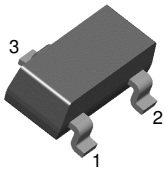
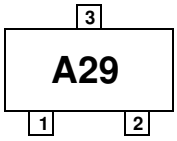
FAIRCHILD
SEMICONDUCTOR®

MMBD1401A / 1403A / 1404A / 1405A



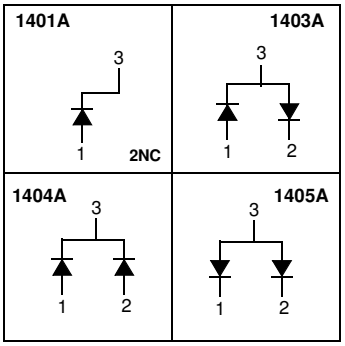
SOT-23



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°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
$i_{f(surge)}$	Non-repetitive 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 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 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" × 1.6" × 0.06"; mounting pad for the collector lead min. 0.93 in 2

Electrical Characteristics

T_A=25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Max.	Units
B_V	Breakdown Voltage	I_R = 100μA	250		V
I_R	Reverse Leakage	V_R = 120V		40	nA
		V_R = 175V		100	nA
V_F	Forward Voltage	I_F = 10mA		800	mV
	MMBD1401A/1403A	I_F = 50mA	760	920	mV
	MMBD1404A/1405A	I_F = 200mA		1.1	V
	MMBD1401A/1403A	I_F = 200mA		1.0	V
	MMBD1404A/1405A	I_F = 300mA		1.25	V
		I_F = 300mA		1.1	V
C_O	Diode Capacitance	V_R = 0, f = 1.0MHz		2.0	pF
T_{RR}	Reverse Recovery Time	I_F = I_R = 30mA I_{RR} = 1.0mA, R_L = 100Ω		50	nS

Typical Characteristics

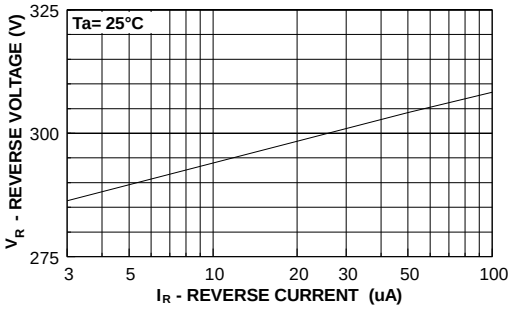


Figure 1. Reverse Voltage vs Reverse Current
BV - 1.0 to 100μA

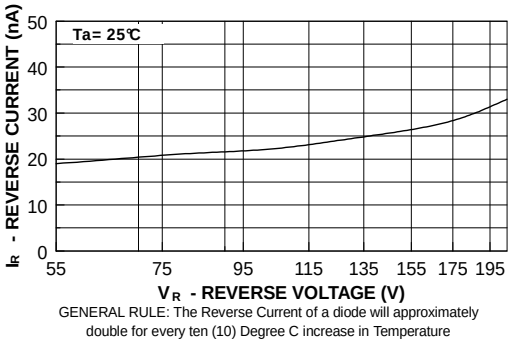


Figure 2. Reverse Current vs Reverse Voltage
IR - 55 to 205V

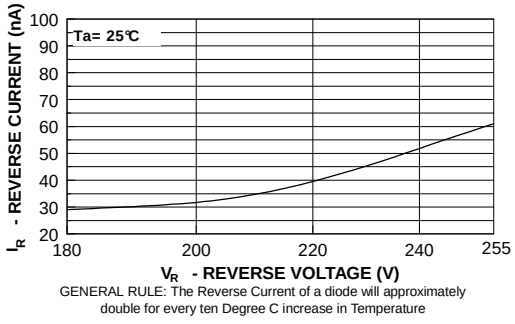


Figure 3. Reverse Current vs Reverse Voltage
IR - 180 to 255V

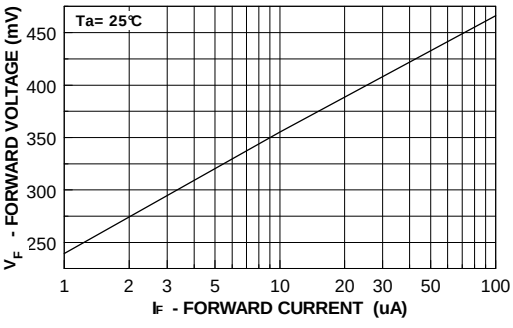


Figure 4. Forward Voltage vs Forward Current
VF - 1.0 to 100μA

Typical Characteristics (Continued)

