MMBD2004S

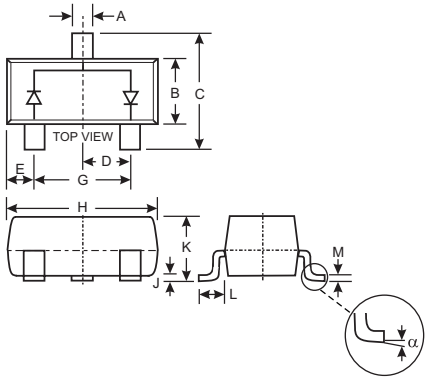
HIGH VOLTAGE SURFACE MOUNT SWITCHING DIODE

Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automatic Insertion
- High Reverse Breakdown Voltage
- Dual Series Configuration
- **Lead Free/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagram
- Ordering Information, See Sheet 2
- Marking: KA9 or KAE (See Page 2)
- Weight: 0.008 grams (approximate)



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	300	V
Working Peak Reverse Voltage DC Blocking Voltage	V_{RWM} V_R	240	V
RMS Reverse Voltage	$V_{R(RMS)}$	170	V
Forward Continuous Current (Note 2)	I_{FM}	225	mA
Peak Repetitive Forward Current (Note 2)	I_{FRM}	625	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0μs @ t = 1.0s	I_{FSM}	4.0 1.0	A
Power Dissipation (Note 2)	P_d	350	mW
Thermal Resistance Junction to Ambient Air (Note 2)	$R_{\theta JA}$	357	°C/W
Operating and Storage Temperature Range	T_j , T_{STG}	-65 to +150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	$V_{(BR)R}$	300	—	V	I_R = 100μA
Forward Voltage	V_F	—	0.87 1.0	V	I_F = 20mA I_F = 100mA
Reverse Current (Note 1)	I_R	—	100	nA μA	V_R = 240V V_R = 240V, T_j = 150°C
Total Capacitance	C_T	—	5.0	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	50	ns	I_F = I_R = 30mA, I_{rr} = 3.0mA, R_L = 100Ω

Notes:
1. Short duration test pulse used to minimize self-heating effect.
2. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
3. No purposefully added lead.

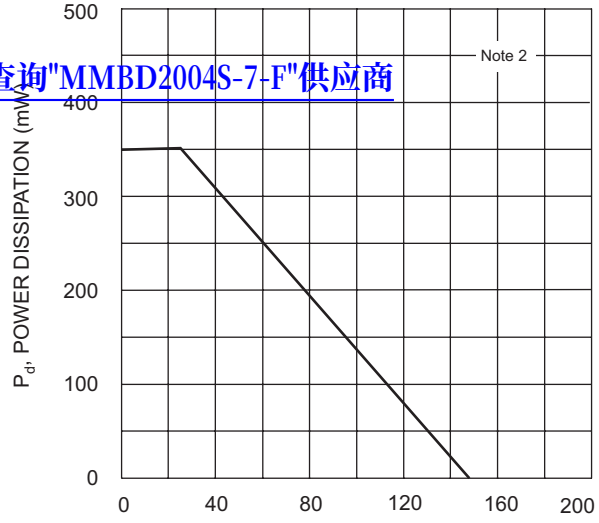


Fig. 1 Power Dissipation Derating

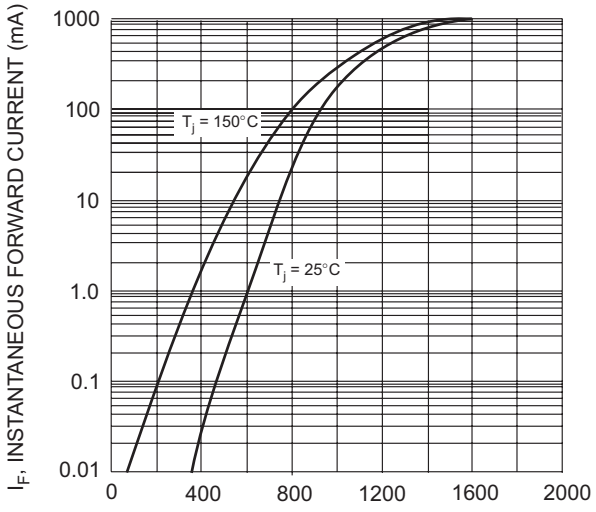


Fig. 2 Typical Forward Characteristics, per element

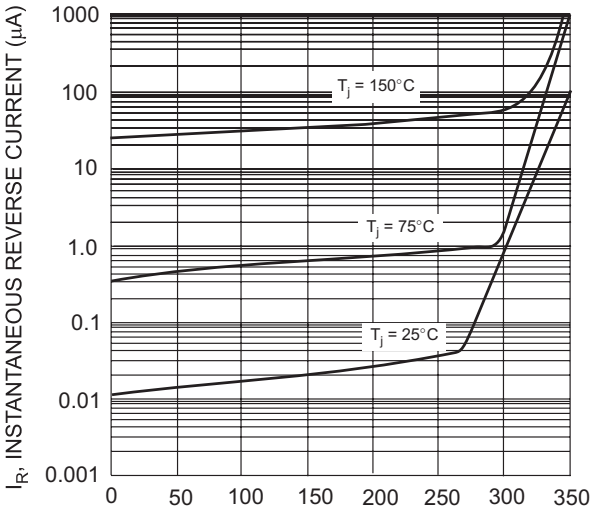


Fig. 3 Typical Reverse Characteristics, per element

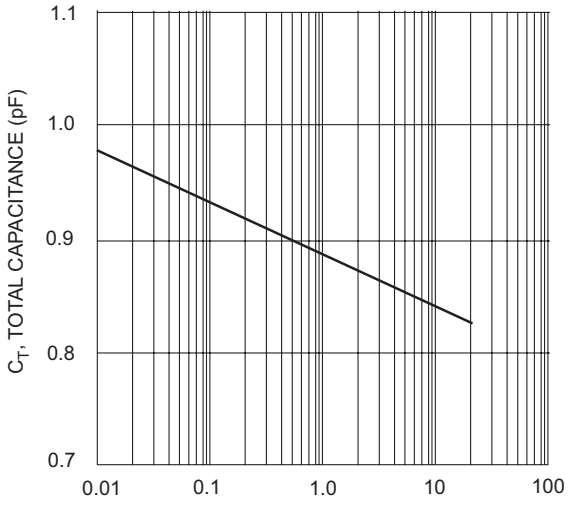


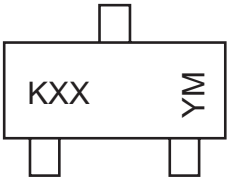
Fig. 4 Typical Total Capacitance vs. Reverse Voltage, per element

Ordering Information (Note 4)

Device	Packaging	Shipping
MMBD2004S-7-F	SOT-23	3000/Tape & Reel

Notes: 4. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



KXX = Product Type Marking Code (See Page 1)
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September

Date Code Key

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	M	N	P	R	S	T	U	V	W	X	Y	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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