

100V Small Signal Diodes

FEATURES

- Fast Switching Device (TRR <4nS)
- Power Dissipation of 350mW
- Low reverse leakage
- High Stability and High Reliability
- RoHS Compliant

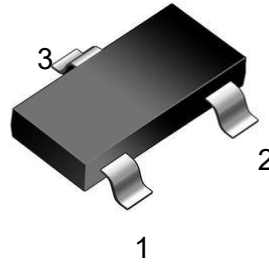
APPLICATIONS

- Surge protection
- Voltage stabilization
- Polarity Protection

MACHANICAL DATA

- Package: SOT-23
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Tape Reel :3000pcs

APPEARANCE&SYMBOL



MMBD1201	MMBD1202	MMBD1203	MMBD1204	MMBD1205
MARKING:14	MARKING:15	MARKING:16	MARKING:17	MARKING:18

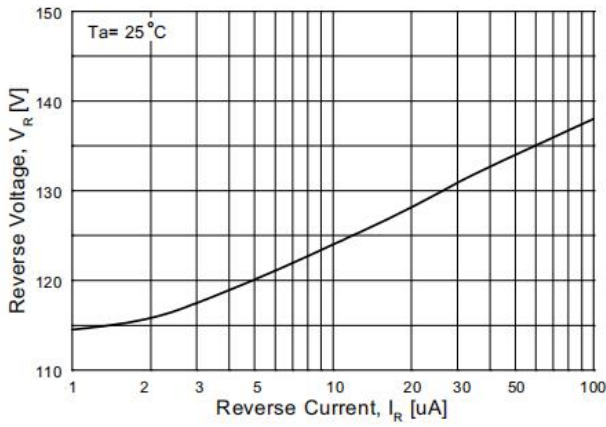
ABSOLUTE MAXIMUM RATINGS(T_{amb}=25 °C)

Parameters		Symbol	Value	Unit
Maximum Repetitive Reverse Voltage		V _{RRM}	100	V
Power Dissipation		P _D	350	mW
Derate Above 25°C			2.8	mW/°C
Thermal Resistance Junction to Ambient		R _{θJA}	357	°C/W
Average Rectified Forward Current		I _{F(AV)}	200	mA
Non-Repetitive Peak Forward Surge Current	Pulse Width = 1.0 second	I _{FSM}	1.0	A
	Pulse Width = 1.0 microsecond		2.0	
Operating Junction temperature Range		T _J	-55 to +150	°C
Storage Temperature Range		T _{STG}	-55 to +150	°C

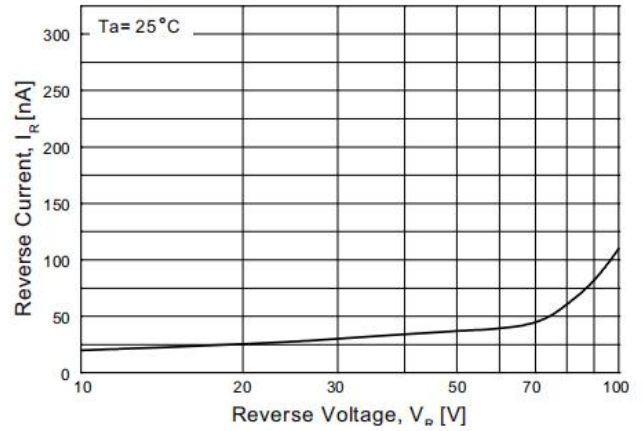
ELECTRICAL CHARACTERISTICS (T_{amb}=25 °C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Breakdown Voltage	V _R	I _R =100uA	100			V
Reverse Leakage Current	I _R	V _R = 20V			25	nA
		V _R = 50V			50	nA
		V _R = 50V, T _A = 150°C			100	uA
Forward Voltage	V _F	I _F =1mA			620	mV
		I _F =10mA			740	mV
		I _F =100mA			920	mV
		I _F =200mA			1.0	V
		I _F =300mA			1.1	V
Reverse Recovery Time	t _{rr}	I _F =I _R =10mA, R _L =100Ω, I _{RR} =1.0mA			4	nS
Junction Capacitance	C _J	V _R = 0V, f = 1MHz			2	pF

