

Product Summary @ $T_A = +25^\circ\text{C}$

VRRM (V)	Io (mA)	Vfmax (V)	IRmax (μA)
40	200	1.0	0.2

Description

200mA surface mount Schottky Barrier Diode in SOT23 (Standard) 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.

Features and Benefits

- Low Forward Voltage Drop
- 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)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

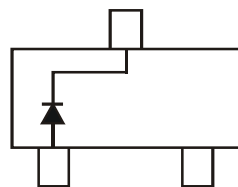
Mechanical Data

- Package: SOT23
- Package 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 e3
- Lead Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe).
- Polarity: See Diagrams Below
- Weight: 0.008 grams (Approximate)

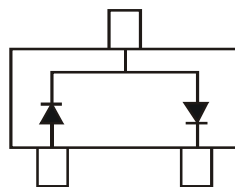
SOT23 (Standard)



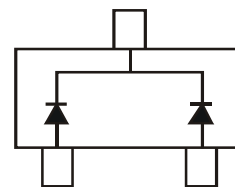
Top View



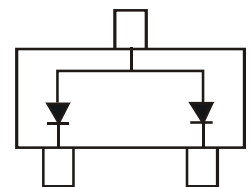
BAS40



BAS40-04



BAS40-05



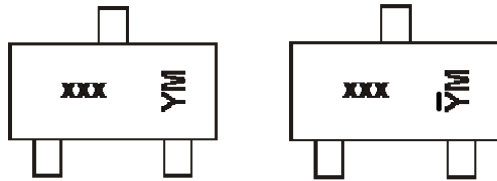
BAS40-06

Ordering Information (Notes 4 & 5)

Part Number	Package	Packing	
		Qty.	Carrier
BAS40-7-F / BAS40Q-7-F	SOT23 (Standard)	3000	Tape & Reel
BAS40-04-7-F / BAS40-04Q-7-F	SOT23 (Standard)	3000	Tape & Reel
BAS40-05-7-F / BAS40-05Q-7-F	SOT23 (Standard)	3000	Tape & Reel
BAS40-06-7-F / BAS40-06Q-7-F	SOT23 (Standard)	3000	Tape & Reel
BAS40-13-F / BAS40Q-13-F	SOT23 (Standard)	10000	Tape & Reel
BAS40-04-13-F / BAS40-04Q-13-F	SOT23 (Standard)	10000	Tape & Reel
BAS40-05-13-F / BAS40-05Q-13-F	SOT23 (Standard)	10000	Tape & Reel
BAS40-06-13-F / BAS40-06Q-13-F	SOT23 (Standard)	10000	Tape & Reel

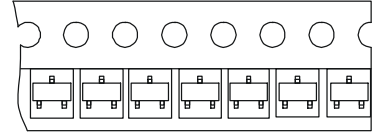
- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 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 Sb₂O₃ Fire Retardants.

Marking Information



xxx = Product Type Marking Code
 K43 = BAS40
 K44 = BAS40-04
 K45 = BAS40-05
 K46 = BAS40-06

YM & $\bar{Y}M$ = Date Code Marking
 Y & \bar{Y} = Year (ex: J = 2022)
 M = Month (ex: D = Dec)



Date Code Key

Year	2004	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	R	J	K	L	M	N	O	P	R	S	T
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_A = +25°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 6)	I _{FM}	200	mA
Forward Surge Current (Note 6) @ t < 1.0s	I _{FSM}	600	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	350	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	357	°C/W
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V _{(BR)R}	40	—	—	V	I _R = 10μA
Forward Voltage	V _F	—	—	380 1000	mV	t _p < 300μs, I _F = 1.0mA t _p < 300μs, I _F = 40mA
Reverse Leakage Current (Note 7)	I _R	—	20	200	nA	t _p < 300μs, V _R = 30V
Total Capacitance	C _T	—	4.0	5.0	pF	V _R = 0V, f = 1.0MHz
Reverse Recovery Time	t _{rr}	—	—	5.0	ns	I _F = I _R = 10mA to I _R = 1.0mA R _L = 100Ω

Notes: 6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 7. Short duration pulse test used to minimize self-heating effect.

