

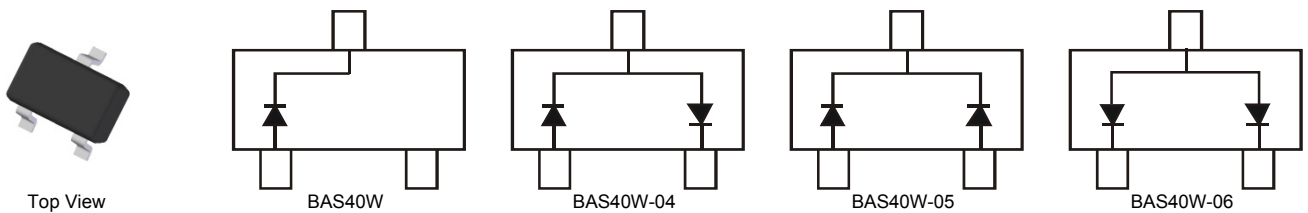


## Features

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208 ③
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagrams Below
- Weight: 0.006 grams (approximate)

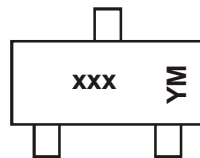


## Ordering Information (Notes 4 & 5)

Part Number	Case	Packaging
BAS40W-7-F	SOT323	3000/Tape & Reel
BAS40W-13-F	SOT323	10000/Tape & Reel
BAS40W-04-7-F	SOT323	3000/Tape & Reel
BAS40W-05-7-F	SOT323	3000/Tape & Reel
BAS40W-06-7-F	SOT323	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



xxx = Product Type Marking Code  
 K43 = BAS40W  
 K44 = BAS40W-04  
 K45 = BAS40W-05  
 K46 = BAS40W-06  
 YM = Date Code Marking  
 Y = Year (ex: B = 2014)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Code	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I

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

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	40	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Forward Continuous Current (Note 6)	I <sub>FM</sub>	200	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0s	I <sub>FSM</sub>	600	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P <sub>D</sub>	200	mW
Thermal Resistance Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	625	°C/W
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	40	—	V	I <sub>R</sub> = 10μA
Forward Voltage	V <sub>F</sub>	—	380 1000	mV mV	I <sub>F</sub> = 1.0mA, t <sub>p</sub> < 300μs I <sub>F</sub> = 40mA, t <sub>p</sub> < 300μs
Leakage Current (Note 7)	I <sub>R</sub>	—	200	nA	V <sub>R</sub> = 30V
Total Capacitance	C <sub>T</sub>	—	5.0	pF	V <sub>R</sub> = 0, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	—	5.0	ns	I <sub>F</sub> = I <sub>R</sub> = 10mA, I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω

Notes: 6. Device mounted on FR4 PC board with recommended pad layout, per <http://www.diodes.com>  
7. Short duration pulse test used to minimize self-heating effect.

