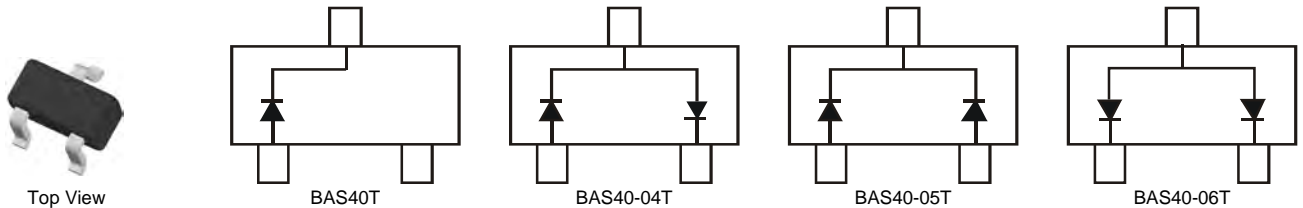


## Features

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3, 4 and 5)**

## Mechanical Data

- Case: SOT-523
- 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 Diagrams Below
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.002 grams (approximate)



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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	40	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Forward Continuous Current (Note 1)	$I_{FM}$	200	mA
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\text{s}$	$I_{FSM}$	600	mA

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	$P_D$	150	mW
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Operating Temperature Range	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-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)	$V_{(BR)R}$	40	—	V	$I_R = 10\mu\text{A}$
Forward Voltage	$V_F$	—	380 1000	mV mV	$I_F = 1.0\text{mA}$ , $t_p < 300\mu\text{s}$ $I_F = 40\text{mA}$ , $t_p < 300\mu\text{s}$
Leakage Current (Note 2)	$I_R$	—	200	nA	$V_R = 30\text{V}$
Total Capacitance	$C_T$	—	5.0	pF	$V_R = 0$ , $f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	5.0	ns	$I_F = I_R = 10\text{mA}$ , $I_{rr} = 0.1 \times I_R$ , $R_L = 100\Omega$

- Notes:
1. Device mounted on 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. Halogen and Antimony Free.
  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 Green Molding Compound and does not contain Halogens or  $\text{Sb}_2\text{O}_3$  Fire Retardants.

