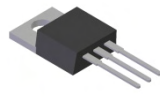


Features

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Superior Reverse Avalanche Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 2)**
- **Also Available in Green Molding Compound (Note 4)**

Mechanical Data

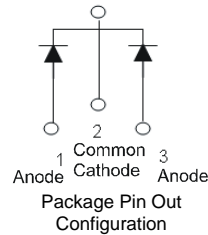
- Case: TO-220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 1.85 grams (approximate)



TO-220AB
Top View



TO-220AB
Bottom View



Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|--|-----------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 30 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_{RM} | | |
| Average Rectified Output Current @ $T_C = 140^\circ\text{C}$ | I_O | 30 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 280 | A |
| Non-Repetitive Avalanche Energy ($T_J = 25^\circ\text{C}$, $I_{AS} = 20\text{A}$, $L = 8.5\text{ mH}$) | E_{AS} | 800 | mJ |
| Repetitive Peak Avalanche Power (1 μs , 25 $^\circ\text{C}$) | P_{ARM} | 9800 | W |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Typical Thermal Resistance | $R_{\theta JC}$ | 2 | $^\circ\text{C/W}$ |
| Thermal Resistance Junction to Case | | | |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------------|--------|-----|------------|------------|------|---|
| Forward Voltage Drop (per leg) | V_F | - | 0.41 | 0.45 | V | $I_F = 15\text{A}$, $T_J = 25^\circ\text{C}$ |
| | | | 0.50 | 0.54 | | $I_F = 30\text{A}$, $T_J = 25^\circ\text{C}$ |
| | | | 0.34 | 0.37 | | $I_F = 15\text{A}$, $T_J = 125^\circ\text{C}$ |
| | | | — | 0.5 | | $I_F = 30\text{A}$, $T_J = 125^\circ\text{C}$ |
| | | | | | | |
| Leakage Current (Note 1) | I_R | - | 0.33 40 | 1.5 100 | mA | $V_R = 30\text{V}$, $T_J = 25^\circ\text{C}$ $V_R = 30\text{V}$, $T_J = 125^\circ\text{C}$ |

- Notes:
1. Short duration pulse test used to minimize self-heating effect.
 2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.

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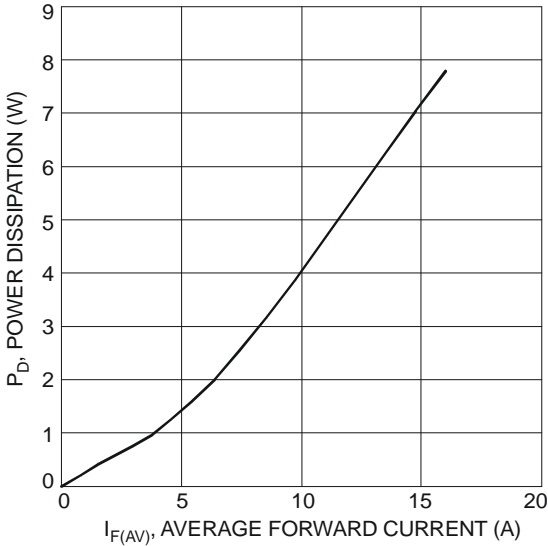


