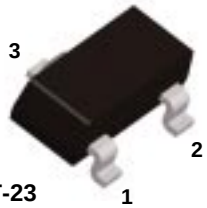
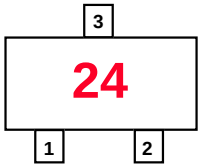
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

MMBD1201 / 1203 / 1204 / 1205



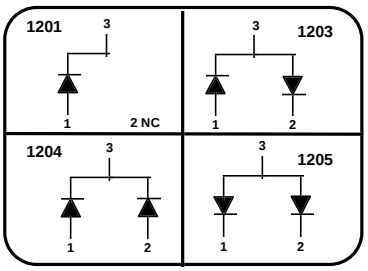
SOT-23



MARKING

MMBD1201	24	MMBD1204A	27
MMBD1203	26	MMBD1205A	28

CONNECTION DIAGRAMS



High Conductance Ultra Fast Diode

Sourced from Process 1P.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
W_{IV}	Working Inverse Voltage	50	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
		MMBD1201/1203/1204/1205*	
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

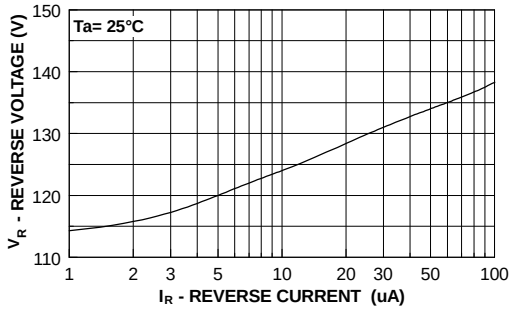
High Conductance Ultra Fast Diode
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

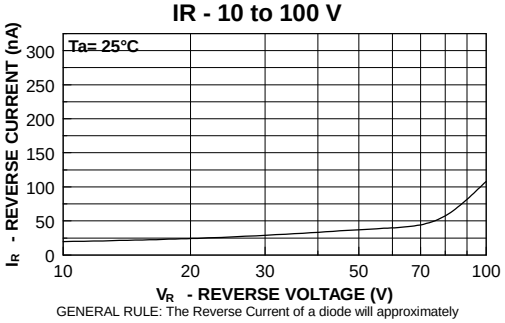
Symbol	Parameter	Test Conditions	Min	Max	Units
B_V	Breakdown Voltage	I_R = 100 μA	100		V
I_R	Reverse Current	V_R = 20 V V_R = 50 V V_R = 50 V, T_A = 150°C		25 50 5.0	nA nA μA
V_F	Forward Voltage	I_F = 1.0 mA I_F = 10 mA I_F = 100 mA I_F = 200 mA I_F = 300 mA	550 660 820 0.87	600 740 920 1.0 1.1	mV mV mV V V
C_T	Diode Capacitance	V_R = 0, f = 1.0 MHz		2.0	pF
T_{RR}	Reverse Recovery Time	I_{RR} = 1.0 mA, I_F = I_R = 10 mA, R_L = 100Ω		4.0	nS