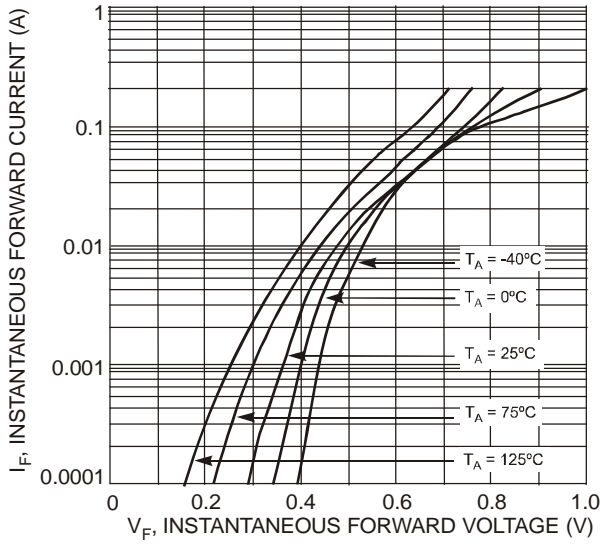


Fig. 1 Typical Forward Characteristics

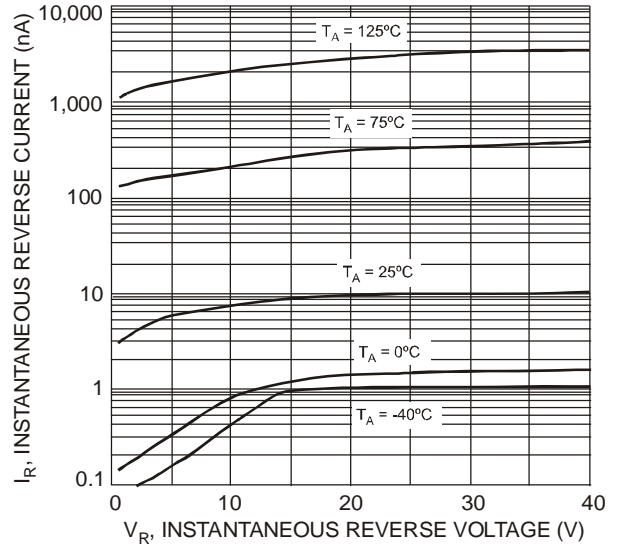


Fig. 2 Typical Reverse Characteristics

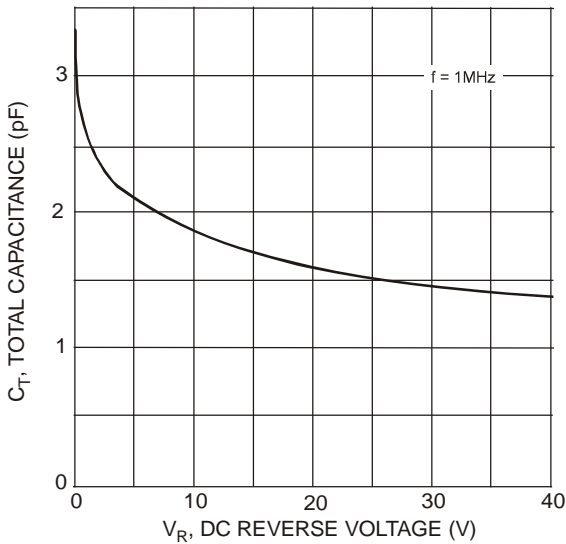


Fig. 3 Total Capacitance vs. Reverse Voltage

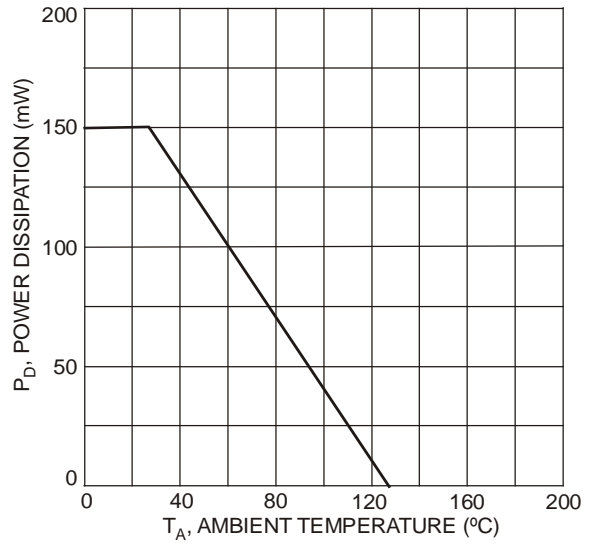


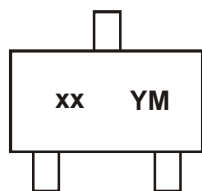
Fig. 4 Power Derating Curve, Total Package

**Ordering Information** (Note 6)

Part Number	Case	Packaging
BAS40T-7-F	SOT-523	3000/Tape & Reel
BAS40-04T-7-F	SOT-523	3000/Tape & Reel
BAS40-05T-7-F	SOT-523	3000/Tape & Reel
BAS40-06T-7-F	SOT-523	3000/Tape & Reel

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

**Marking Information**

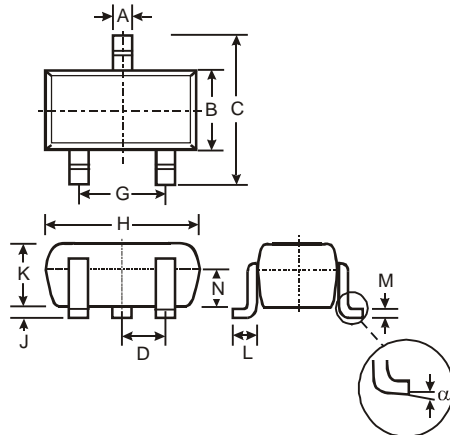


xx = Product Type Marking Code  
 43 = BAS40T  
 44 = BAS40-04T  
 45 = BAS40-05T  
 46 = BAS40-06T  
 YM = Date Code Marking  
 Y = Year (ex: N = 2002)  
 M = Month (ex: 9 = September)

Date Code Key

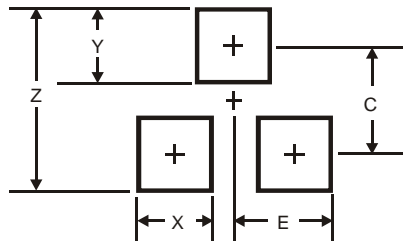
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	M	N	P	R	S	T	U	V	W	X	Y	Z	A	B	C
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Code	1	2	3	4	5	6	7	8	9	O	N	D			

## Package Outline Dimensions



SOT-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
α	0°	8°	—
All Dimensions in mm			

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	1.8
X	0.4
Y	0.51
C	1.3
E	0.7

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