BAS40W /-04 /-05 /-06

SURFACE MOUNT SCHOTTKY BARRIER DIODE

Features

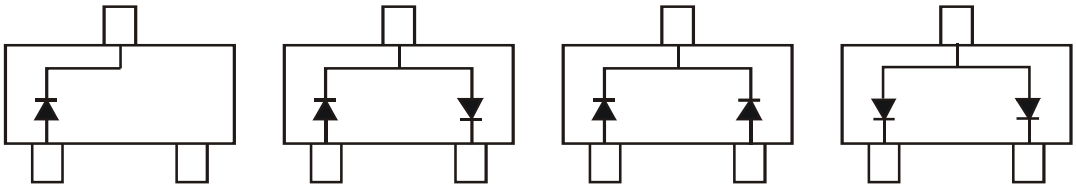
- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An Automotive-Compliant Part is Available Under Separate Datasheet (BAS40WQ)**

Mechanical Data

- Package: SOT323
- Package Material: Molded Plastic, "Green" Molding Compound, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagrams Below
- Weight: 0.006 grams (Approximate)

SOT323 (Standard)

Top View



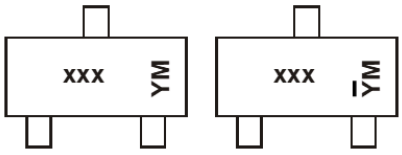
BAS40W BAS40W-04 BAS40W-05 BAS40W-06

Ordering Information (Notes 4)

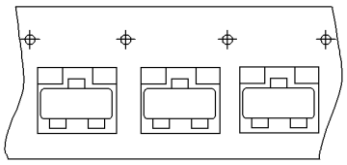
Part Number	Package	Packing	
		Qty.	Carrier
BAS40W-7-F	SOT323 (Standard)	3000	Tape & Reel
BAS40W-13-F	SOT323 (Standard)	10000	Tape & Reel
BAS40W-04-7-F	SOT323 (Standard)	3000	Tape & Reel
BAS40W-05-7-F	SOT323 (Standard)	3000	Tape & Reel
BAS40W-06-7-F	SOT323 (Standard)	3000	Tape & Reel

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/.

Marking Information



xxx = Product Type Marking Code
K43 = BAS40W
K44 = BAS40W-04
K45 = BAS40W-05
K46 = BAS40W-06
YM & $\overline{Y}$M = Date Code Marking
Y & $\overline{Y}$ = Year (ex: J = 2022)
M = Month (ex: 9 = September)



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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Forward Continuous Current (Note 5)	I_{FM}	200	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0s	I_{FSM}	600	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	625	°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	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	40	—	V	I_R = 10μA
Forward Voltage	V_F	— —	380 1000	mV mV	I_F = 1.0mA, t_p < 300μs I_F = 40mA, t_p < 300μs
Leakage Current (Note 6)	I_R	—	200	nA	V_R = 30V
Total Capacitance	C_T	—	5.0	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	5.0	ns	I_F = I_R = 10mA I_{rr} = 0.1 x I_R, R_L = 100Ω

Notes: 5. Device mounted on FR4 PC board with recommended pad layout, per http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

