

Description



SURFACE MOUNT SCHOTTKY BARRIER DIODE

#### Product Summary @T<sub>A</sub> = +25°C

V <sub>RRM</sub> (V)	l <sub>O</sub> (mA)	V <sub>Fmax</sub> (V)	I <sub>Rmax</sub> (μΑ)
40	200	1.0	0.2

200mA surface mount Schottky Barrier Diode in SOT23 package,

offers low forward voltage drop and fast switching capability, designed

with PN Junction Guard Ring for Transient and ESD Protection, totally

lead-free finish and RoHS compliant, "Green" device.

# **Mechanical Data**

Fast Switching

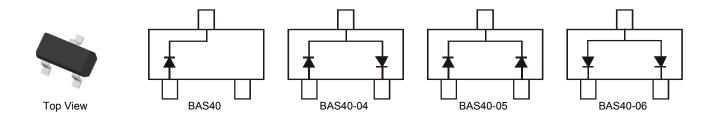
**Features and Benefits** 

Low Forward Voltage Drop

- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0

PN Junction Guard Ring for Transient and ESD Protection Lead-Free Finish; RoHS Compliant (Notes 1 & 2) Halogen and Antimony Free. "Green" Device (Note 3) Qualified to AEC-Q101 Standards for High Reliability

- 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: 0.008 grams (approximate)



### Ordering Information (Note 4 & 5)

Part Number	Case	Packaging
BAS40-7-F / BAS40Q-7-F	SOT23	3000/Tape & Reel
BAS40-04-7-F / BAS40-04Q-7-F	SOT23	3000/Tape & Reel
BAS40-05-7-F / BAS40-05Q-7-F	SOT23	3000/Tape & Reel
BAS40-06-7-F / BAS40-06Q-7-F	SOT23	3000/Tape & Reel
BAS40-13-F / BAS40Q-13-F	SOT23	10000/Tape & Reel
BAS40-04-13-F / BAS40-04Q-13-F	SOT23	10000/Tape & Reel
BAS40-05-13-F / BAS40-05Q-13-F	SOT23	10000/Tape & Reel
BAS40-06-13-F / BAS40-06Q-13-F	SOT23	10000/Tape & Reel

Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.

 See 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.

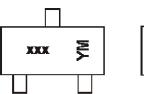
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

5. Products manufactured with Date Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Products 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.



# **Marking Information**



Chengdu A/T Site

Shanghai A/T Site

xxx = Product Type Marking Code K43 = BAS40 K44 = BAS40-04 K45 = BAS40-05 K46 = BAS40-06 YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)  $\overline{Y}M$  = Date Code Marking for CAT (Chengdu Assembly/ Test site) Y or  $\overline{Y}$  = Year (ex: A = 2013) M = Month (ex: 9 = September)

Date Code Key

2410 00401																	
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	K	L	М	Ν	Р	R	S	Т	U	V	W	Х	Y	Z	А	В	С
Month	Jan	F	eb	Mar	A	or	Mav	Ju	1	Jul	Aug	S	ер	Oct	No	v	Dec
Code	1		2	3	4	1	5	6	-	7	8		9	0	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
Forward Continuous Current (Note 6)	I <sub>FM</sub>	200	mA
Forward Surge Current (Note 6) @ t < 1.0s	I <sub>FSM</sub>	600	mA

# **Thermal Characteristics**

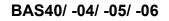
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	PD	350	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{ heta}JA$	357	°C/W
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

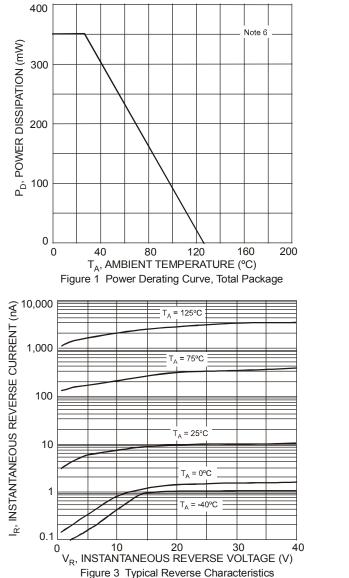
### Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

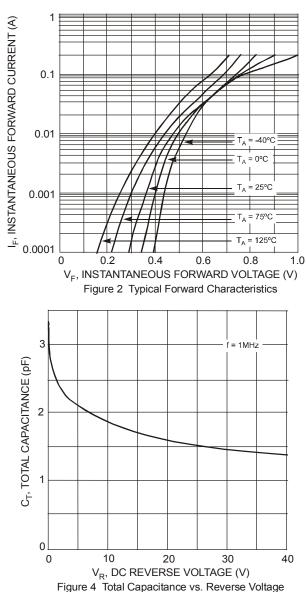
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	40			V	I <sub>R</sub> = 10μA
Forward Voltage	VF		_	380 1000	mV	t <sub>p</sub> < 300μs, I <sub>F</sub> = 1.0mA t <sub>p</sub> < 300μs, I <sub>F</sub> = 40mA
Reverse Leakage Current (Note 7)	I <sub>R</sub>		20	200	nA	t <sub>p</sub> < 300µs, V <sub>R</sub> = 30V
Total Capacitance	CT	_	4.0	5.0	pF	V <sub>R</sub> = 0V, f =1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	_		5.0		$I_F = I_R = 10$ mA to $I_R = 1.0$ mA, R <sub>L</sub> = 100 $\Omega$

Notes: 6. 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. 7. Short duration pulse test used to minimize self-heating effect.





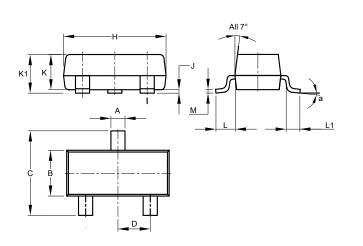






# **Package Outline Dimensions**

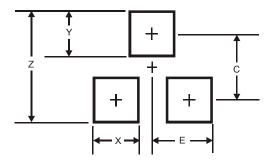
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



	SOT23								
Dim	Min	Max	Тур						
Α	0.37	0.51	0.40						
В	1.20	1.40	1.30						
С	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						
Н	2.80	3.00	2.90						
J	0.013	0.10	0.05						
К	0.890	1.00	0.975						
K1	0.903	1.10	1.025						
L	0.45	0.61	0.55						
L1	0.25	0.55	0.40						
М	0.085	0.150	0.110						
а		8°							
All	Dimens	ions 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	2.9			
Х	0.8			
Y	0.9			
С	2.0			
Е	1.35			



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