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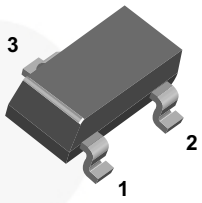
Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

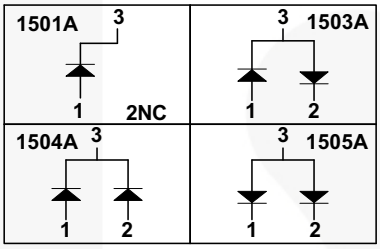
April 2016

MMBD1501A / MMBD1503A / MMBD1504A / MMBD1505A
Small Signal Diodes



SOT-23

Connection Diagrams



Ordering Information

Part Number	Top Mark	Package	Packing Method
MMBD1501A	A11	SOT-23 3L	Tape and Reel, 7 inch Reel, 3k pieces
MMBD1503A	A13	SOT-23 3L	Tape and Reel, 7 inch Reel, 3k pieces
MMBD1503A_D87Z	A13	SOT-23 3L	Tape and Reel, 13 inch Reel, 10k pieces
MMBD1504A	A14	SOT-23 3L	Tape and Reel, 7 inch Reel, 3k pieces
MMBD1505A	A15	SOT-23 3L	Tape and Reel, 7 inch Reel, 3k pieces

Absolute Maximum Ratings[1], [2]

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter		Value	Unit
V_{RRM}	Maximum Repetitive Reverse Voltage		200	V
$I_{F(AV)}$	Average Rectified Forward Current		200	mA
I_{FSM}	Non-Repetitive Peak Forward Surge Current	Pulse Width = 1.0 second	1.0	A
		Pulse Width = 1.0 microsecond	2.0	
T_{STG}	Storage Temperature Range		-55 to +150	°C
T_J	Operating Junction Temperature		150	°C

Notes:

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

Thermal Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	°C/W

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
V_R	Breakdown Voltage	I_R = 5.0 μA	200		V
V_F	Forward Voltage	I_F = 1.0 mA	620	720	mV
		I_F = 10 mA	720	830	mV
		I_F = 50 mA	800	890	mV
		I_F = 100 mA	830	930	mV
		I_F = 200 mA	0.87	1.10	V
		I_F = 300 mA	0.90	1.15	V
I_R	Reverse Current	V_R = 125 V		1.0	nA
		V_R = 125 V, T_A = 150°C		3.0	μA
		V_R = 180 V		10.0	nA
		V_R = 180 V, T_A = 150°C		5.0	μA
C_T	Total Capacitance	V_R = 0, f = 1.0 MHz		4.0	pF

