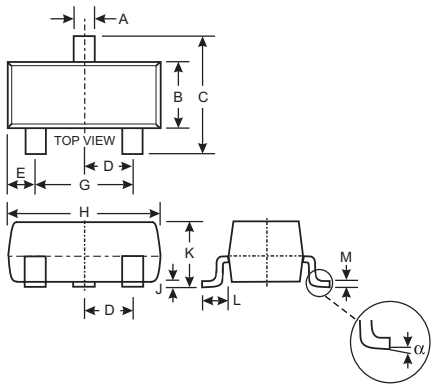
# BAS40/ -04/ -05/ -06

## SURFACE MOUNT SCHOTTKY BARRIER DIODE

## Features

- Low Forward Voltage Drop
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- **Lead Free/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

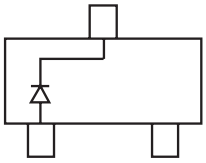



| SOT-23 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 0.37 | 0.51 |
| **B** | 1.20 | 1.40 |
| **C** | 2.30 | 2.50 |
| **D** | 0.89 | 1.03 |
| **E** | 0.45 | 0.60 |
| **G** | 1.78 | 2.05 |
| **H** | 2.80 | 3.00 |
| **J** | 0.013 | 0.10 |
| **K** | 0.903 | 1.10 |
| **L** | 0.45 | 0.61 |
| **M** | 0.085 | 0.180 |
| α | 0° | 8° |
| **All Dimensions in mm** | | |

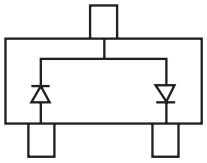
## Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe)
- Polarity: See Diagrams Below
- Marking: See Diagrams Below & Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

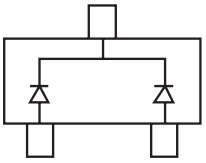
TOP VIEW



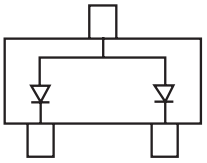
BAS40 Marking: K43



BAS40-04 Marking: K44



BAS40-05 Marking: K45



BAS40-06 Marking: K46

## Maximum Ratings @ $T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 40 | V |
| Forward Continuous Current (Note 1) | $I_{FM}$ | 200 | mA |
| Power Dissipation (Note 1) | $P_d$ | 350 | mW |
| Forward Surge Current (Note 1) @ t < 1.0s | $I_{FSM}$ | 600 | mA |
| Thermal Resistance, Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 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 2) | $V_{(BR)R}$ | 40 | — | — | V | $I_R$ = 10μA |
| Forward Voltage | $V_F$ | — | — | 380<br>1000 | mV | $t_p$ < 300μs, $I_F$ = 1.0mA<br>$t_p$ < 300μs, $I_F$ = 40mA |
| Reverse Leakage Current (Note 2) | $I_R$ | — | 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:
1. 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.
2. Short duration pulse test used to minimize self-heating effect.
3. No purposefully added lead.

