

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

| V_{RRM} (V) | I_O (mA) | V_{Fmax} (V) | I_{Rmax} (μA) |
|---------------|------------|----------------|------------------------------|
| 40 | 200 | 1.0 | 0.2 |

Description

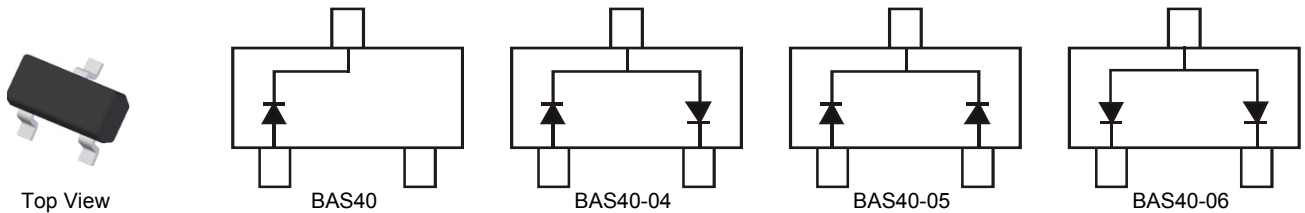
200mA surface mount Schottky Barrier Diode in SOT23 package, offers low forward voltage drop and fast switching capability, designed with PN Junction Guard Ring for Transient and ESD Protection, totally lead-free finish and RoHS compliant, "Green" device.

Features and Benefits

- Low Forward Voltage Drop
- Fast Switching
- 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**

Mechanical Data

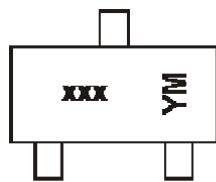
- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208 e3
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagrams Below
- Weight: 0.008 grams (approximate)


Ordering Information (Note 4 & 5)

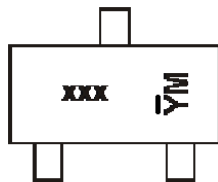
| Part Number | Case | Packaging |
|--------------------------------|-------|-------------------|
| BAS40-7-F / BAS40Q-7-F | SOT23 | 3000/Tape & Reel |
| BAS40-04-7-F / BAS40-04Q-7-F | SOT23 | 3000/Tape & Reel |
| BAS40-05-7-F / BAS40-05Q-7-F | SOT23 | 3000/Tape & Reel |
| BAS40-06-7-F / BAS40-06Q-7-F | 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.
 2. 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_2O_3 Fire Retardants.

Marking Information



Shanghai A/T Site



Chengdu 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)

Y̅M = Date Code Marking for CAT (Chengdu Assembly/ Test site)

Y or Y̅ = Year (ex: A = 2013)

M = Month (ex: 9 = September)

Date Code Key

| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | K | L | M | N | P | R | S | T | U | V | W | X | Y | Z | A | B | C |

| 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) | 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/datasheets/ap02001.pdf>.
7. Short duration pulse test used to minimize self-heating effect.

