

Features

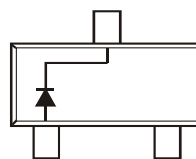
- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- **Qualified to AEC-Q101 Standards for High Reliability**
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 4)**

Mechanical Data

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



SOT-23



TOP VIEW
Internal Schematic

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit	
Non-Repetitive Peak Reverse Voltage	V_{RM}	100	V	
Peak Repetitive Reverse Voltage	V_{RRM}	75	V	
Working Peak Reverse Voltage	V_{RWM}			
DC Blocking Voltage	V_R			
RMS Reverse Voltage	$V_{R(RMS)}$	53	V	
Forward Continuous Current (Note 1)	I_{FM}	300	mA	
Average Rectified Output Current (Note 1)	I_O	200	mA	
Non-Repetitive Peak Forward Surge Current	I_{FSM}	@ $t = 1.0\mu\text{s}$ @ $t = 1.0\text{s}$	2.0 1.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_D	350	mW
Thermal Resistance Junction to Ambient Air (Note 1)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
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)	$V_{(BR)R}$	75	—	V	$I_R = 100\mu\text{A}$
Forward Voltage	V_F	—	0.715 0.855 1.0 1.25	V	$I_F = 1.0\text{mA}$ $I_F = 10\text{mA}$ $I_F = 50\text{mA}$ $I_F = 150\text{mA}$
Leakage Current (Note 2)	I_R	—	1.0 50 30 25	μA μA μA nA	$V_R = 75\text{V}$ $V_R = 75\text{V}, T_J = 150^\circ\text{C}$ $V_R = 25\text{V}, T_J = 150^\circ\text{C}$ $V_R = 20\text{V}$
Total Capacitance	C_T	—	2.0	pF	$V_R = 0, f = 1.0\text{MHz}$
Reverse Recovery Time	t_{rr}	—	4.0	ns	$I_F = I_R = 10\text{mA}$, $I_{rr} = 0.1 \times I_R, R_L = 100\Omega$

- Notes:
1. Device mounted on glass epoxy PCB 1.6" x 1.6" x 0.06"; mounting pad for the cathode lead min. 0.93in².
 2. Short duration pulse test used to minimize self-heating effect.
 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 Sb₂O₃ Fire Retardants.

