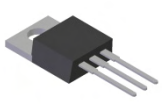
# 30A SBR®
# SUPER BARRIER RECTIFIER

## Features

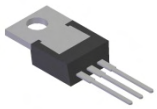
- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Also Available in Green Molding Compound (Note 2)**

## Mechanical Data

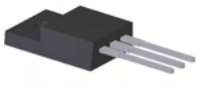
- Case: TO-220AB, ITO-220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: TO-220AB – 1.85 grams (approximate)
  ITO-220AB – 1.65 grams (approximate)



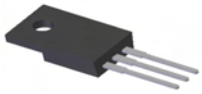
TO-220AB
Top View



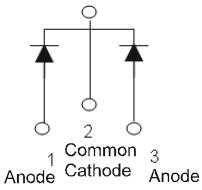
TO-220AB
Bottom View



ITO-220AB
Top View



ITO-220AB
Bottom View



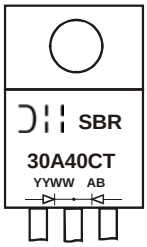

Package Pin Out
Configuration

## Ordering Information (Notes 2 and 3)

| Part Number | Case | Packaging |
|---|---|---|
| SBR30A40CT | TO-220AB | 50 pieces/tube |
| SBR30A40CT-G | TO-220AB | 50 pieces/tube |
| SBR30A40CTFP | ITO-220AB | 50 pieces/tube |
| SBR30A40CTFP-G | ITO-220AB | 50 pieces/tube |
| SBR30A40CTFP-JT | ITO-220AB (Alternate) | 50 pieces/tube |

Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.
2. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR30A40CT-G.
3. For packaging details, go to our website at http://www.diodes.com.

## Marking Information




SBR30A40CT = 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)


SBR30A40CTFP = 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)

## Maximum Ratings @$T_A$ = 25°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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 40 | V |
| Average Rectified Output Current @ $T_C$ = 110ºC | $I_O$ | 30 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 250 | A |
| Peak Repetitive Reverse Surge Current (2uS-1Khz) | $I_{RRM}$ | 3 | A |
| Isolation Voltage (ITO-220AB Only)<br>From terminal to heatsink t = 3 sec. | $V_{AC}$ | 2000 | V |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Typical Thermal Resistance (per leg)<br>Package = TO-220AB<br>Package = ITO-220AB | $R_{\theta JC}$ | <br>2<br>4 | ºC/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -65 to +150 | ºC |

## Electrical Characteristics @$T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Forward Voltage Drop | $V_F$ | - | -<br>0.42 | 0.50<br>0.45 | V | $I_F$ = 15A, $T_J$ = 25ºC<br>$I_F$ = 15A, $T_J$ = 125ºC |
| Leakage Current (Note 4) | $I_R$ | - | - | 0.5<br>100 | mA | $V_R$ = 40V, $T_J$ = 25ºC<br>$V_R$ = 40V, $T_J$ = 125ºC |

Notes: 4. Short duration pulse test used to minimize self-heating effect.

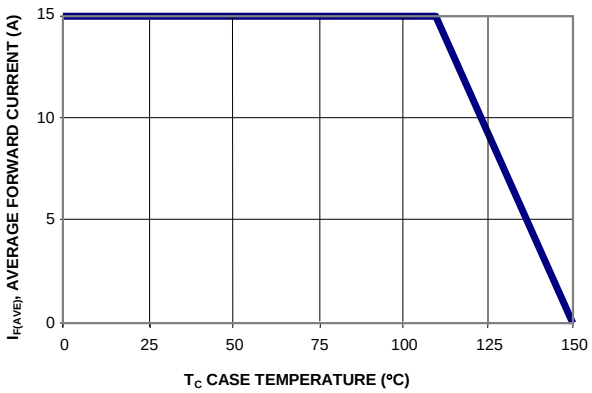



Figure 1: Current Derating Curve, Per Element

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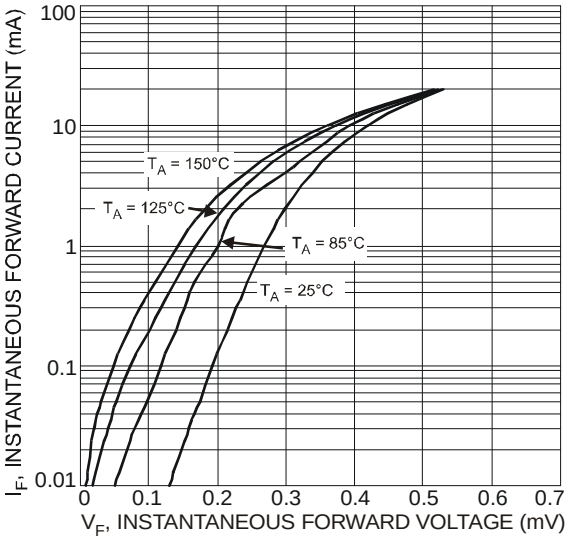



