

## 225mA, 350V SMD Switching Diode

### FEATURES

- Fast switching speed
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	225	mA
$V_{RRM}$	350	V
$I_{FSM}$	4	A
$V_F$ at $I_F=200mA$	1.25	V
$T_{J\ MAX}$	150	°C
Package	SOT-23	



### MECHANICAL DATA

- Case: SOT-23
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight:  $8 \pm 0.5$  mg (approximately)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER		SYMBOL	VALUE	UNIT
Marking code on the device	MMBD3004		HC	
	MMBD3004CA		RA	
	MMBD3004CC		PZ	
	MMBD3004SE		PY	
Power dissipation		$P_D$	350	mW
Repetitive peak reverse voltage		$V_{RRM}$	350	V
Repetitive peak forward current		$I_{FRM}$	625	mA
Forward current		$I_F$	225	mA
Non-Repetitive peak forward surge current	Pulse width=1 $\mu$ s	$I_{FSM}$	4	A
	Pulse width=1s		1	
Junction temperature range		$T_J$	-65 to +150	°C
Storage temperature range		$T_{STG}$	-65 to +150	°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-ambient thermal resistance	$R_{\theta JA}$	357	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>MIN</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage per diode <sup>(1)</sup>	$I_F = 100\text{mA}, T_J = 25^\circ\text{C}$	$V_F$	-	1.00	V
	$I_F = 200\text{mA}, T_J = 25^\circ\text{C}$			1.25	
Reverse voltage	$I_R = 100\ \mu\text{A}, T_J = 25^\circ\text{C}$	$V_R$	350	-	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$V_R = 240\ \text{V}, T_J = 25^\circ\text{C}$	$I_R$	-	0.1	$\mu\text{A}$
	$V_R = 240\ \text{V}, T_J = 150^\circ\text{C}$			100	
Junction capacitance	$f=1\ \text{MHz}, V_R=1\text{V}$	$C_J$	-	5	pF
Reverse recovery time	$I_F=I_R=30\text{mA}, R_L=100\Omega,$ $I_{RR}=0.1I_R$	$t_{rr}$	-	50	ns

**Notes:**

1. Pulse test with  $PW=0.3\ \text{ms}$
2. Pulse test with  $PW=30\ \text{ms}$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b> (Note 1)	<b>PACKAGE</b>	<b>PACKING</b>
MMBD300x RF	SOT-23	3K / 7" Reel
MMBD300x RFG	SOT-23	3K / 7" Reel

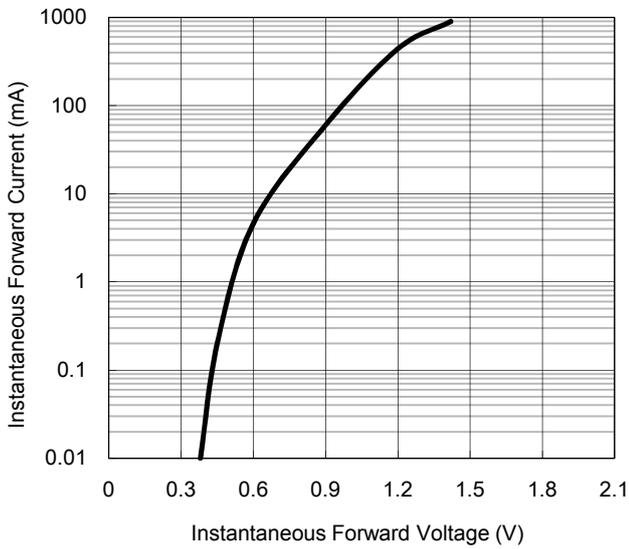
**Note:**

1. "xxx" defines part no. from "4" to "4SE"

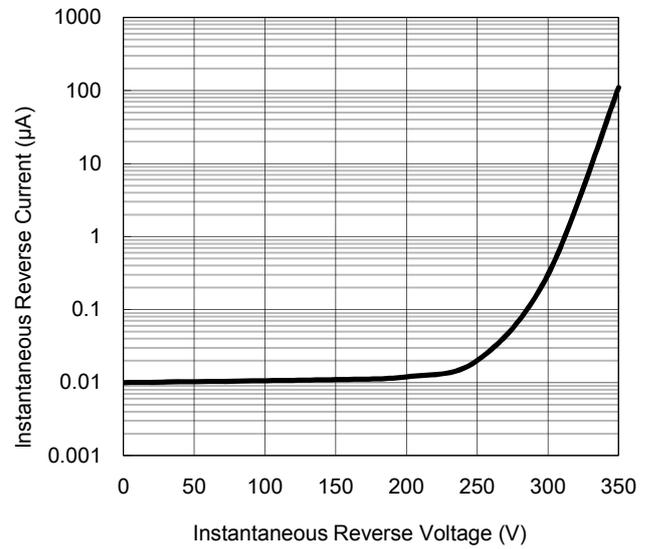
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

