RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

MMBD1201 THRU MMBD1205

100V Small Signal Diodes

FEATURES

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

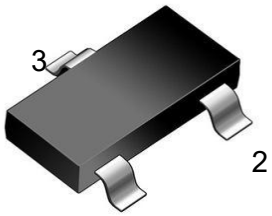
MACHANICAL DATA

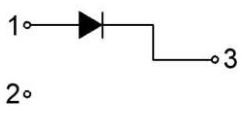
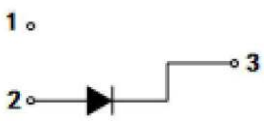
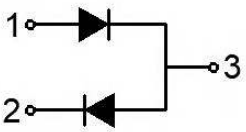
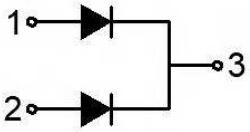
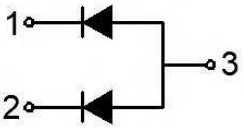
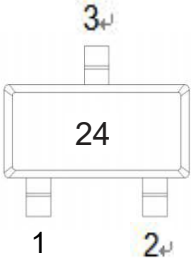
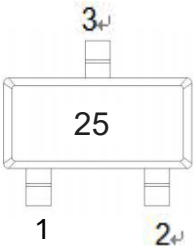
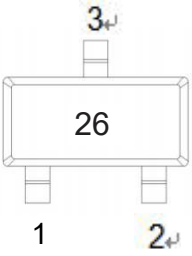
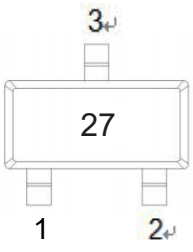
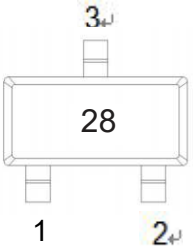
- Package: SOT-23
- Lead Finish:Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Tape Reel :3000pcs

APPLICATIONS

- Surge protection
- Voltage stabilization
- Polarity Protection

APPEARANCE&SYMBOL



MMBD1201	MMBD1202	MMBD1203	MMBD1204	MMBD1205
				
MARKING:24	MARKING:25	MARKING:26	MARKING: 27	MARKING: 28
				

2024-08/124
REV:A

ABSOLUTE MAXIMUM RATINGS(Tamb=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/℃
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	357	℃/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	℃
Storage Temperature Range		T_{STG}	-55 to +150	℃

ELECTRICAL CHARACTERISTICS (Tamb=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)

