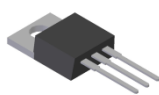


Features

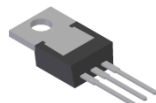
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Also Available in Green Molding Compound**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

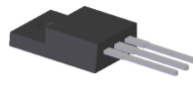
- Case: TO-220AB, ITO-220AB
- Case Material: Molded Plastic; UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208 @3
- Weight: TO-220AB – 1.85 grams (Approximate)
ITO-220AB – 1.65 grams (Approximate)



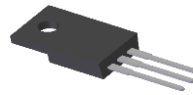
TO-220AB
Top View



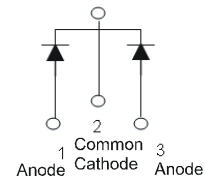
TO-220AB
Bottom View



ITO-220AB
Top View



ITO-220AB
Bottom View



Package Pin-Out
Configuration

Ordering Information (Notes 4 & 5)

| Part Number | Case | Packaging |
|-----------------|--------------------|----------------|
| SBR10U40CT | TO-220AB | 50 pieces/tube |
| SBR10U40CT-G | TO-220AB | 50 pieces/tube |
| SBR10U40CTFP | ITO-220AB | 50 pieces/tube |
| SBR10U40CTFP-G | ITO-220AB | 50 pieces/tube |
| SBR10U40CTFP-JT | ITO-220AB (Type E) | 50 pieces/tube |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 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 green molding compound version part numbers, add "-G" suffix to part number above. Examples: SBR10U40CT-G.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



SBR10U40CT = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 15 = 2015)
 WW = Week (01 - 53)



SBR10U40CTFP = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 15 = 2015)
 WW = Week (01 - 53)

Maximum Ratings (Per Leg) (@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 | V _{RRM} | 40 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current Per Device (Per Leg) (Total) | I _O | 5 10 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 150 | A |
| Peak Repetitive Reverse Surge Current (2μS-1kHz) | I _{RRM} | 3 | A |
| Isolation Voltage (ITO-220AB Only) From Terminal to Heatsink, t = 3 seconds | V _{AC} | 2,000 | V |

Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Package = TO-220AB | R _{θJC} | 2 | °C/W |
| Package = ITO-220AB | | 4 | |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics (Per Leg) @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------|----------------|-----|------|------|------|---|
| Forward Voltage Drop | V _F | - | - | 0.44 | V | I _F = 5A, T _J = +25°C |
| | | | 0.35 | 0.38 | | I _F = 5A, T _J = +125°C |
| | | | - | 0.52 | | I _F = 10A, T _J = +25°C |
| Leakage Current (Note 6) | I _R | - | - | 0.5 | mA | V _R = 40V, T _J = +25°C |
| | | | | 100 | | V _R = 40V, T _J = +125°C |

Note: 6. Short duration pulse test used to minimize self-heating effect.

