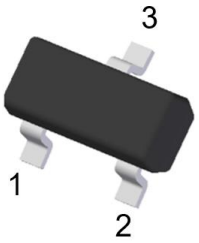
MMBD3004 Series

Surface Mount Fast Switching Diode

Features

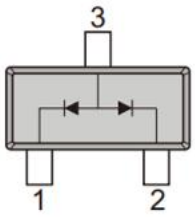
- High Conductance
- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automatic Insertion
- High Reverse Breakdown Voltage Rating
- Meet RoHS



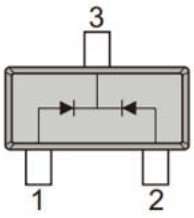
Mechanical Data

- Case: SOT-23, Molded Plastic

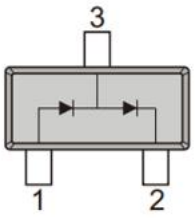
Schematic



MMBD3004A

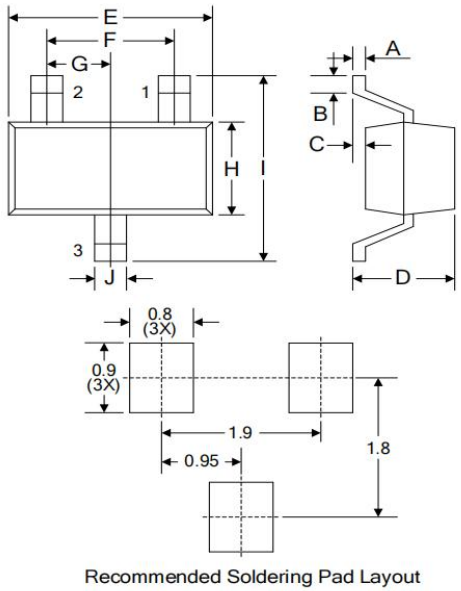


MMBD3004C



MMBD3004S

Dimensions (SOT-23)



Recommended Soldering Pad Layout

Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.08	0.18	0.003	0.007
B	0.15	-	0.006	-
C	-	0.13	-	0.005
D	0.89	1.09	0.035	0.043
E	2.80	3.05	0.110	0.120
F	1.90		0.075	
G	0.95		0.037	
H	1.19	1.40	0.047	0.055
I	2.10	2.49	0.083	0.098
J	0.35	0.50	0.014	0.020

Maximum Ratings and Thermal Characteristics(T_A = 25°C Unless Otherwise Specified)

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	350	mW
Non-Repetitive Peak Reverse Voltage	V_{RM}	350	V
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	300	V
RMS Voltage	$V_{R(RMS)}$	212	V
Continuous Forward Current	I_F	225	mA
Peak Repetitive Forward Current	I_{FRM}	625	mA
Non-repetitive peak Forward Surge Current at t =1.0ms at t =8.3ms	I_{FSM}	7.0 4.0	A
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	357	℃/W
Operating and Storage Temperature Range	T_J,T_{STG}	- 55 to +150	℃

Electrical Characteristics(T_A = 25°C Unless Otherwise Specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage@I_R=150μA	$V_{(BR)R}$	350			V
Forward Voltage@at I_F=20mA	V_F		0.78	0.87	V
Forward Voltage@at I_F=100mA	V_F		0.93	1.0	V
Forward Voltage@at I_F=200mA	V_F		1.03	1.25	V
Total Capacitance at V_R=0 ,f=1 MHz	C_T		5	10	pF
Reverse Current@at V_R=240 V	I_R		30	100	nA
Reverse Current@at V_R=240V,T_J=150℃			35	100	μA
Reverse Recovery Time AtI_F=10mA,V_R=6V,Irr=0.1×I_R,R_L=100Ω	t_{rr}			35	ns

Ratings and Characteristic Curves (T_A=25℃ Unless Otherwise Noted)

