

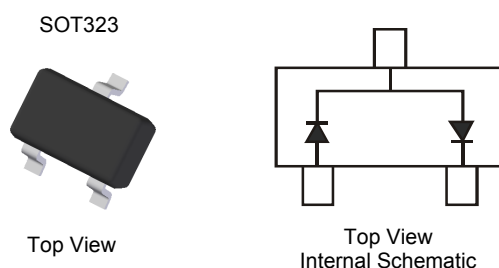
HIGH VOLTAGE SURFACE MOUNT DUAL SWITCHING DIODE

Features

- Fast Switching Speed: Maximum of 50ns
- High Reverse Breakdown Voltage: 300V
- Low Leakage Current: Maximum of 100nA when $V_R = 240V$ at Room Temperature
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- Qualified to AEC-Q101 Standards for High Reliability**
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper leadframe. (Lead Free Plating) Solderable per MIL-STD-202, Method 208③
- Polarity: See Diagram
- Weight: 0.006 grams (approximate)

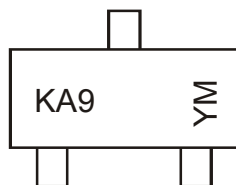


Ordering Information (Notes 4 & 5)

Part Number	Compliance	Case	Packaging
MMBD2004SW-7-F	Standard	SOT323	3000/Tape & Reel
MMBD2004SWQ-7-F	Automotive	SOT323	3000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 - See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - For packaging details, go to our website at <http://www.diodes.com>.
 - Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

Marking Information



KA9= Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: B = 2014)
M = Month (ex: 9 = September)

Date Code Key

Year	2003	2004		2013	2014	2015	2016	2017	2018	2019
Code	P	R		A	B	C	D	E	F	G

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

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	V _{RWM}	240	V
DC Blocking Voltage	V _R		V
RMS Reverse Voltage	V _{R(RMS)}	170	V
Forward Continuous Current	I _F	225	mA
Peak Repetitive Forward Current	I _{FRM}	625	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0μs	I _{FSM}	4.0	A
@ t = 1.0s		1.0	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	250	mW
Thermal Resistance Junction to Ambient Air (Note 6)	R _{θJA}	500	°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 7)	V _{(BR)R}	300	—	V	I _R = 100μA
Forward Voltage	V _F	—	0.87 1.0	V	I _F = 20mA I _F = 100mA
Peak Reverse Current (Note 7)	I _R	—	100	nA μA	V _R = 240V V _R = 240V, T _J = +150°C
Total Capacitance, per Element	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: 6. Part mounted on FR-4 PC Board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.
 7. Short duration pulse test used to minimize self-heating effect.

