



THE DATASHEET OF BAS70-7-F



Product Summary

| V_R (V) | I_F (mA) | $V_{F\ MAX}$ (V) @ +25°C | $I_{R\ MAX}$ (µA) @ +25°C |
|-----------|------------|-----------------------------|------------------------------|
| 70 | 1.0 | 0.41 | 0.1 |

Description

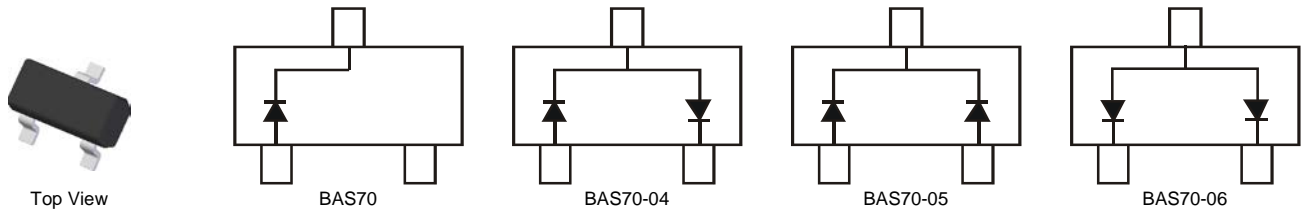
70mA surface mount Schottky Barrier Diode in SOT23 package, offers low forward voltage drop and fast switching capability, designed with PN Junction Guard Ring for Transient and ESD Protection.

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)

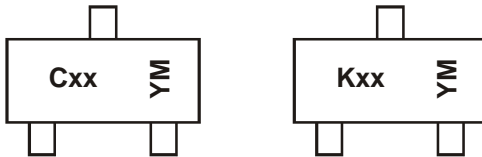


Ordering Information (Note 4 & 5)

| 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.
 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. 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 Sb₂O₃ 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 | M | N | P | | Y | Z | A | B | C | D | E | F | G |

| 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} | 70 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 49 | V |
| Maximum Forward Continuous Current (Note 6) | I _{FM} | 70 | mA |
| Non-Repetitive Peak Forward Surge Current @ t ≤ 1.0s | I _{FSM} | 100 | mA |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|------------------|-------------|------|
| Power Dissipation (Note 6) | P _D | 200 | mW |
| Thermal Resistance Junction to Ambient Air (Note 6) | R _{θJA} | 625 | °C/W |
| Operating Junction 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 7) | V _{(BR)R} | 70 | — | V | I _R = 10μA |
| Forward Voltage | V _F | — | 410 1000 | mV | t _p < 300μs, I _F = 1.0mA t _p < 300μs, I _F = 15mA |
| Reverse Current (Note 7) | I _R | — | 100 | nA | t _p < 300μs, V _R = 50V |
| Total Capacitance | C _T | — | 2.0 | 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 |
| Reverse Recovery Time (for BAS70-04 only) | t _{rr} | — | 2.0 | 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.