Figure 1. Power Derating Curve

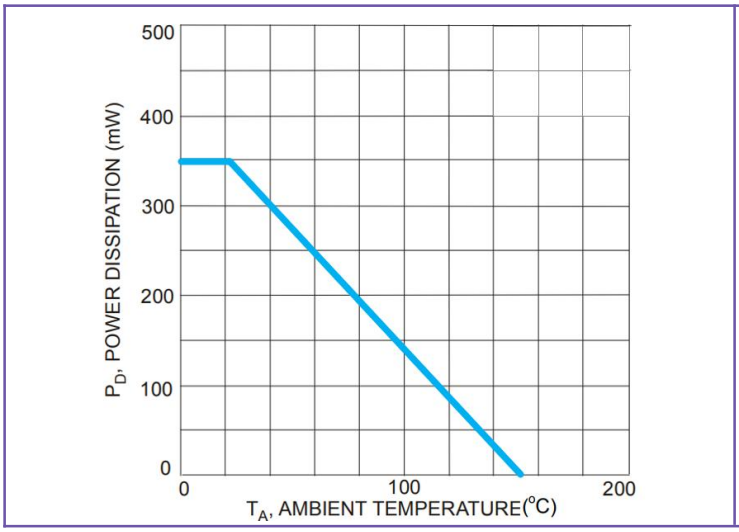


Figure 2. Reverse Characteristics

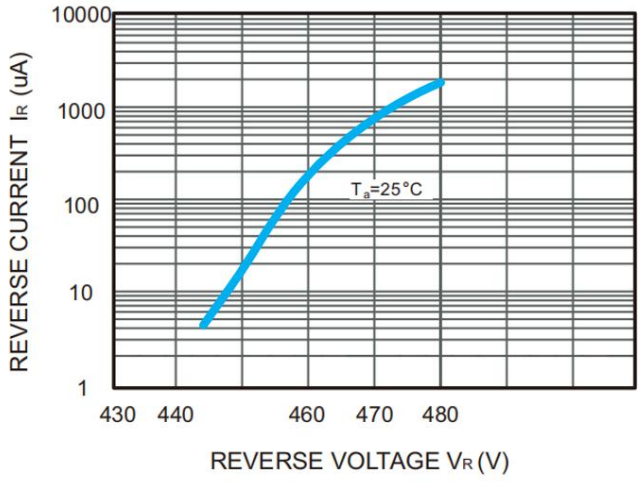


Figure 3. Forward Characteristics

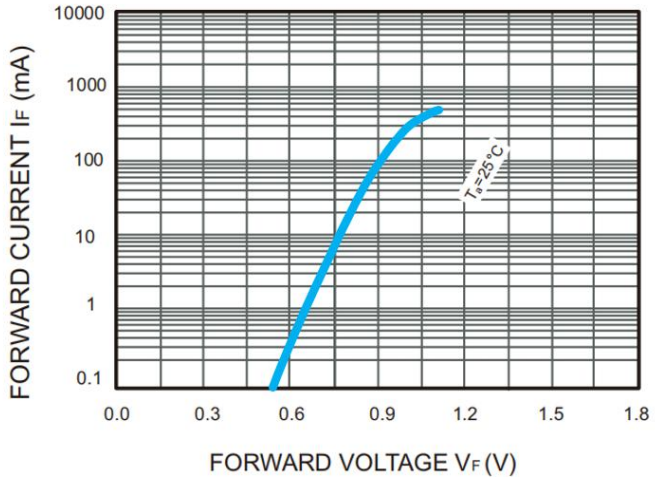


Figure 4.Capacitance Characteristics

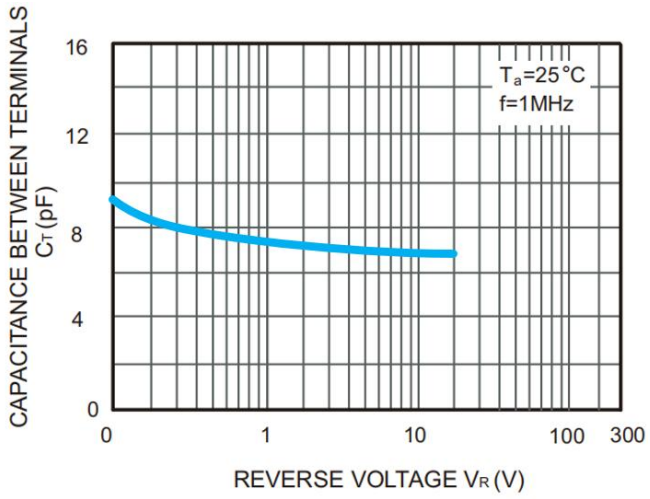
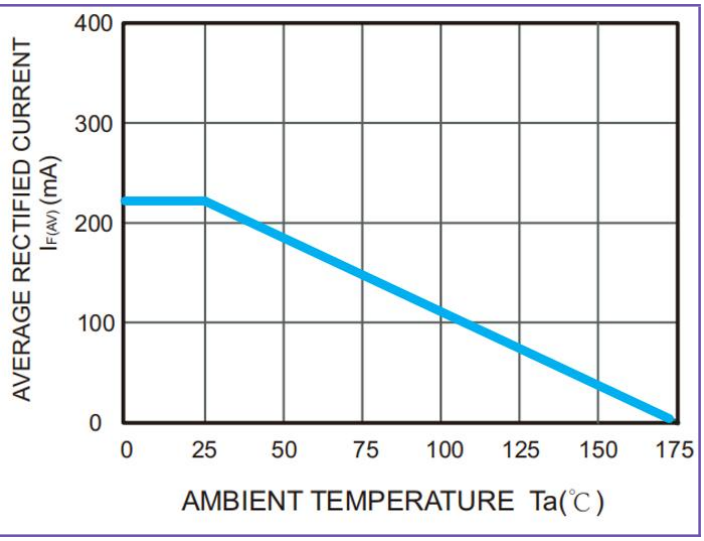
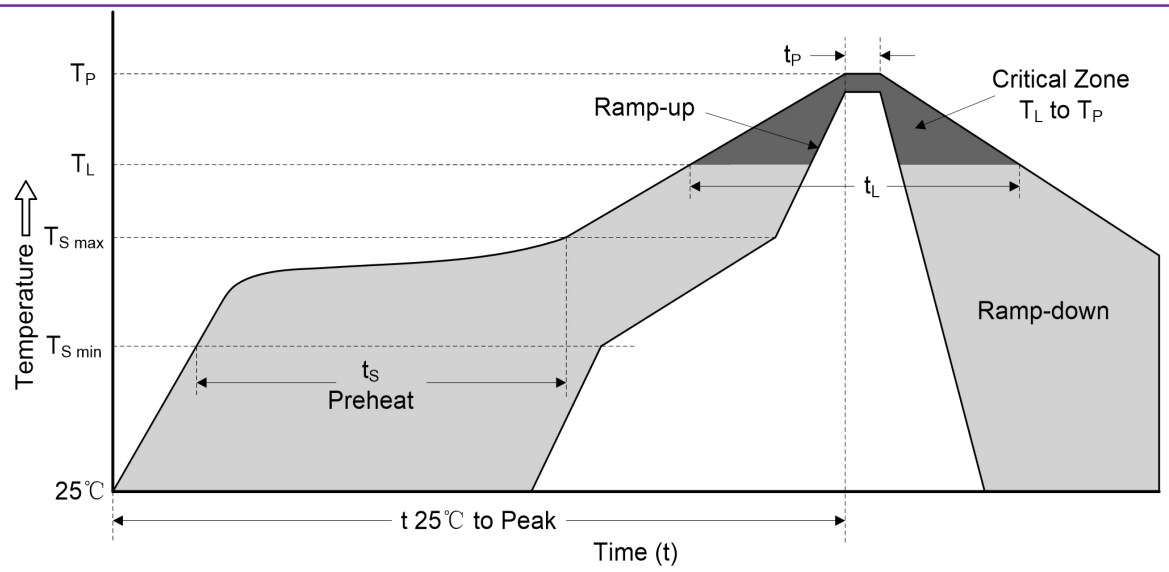


Figure 5. Semiconductor Intrinsic Property



Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min ($T_{S\,min}$)	150℃
	-Temperature Max ($T_{S\,max}$)	200℃
	-Time (min to max) (t_S)	60-180 seconds
Average ramp-up rate (T_L to T_P)		3℃/second max.
$T_{S\,max}$ to T_L -Ramp-up Rate		3℃/second max.
Reflow	-Temperature (T_L) (Liquidus)	217℃
	-Time (min to max) (t_S)	60-150 seconds
Peak Temperature (T_P)		260(+0/-5)℃
Time within 5℃ of actual Peak Temperature (t_P)		20-40 seconds
Ramp-down Rate		6℃/second max.
Time 25℃ to Peak Temperature(T_p)		8 minutes max.
Do not exceed		260℃