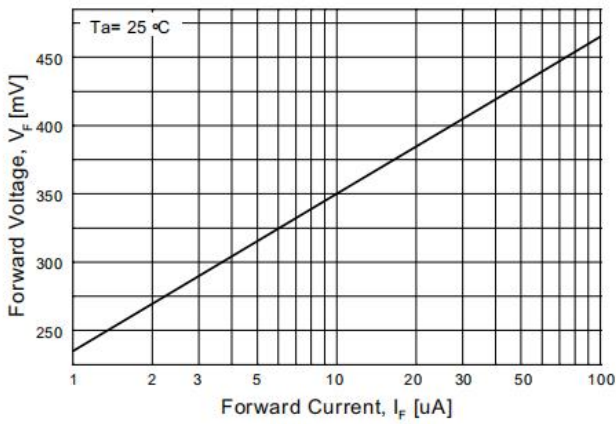
RATING AND CHARACTERISTICS CURVES (MMBD1201 THRU MMBD1205)



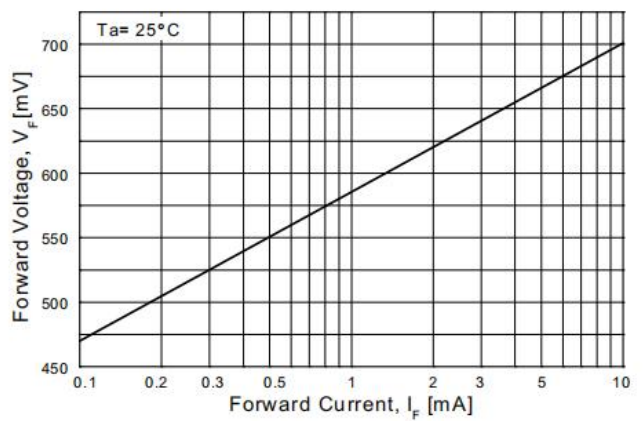
**Figure 1. Reverse Voltage vs. Reverse Current
BV @ $I_R = 1.0$ to $100 \mu\text{A}$**



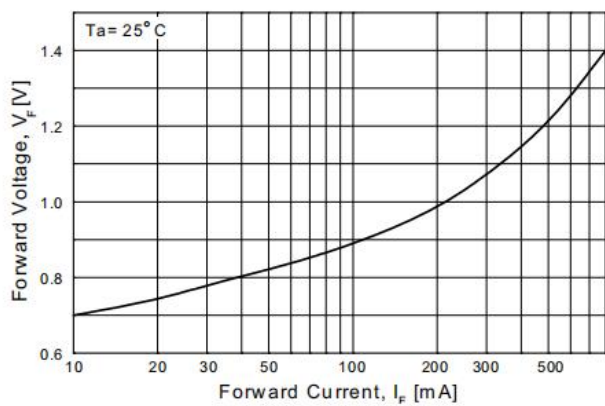
**Figure 2. Reverse Current vs. Reverse Voltage
 I_R @ $V_R = 10$ to 100 V**



**Figure 3. Forward Voltage vs. Forward Current
 V_F @ $I_F = 1.0$ to $100 \mu\text{A}$**



**Figure 4. Forward Voltage vs. Forward Current
 V_F @ $I_F = 0.1$ to 10 mA**



**Figure 5. Forward Voltage vs. Forward Current
 V_F @ $I_F = 10$ to 800 mA**

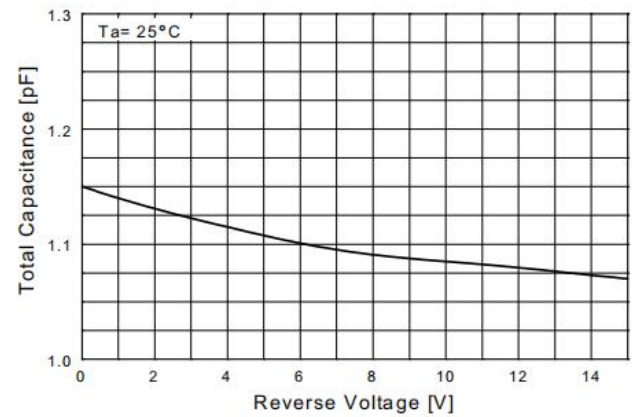


Figure 6. Total Capacitance vs. Reverse Voltage

RATING AND CHARACTERISTICS CURVES (MMBD1201 THRU MMBD1205)