Typical Characteristics

REVERSE VOLTAGE vs REVERSE CURRENT
BV - 1.0 to 100 uA

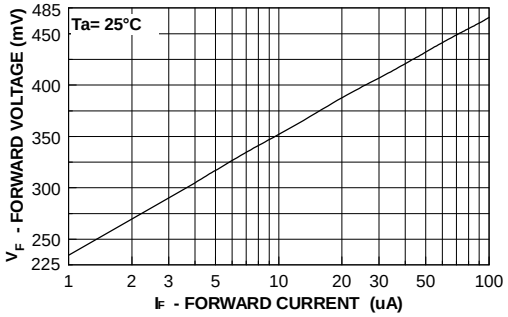


REVERSE CURRENT vs REVERSE VOLTAGE
IR - 10 to 100 V

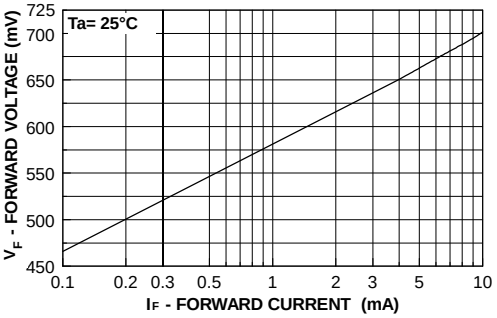


GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature

FORWARD VOLTAGE vs FORWARD CURRENT
VF - 1.0 to 100 uA



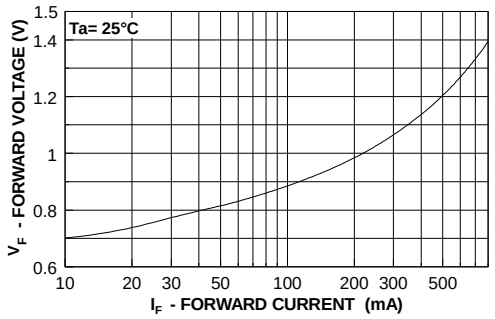
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 0.1 to 10 mA



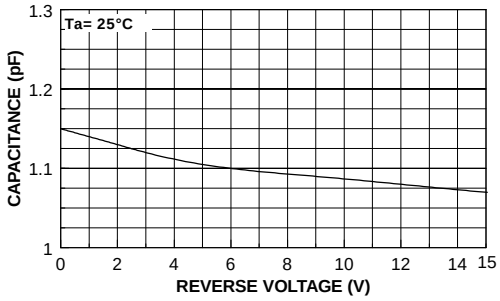
High Conductance Ultra Fast Diode
(continued)

Typical Characteristics (continued)

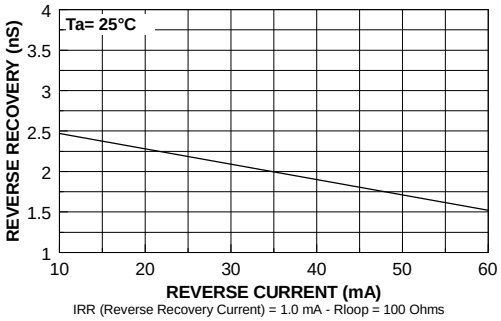
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 10 - 800 mA



CAPACITANCE vs REVERSE VOLTAGE
VR - 0.0 to 15 V

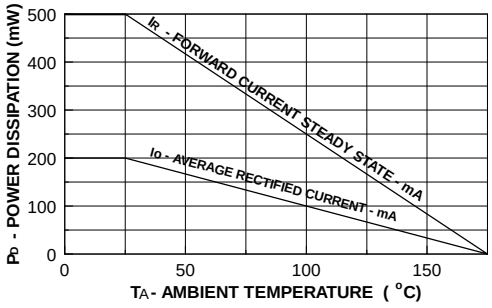


REVERSE RECOVERY TIME vs REVERSE CURRENT
TRR - IR 10 mA vs 60 mA

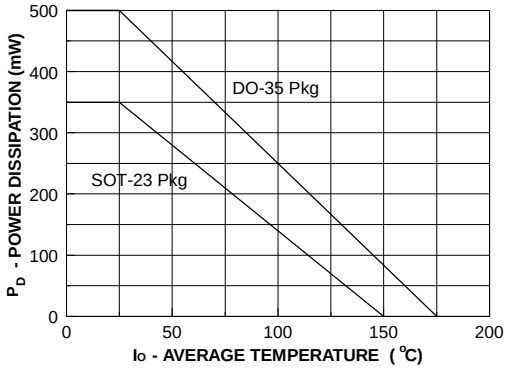


IRR (Reverse Recovery Current) = 1.0 mA - Rloop = 100 Ohms

Average Rectified Current (Io) & Forward Current (I_F) versus Ambient Temperature (T_A)



POWER DERATING CURVE



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