

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

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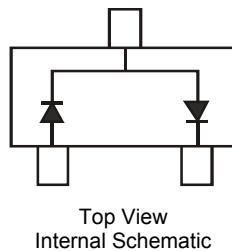
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

## 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 208(e3)
- Polarity: See Diagram
- Weight: 0.006 grams (approximate)



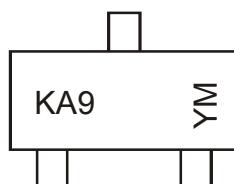
## Ordering Information (Notes 4 & 5)

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](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** (@ $T_A = +25^\circ\text{C}$ , 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	$V_R$		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	170	V
Forward Continuous Current	$I_F$	225	mA
Peak Repetitive Forward Current	$I_{FRM}$	625	mA
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$	$I_{FSM}$	4.0	A
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\text{s}$		1.0	

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	$P_D$	250	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	°C

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	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 7)	$I_R$	—	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:  
 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.

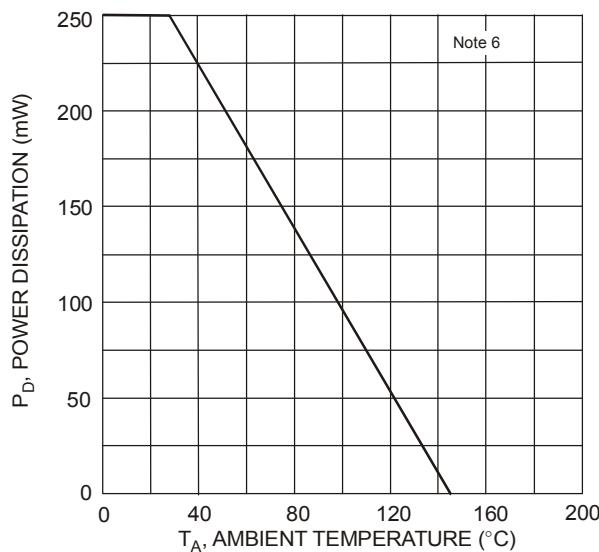


Figure 1 Power Derating Curve, Total Package

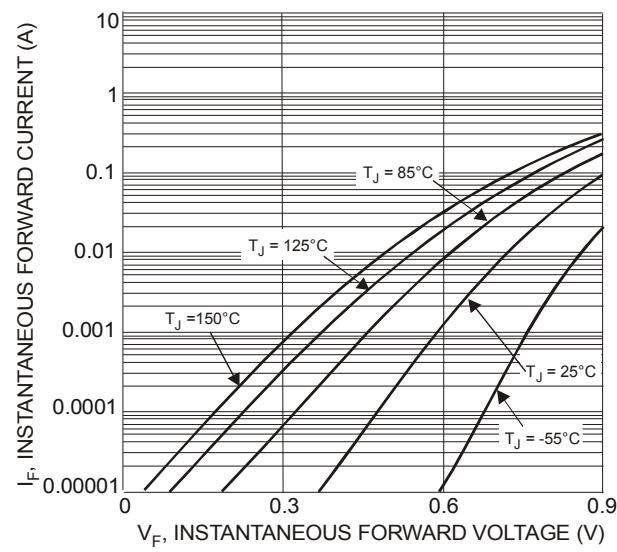
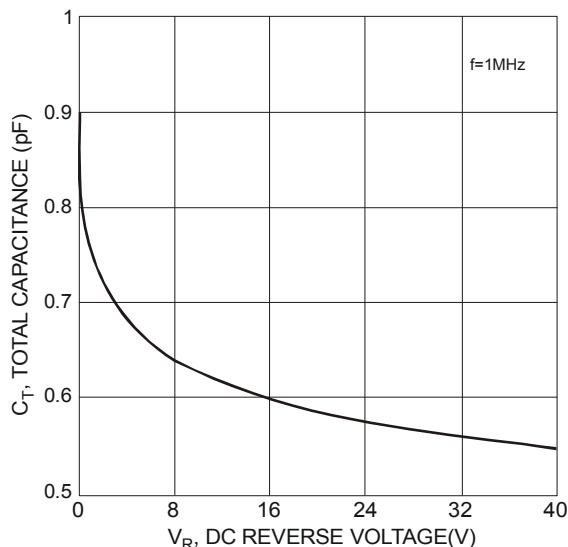
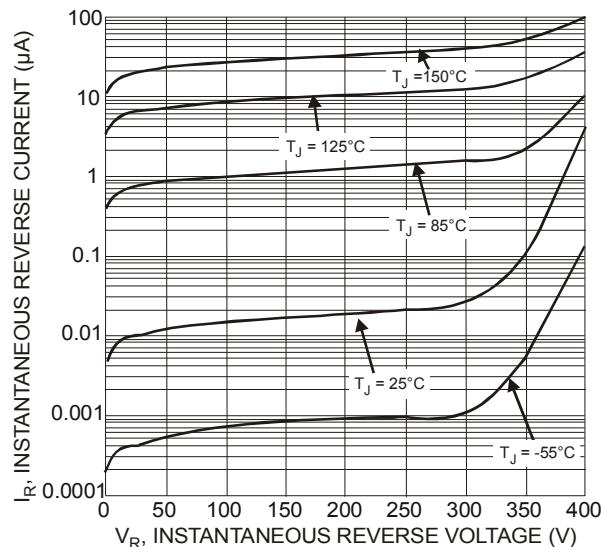
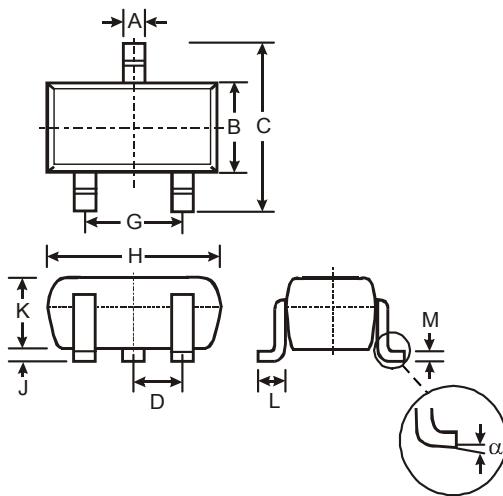


Figure 2 Typical Forward Characteristics, Per Element



## Package Outline Dimensions

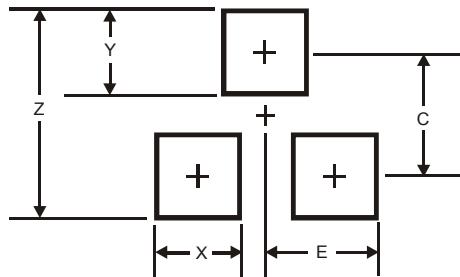
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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
$\alpha$	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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