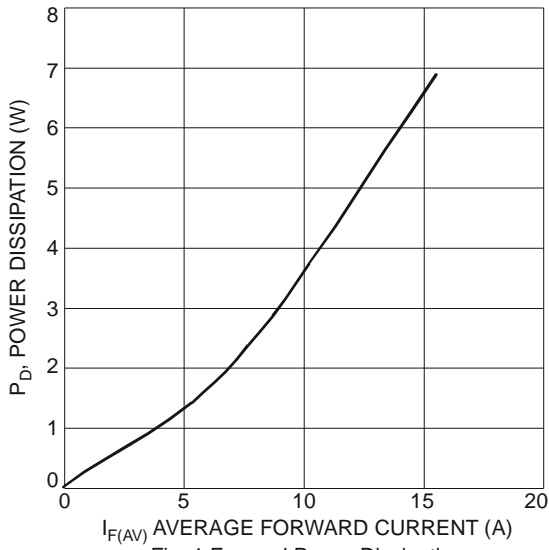


Fig. 1 Forward Power Dissipation

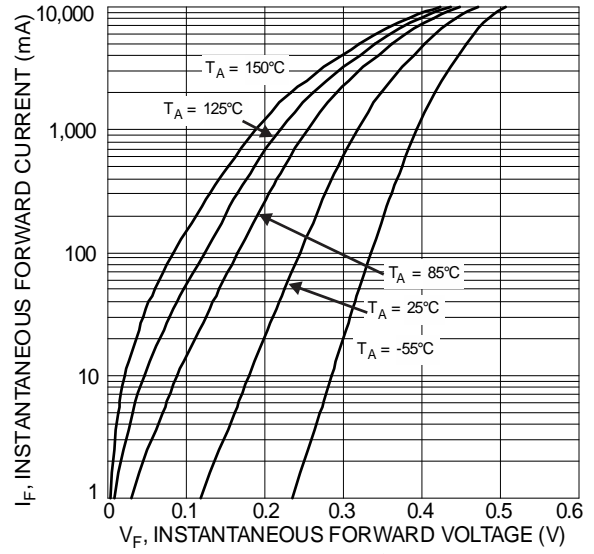


Fig. 2 Typical Forward Characteristics

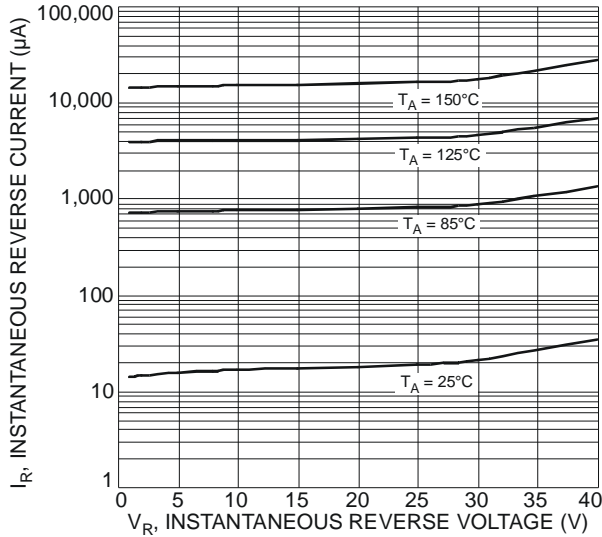


Fig. 3 Typical Reverse Characteristics

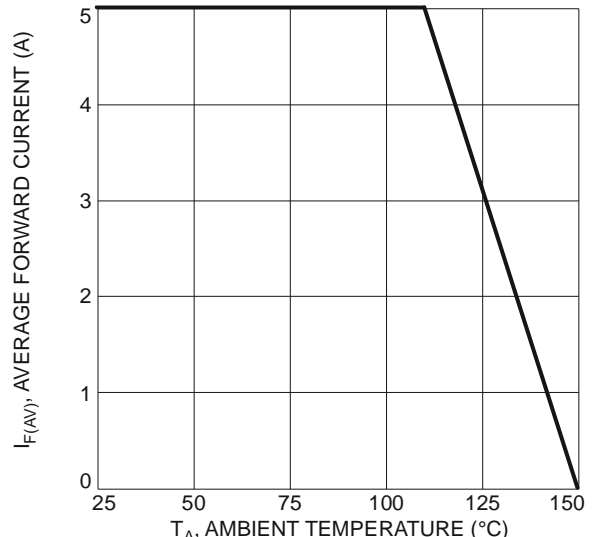
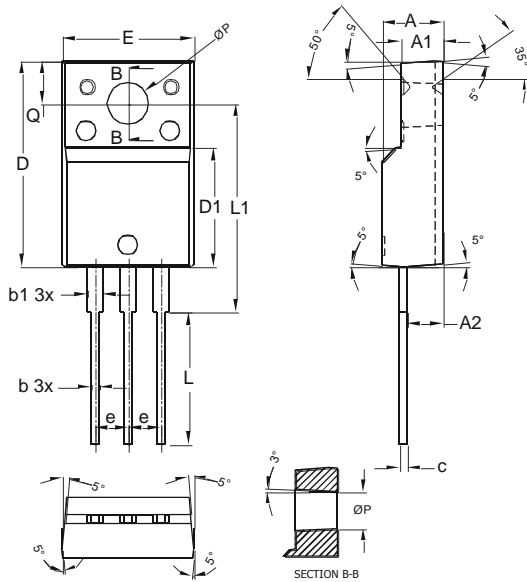