Typical Performance Characteristics

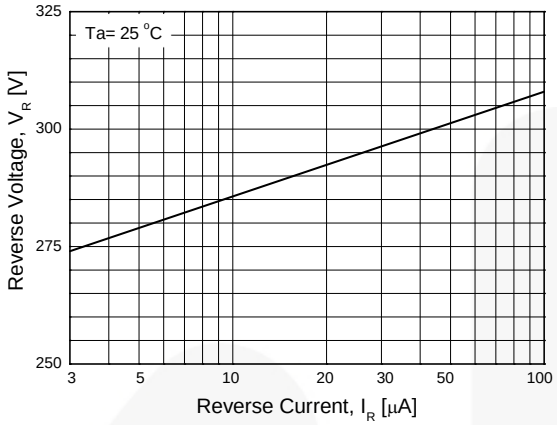


Figure 1. Reverse Voltage vs. Reverse Current
BV - 3.0 to 100 μA

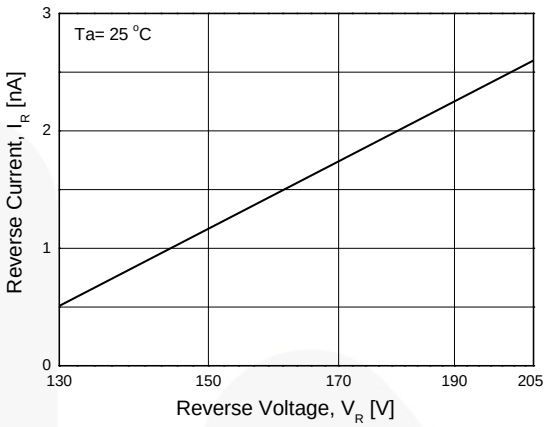


Figure 2. Reverse Current vs. Reverse Voltage
IR - 130 to 205 V

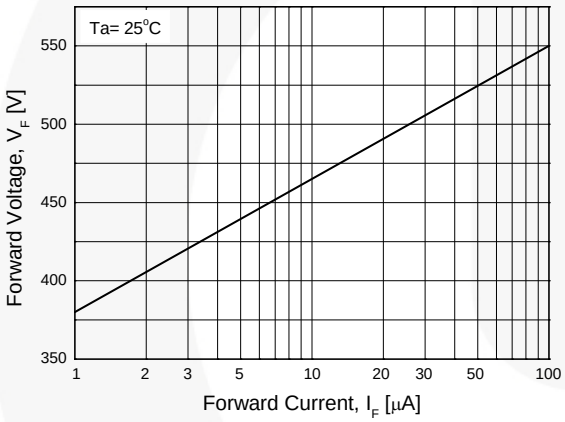


Figure 3. Forward Voltage vs. Forward Current
VF - 1 to 100 μA

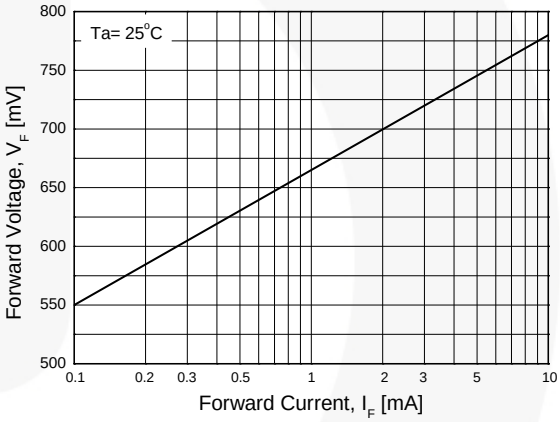


Figure 4. Forward Voltage vs. Forward Current
VF - 0.1 to 10 mA

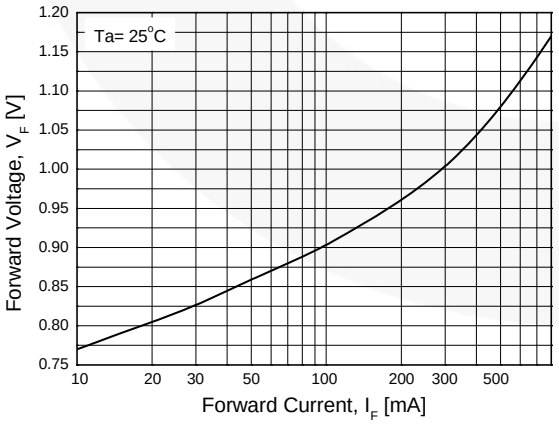


Figure 5. Forward Voltage vs. Forward Current
VF - 10 to 800 mA

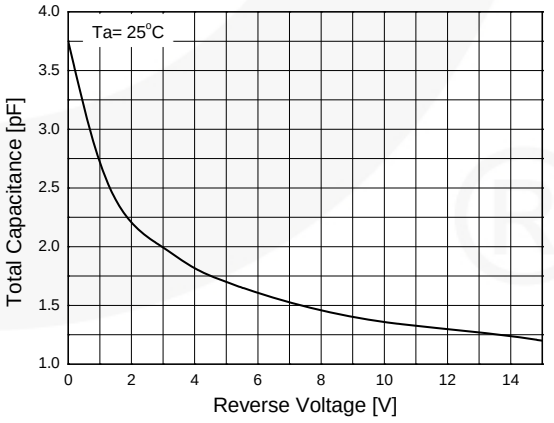


Figure 6. Total Capacitance vs. Reverse Voltage
VR - 0 to 15 V

Typical Performance Characteristics (Continued)

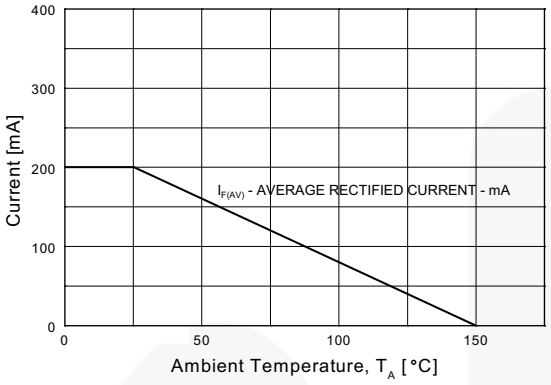


Figure 7. Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature (T_A)

