



# BAS21T

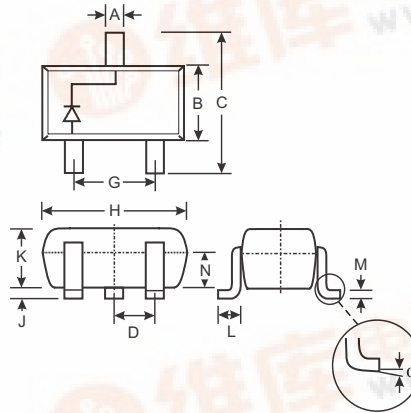
## SURFACE MOUNT FAST SWITCHING DIODE

### Features

- Ultra-Small Surface Mount Package
- Fast Switching Speed
- For General Purpose Switching Applications
- High Conductance
- **Lead Free/RoHS Compliant (Note 3)**
- "Green" Device, Note 4 and 5

### Mechanical Data

- Case: SOT-523
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe)
- Polarity: See Diagram
- Marking: T3 (See Page 2)
- Weight: 0.002 grams (approximate)



SOT-523			
Dim	Min	Max	Typ
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
J	0.00	0.10	0.05
K	0.60	0.80	0.75
L	0.10	0.30	0.22
M	0.10	0.20	0.12
N	0.45	0.65	0.50
$\alpha$	0°	8°	—
All Dimensions in mm			

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

Characteristic	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	250	V
Working Peak Reverse Voltage DC Blocking Voltage	$V_{RWM}$ $V_R$	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	141	V
Forward Continuous Current (Note 1)	$I_{FM}$	400	mA
Average Rectified Output Current (Note 1)	$I_O$	200	mA
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$ @ $t = 1.0\text{s}$	$I_{FSM}$	2.5 0.5	A
Repetitive Peak Forward Surge Current	$I_{FRM}$	625	mA
Power Dissipation (Note 1)	$P_d$	150	mW
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	833	$^\circ\text{C/W}$
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)	$V_{(BR)R}$	250	—	V	$I_R = 100\mu\text{A}$
Forward Voltage	$V_F$	—	1.0 1.25	V	$I_F = 100\text{mA}$ $I_F = 200\text{mA}$
Reverse Current @ Rated DC Blocking Voltage (Note 2)	$I_R$	—	100 15	nA $\mu\text{A}$	$T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$
Total Capacitance	$C_T$	—	5.0	pF	$V_R = 0, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	50	ns	$I_F = I_R = 30\text{mA}$ , $I_{rr} = 0.1 \times I_R, R_L = 100\Omega$

Notes: 1. Device 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 test pulse 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 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.



