

## Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- **Lead Free/RoHS Compliant (Note 3)**
- **"Green" Device (Notes 4 and 5)**

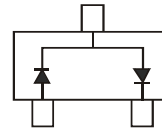
## Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish - Matte Tin. Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe)
- Polarity: See Diagram
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.006 grams (approximate)

SOT-323



TOP VIEW


 TOP VIEW  
Internal Schematic

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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	$I_F$	225	mA
Peak Repetitive Forward Current	$I_{FRM}$	625	mA
Non-Repetitive Peak Forward Surge Current	$I_{FSM}$	4.0 1.0	A
	@ $t = 1.0\mu\text{s}$		
	@ $t = 1.0\text{s}$		

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	$P_D$	250	mW
Thermal Resistance Junction to Ambient Air (Note 1)	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 2)	$V_{(BR)R}$	300	—	V	$I_R = 100\mu\text{A}$
Forward Voltage	$V_F$	—	0.87 1.0	V	$I_F = 20\text{mA}$ $I_F = 100\text{mA}$
Peak Reverse Current (Note 2)	$I_R$	—	100	nA $\mu\text{A}$	$V_R = 240\text{V}$ $V_R = 240\text{V}, T_J = 150^\circ\text{C}$
Total Capacitance, per Element	$C_T$	—	5.0	pF	$V_R = 0, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	50	ns	$I_F = I_R = 30\text{mA}$ , $I_{rr} = 3.0\text{mA}, R_L = 100\Omega$

- Notes:
1. Part mounted on FR-4 PC Board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. Short duration pulse test used to minimize self-heating effect.
  3. No purposefully added lead.
  4. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  5. 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.

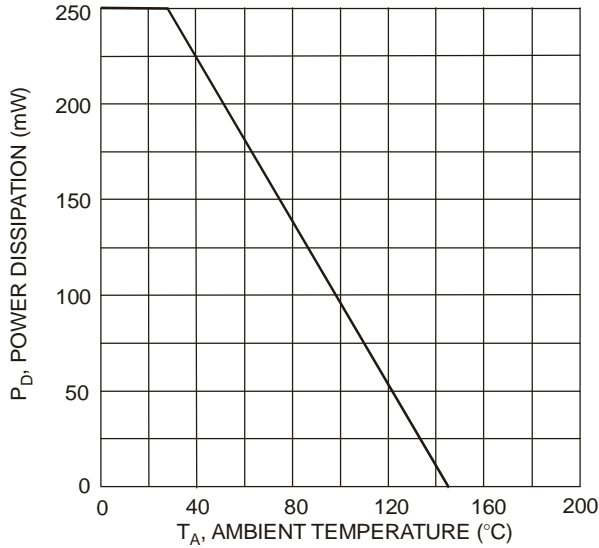


Fig. 1 Power Derating Curve, Total Package

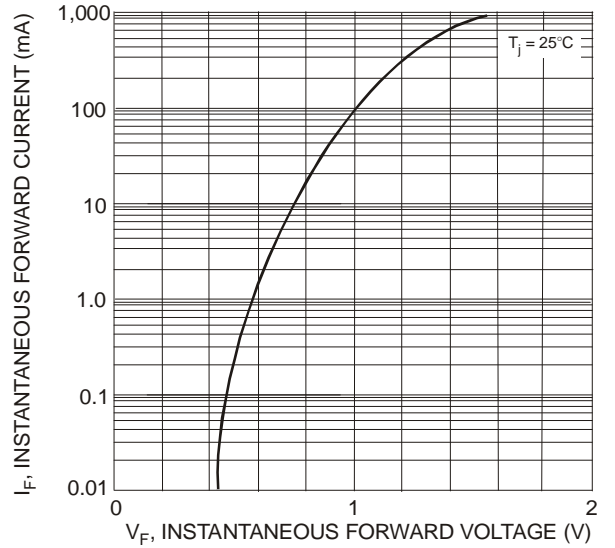


Fig. 2 Typical Forward Characteristics, Per Element

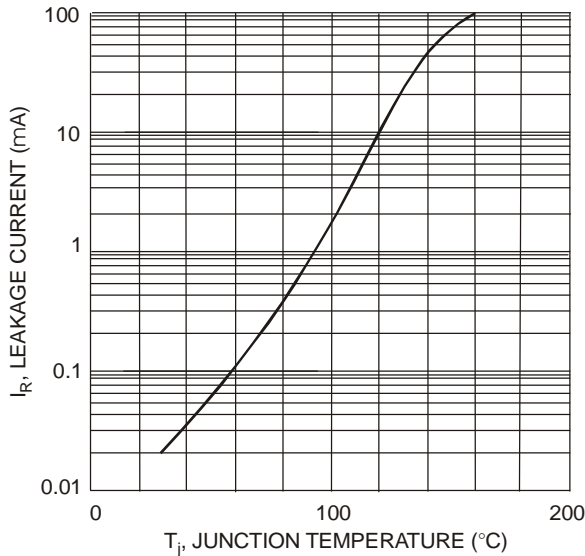


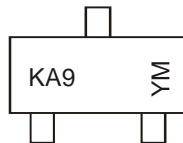
Fig. 3 Leakage Current vs. Junction Temperature, Per Element

**Ordering Information** (Notes 5 & 6)

Part Number	Case	Packaging
MMBD2004SW-7-F	SOT-323	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



KA9= Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: T = 2006  
 M = Month ex: 9 = September

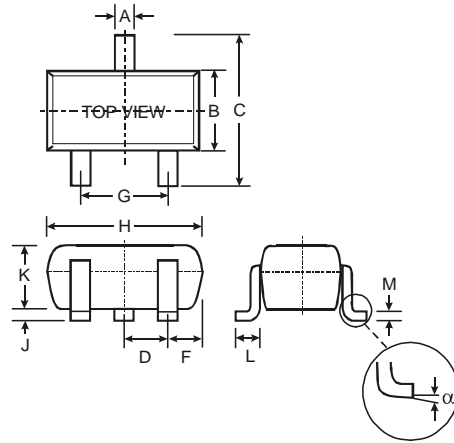
Date Code Key

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

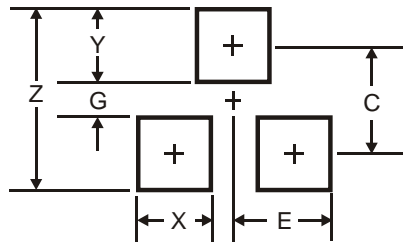
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Package Outline Dimensions**



SOT-323		
Dim	Min	Max
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
α	0°	8°
All Dimensions in mm		

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.8
G	1.0
X	0.7
Y	0.9
C	1.9
E	0.65

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