

Product Summary

| V_{RRM} (V) | I_O (mA) | $V_{F(MAX)}$ @ 1mA (V) | $I_{R(MAX)}$ @ $V_R = 50V$ (μA) |
|---------------|------------|------------------------|--|
| 70 | 70 | 0.41 | 0.1 |

Applications

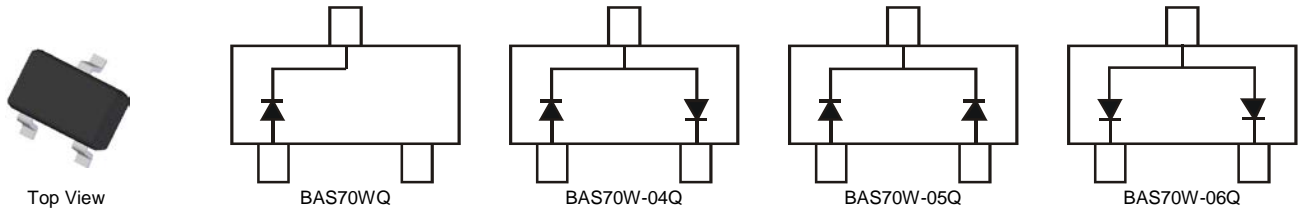
- SMPS
- DC-DC Converter
- Freewheeling Diodes
- Reverse Polarity Protection
- Blocking Diodes

Features and Benefits

- Low Turn-on Voltage
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- Ultra-Small Surface Mount Package
- **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**
- **PPAP Capable (Note 4)**

Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe), Solderable per MIL-STD-202, Method 208 (3)
- Polarity: See Diagrams Below
- Weight: 0.006 grams (Approximate)

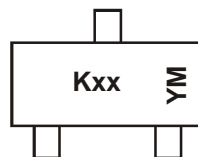


Ordering Information (Note 5)

| Part Number | Case | Packaging |
|----------------|--------|------------------|
| BAS70WQ-7-F | SOT323 | 3000/Tape & Reel |
| BAS70W-04Q-7-F | SOT323 | 3000/Tape & Reel |
| BAS70W-05Q-7-F | SOT323 | 3000/Tape & Reel |
| BAS70W-06Q-7-F | SOT323 | 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/product_compliance_definitions.html.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



Kxx = Product Type Marking Code
 K73 = BAS70WQ
 K74 = BAS70W-04Q
 K75 = BAS70W-05Q
 K76 = BAS70W-06Q
 YM = Date Code Marking
 Y = Year (ex: D = 2016)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K |

| 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 (@ $T_A = +25^\circ\text{C}$, 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 |
| Forward Continuous Current (Note 6) | I_O | 70 | mA |
| Non-Repetitive Peak Forward Surge Current @ $t_p < 1.0\text{s}$ | I_{FSM} | 100 | mA |