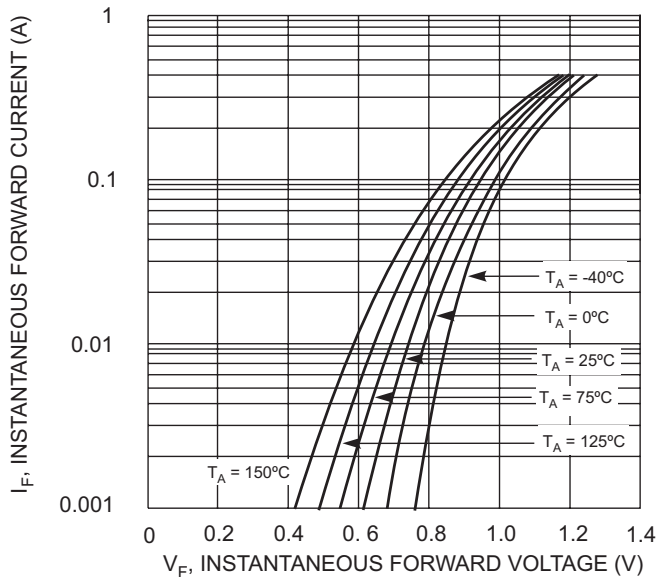


Fig. 1 Typical Forward Characteristics

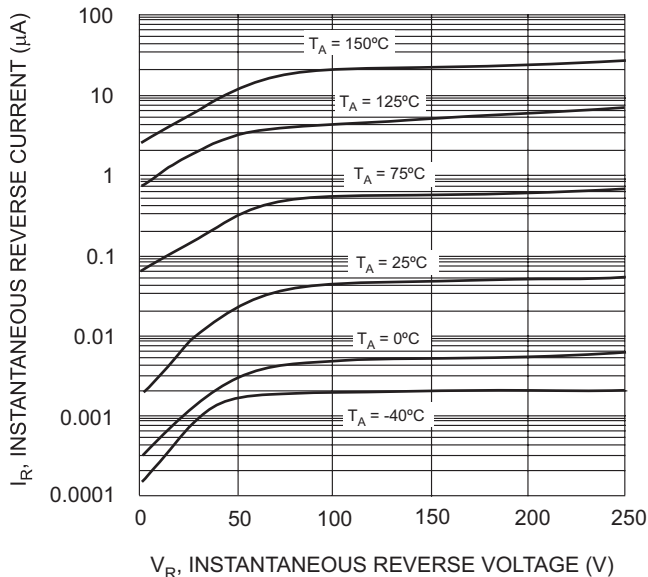


Fig. 2 Typical Reverse Characteristics

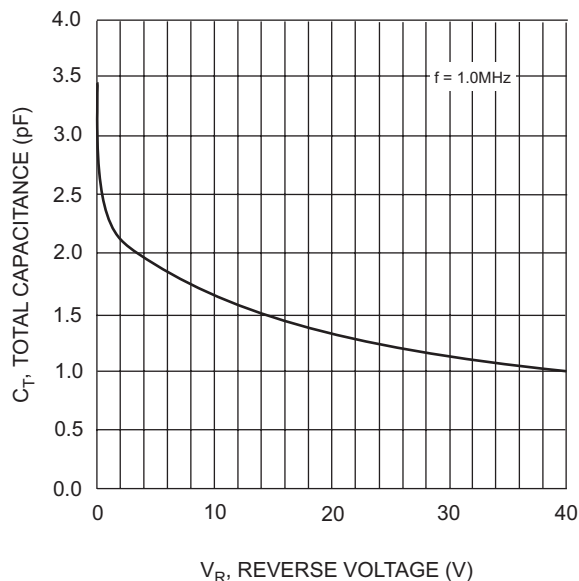


Fig. 3 Typical Capacitance vs. Reverse Voltage

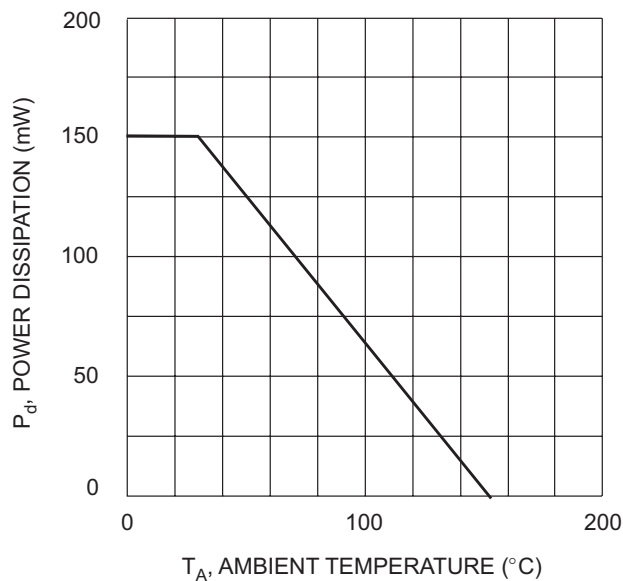


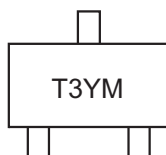
Fig. 4 Power Derating Curve, Total Package

## Ordering Information (Note 5 & 6)

Device	Packaging	Shipping
BAS21T-7-F	SOT-523	3000/Tape & Reel

Notes: 5. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.  
6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



T3 = Product Type Marking Code  
YM = Date Code Marking  
Y = Year (ex: N = 2002)  
M = Month (ex: 9 = September)

Date Code Key

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	M	N	P	R	S	T	U	V	W	X	Y	Z

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



#### IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

#### LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.