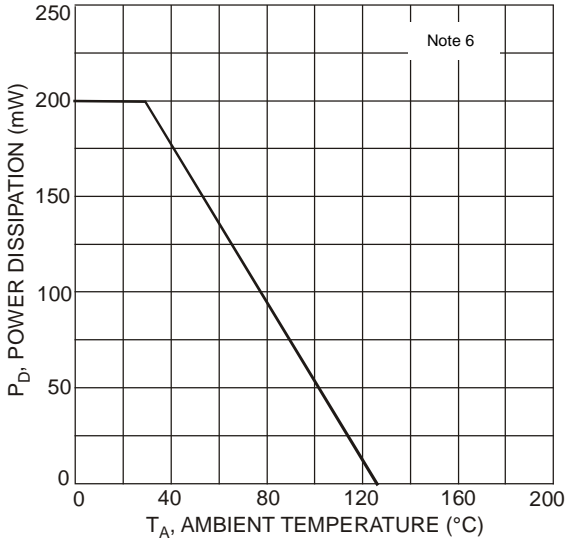


Figure 1 Power Derating Curve, Total Package

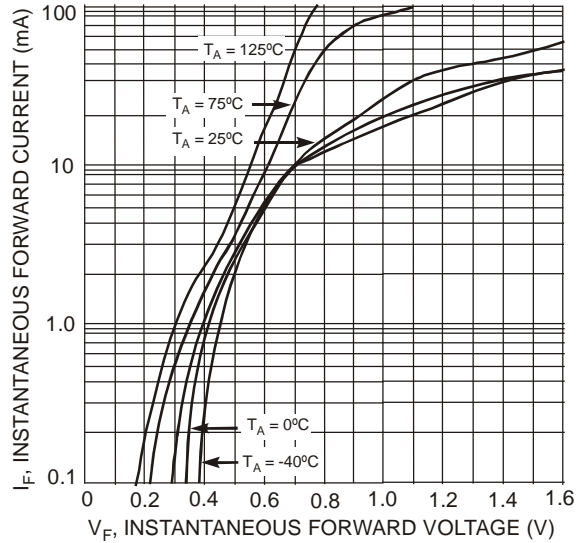


Figure 2 Typical Forward Characteristics

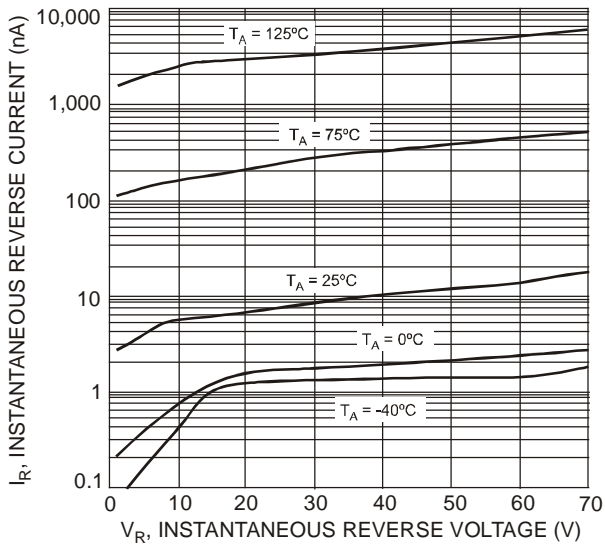


Figure 3 Typical Reverse Characteristics

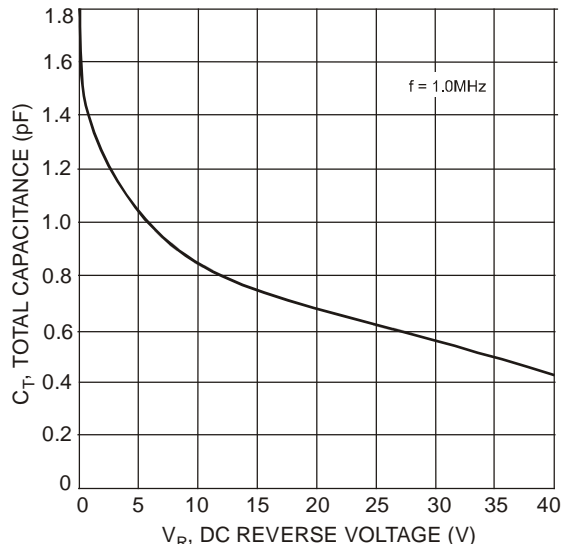
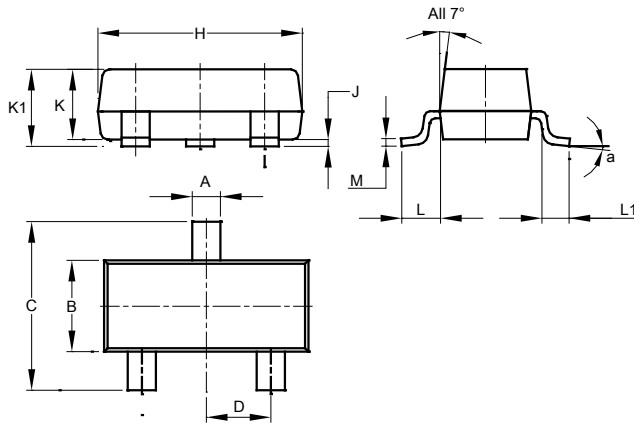


Figure 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

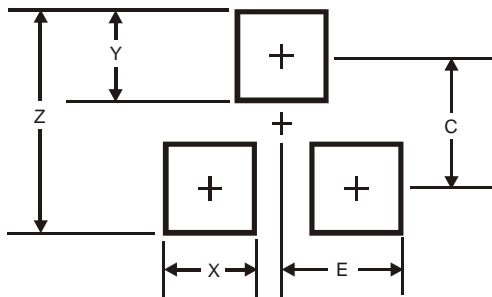
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| 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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