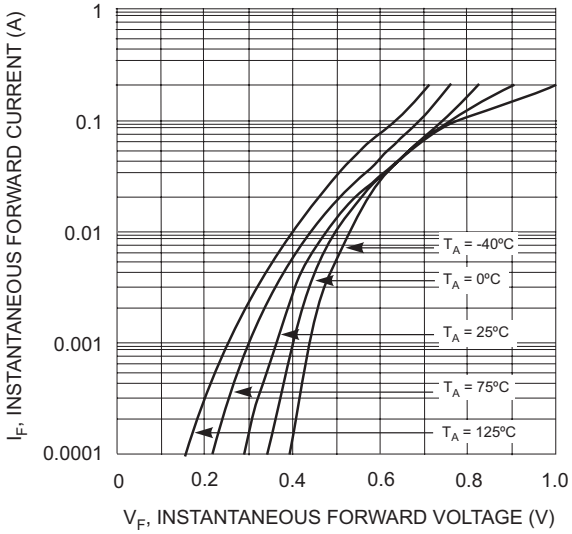



Fig. 1 Typical Forward Voltage

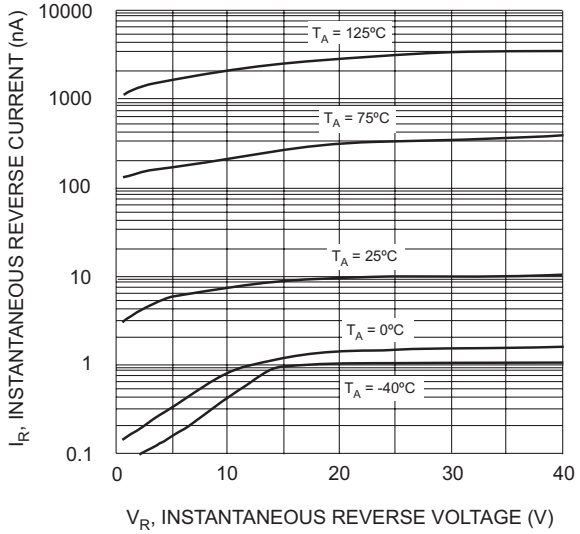



Fig. 2 Typical Reverse Characteristics

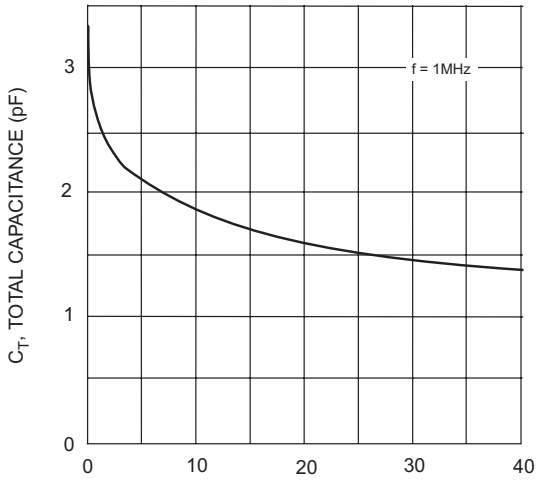



Fig. 3 Typical Capacitance

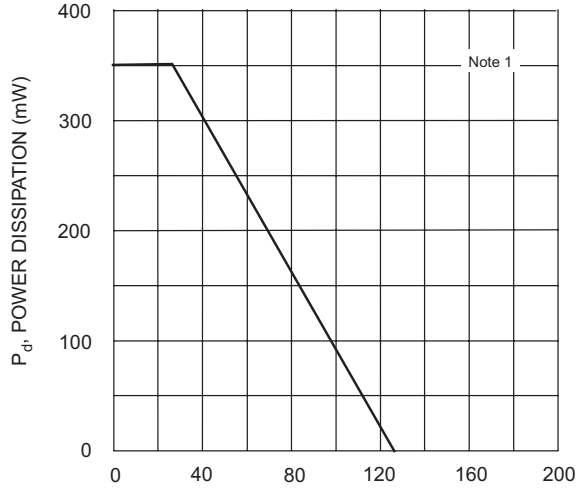


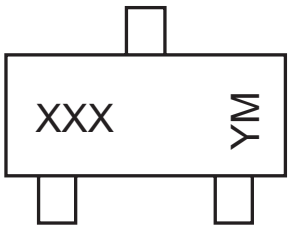

Fig. 4 Power Derating Curve, Total Package

## Ordering Information (Note 4)

| Device | Packaging | Shipping |
|---|---|---|
| BAS40-7-F | SOT-23 | 3000/Tape & Reel |
| BAS40-04-7-F | SOT-23 | 3000/Tape & Reel |
| BAS40-05--7-F | SOT-23 | 3000/Tape & Reel |
| BAS40-06-7-F | SOT-23 | 3000/Tape & Reel |

Notes: 4. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

## Marking Information




XXX = Product Type Marking Code (See Page 1)
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September

Date Code Key

| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | K | L | M | N | P | R | S | T | U | V | W | X | Y | Z |

| 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 |

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