

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

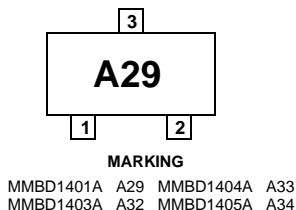
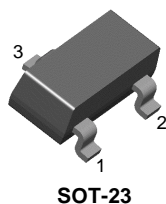
Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
 - Class Q Military
 - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
 - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

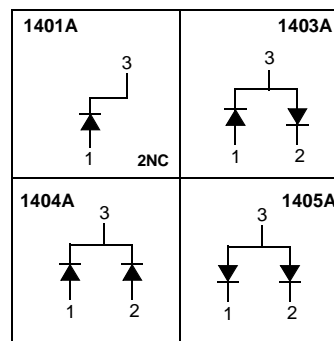
Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

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°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_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 V _R = 175V		40 100	nA nA
V _F	Forward Voltage	I _F = 10mA I _F = 50mA I _F = 200mA I _F = 200mA I _F = 300mA I _F = 300mA	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 = 1.0MHz		2.0	pF
T _{RR}	Reverse Recovery Time	I _F = I _R = 30mA I _{RR} = 1.0mA, R _L = 100Ω		50	nS

Typical Characteristics

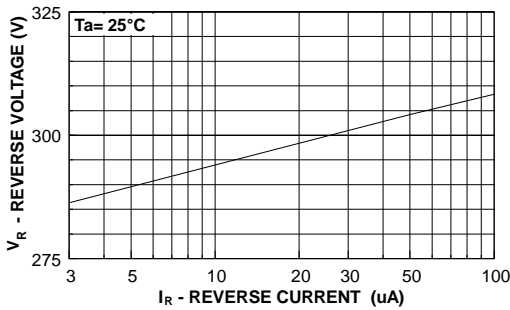
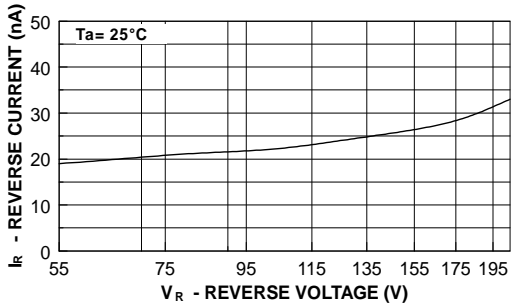
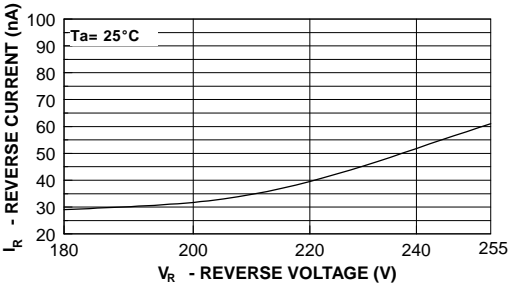


Figure 1. Reverse Voltage vs Reverse Current
BV - 1.0 to 100μA



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

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



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

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

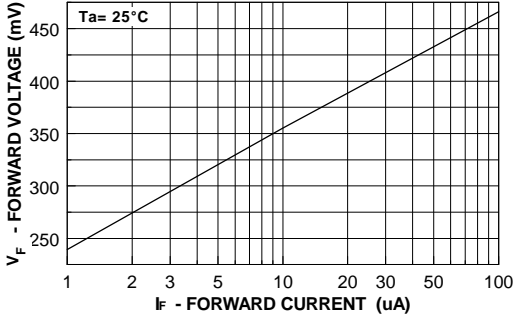


Figure 4. Forward Voltage vs Forward Current
VF - 1.0 to 100μA

Typical Characteristics (Continued)

