

## 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)**

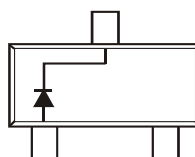
## Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- 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 Page 2
- Ordering Information: See Page 2
- Weight: 0.008 grams (approximate)

SOT-23



TOP VIEW



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	$I_{FSM}$	@ $t = 1.0\mu\text{s}$	2.0	A
		@ $t = 1.0\text{s}$	1.0	

## 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	$^\circ\text{C/W}$
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	V	$I_F = 1.0\text{mA}$
			0.855		$I_F = 10\text{mA}$
			1.0		$I_F = 50\text{mA}$
			1.25		$I_F = 150\text{mA}$
Leakage Current (Note 2)	$I_R$	—	1.0	$\mu\text{A}$	$V_R = 75\text{V}$
			50	$\mu\text{A}$	$V_R = 75\text{V}, T_J = 150^\circ\text{C}$
			30	$\mu\text{A}$	$V_R = 25\text{V}, T_J = 150^\circ\text{C}$
			25	nA	$V_R = 20\text{V}$
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. 0.93in<sup>2</sup>.
  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 Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.

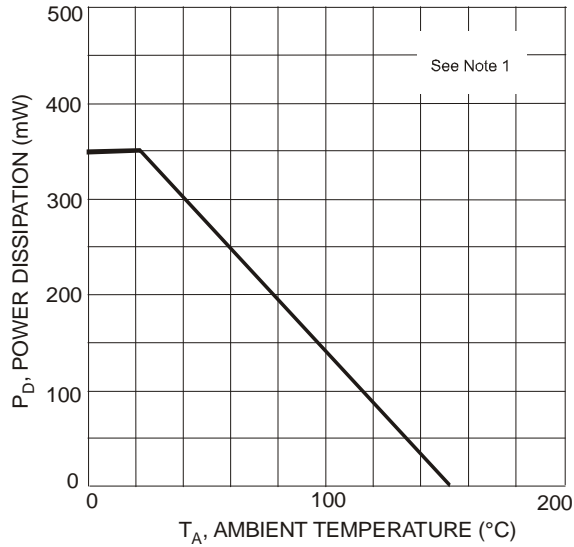


Fig. 1 Power Derating Curve

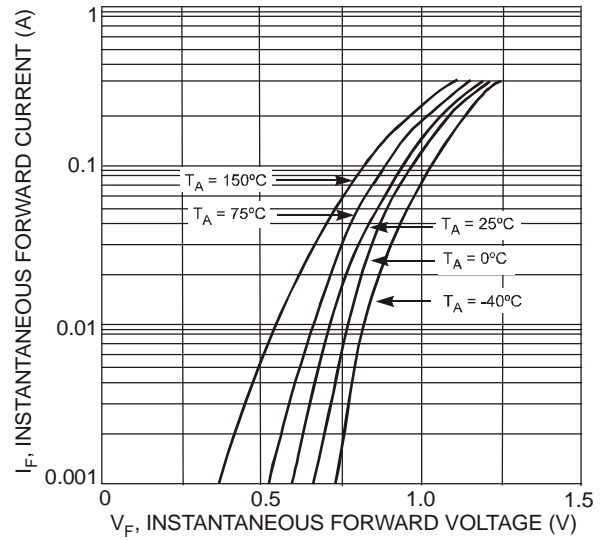


Fig. 2 Typical Forward Characteristics

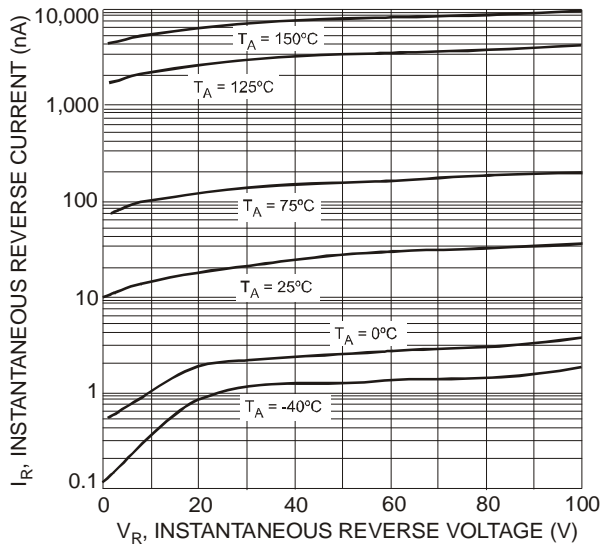


Fig. 3 Typical Reverse Characteristics

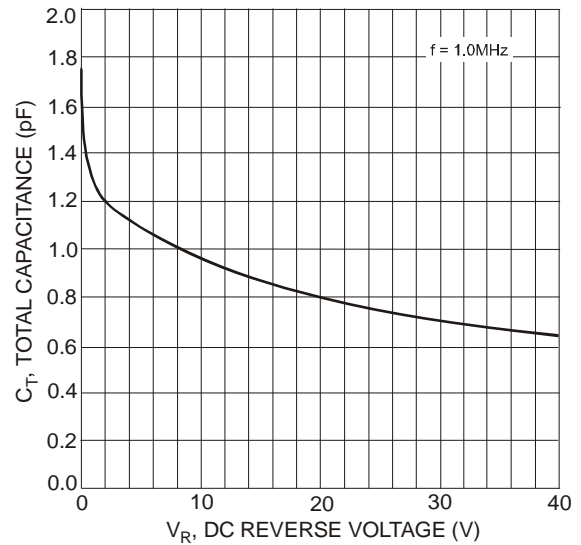


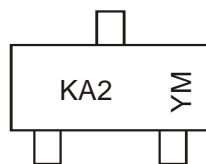
Fig. 4 Total Capacitance vs. Reverse Voltage

**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**

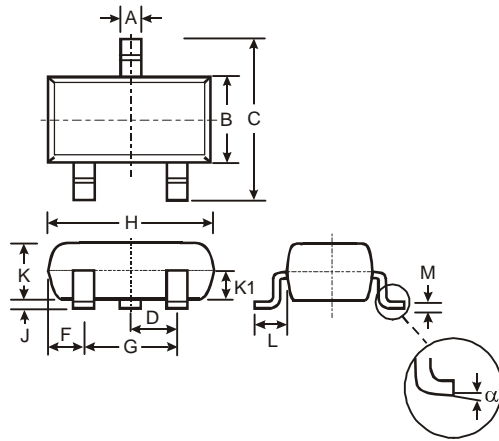


KA2 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: N = 2002)  
 M = Month (ex: 9 = September)

Date Code Key

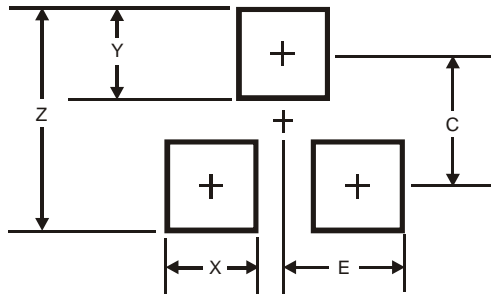
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Code	1	2	3	4	5	6	7	8	9	O	N	D			

**Package Outline Dimensions**



SOT-23			
Dim	Min	Max	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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