Fig. 2 Typical Forward Characteristics

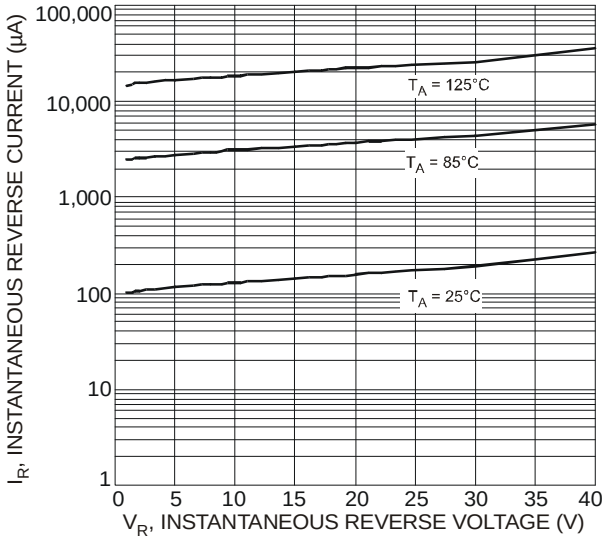
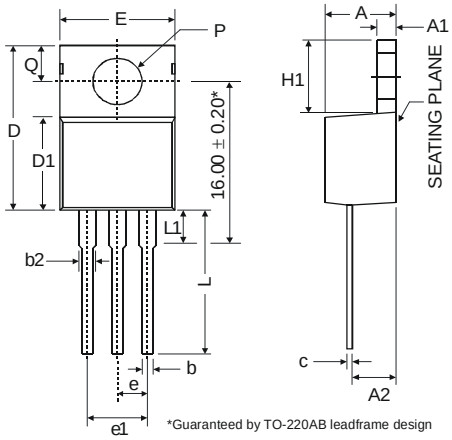
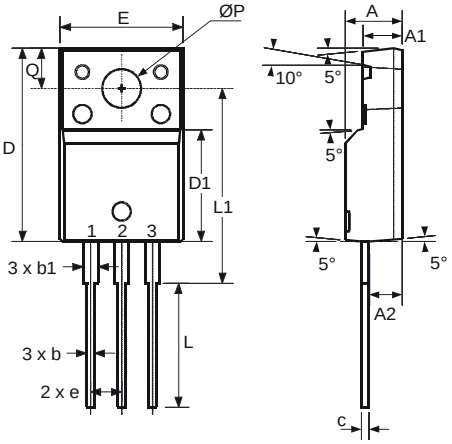



Fig. 3 Typical Reverse Characteristics

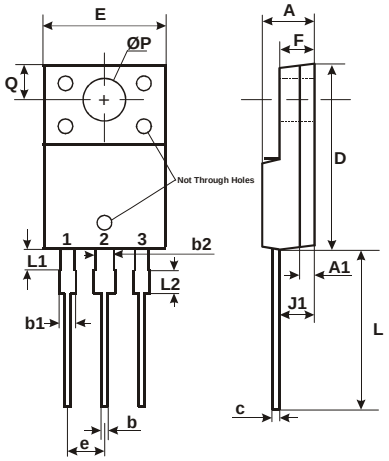
## Package Outline Dimensions




| 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 | | | |




| ITO-220AB (Note 5) | | | |
|---|---|---|---|
| Dim | Min | Typ | Max |
| A | 4.50 | 4.70 | 4.90 |
| A1 | 3.04 | 3.24 | 3.44 |
| A2 | 2.56 | 2.76 | 2.96 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| c | 0.50 | 0.60 | 0.70 |
| D | 15.67 | 15.87 | 16.07 |
| D1 | 8.99 | 9.19 | 9.39 |
| e | 2.54 | | |
| E | 9.91 | 10.11 | 10.31 |
| L | 9.45 | 9.75 | 10.05 |
| L1 | 15.80 | 16.00 | 16.20 |
| P | 2.98 | 3.18 | 3.38 |
| Q | 3.10 | 3.30 | 3.50 |
| All Dimensions in mm | | | |




| ITO-220AB ALTERNATE (Note 5) | | |
|---|---|---|
| DIM. | MIN. | MAX. |
| A | 4.30 | 4.70 |
| A1 | 1.3 | |
| b | 0.50 | 0.75 |
| b1 | 1.10 | 1.35 |
| b2 | 1.50 | 1.75 |
| c | 0.50 | 0.75 |
| D | 14.80 | 15.20 |
| E | 9.96 | 10.36 |
| e | 2.54 typ | |
| F | 2.80 | 3.20 |
| J1 | 2.50 | 2.90 |
| L | 12.80 | 13.60 |
| L1 | 1.70 | 1.90 |
| L2 | 1.90 | 2.10 |
| ØP | 3.50 typ | |
| Q | 2.70 typ | |
| All Dimensions in mm | | |

Notes: 5. For product manufactured with Date Code 0733 (week 33, 2007) and newer, please refer to ITO-220AB dimensions. For product manufactured prior to Date Code 0733, please refer to ITO-220AB ALTERNATE dimensions.

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