

Features

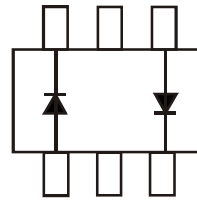
- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- High Reverse Breakdown Voltage
- Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

- Case: SOT363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208^(e3)
- Weight: 0.003 grams (Approximate)



Top View



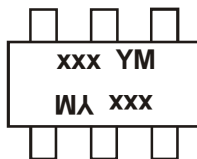
Top View
Internal Schematic

Ordering Information (Note 5)

| Part Number | Qualification | Case | Packaging |
|-------------|---------------|--------|--------------------|
| BAS20DW-7 | Commercial | SOT363 | 3,000/Tape & Reel |
| BAS20DW-13 | Commercial | SOT363 | 10,000/Tape & Reel |
| BAS20DWQ-13 | Automotive | SOT363 | 10,000/Tape & Reel |
| BAS21DW-7 | Commercial | SOT363 | 3,000/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/product-compliance-definitions/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



xxx = Product Type Marking Code:
 BAS20DW Marking: KT2 or KT3
 BAS21DW Marking: KT3
 YM = Date Code Marking
 Y = Year (ex: F = 2018)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2005 | 2006 | ... | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------|------|------|-----|------|------|------|------|------|------|------|------|
| Code | S | T | ... | F | G | H | I | J | K | L | M |

| 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 | BAS20DW | BAS21DW | Unit |
|---|---------------------|---------|---------|------|
| Repetitive Peak Reverse Voltage | V _{RRM} | 200 | 250 | V |
| Working Peak Reverse Voltage | V _{RWM} | 150 | 200 | V |
| DC Blocking Voltage | V _R | | | |
| RMS Reverse Voltage | V _{R(RMS)} | 106 | 141 | V |
| Forward Continuous Current (Note 8) | I _{FM} | | 400 | mA |
| Average Rectified Output Current (Note 8) | I _O | | 200 | mA |
| Non-Repetitive Peak Forward Surge Current | I _{FSM} | | 2.5 | A |
| | | | 0.5 | |
| Repetitive Peak Forward Surge Current | I _{FRM} | | 625 | 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 and Storage Temperature Range | T _J , 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) | BAS20DW BAS21DW | V _{(BR)R} | 200 250 | — — | V | I _R = 100μA |
| Forward Voltage | | V _F | — | 1.0 1.25 | V | I _F = 100mA I _F = 200mA |
| Reverse Current @ Rated DC Blocking Voltage (Note 7) | | I _R | — | 100 15 | nA μA | T _J = +25°C T _J = +100°C |
| Total Capacitance | | C _T | — | 5.0 | pF | V _R = 0, f = 1.0MHz |
| Reverse Recovery Time | | t _{RR} | — | 50 | ns | I _F = I _R = 30mA, I _{RR} = 0.1 x I _R , R _L = 100Ω |

- Notes:
- Part mounted on FR-4 substrate, 2 oz Cu pad layout board with recommended pad layout, 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.
 - Double Diode Loaded in Parallel. For Single Diode or Double Diode Loaded in Series, the continuous forward current should be reduced by half.