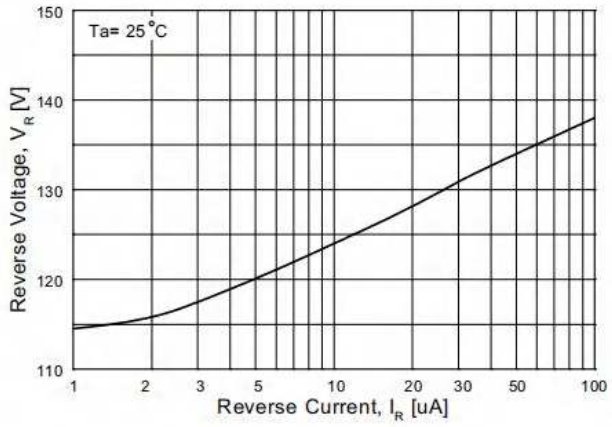


Figure 1. Reverse Voltage vs. Reverse Current
BV @ I_R = 1.0 to 100 μA

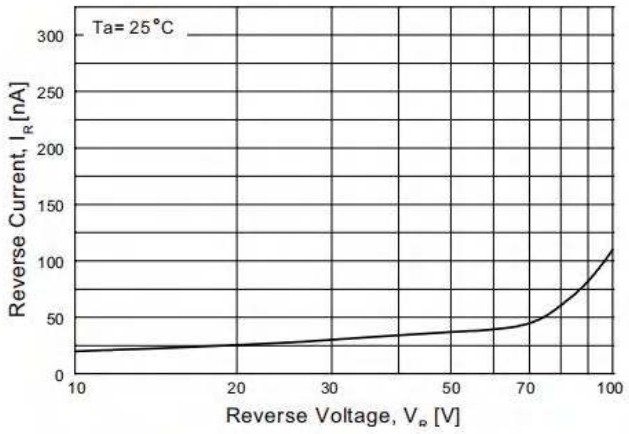


Figure 2. Reverse Current vs. Reverse Voltage
I_R @ V_R = 10 to 100 V

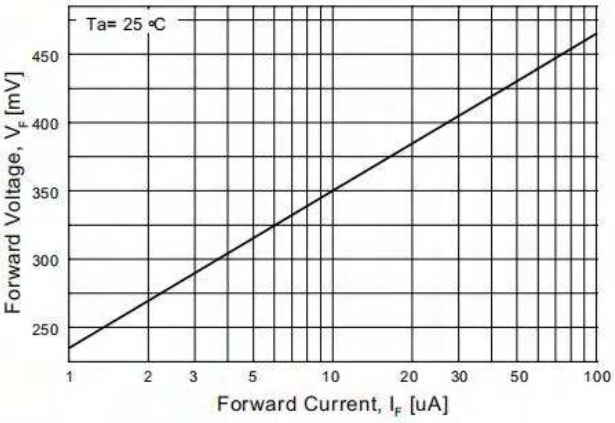


Figure 3. Forward Voltage vs. Forward Current
V_F @ I_F = 1.0 to 100 μA

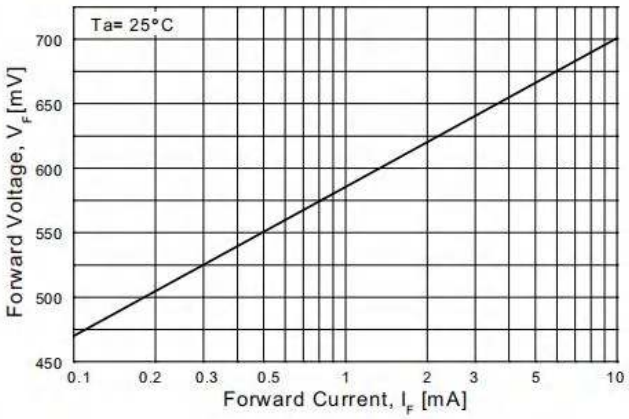


Figure 4. Forward Voltage vs. Forward Current
V_F @ I_F = 0.1 to 10 mA

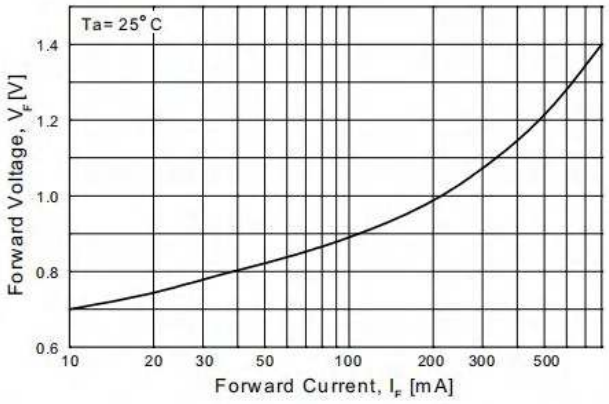


Figure 5. Forward Voltage vs. Forward Current
V_F @ I_F = 10 to 800 mA

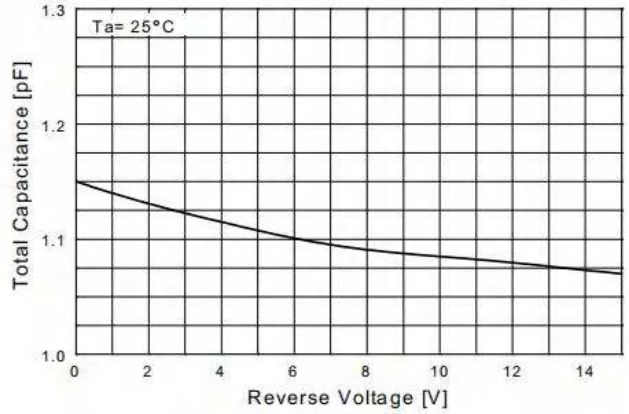


Figure 6. Total Capacitance vs. Reverse Voltage

RATING AND CHARACTERISTICS CURVES (MMBD1201 THRU MMBD1205)

