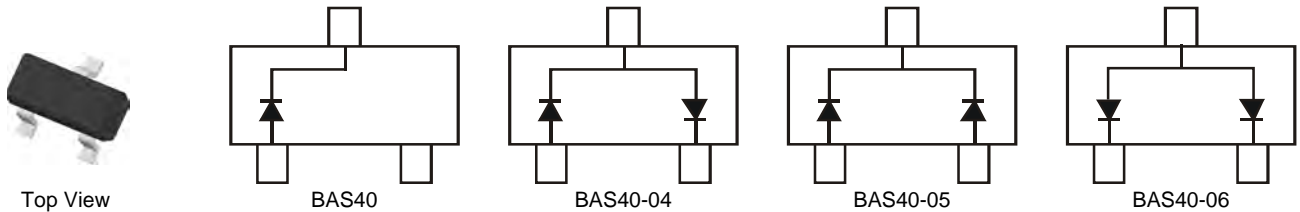


## Features

- Low Forward Voltage Drop
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## 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 Diagrams Below
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.008 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	$V_R$		
Forward Continuous Current (Note 1)	$I_{FM}$	200	mA
Forward Surge Current (Note 1) @ $t < 1.0\text{s}$	$I_{FSM}$	600	mA

## 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 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	Typ	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	$t_p < 300\mu\text{s}$ , $I_F = 1.0\text{mA}$ $t_p < 300\mu\text{s}$ , $I_F = 40\text{mA}$
Reverse Leakage Current (Note 2)	$I_R$	—	20	200	nA	$t_p < 300\mu\text{s}$ , $V_R = 30\text{V}$
Total Capacitance	$C_T$	—	4.0	5.0	pF	$V_R = 0\text{V}$ , $f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	—	5.0	ns	$I_F = I_R = 10\text{mA}$ to $I_R = 1.0\text{mA}$ , $R_L = 100\Omega$

- Notes:
1. Part mounted on FR-4 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. Product manufactured with Date 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  $\text{Sb}_2\text{O}_3$  Fire Retardants.