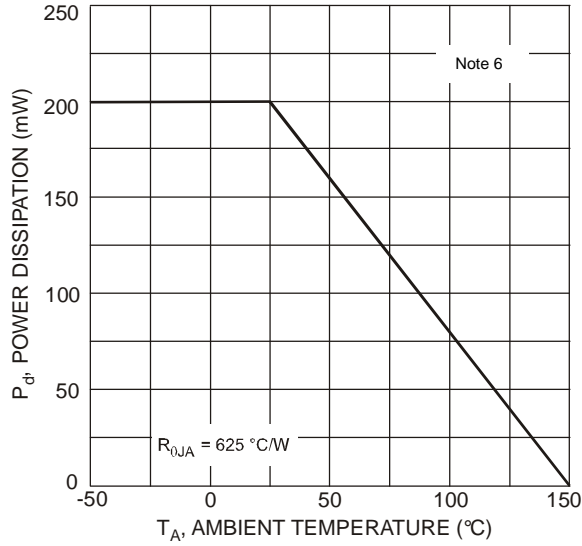


Fig. 1 Derating Curve - Total

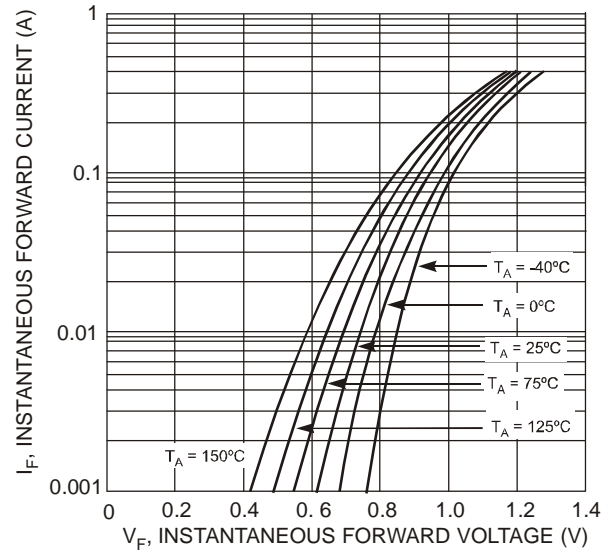


Fig. 2 Typical Forward Characteristics

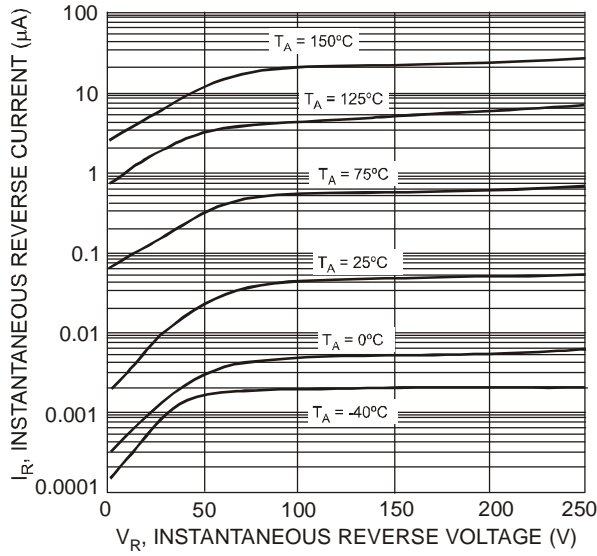


Fig. 3 Typical Reverse Characteristics

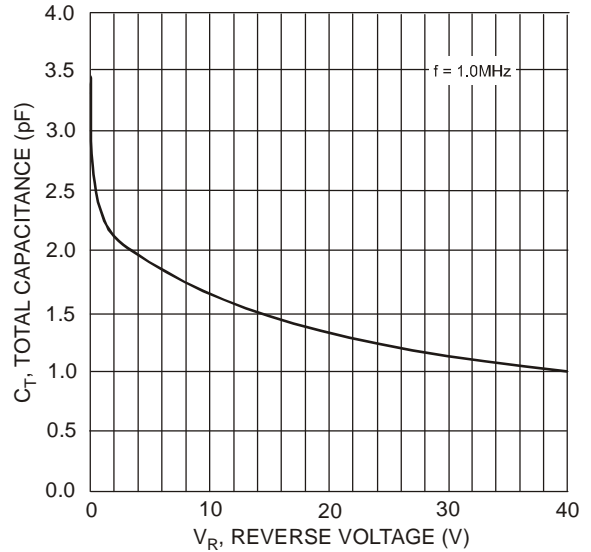
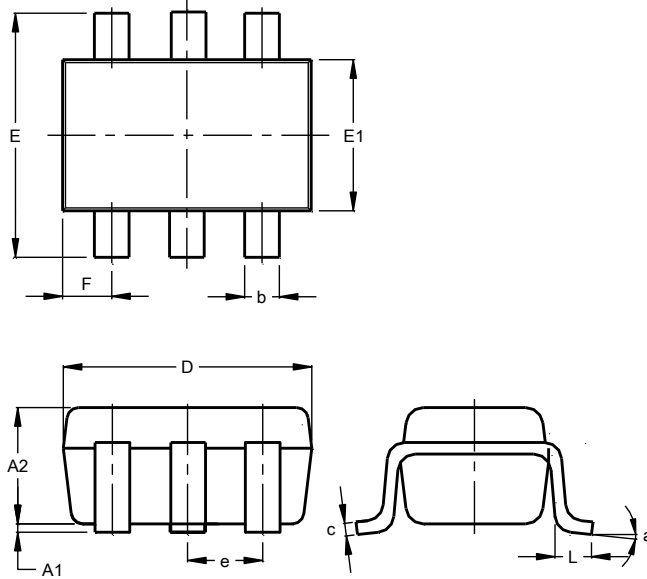


Fig. 4 Typical Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOT363

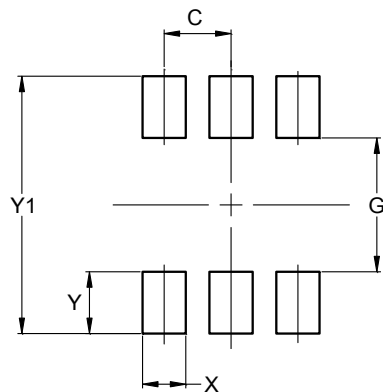


| SOT363 | | | |
|-----------------------------|-----------|------|-------|
| Dim | Min | Max | Typ |
| A1 | 0.00 | 0.10 | 0.05 |
| A2 | 0.90 | 1.00 | 0.95 |
| b | 0.10 | 0.30 | 0.25 |
| c | 0.10 | 0.22 | 0.11 |
| D | 1.80 | 2.20 | 2.15 |
| E | 2.00 | 2.20 | 2.10 |
| E1 | 1.15 | 1.35 | 1.30 |
| e | 0.650 BSC | | |
| F | 0.40 | 0.45 | 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.

SOT363



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.650 |
| G | 1.300 |
| X | 0.420 |
| Y | 0.600 |
| Y1 | 2.500 |

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