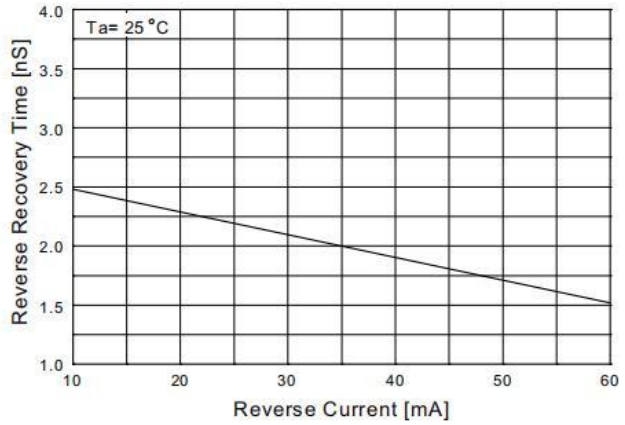


Figure 7. Reverse Recovery Time vs. Reverse Current

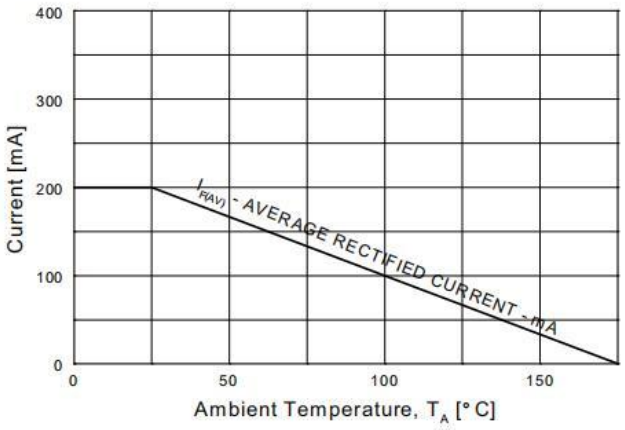


Figure 8. Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature (T_A)