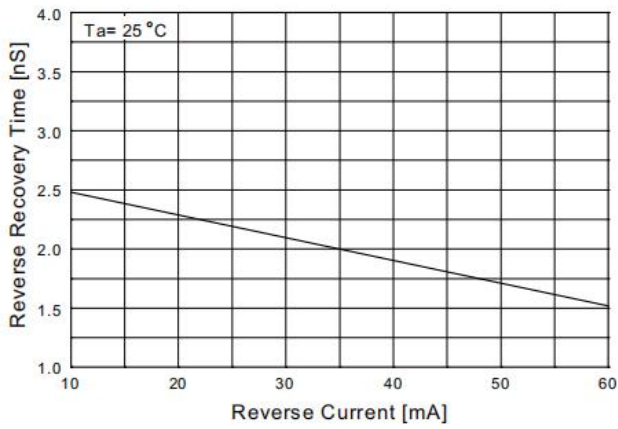


Figure 7. Reverse Recovery Time vs. Reverse Current

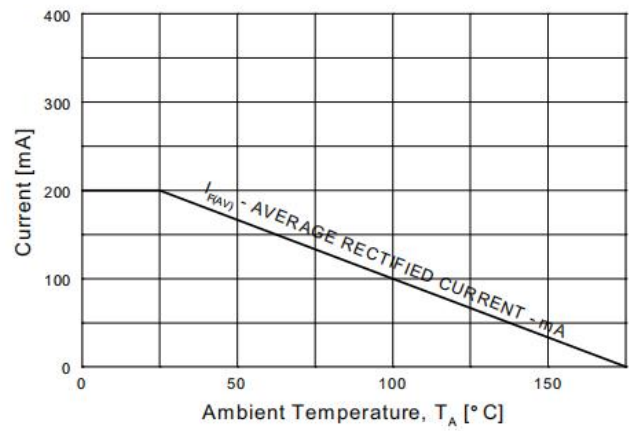


Figure 8. Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature (T_A)