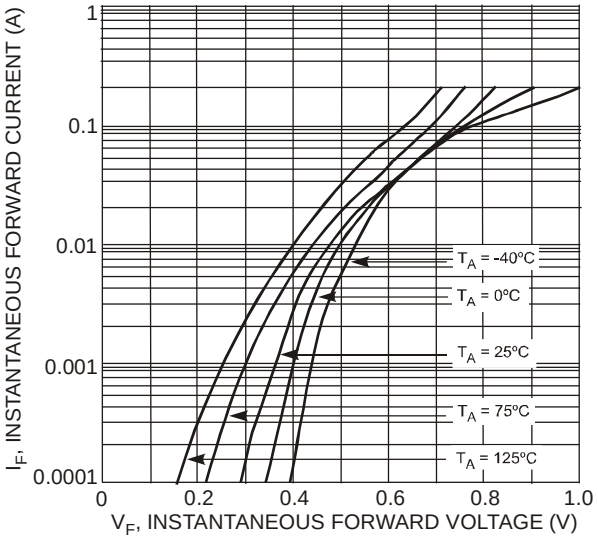


Fig. 1 Typical Forward Characteristics

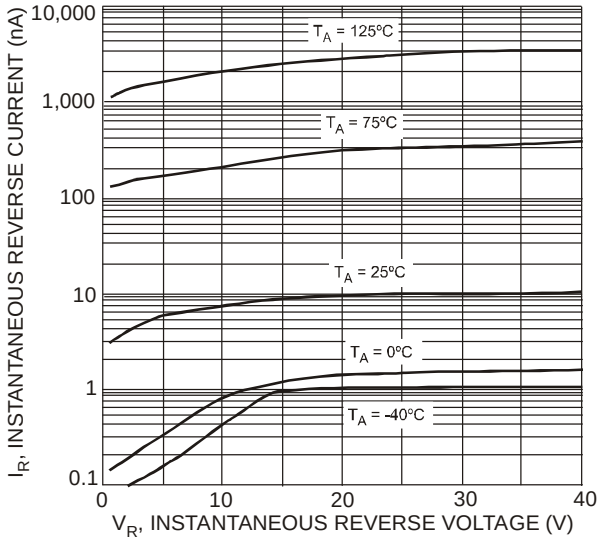


Fig. 2 Typical Reverse Characteristics

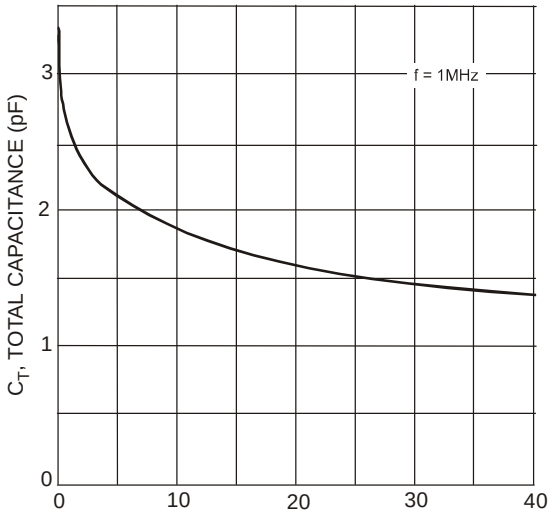


Fig. 3 Total Capacitance vs. Reverse Voltage

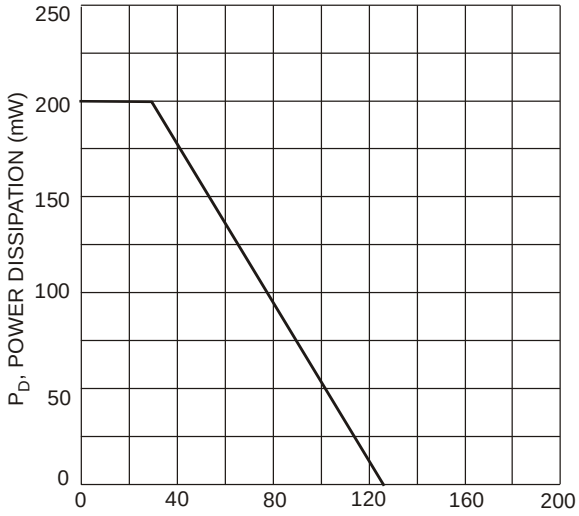
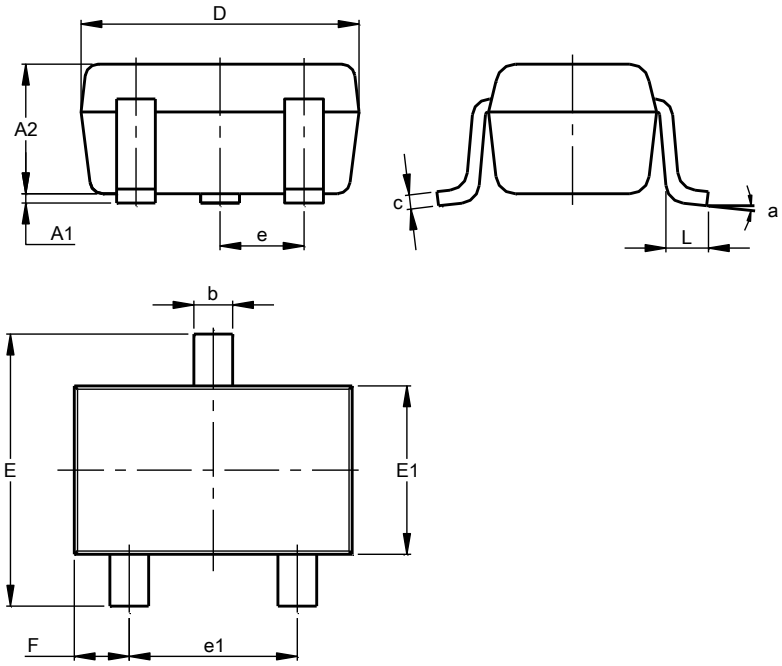


Fig. 4 Power Derating Curve, Total Package

Package Outline Dimensions

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

SOT323 (Standard)

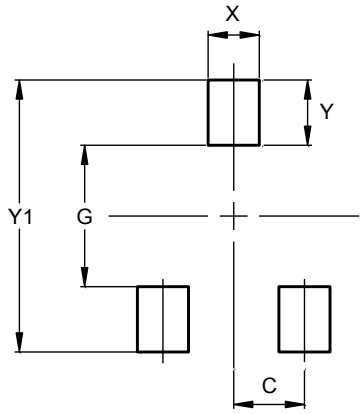


SOT323 (Standard)			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.80	1.00	0.90
b	0.20	0.40	0.30
c	0.08	0.18	0.13
D	1.80	2.20	2.00
E	2.00	2.45	2.225
E1	1.15	1.35	1.25
e	--	--	0.65
e1	1.20	1.40	1.30
F	0.25	0.475	0.3625
L	0.25	0.46	0.355
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT323 (Standard)



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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