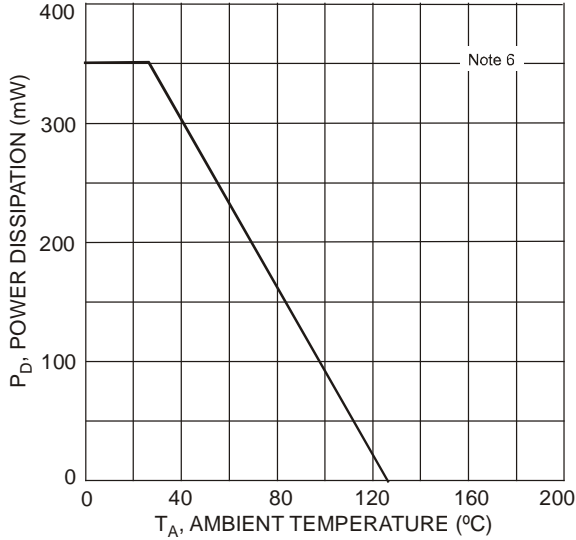


Figure 1 Power Derating Curve, Total Package

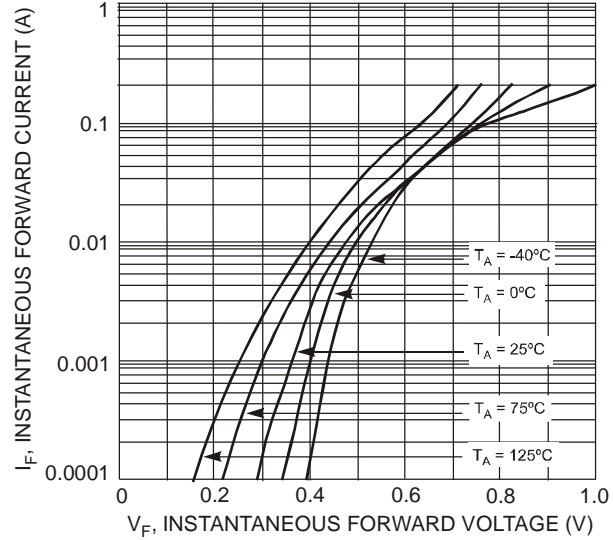


Figure 2 Typical Forward Characteristics

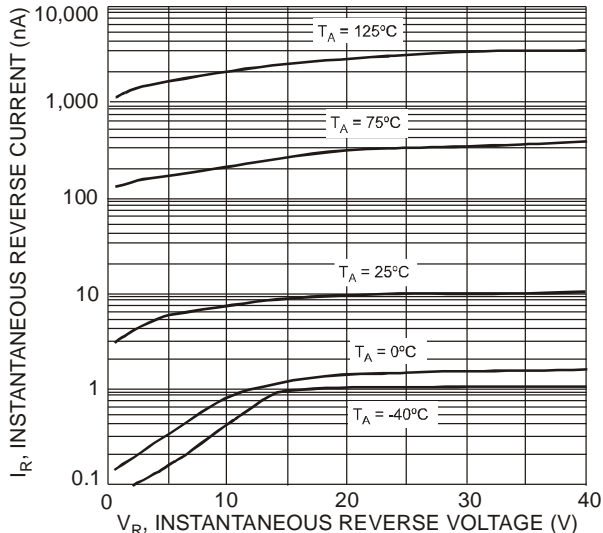


Figure 3 Typical Reverse Characteristics

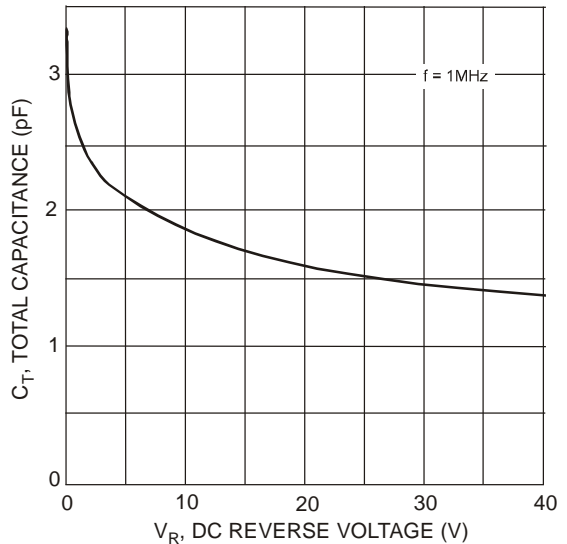
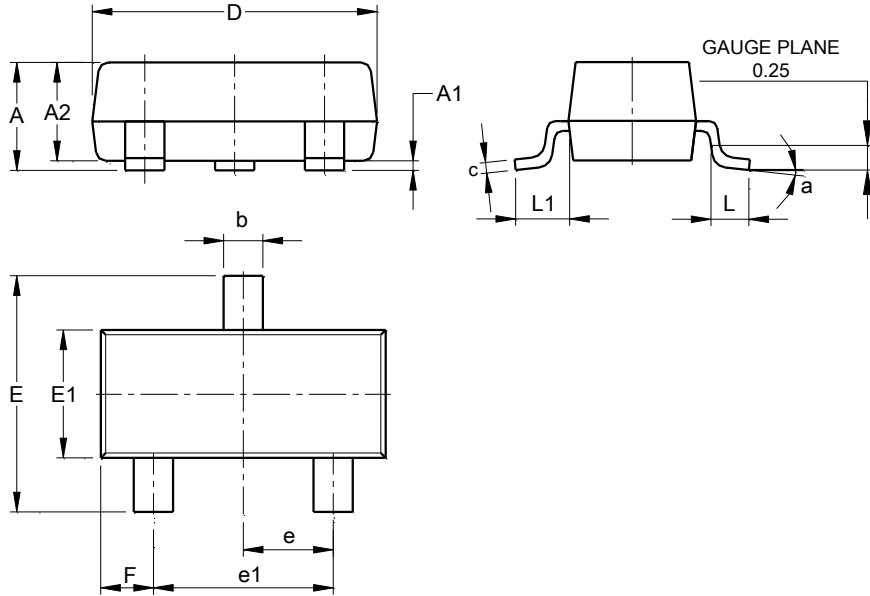


Figure 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23 (Standard)

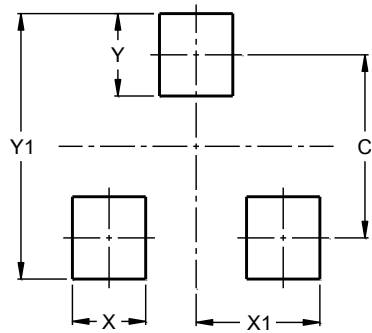


SOT23 (Standard)			
Dim	Min	Max	Typ
A	0.90	1.15	1.025
A1	0.00	0.10	0.05
A2	0.85	1.10	0.975
b	0.30	0.51	0.40
c	0.080	0.202	0.11
D	2.80	3.00	2.90
E	2.25	2.55	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.40	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23 (Standard)



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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