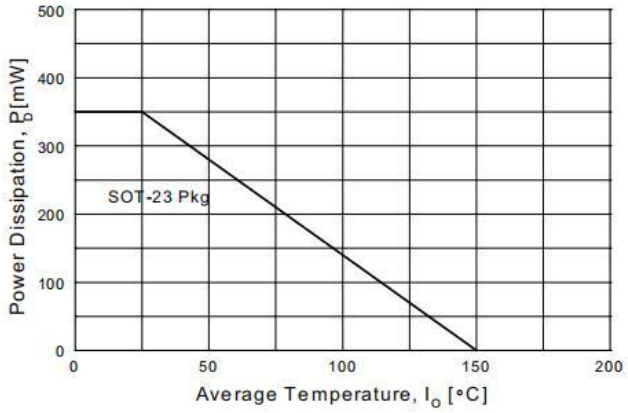
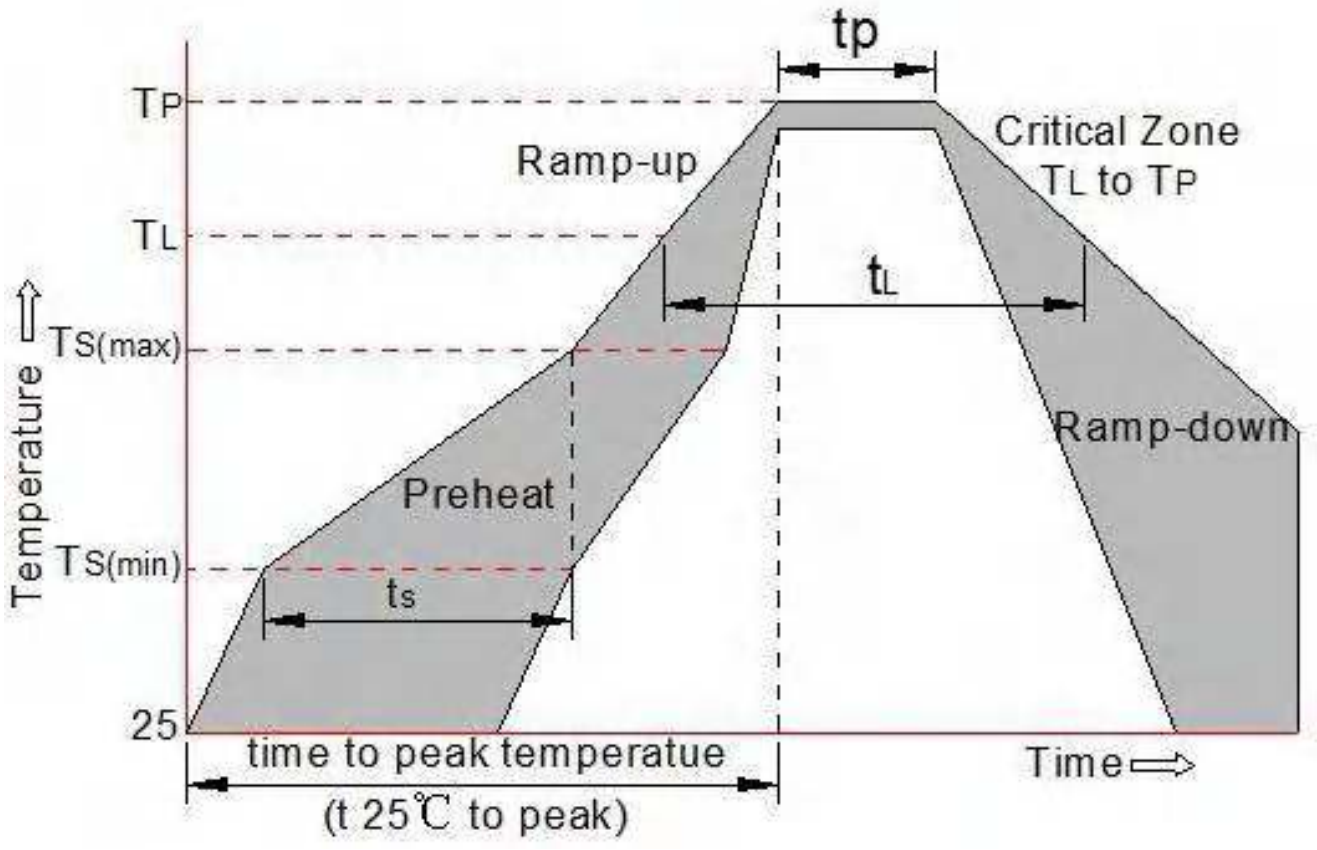