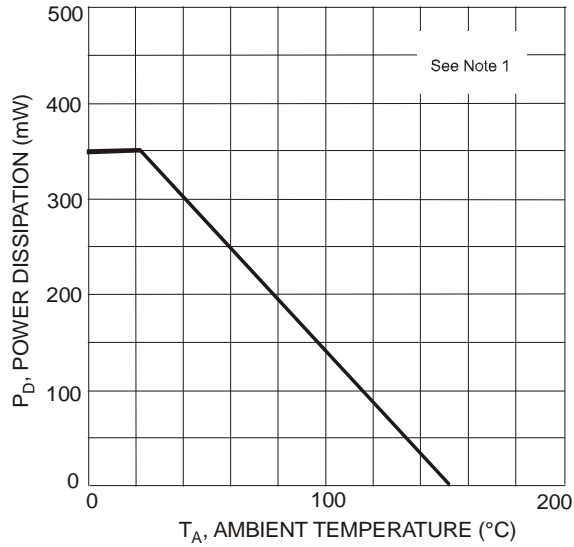


Fig. 1 Power Derating Curve

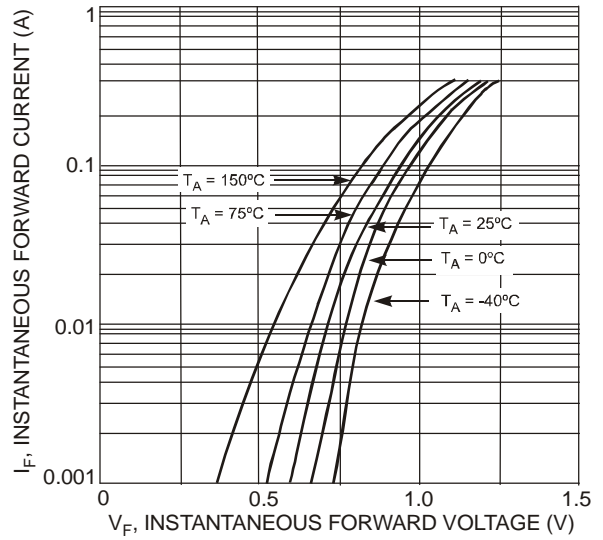


Fig. 2 Typical Forward Characteristics

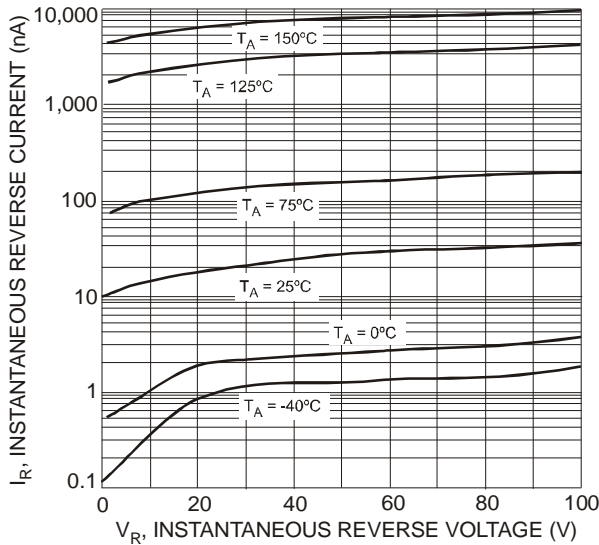


Fig. 3 Typical Reverse Characteristics

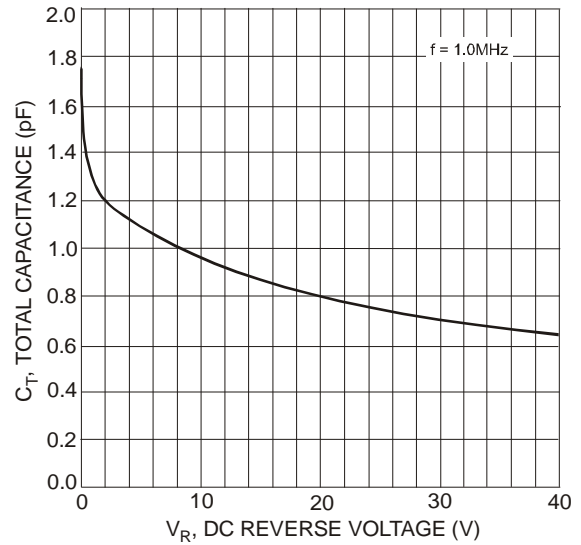


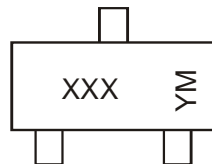
Fig. 4 Total Capacitance vs. Reverse Voltage

Ordering Information (Note 5)

Part Number	Case	Packaging
BAS16-7-F	SOT-23	3000/Tape & Reel
MMBD4148-7-F	SOT-23	3000/Tape & Reel
MMBD914-7-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

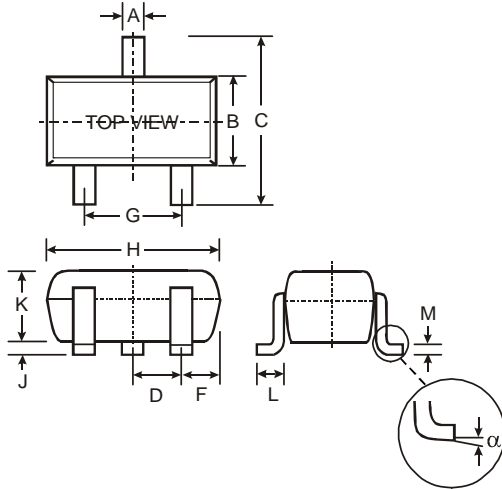


XXX = Product Type Marking Code (KA6, KA2, K5D)
 YM = Date Code Marking
 Y = Year ex: N = 2002
 M = Month ex: 9 = September

Date Code Key

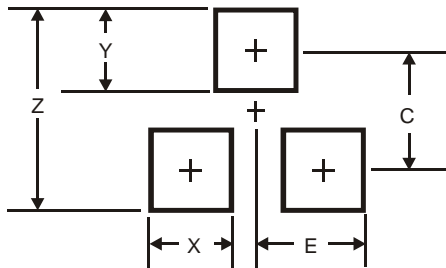
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Code	1	2	3	4	5	6	7	8	9	O	N	D			

Package Outline Dimensions



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
F	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		

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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