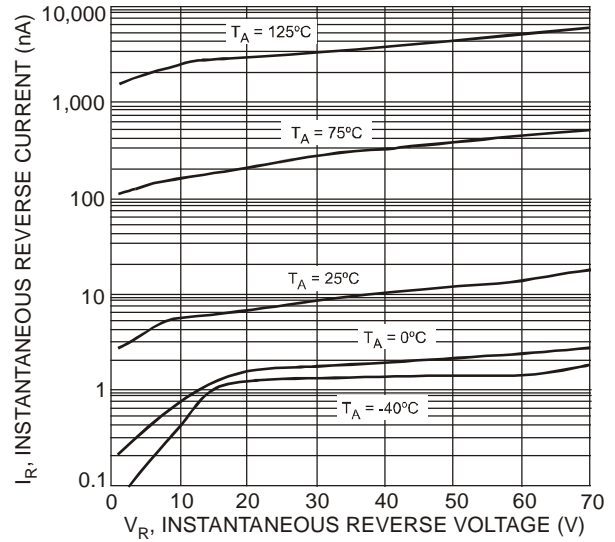
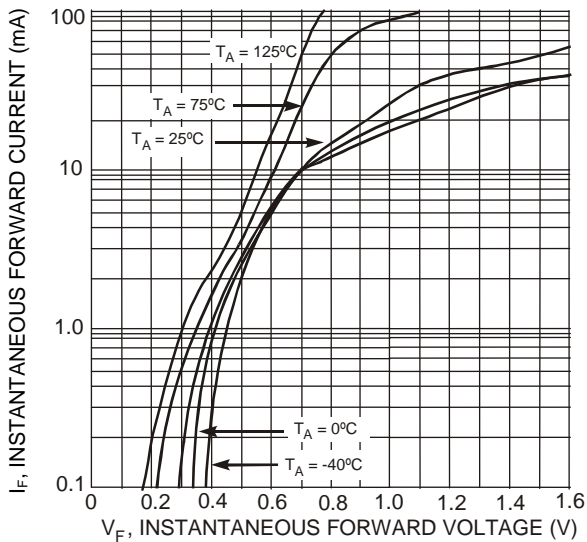
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Power Dissipation (Note 6) | P_D | 200 | mW |
| Thermal Resistance Junction to Ambient Air (Note 6) | $R_{\theta JA}$ | 625 | $^\circ\text{C/W}$ |
| Operating Temperature Range | T_J | -55 to +125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|------------------------------------|-------------|-----|-------------|------|--|
| Reverse Breakdown Voltage (Note 7) | $V_{(BR)R}$ | 70 | — | — | $I_R = 10\mu\text{A}$ |
| Forward Voltage | V_F | — | 410 1000 | mV | $t_p < 300\mu\text{s}$, $I_F = 1.0\text{mA}$ $t_p < 300\mu\text{s}$, $I_F = 15\text{mA}$ |
| Reverse Current (Note 7) | I_R | — | 100 | nA | $t_p < 300\mu\text{s}$, $V_R = 50\text{V}$ |
| Total Capacitance | C_T | — | 2.0 | pF | $V_R = 0\text{V}$, $f = 1.0\text{MHz}$ |
| Reverse Recovery Time | t_{RR} | — | 5.0 | ns | $I_F = I_R = 10\text{mA}$ to $I_R = 1.0\text{mA}$, $I_{RR} = 0.1 \times I_R$, $R_L = 100\Omega$ |

- Notes:
- Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown in Diodes Incorporated's package outline PDFs, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 - Short duration pulse test used to minimize self-heating effect.