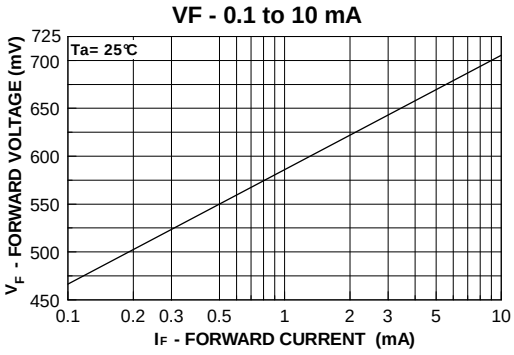


Figure 5. Forward Voltage vs Forward Current VF - 0.1 to 10mA

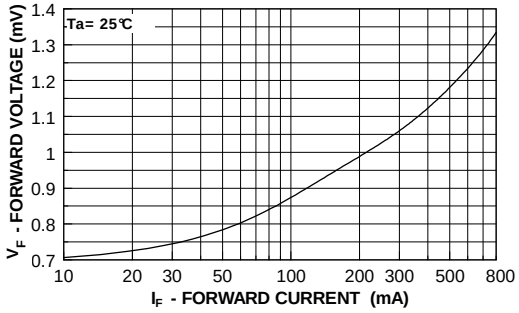


Figure 6. Forward Voltage vs Forward Current VF - 10 to 800mA

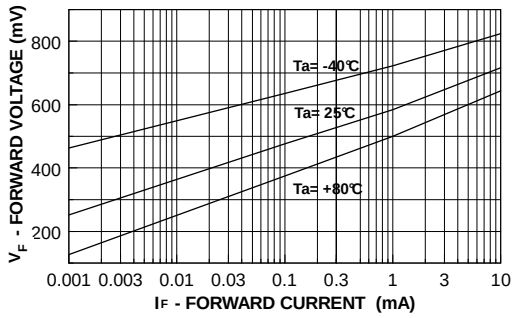


Figure 7. Forward Voltage vs Ambient Temperature VF - 1.0μA - 10mA (- 40 to +80°C)

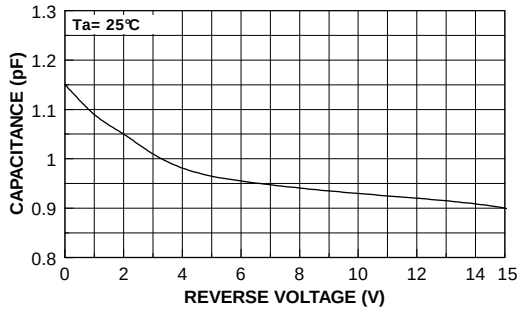


Figure 8. Capacitance vs Reverse Voltage VR - 0 to 5V

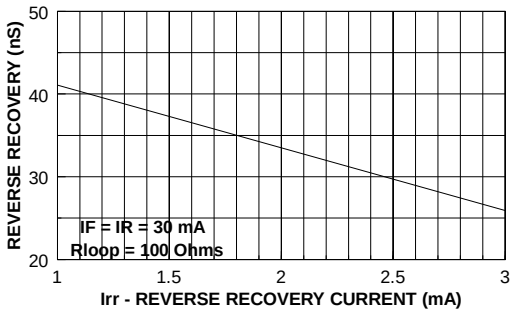


Figure 9. Reverse Recovery Time vs Reverse Recovery Current (Irr)

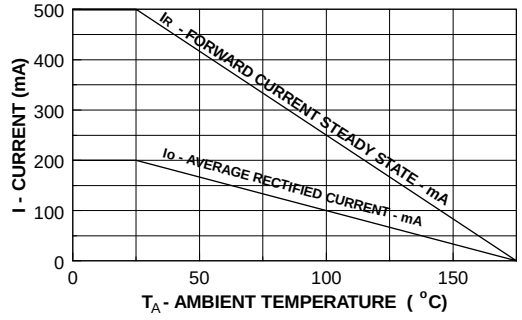


Figure 10. Average Rectified Current(I_O) & Forward Current (I_F) vs Ambient Temperature(T_A)

Typical Characteristics (Continued)

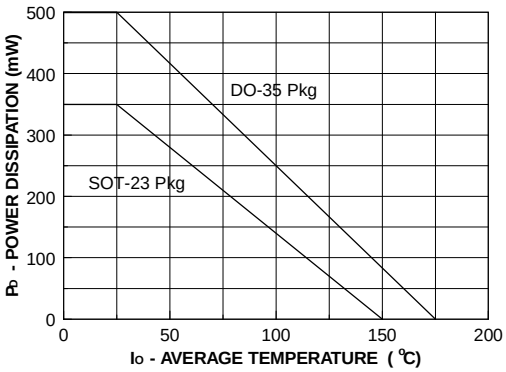


Figure 11. Power Derating Curve

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EnSigna™	*i-Lo*™	OCX™	RapidConfigure™	TruTranslation™
FACT™	ImpliedDisconnect™	OCXPro™	RapidConnect™	UHC™
FACT Quiet Series™		OPTOLOGIC®	µSerDes™	UltraFET®
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