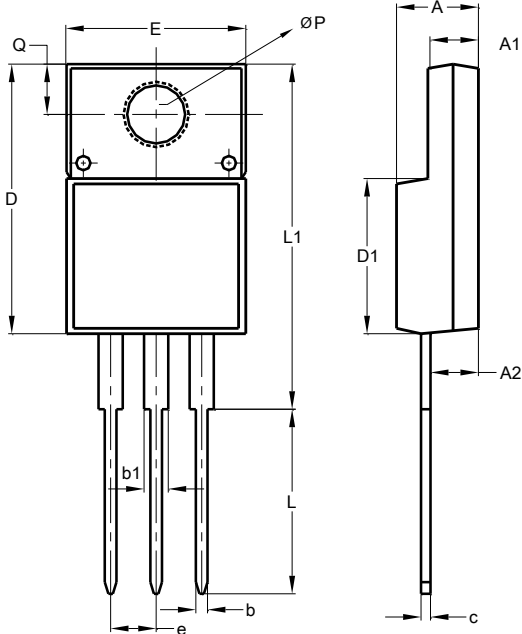
Fig. 4 Forward Current Derating Curve

Package Outline Dimensions

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



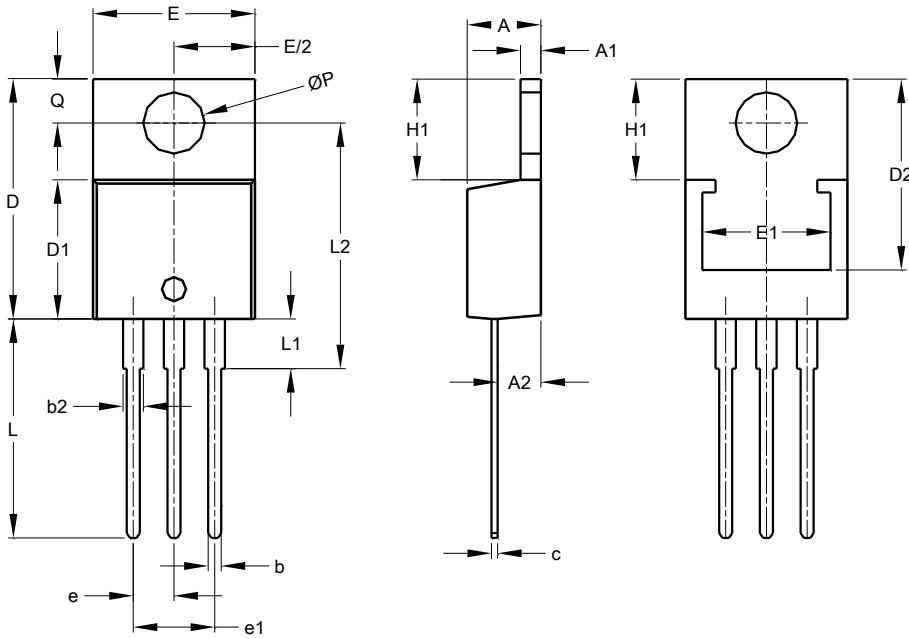
| ITO-220AB | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Typ | Max |
| A | 4.50 | 4.70 | 4.90 |
| A1 | 3.04 | 3.24 | 3.44 |
| A2 | 2.56 | 2.76 | 2.96 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| c | 0.50 | 0.60 | 0.70 |
| D | 15.67 | 15.87 | 16.07 |
| D1 | 8.99 | 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 | | | |



| ITO220AB (Type E) | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 4.36 | 4.77 |
| A1 | 2.54 | 3.10 |
| A2 | 2.54 | 2.80 |
| b | 0.55 | 0.75 |
| b1 | 1.20 | 1.50 |
| c | 0.38 | 0.68 |
| D | 14.50 | 15.50 |
| D1 | 8.38 | 8.89 |
| e | 2.41 | 2.67 |
| E | 9.72 | 10.27 |
| L | 9.87 | 10.67 |
| L1 | 15.8 | 17.00 |
| P | 3.08 | 3.39 |
| Q | 2.60 | 3.00 |
| All Dimensions in mm | | |

Package Outline Dimensions (cont.)

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



| TO220AB | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 3.56 | 4.82 | - |
| A1 | 0.51 | 1.39 | - |
| A2 | 2.04 | 2.92 | - |
| b | 0.39 | 1.01 | 0.81 |
| b2 | 1.15 | 1.77 | 1.24 |
| c | 0.356 | 0.61 | - |
| D | 14.22 | 16.51 | - |
| D1 | 8.39 | 9.01 | - |
| D2 | 11.45 | 12.87 | - |
| e | - | - | 2.54 |
| e1 | - | - | 5.08 |
| E | 9.66 | 10.66 | - |
| E1 | 6.86 | 8.89 | - |
| H1 | 5.85 | 6.85 | - |
| L | 12.70 | 14.73 | - |
| L1 | - | 6.35 | - |
| L2 | 15.80 | 16.20 | 16.00 |
| P | 3.54 | 4.08 | - |
| Q | 2.54 | 3.42 | - |
| All Dimensions in mm | | | |

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