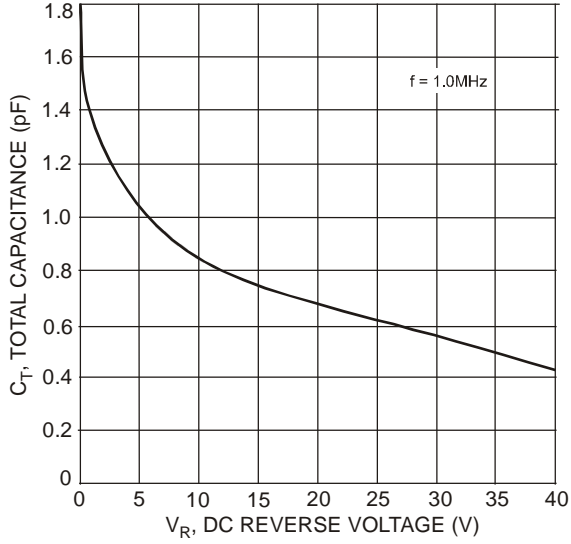


Fig. 3 Total Capacitance vs. Reverse Voltage

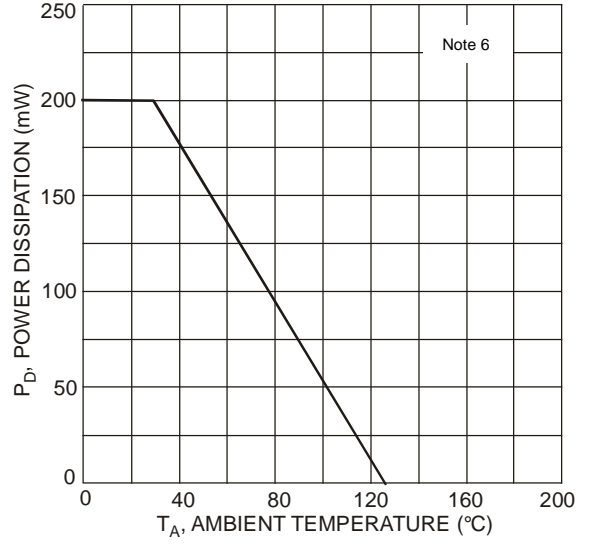
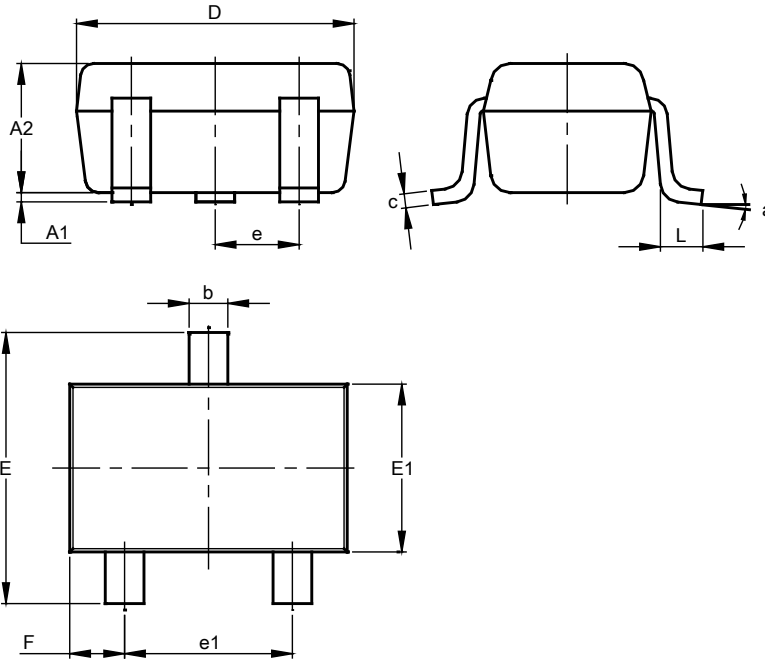


Fig. 4 Power Derating Curve, Total Package

Package Outline Dimensions

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

SOT323

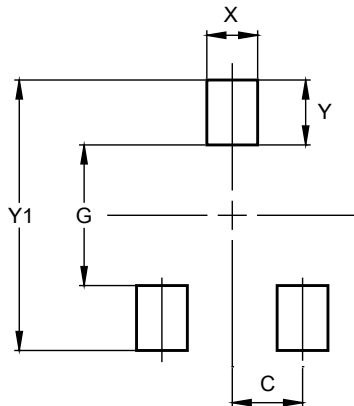


| SOT323 | | | |
|----------------------|-----------|-------|-------|
| Dim | Min | Max | Typ |
| A1 | 0.00 | 0.10 | 0.05 |
| A2 | 0.90 | 1.00 | 0.95 |
| b | 0.25 | 0.40 | 0.30 |
| c | 0.10 | 0.18 | 0.11 |
| D | 1.80 | 2.20 | 2.15 |
| E | 2.00 | 2.20 | 2.10 |
| E1 | 1.15 | 1.35 | 1.30 |
| e | 0.650 BSC | | |
| e1 | 1.20 | 1.40 | 1.30 |
| F | 0.375 | 0.475 | 0.425 |
| L | 0.25 | 0.40 | 0.30 |
| a | 0° | 8° | -- |
| All Dimensions in mm | | | |

Suggested Pad Layout

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

SOT323



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

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