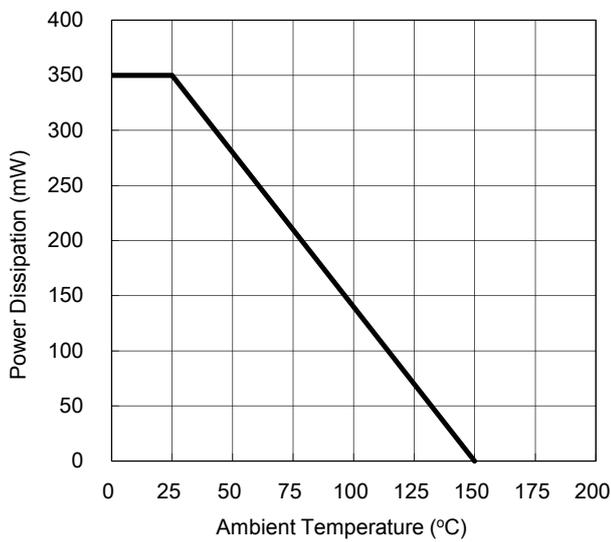
**Fig.1 Typical Forward Characteristics**



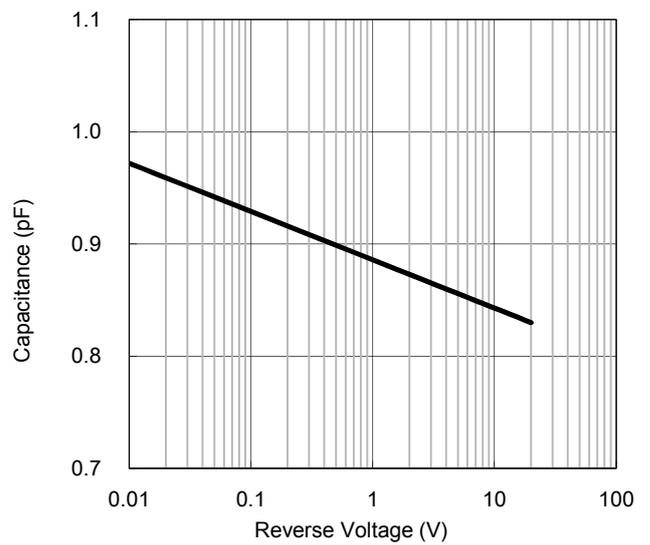
**Fig. 2 Typical Reverse Characteristics**



**Fig.3 Admissible Power Dissipation Curve**

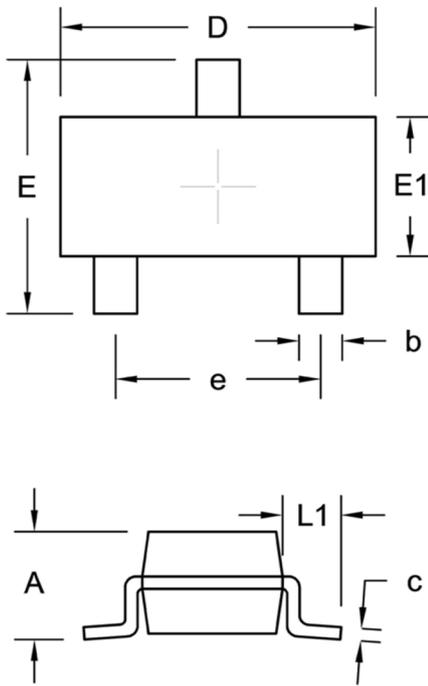


**Fig.4 Typical Capacitance VS. Reverse Voltage**



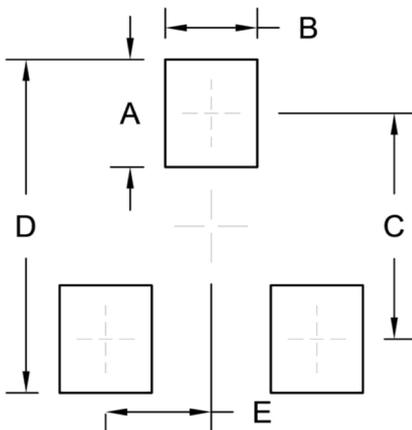
**PACKAGE OUTLINE DIMENSION**

SOT-23



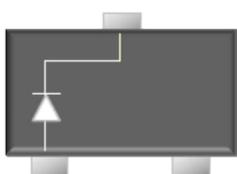
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.89	1.12	0.035	0.044
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	1.90 BSC		0.075 BSC	
L1	0.54 REF.		0.021 REF.	

**SUGGESTED PAD LAYOUT**

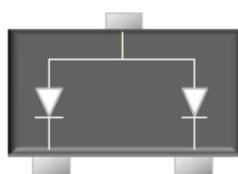


Symbol	Unit (mm)	Unit (inch)
A	1.00	0.039
B	0.85	0.033
C	2.10	0.083
D	3.10	0.122
E	0.98	0.039

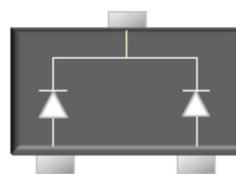
**PIN CONFIGURATION**



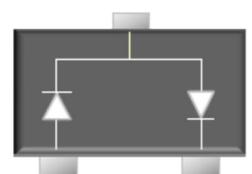
MMBD3004



MMBD3004CA



MMBD3004CC



MMBD3004SE

## Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.