



#### SURFACE MOUNT SCHOTTKY BARRIER DIODE

#### **Product Summary**

V <sub>R</sub> (V)	I <sub>F</sub> (mA)	V <sub>F MAX</sub> (V) @ +25°C	I <sub>R MAX</sub> (uA) @ +25°C	
70	1.0	0.41	0.1	

## **Description**

70mA 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.

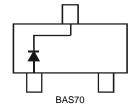
# **Features and Benefits**

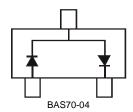
- Low Turn-On Voltage
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

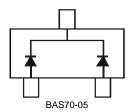
#### **Mechanical Data**

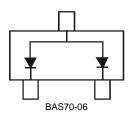
- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208 (3)
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe)
- Polarity: See Diagrams Below
- Weight: 0.008 grams (approximate)











## Ordering Information (Note 4 & 5)

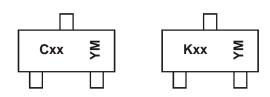
Part Number	Case	Packaging
BAS70-7-F	SOT23	3000/Tape & Reel
BAS70-04-7-F	SOT23	3000/Tape & Reel
BAS70-04Q-7-F	SOT23	3000/Tape & Reel
BAS70-04Q-13-F	SOT23	10000/Tape & Reel
BAS70-05-7-F	SOT23	3000/Tape & Reel
BAS70-06-7-F	SOT23	3000/Tape & Reel

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. Product manufactured with Data 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 Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.



# **Marking Information**



K=(SAT,Shanghai Assembly / Test site)
C=(CAT / DTC , ChengDu Assembly / Test site)
xx = Product Type Marking Code:
73, 7C = BAS70

74, 7D = BAS70-04 75, 7E = BAS70-05

76, 7F = BAS70-06 YM = Date Code Marking Y = Year (ex: B = 2014)

M = Month (ex: 9 = September)

Date Code Key

Year	2001	2002	2003		2011	2012	2013	2014	2015	2016	2017	2018	2019
Code	М	N	Р		Υ	Z	Α	В	С	D	Е	F	G
Month	Jan	Feb	Mar	Apr	May	Jun	Ju	ıl A	ug (	Sep	Oct	Nov	Dec
Code	1	2	3	4	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	Vrrm Vrwm Vr	70	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	49	V
Maximum Forward Continuous Current (Note 6)	I <sub>FM</sub>	70	mA
Non-Repetitive Peak Forward Surge Current @ t ≤ 1.0s	I <sub>FSM</sub>	100	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)	$R_{ hetaJA}$	625	°C/W
Operating Junction Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

# **Electrical Characteristics** (@ $T_A = +25$ °C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	70	_	V	$I_R = 10\mu A$
Forward Voltage	VF	_	410 1000	mV	$t_p < 300 \mu s$ , $I_F = 1.0 mA$ $t_p < 300 \mu s$ , $I_F = 15 mA$
Reverse Current (Note 7)	I <sub>R</sub>	_	100	nA	$t_p < 300 \mu s, V_R = 50 V$
Total Capacitance	C <sub>T</sub>	_	2.0	pF	V <sub>R</sub> = 0V, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	_	5.0	ns	$I_F = I_R = 10 \text{mA}$ to $I_R = 1.0 \text{mA}$ , $R_L = 100 \Omega$
Reverse Recovery Time (for BAS70-04 only)	t <sub>rr</sub>	_	2.0	ns	$\begin{split} I_F &= I_R = 10 \text{mA to } I_R = 1.0 \text{mA}, \\ R_L &= 100 \Omega \end{split}$

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.

Short duration pulse test used to minimize self-heating effect.



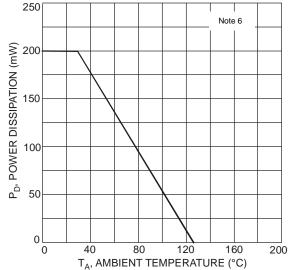
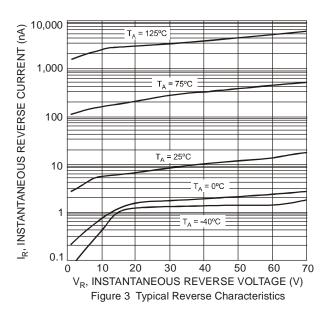
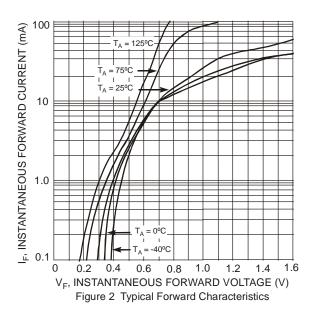


Figure 1 Power Derating Curve, Total Package





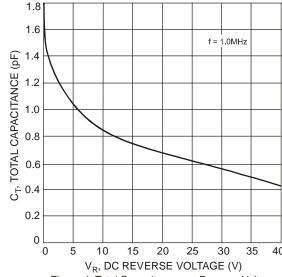
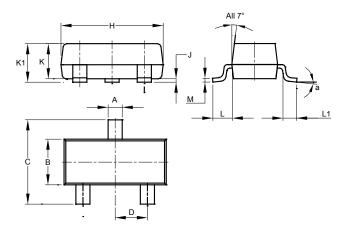


Figure 4 Total Capacitance vs. Reverse Voltage



# **Package Outline Dimensions**

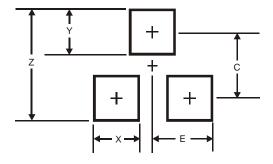
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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				
K	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	<b>a</b> 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	2.9
Х	0.8
Y	0.9
С	2.0
E	1.35



#### **IMPORTANT NOTICE**

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein 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 Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

#### **LIFE SUPPORT**

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

- A. Life support devices or systems are devices or systems which:
  - 1. are intended to implant into the body, or
  - 2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.
- B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2014, Diodes Incorporated

www.diodes.com

# **Mouser Electronics**

**Authorized Distributor** 

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

# **Diodes Incorporated:**

BAS70-06-7-F BAS70-05-7-F BAS70-04-7-F BAS70-7-F BAS7004TC BAS7005TC BAS7004TA BAS7006TC