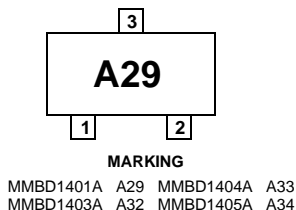
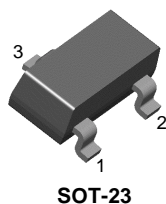
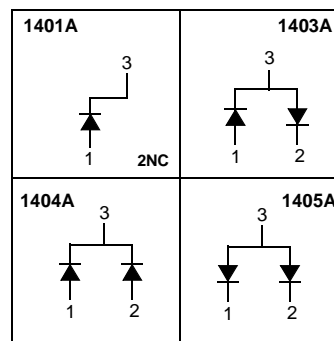


## MMBD1401A / 1403A / 1404A / 1405A



**Connection Diagram**



### High Voltage General Purpose Diode

Sourced from Process 2V.

### Absolute Maximum Ratings \* $T_A = 25^\circ\text{C}$ 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	1.0	A
	Pulse Width = 1.0 microsecond	2.0	A
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature	150	$^\circ\text{C}$

\* 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	350	mW
	Derate above $25^\circ\text{C}$	2.8	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

\* Device mounted on glass epoxy PCB  $1.6'' \times 1.6'' \times 0.06''$ ; mounting pad for the collector lead min. 0.93 in 2

# Electrical Characteristics

T<sub>A</sub>=25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Max.	Units
B <sub>V</sub>	Breakdown Voltage	I <sub>R</sub> = 100μA	250		V
I <sub>R</sub>	Reverse Leakage	V <sub>R</sub> = 120V V <sub>R</sub> = 175V		40 100	nA nA
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> = 10mA I <sub>F</sub> = 50mA I <sub>F</sub> = 200mA I <sub>F</sub> = 200mA I <sub>F</sub> = 300mA I <sub>F</sub> = 300mA	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 = 1.0MHz		2.0	pF
T <sub>RR</sub>	Reverse Recovery Time	I <sub>F</sub> = I <sub>R</sub> = 30mA I <sub>RR</sub> = 1.0mA, R <sub>L</sub> = 100Ω		50	nS