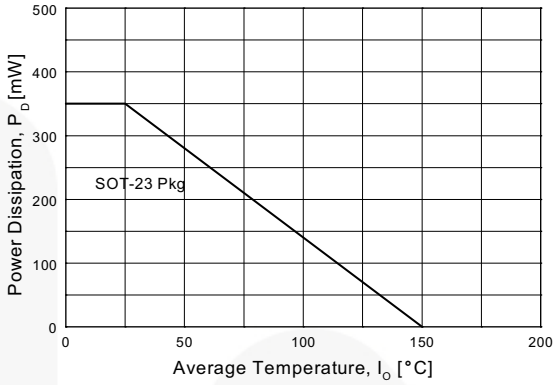
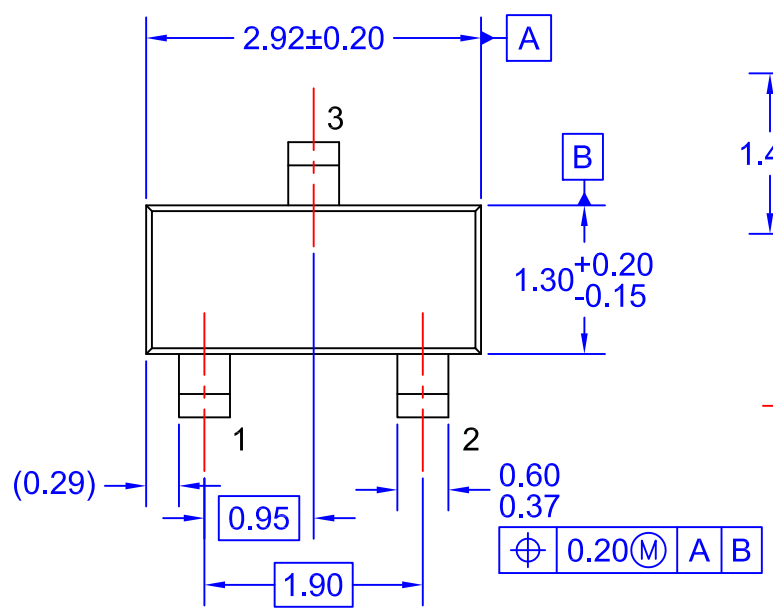
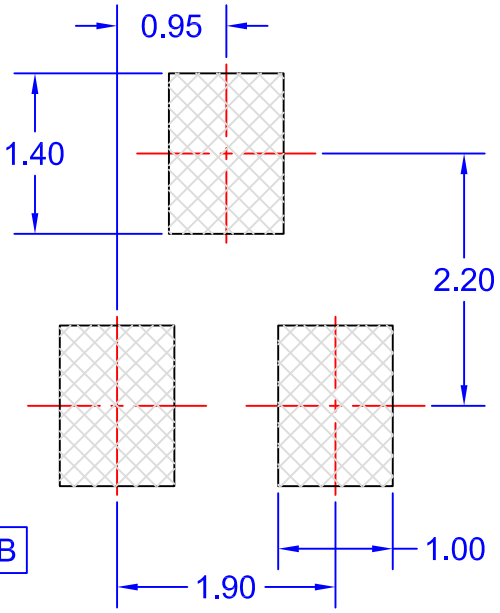
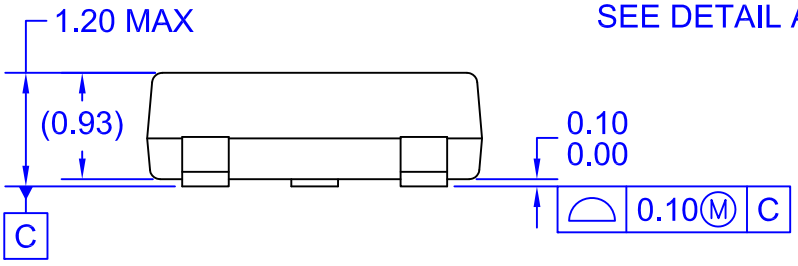


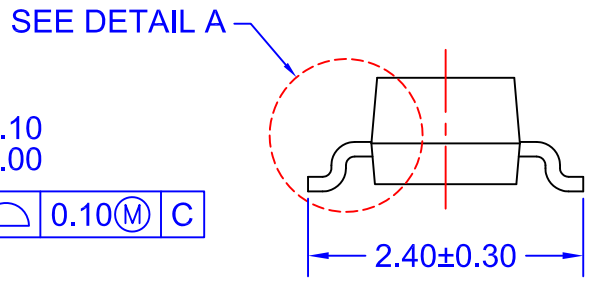
Figure 8. Power Derating Curve

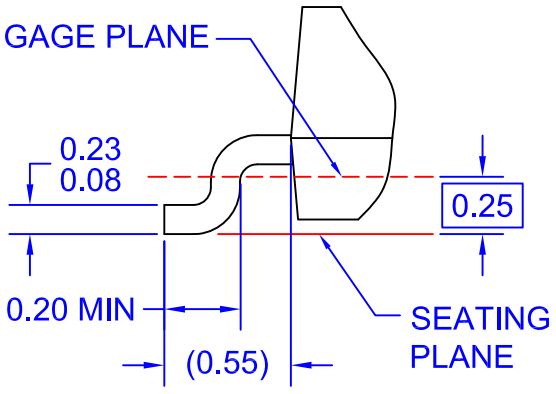




LAND PATTERN
RECOMMENDATION







DETAIL A
SCALE: 2X

NOTES: UNLESS OTHERWISE SPECIFIED

A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS ARE INCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 2009.
E) DRAWING FILE NAME: MA03DREV12

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