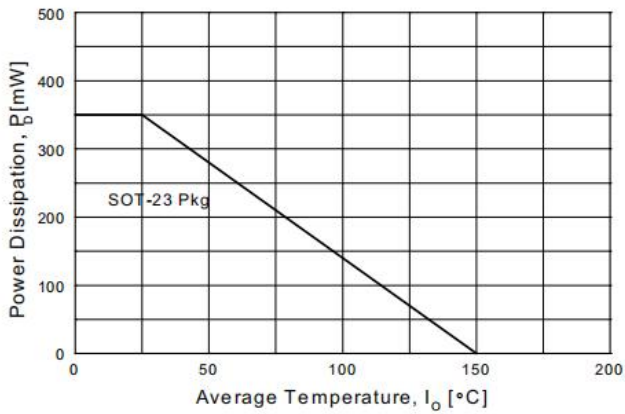
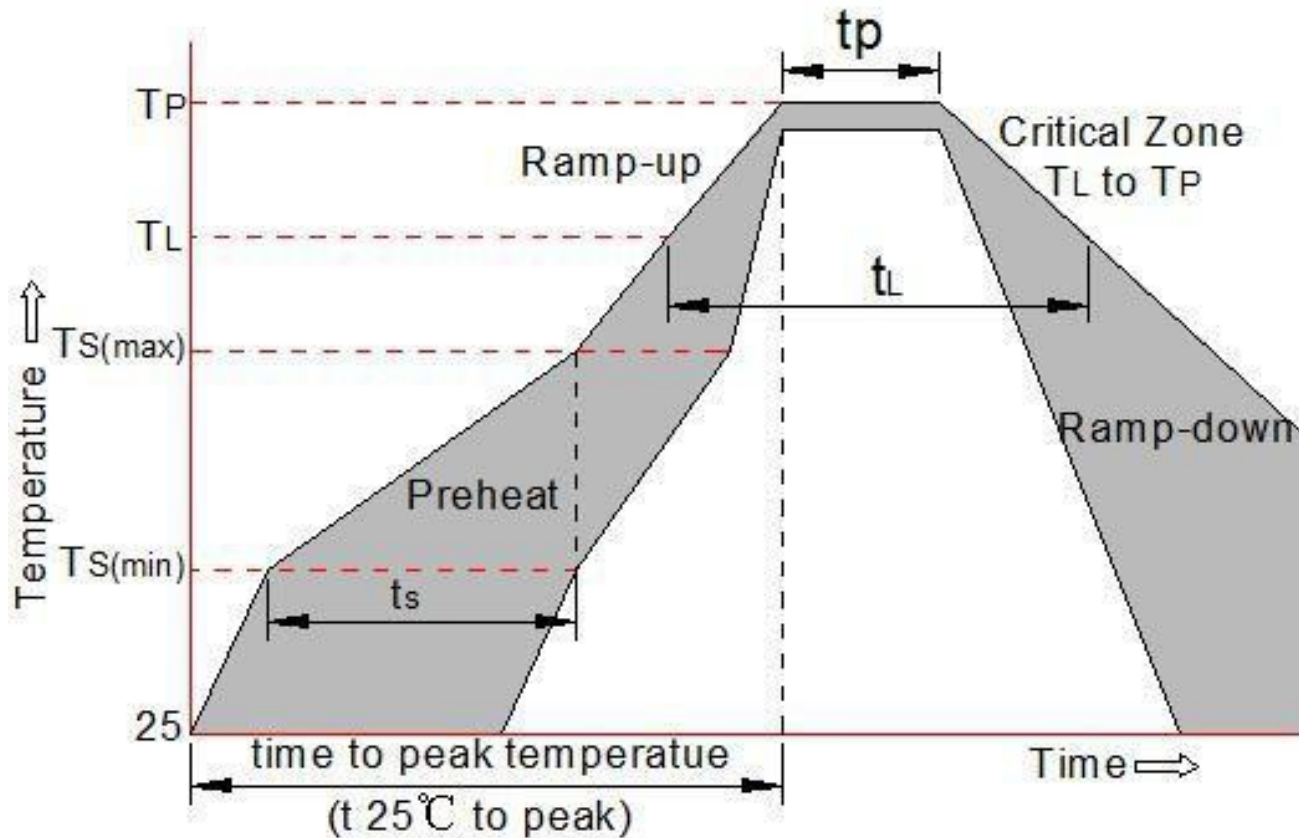