## Typical Characteristics

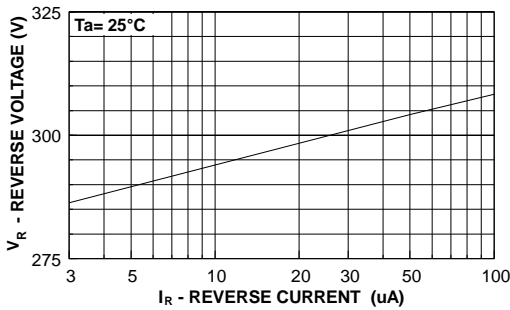


Figure 1. Reverse Voltage vs Reverse Current  
BV - 1.0 to 100μA

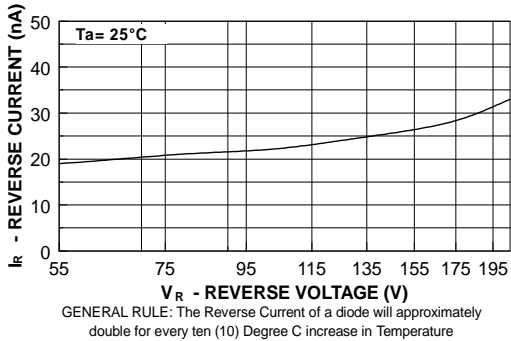


Figure 2. Reverse Current vs Reverse Voltage  
IR - 55 to 205V

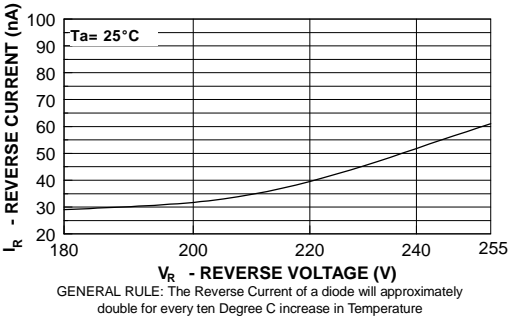


Figure 3. Reverse Current vs Reverse Voltage  
IR - 180 to 255V

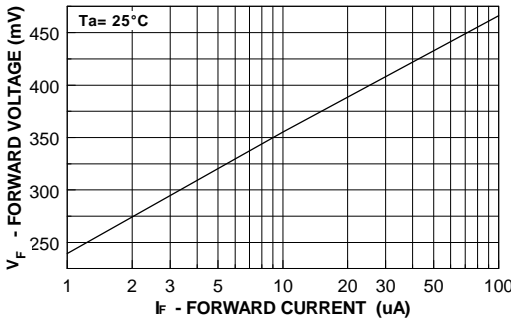


Figure 4. Forward Voltage vs Forward Current  
VF - 1.0 to 100μA

# Typical Characteristics (Continued)

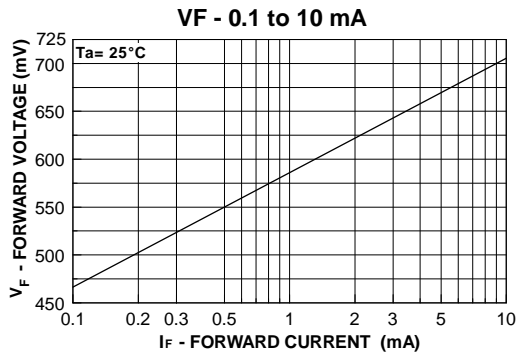


Figure 5. Forward Voltage vs Forward Current  
VF - 0.1 to 10mA

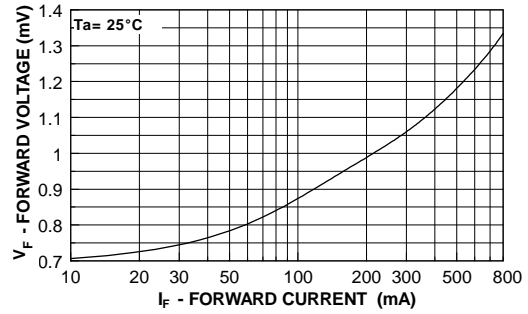


Figure 6. Forward Voltage vs Forward Current  
VF - 10 to 800mA

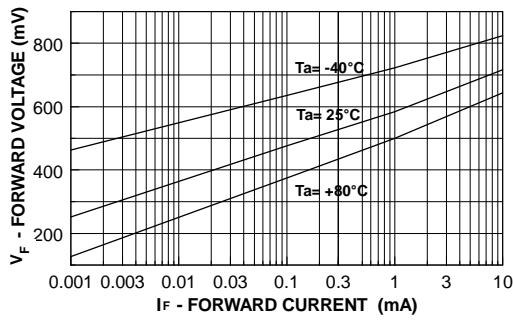


Figure 7. Forward Voltage vs Ambient Temperature  
VF - 1.0μA - 10mA (-40 to +80°C)

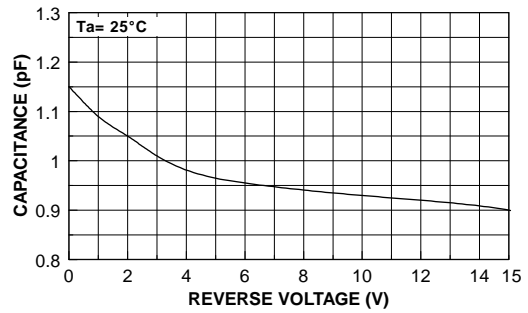


Figure 8. Capacitance vs Reverse Voltage  
VR - 0 to 5V

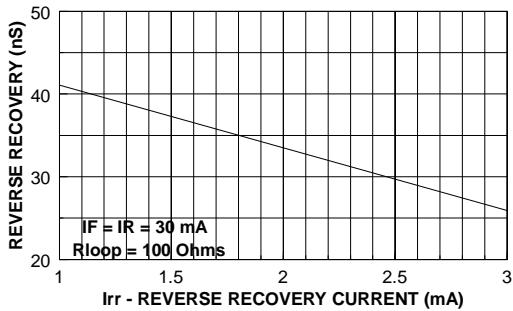


Figure 9. Reverse Recovery Time vs  
Reverse Recovery Current (Irr)

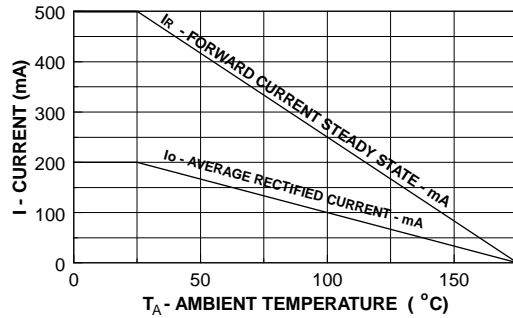


Figure 10. Average Rectified Current( $I_O$ ) &  
Forward Current ( $I_F$ ) vs Ambient Temperature( $T_A$ )

Typical Characteristics (Continued)

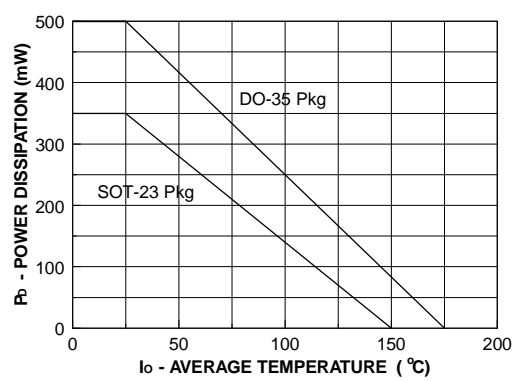


Figure 11. Power Derating Curve

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E <sup>2</sup> CMOS™	I <sup>2</sup> C™	MSXPro™	Quiet Series™	TINYOPTO™
EnSigna™	i-Lo™	OCX™	RapidConfigure™	TruTranslation™
FACT™	ImpliedDisconnect™	OCXPro™	RapidConnect™	UHC™
FACT Quiet Series™		OPTOLOGIC <sup>®</sup>	μSerDes™	UltraFET <sup>®</sup>
Across the board. Around the world.™		OPTOPLANAR™	SILENT SWITCHER <sup>®</sup>	VCX™
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