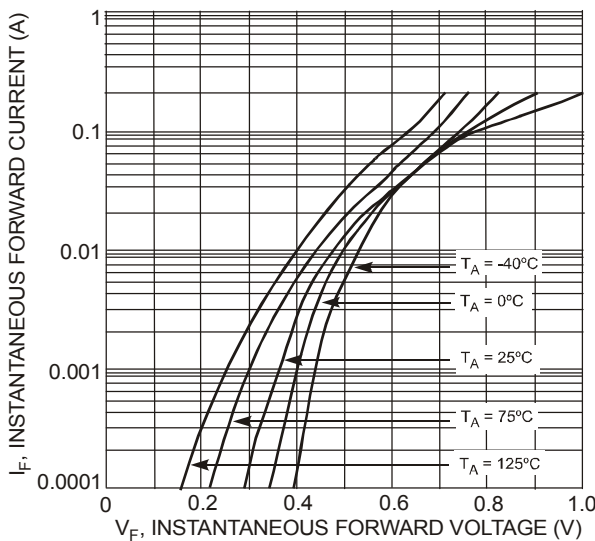


Fig. 1 Typical Forward Characteristics

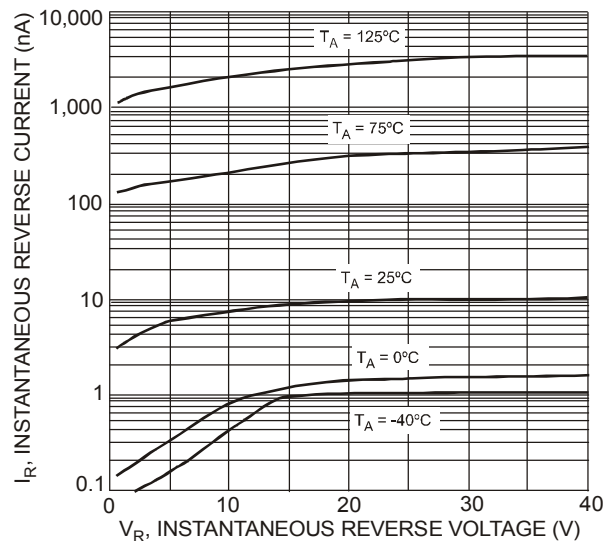


Fig. 2 Typical Reverse Characteristics

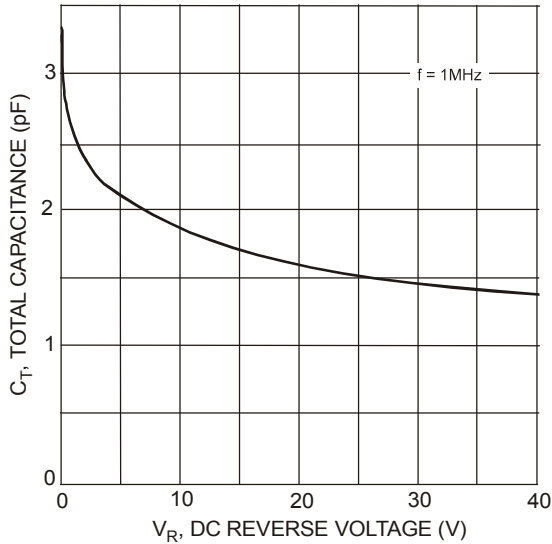


Fig. 3 Total Capacitance vs. Reverse Voltage

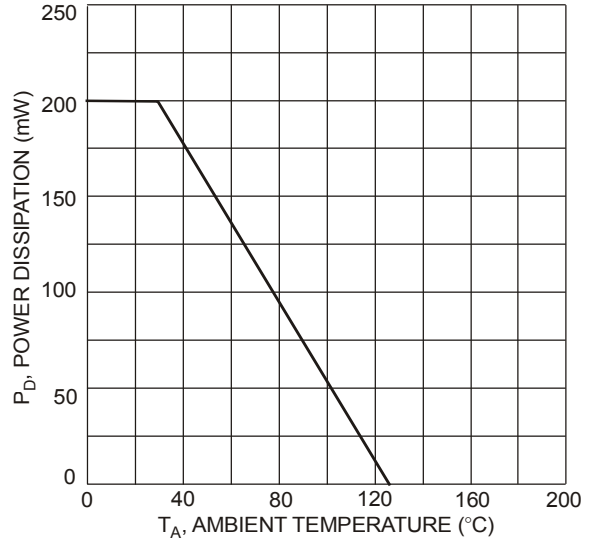
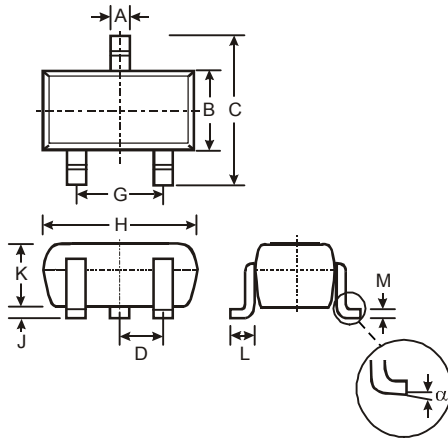


Fig. 4 Power Derating Curve, Total Package

### Package Outline Dimensions

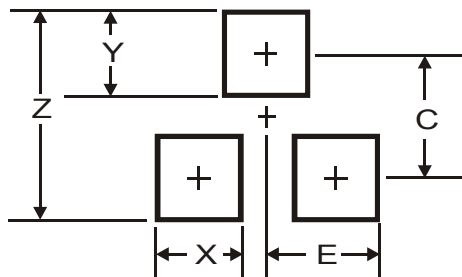
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
$\alpha$	0°	8°	-
All Dimensions in mm			

### Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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