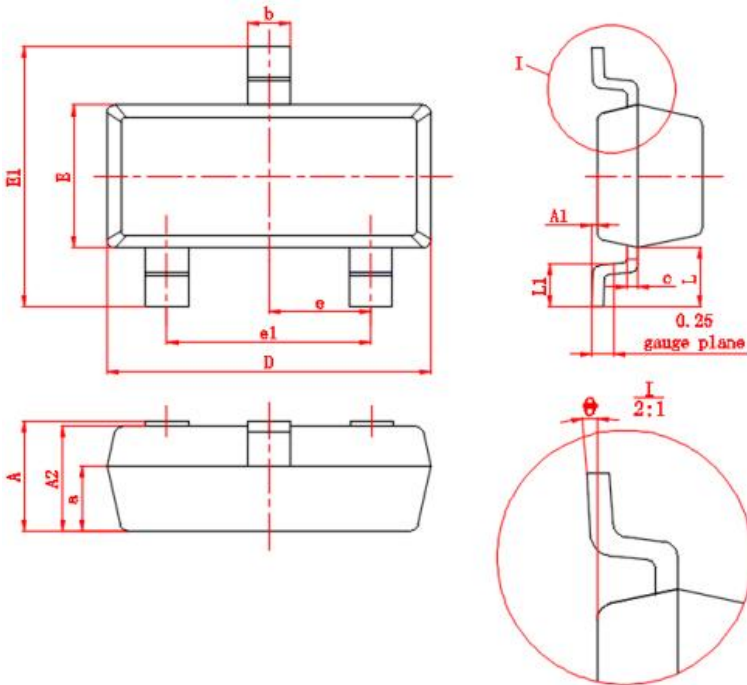
Figure 9. Power Derating Curve

SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C

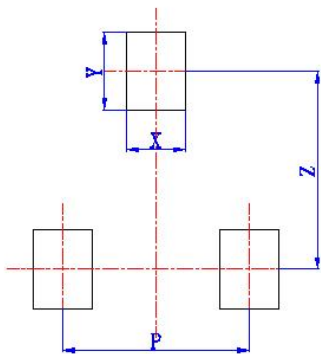


SOT-23 PACKAGE OUTLINE DIMENSIONS



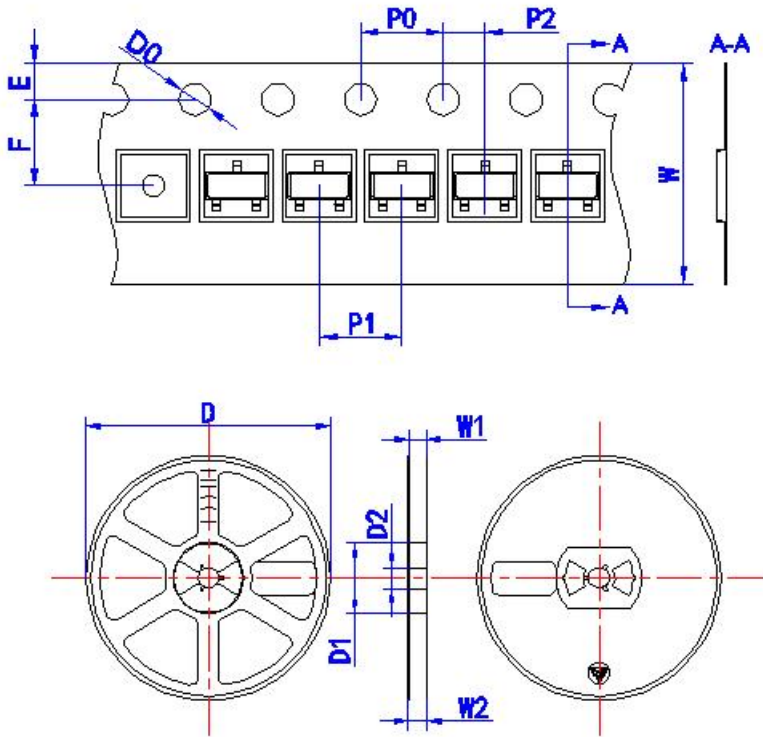
Symbol	Dimensional	
	Millimeters	
	min	max
A	0.9	1.15
A1	0	0.1
A2	0.9	1.05
a	(0.6)	
D	2.8	3.0
E	1.2	1.4
E1	2.25	2.55
e	(0.95)	
e1	1.8	2.0
b	0.3	0.5
c	0.08	0.15
L	(0.55)	
L1	0.3	0.5
θ	0°	8°

SUGGESTED LAND PATTERN



Symbol	Dimensional
	Millimeters
X	(0.6)
Y	(0.8)
Z	(2.02)
P	(1.9)

TAPE & REEL SPECIFICATION



Symbol	Dimensional Millimeters
Tape	
D0	1.50+0.10/-0.00
E	1.75±0.10
F	3.50±0.10
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
W	8.00+0.3/-0.1
Reel	
D	178.0±2.00
D1	54.40±1.00
D2	13.00±1.00
W1	9.50±1.00
W2	12.30±1.00

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