HIGH VOLTAGE SURFACE MOUNT SWITCHING DIODE

Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- High Conductance
- High Reverse Breakdown Voltage Rating
- **Lead, Halogen and Antimony Free, RoHS Compliant**
- **"Green" Device (Notes 3 and 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

勝 特 力 材 料 886-3-5753170
胜特力电子(上海) 86-21-34970699
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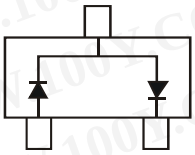
Mechanical Data

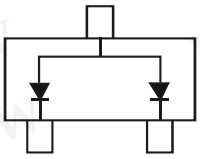
- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: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

SOT-23

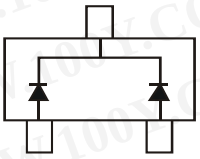
TOP VIEW



MMBD3004S Marking: KAE



MMBD3004A Marking: KAD



MMBD3004C Marking: KAC

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	350	V
Working Peak Reverse Voltage DC Blocking Voltage	V_{RWM} V_R	300	V
RMS Reverse Voltage	$V_{R(RMS)}$	212	V
Forward Continuous Current (Note 2)	I_F	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

Thermal Characteristics

Characteristic	Symbol	Value	Unit
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	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	$V_{(BR)R}$	350	—	—	V	I_R = 150µA
Forward Voltage	V_F	—	0.78 0.93 1.03	0.87 1.0 1.25	V	I_F = 20mA I_F = 100mA I_F = 200mA
Reverse Current (Note 1)	I_R	—	30 35	100 100	nA µA	V_R = 240V V_R = 240V, T_J = 150°C
Total Capacitance	C_T	—	1.0	5.0	pF	V_R = 0V, 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 pulse test 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. Halogen and Antimony Free.
4. Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb_2O_3 Fire Retardants.

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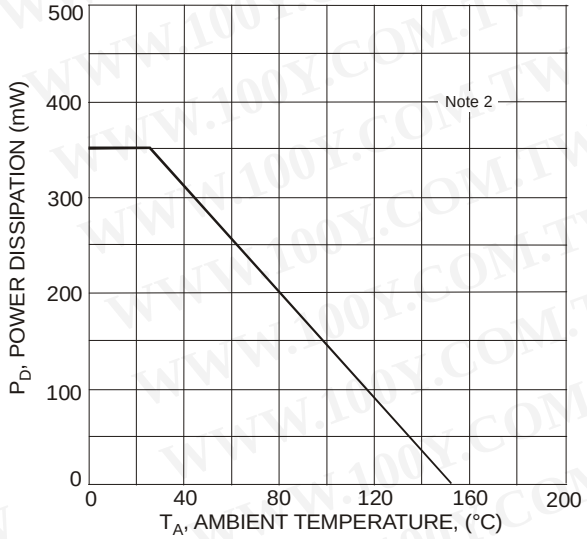