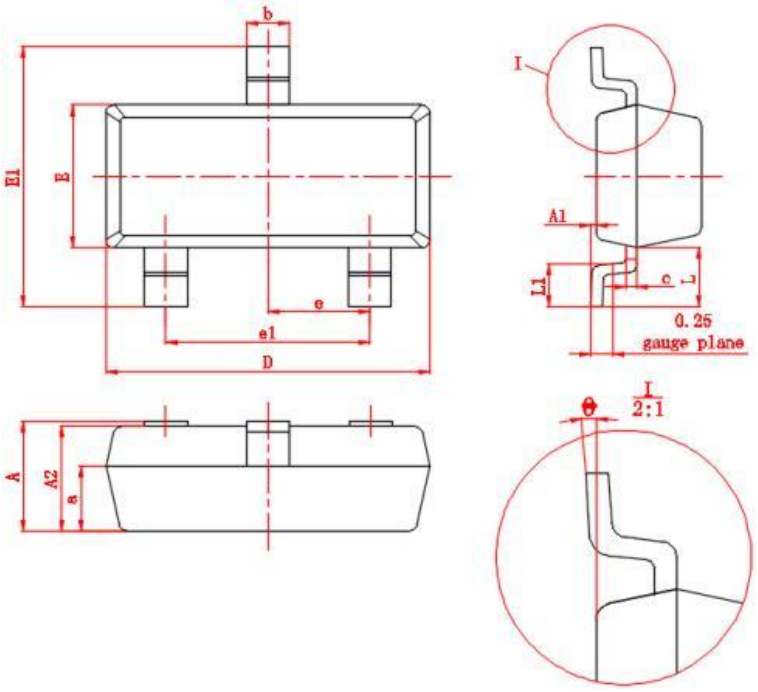
Figure 9. Power Derating Curve

SOLDERING PARAMETERS

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

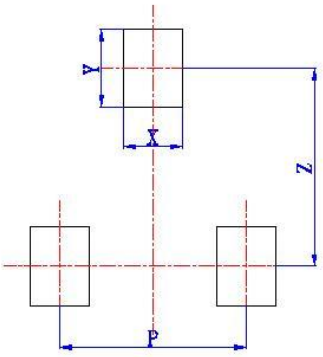


SOT-23 PACKAGE OUTLINE DIMENSIONS



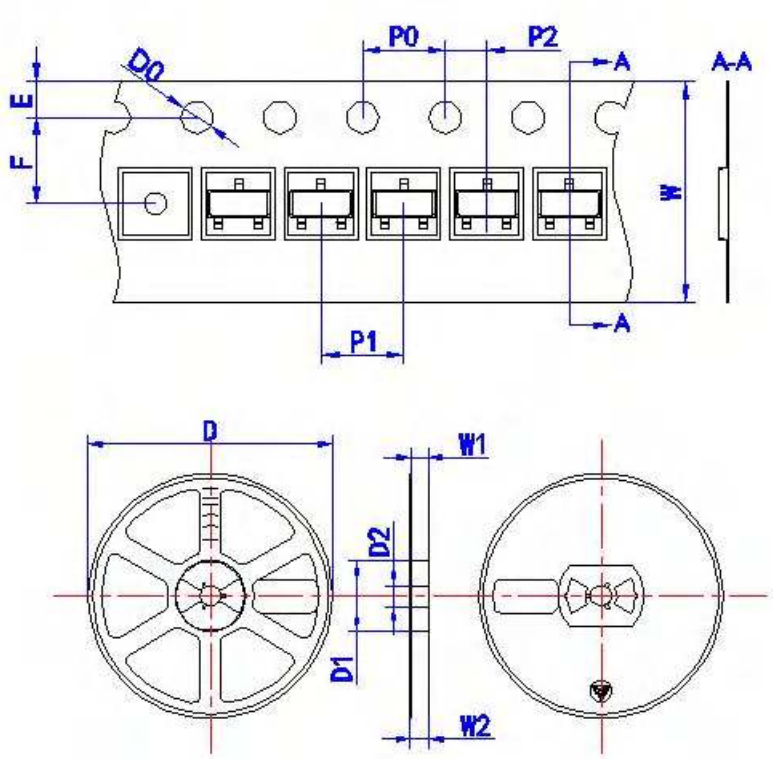
Symbol	Dimensional	
	Millimeters	
	min	max
A	0.9	1.15
A1	0	0.1
A2	0.9	1.05
a	(0.6)	
D	2.8	3.0
E	1.2	1.4
E1	2.25	2.55
e	(0.95)	
e1	1.8	2.0
b	0.3	0.5
c	0.08	0.15
L	(0.55)	
L1	0.3	0.5
θ	0°	8°

SUGGESTED LAND PATTEM



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

REEL PACK

PACKAGE	PACKING CODE	REEL (EA)	COMPONENT SPACE(mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SOT-23/-3L	-T	3,000	---	---	178	390*205*310	120,000	---

DISCLAIMER NOTICE

Rectron Inc reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Rectron Inc or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on RECTRON data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Rectron Inc does not assume any liability arising out of the application or use of any product or circuit.

Rectron products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Rectron Inc. Customers using or selling Rectron components for use in such applications do so at their own risk and shall agree to fully indemnify Rectron Inc and its subsidiaries harmless against all claims, damages and expenditures.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Rectron:

MMBD1204-T MMBD1202-T MMBD1205-T MMBD1201-T MMBD1203-T