Fig. 1 Forward Power Dissipation

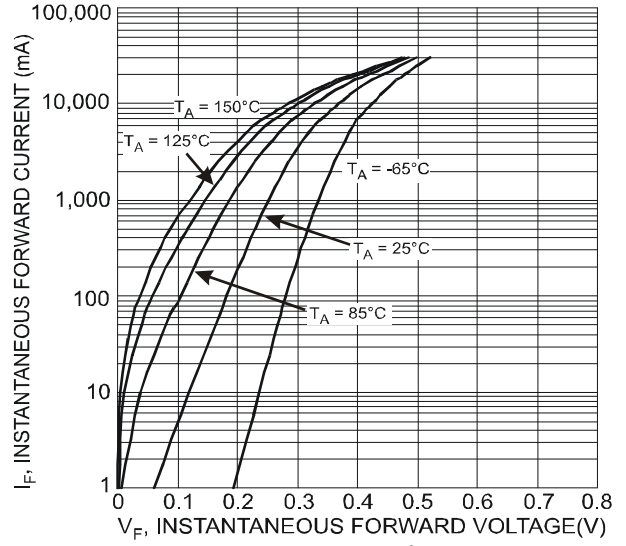


Fig. 2 Typical Forward Characteristics

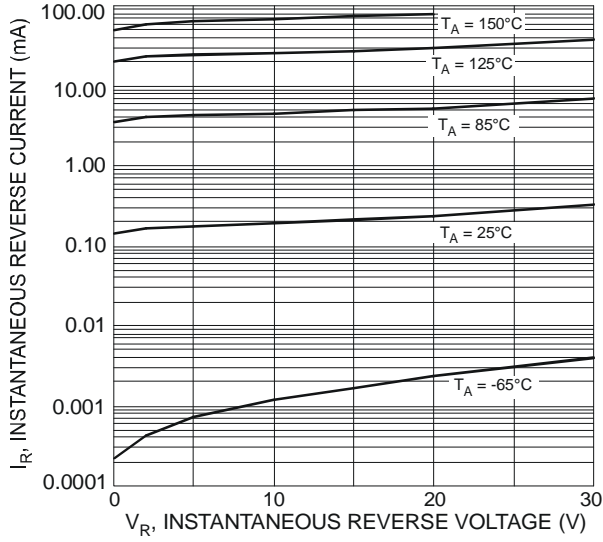


Fig. 3 Typical Reverse Characteristics

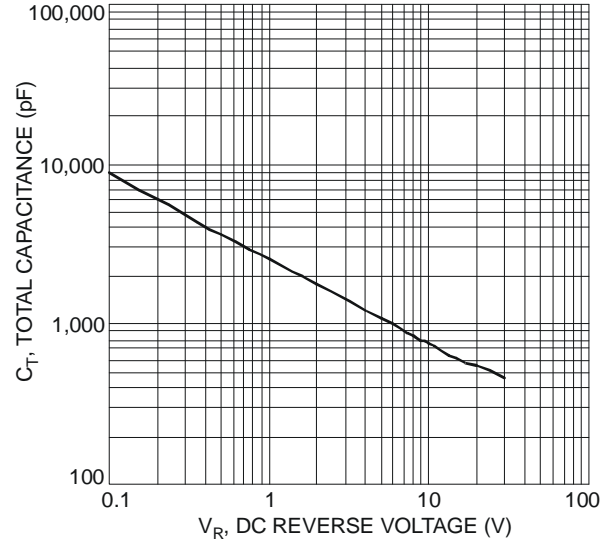


Fig. 4 Total Capacitance vs. Reverse Voltage

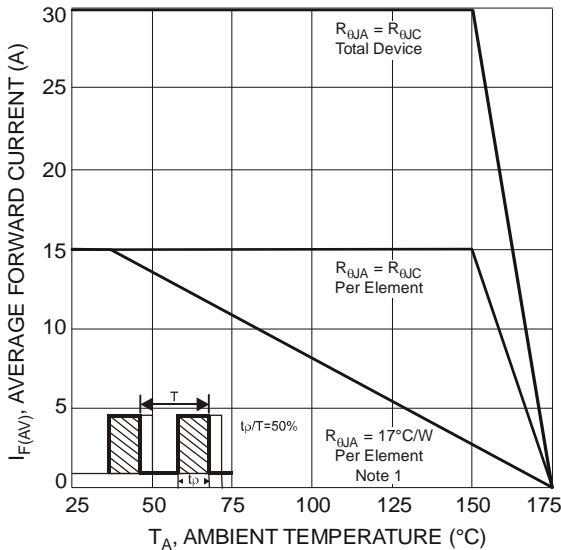


Fig. 5 Forward Current Derating Curve

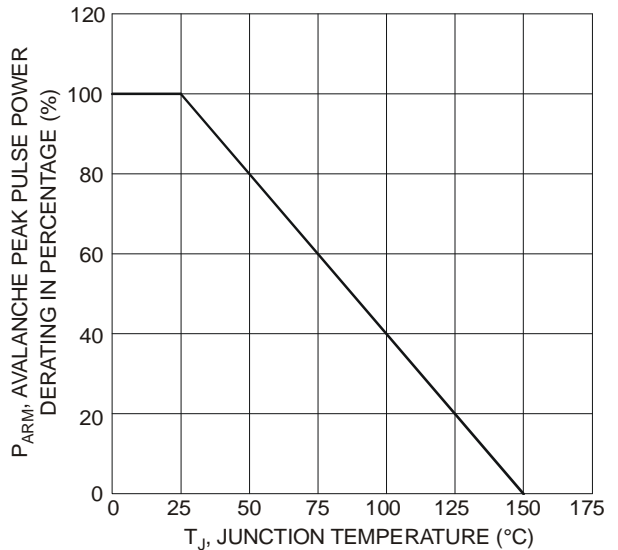


Fig. 6 Pulse Derating Curve

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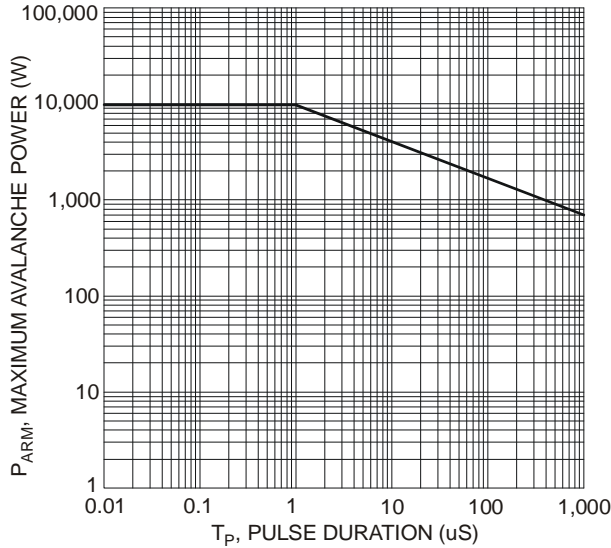


Fig. 7 Maximum Avalanche Power Curve

Ordering Information (Notes 3 & 4)

| Part Number | Case | Packaging |
|--------------|----------|----------------|
| SBR30U30CT | TO-220AB | 50 pieces/tube |
| SBR30U30CT-G | TO-220AB | 50 pieces/tube |

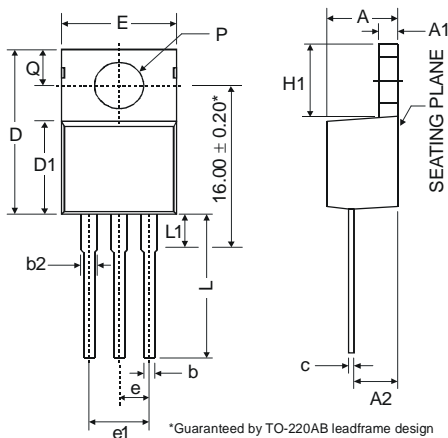
- Notes: 3. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 4. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR30U30CT-G.

Marking Information



SBR30U30CT = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 06 = 2006)
 WW = Week (01-52)

Package Outline Dimensions



*Guaranteed by TO-220AB leadframe design

| TO-220AB | | | |
|-----------------------------|-------|------|-------|
| Dim | Min | Typ | Max |
| A | 3.56 | - | 4.82 |
| A1 | 0.51 | - | 1.39 |
| A2 | 2.04 | - | 2.92 |
| b | 0.39 | 0.81 | 1.01 |
| b2 | 1.15 | 1.24 | 1.77 |
| c | 0.356 | - | 0.61 |
| D | 14.22 | - | 16.51 |
| D1 | 8.39 | - | 9.01 |
| e | 2.54 | | |
| e1 | 5.08 | | |
| E | 9.66 | - | 10.66 |
| H1 | 5.85 | - | 6.85 |
| L | 12.70 | - | 14.73 |
| L1 | - | - | 6.35 |
| P | 3.54 | - | 4.08 |
| Q | 2.54 | - | 3.42 |
| All Dimensions in mm | | | |

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