Fig. 1 Power Derating Curve, Total Package

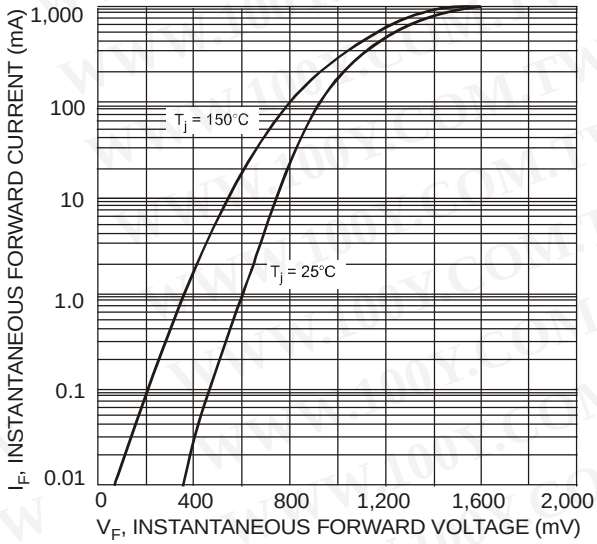


Fig. 2 Typical Forward Characteristics, Per Element

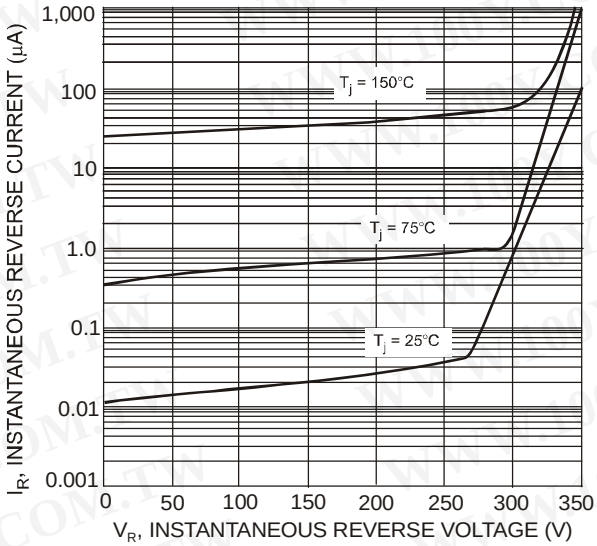


Fig. 3 Typical Reverse Characteristics, Per Element

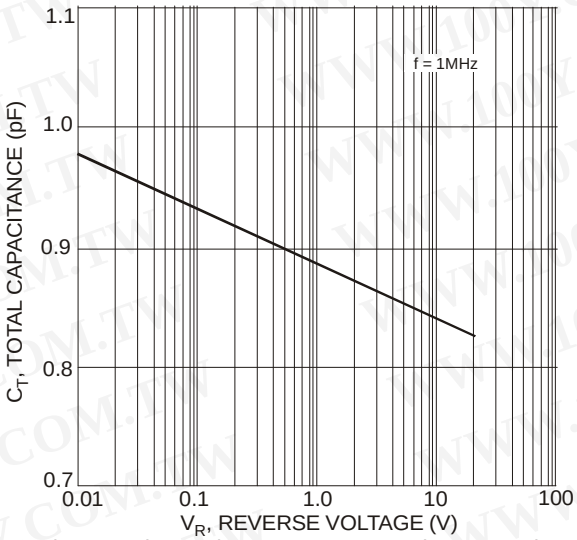


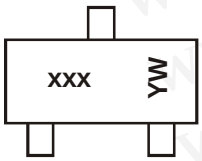
Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

Ordering Information (Note 5)

Part Number	Case	Packaging
MMBD3004S-7-F	SOT-23	3000/Tape & Reel
MMBD3004S-13-F	SOT-23	10,000/Tape & Reel
MMBD3004A-7-F	SOT-23	3000/Tape & Reel
MMBD3004C-7-F	SOT-23	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



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

Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	T	U	V	W	X	Y	Z	A	B	C

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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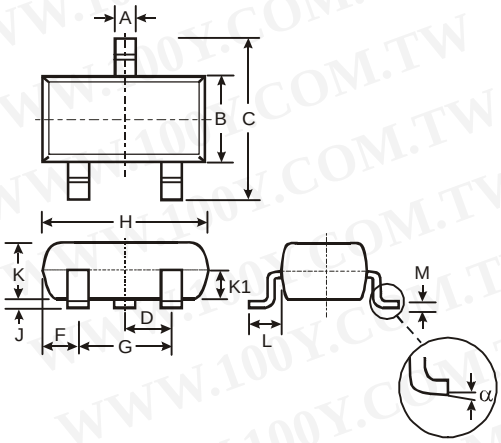
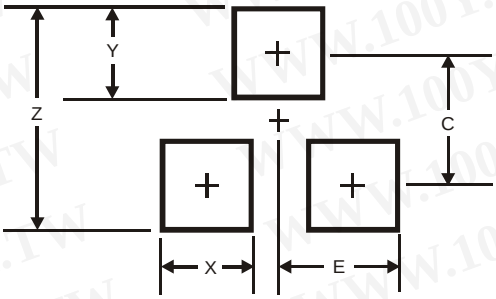
Package Outline Dimensions



SOT-23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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