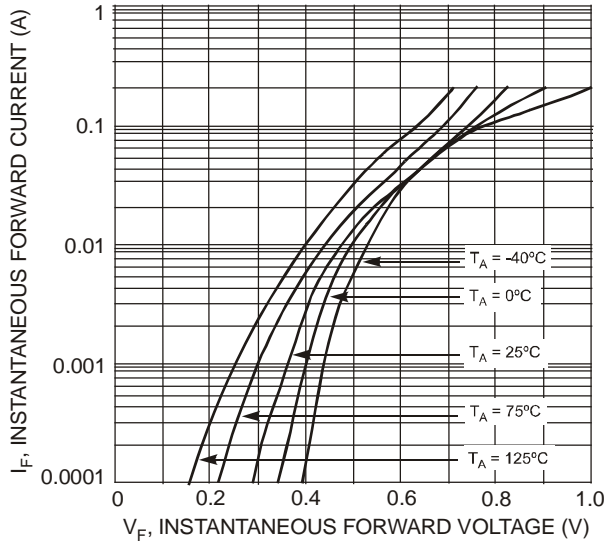


Fig. 1 Typical Forward Characteristics

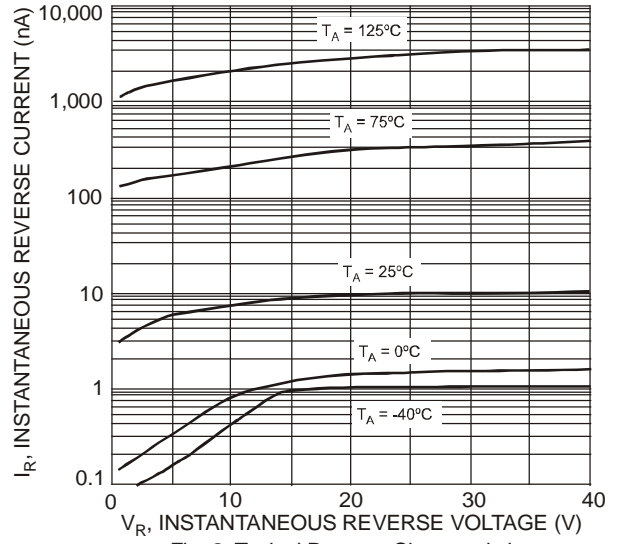


Fig. 2 Typical Reverse Characteristics

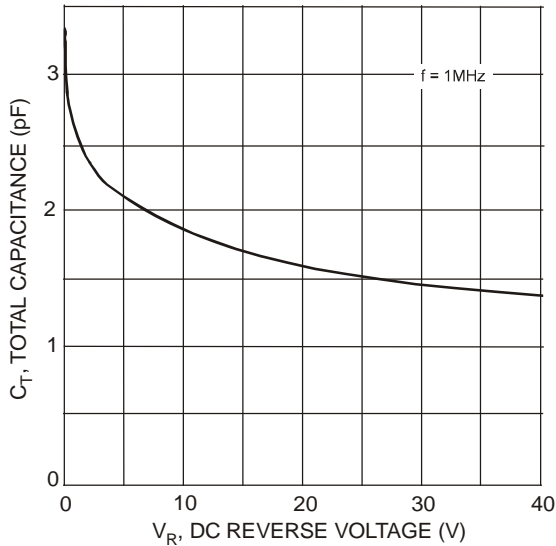


Fig. 3 Total Capacitance vs. Reverse Voltage

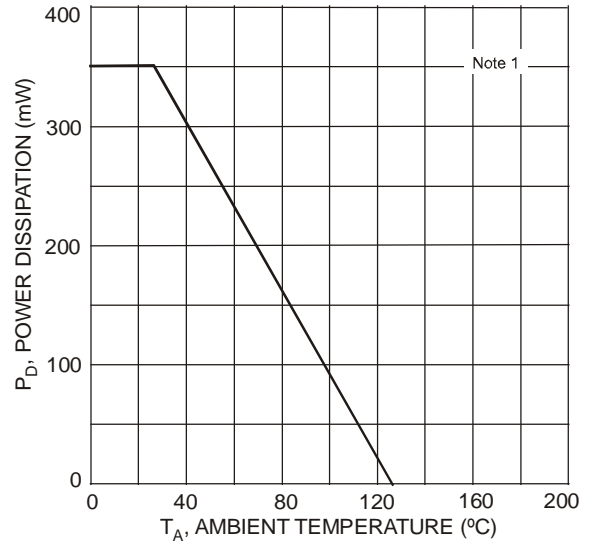


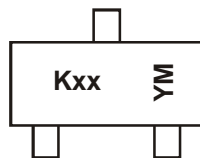
Fig. 4 Power Derating Curve, Total Package

**Ordering Information** (Notes 4 & 5)

Part Number	Case	Packaging
BAS40-7-F	SOT-23	3000/Tape & Reel
BAS40-04-7-F	SOT-23	3000/Tape & Reel
BAS40-05-7-F	SOT-23	3000/Tape & Reel
BAS40-06-7-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**



Kxx = Product Type Marking Code:

- K43 = BAS40
- K44 = BAS40-04
- K45 = BAS40-05
- K46 = BAS40-06

YM = Date Code Marking

Y = Year (ex: T = 2006)

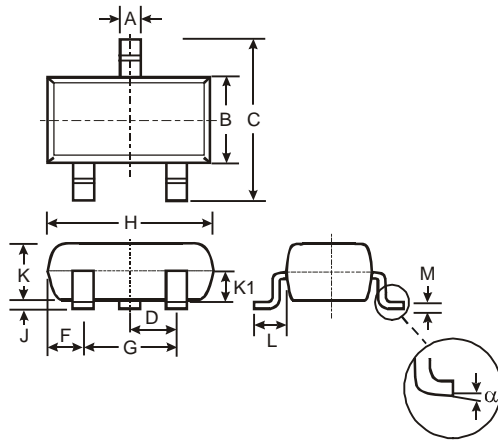
M = Month (ex: 9 = September)

Date Code Key

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	A	B	C

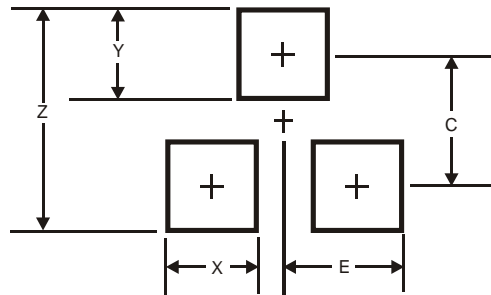
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Package Outline Dimensions**



SOT-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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