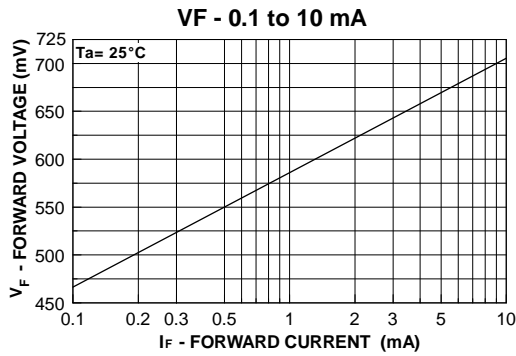


Figure 5. Forward Voltage vs Forward Current
VF - 0.1 to 10mA

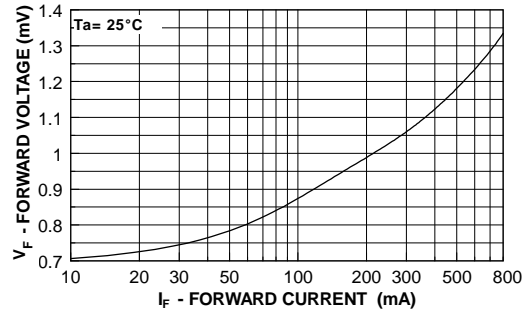


Figure 6. Forward Voltage vs Forward Current
VF - 10 to 800mA

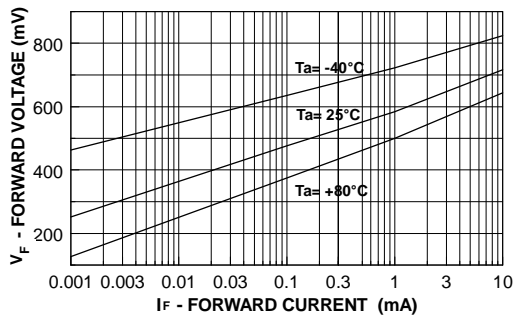


Figure 7. Forward Voltage vs Ambient Temperature
VF - 1.0μA - 10mA (-40 to +80°C)

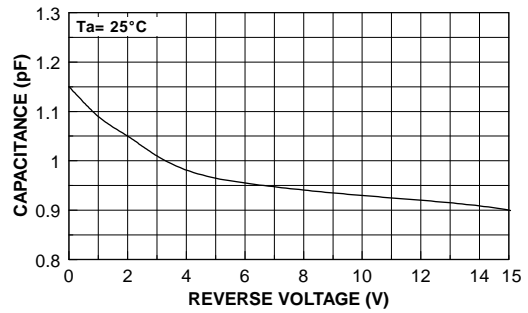


Figure 8. Capacitance vs Reverse Voltage
VR - 0 to 5V

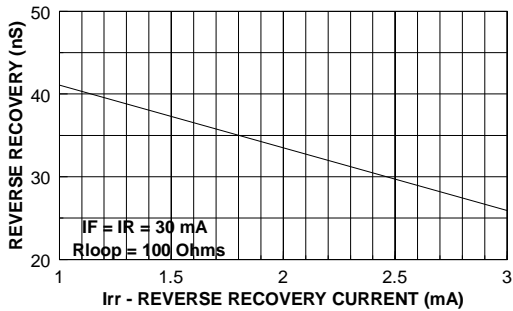


Figure 9. Reverse Recovery Time vs
Reverse Recovery Current (Irr)

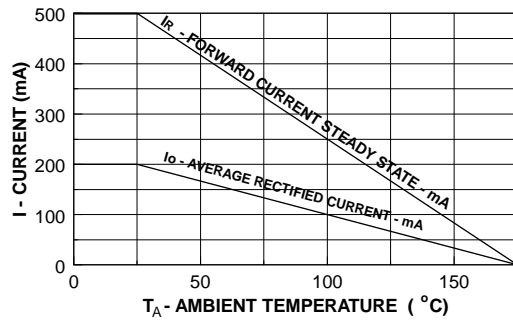


Figure 10. Average Rectified Current(I_O) &
Forward Current (I_F) vs Ambient Temperature(T_A)

Typical Characteristics (Continued)

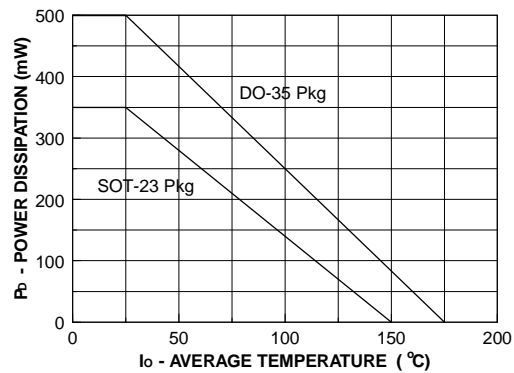


Figure 11. Power Derating Curve

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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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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.
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