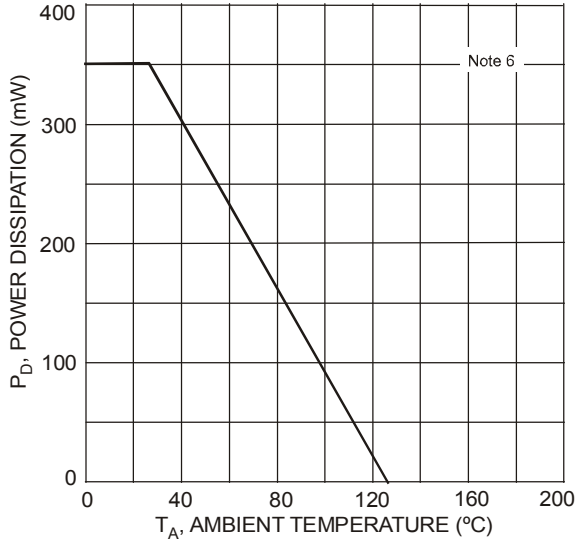


Figure 1 Power Derating Curve, Total Package

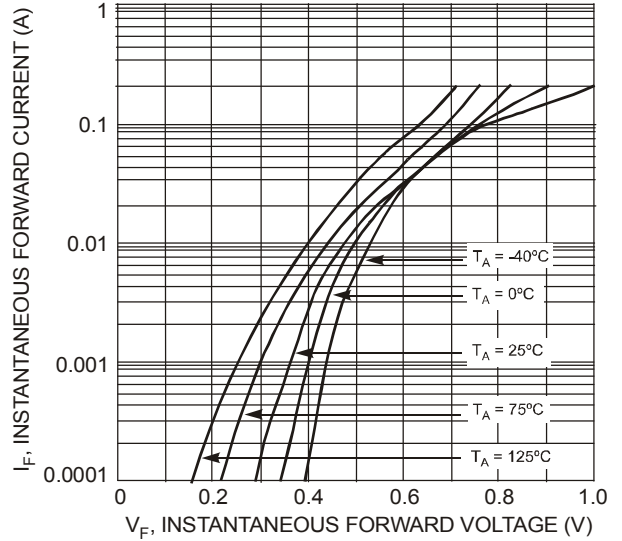


Figure 2 Typical Forward Characteristics

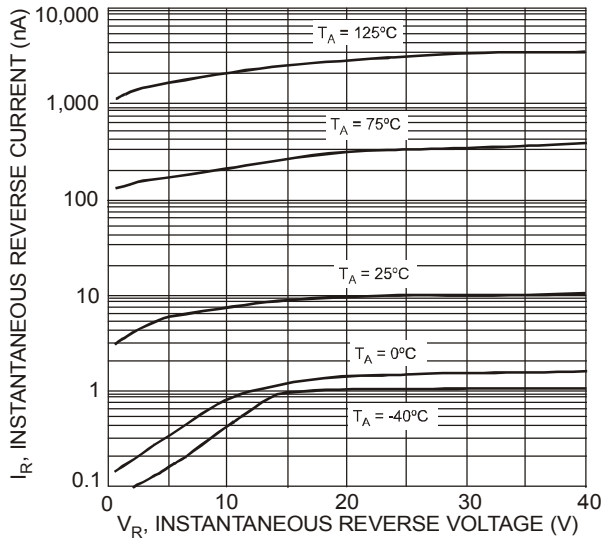


Figure 3 Typical Reverse Characteristics

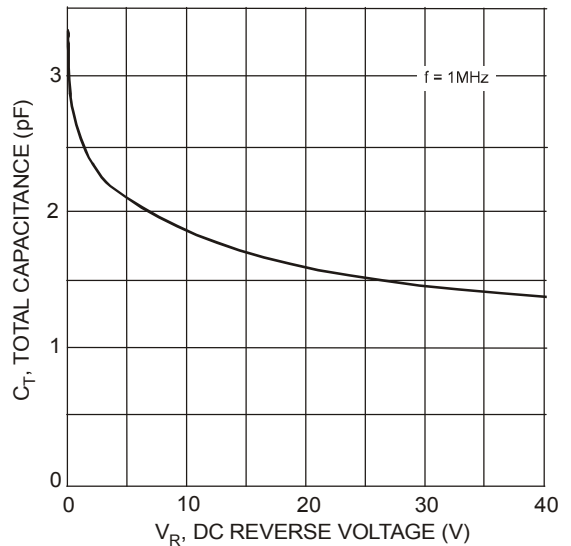
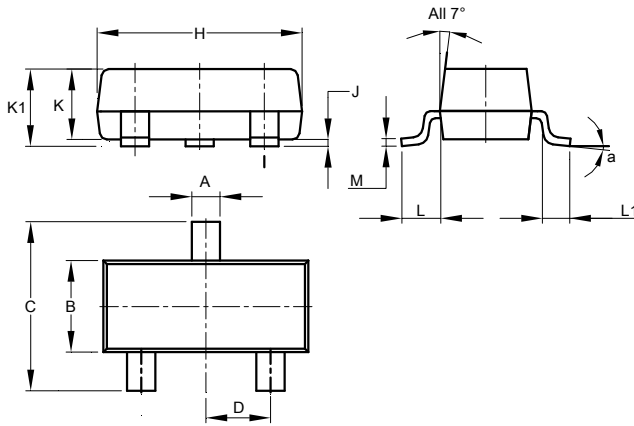


Figure 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

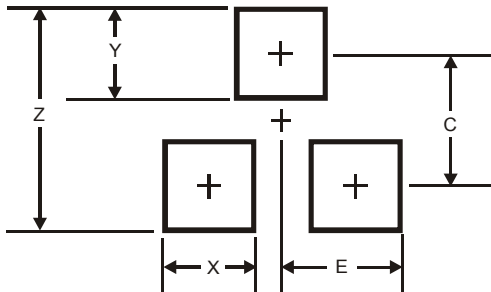
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| SOT23 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 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 |
| H | 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 |
| M | 0.085 | 0.150 | 0.110 |
| a | 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 |
| X | 0.8 |
| Y | 0.9 |
| C | 2.0 |
| E | 1.35 |

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