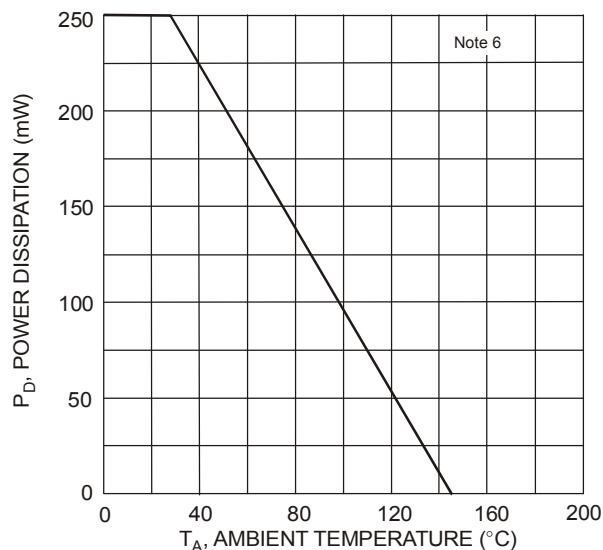


Figure 1 Power Derating Curve, Total Package

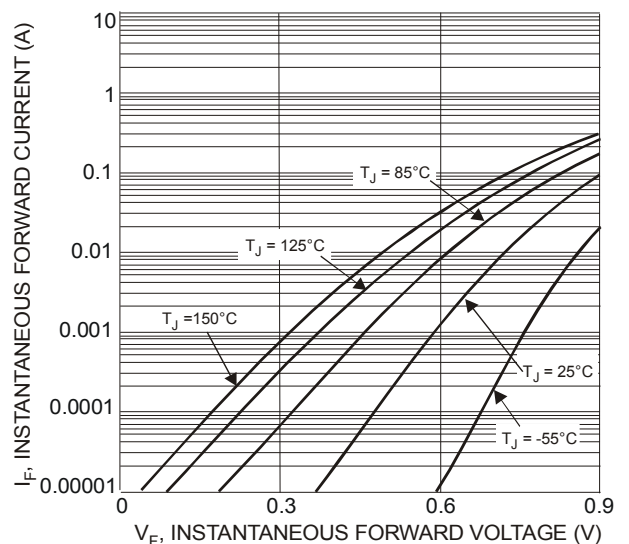


Figure 2 Typical Forward Characteristics, Per Element

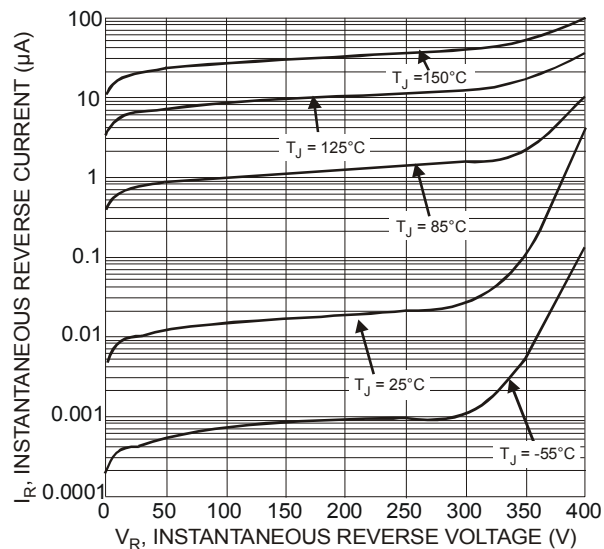


Figure 3 Typical Reverse Characteristics, Per Element

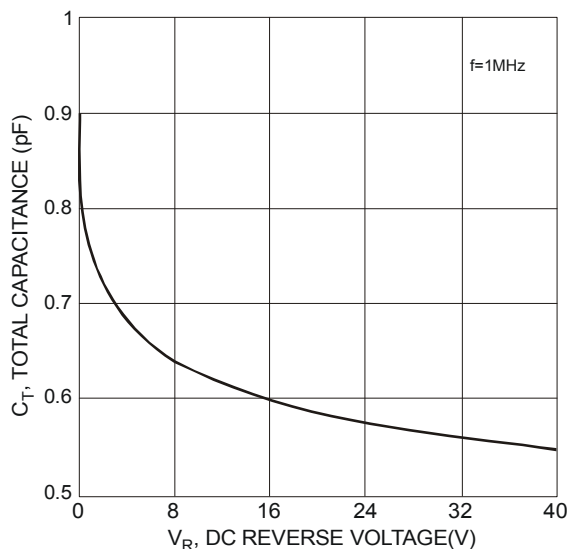
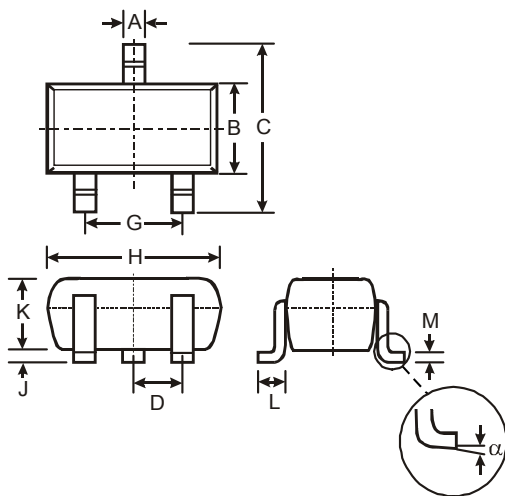


Figure 4 Total Capacitance vs. Reverse Voltage, Per Element

Package Outline Dimensions

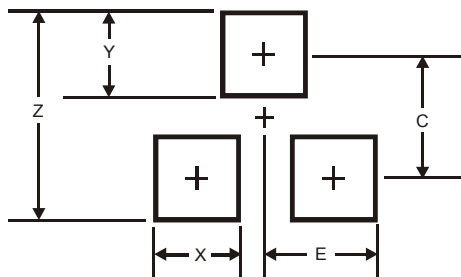
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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