

Product Summary (@T_A = +25°C)

| V _{RRM} (V) | I _O (A) | V _F MAX (V) | I _R MAX (μA) |
|----------------------|--------------------|------------------------|-------------------------|
| 300 | 20 | 0.92 | 100 |

Description and Applications

This Super Barrier Rectifier has been designed to meet the general requirements of commercial applications. It is ideally suited for use as:

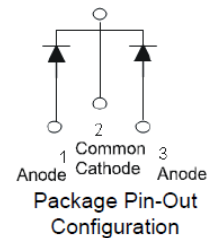
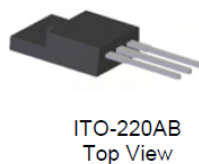
- Polarity Protection Diode
- Re-Circulating Diode
- Boost Diode
- Blocking Diode

Features and Benefits

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- **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, TO263 (D²Pak)
- 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
- Marking Information: See Page 2
- Ordering Information: See Page 1
- Weight: TO-220AB – 1.85 grams (approximate)
 ITO-220AB – 1.65 grams (approximate)
 TO263 (D²Pak) – 2.1 grams (approximate)



Ordering Information (Notes 4 & 5)

| | Part Number | Case | Packaging |
|--|--------------------|----------------------------|----------------|
| | SBR20A300CT | TO-220AB | 50 pieces/tube |
| | SBR20A300CT-G | TO-220AB | 50 pieces/tube |
| | SBR20A300CTFP | ITO-220AB | 50 pieces/tube |
| | SBR20A300CTFP-G | ITO-220AB | 50 pieces/tube |
| | SBR20A300CTFP-JT-G | ITO-220AB (Alternate) | 50 pieces/tube |
| | SBR20A300CTB | TO263 (D ² Pak) | 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 packaging details, go to our website at <http://www.diodes.com/products/packages.html>
 5. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20A300CT-G.

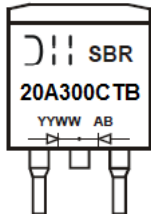
Marking Information



SBR20A300CT = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 14 = 2014)
 WW = Week (01 - 53)



SBR20A300CTFP = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 14 = 2014)
 WW = Week (01 - 53)



SBR20A300CTB = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 08 = 2008)
 WW = Week (01-52)

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} | 300 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current | I _O | 10 | A |
| (Per Leg) (Total) | | 20 | |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 180 | A |
| Peak Repetitive Reverse Surge Current (2µS-1Khz) | I _{RRM} | 3 | A |
| Isolation Voltage (ITO-220AB Only) From terminal to heatsink t = 3 sec. | V _{AC} | 2000 | V |

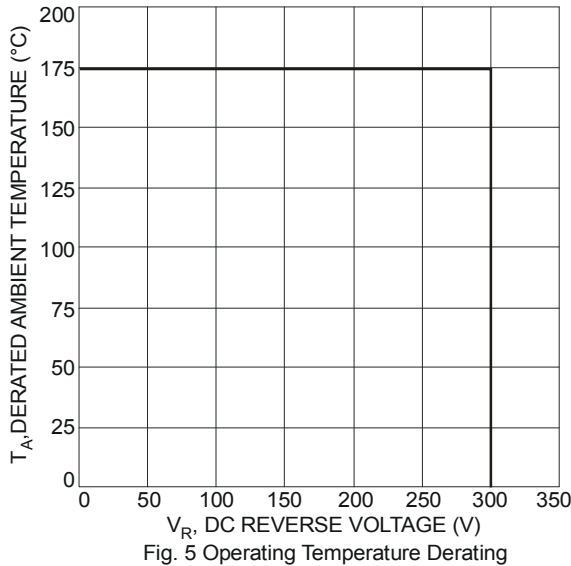
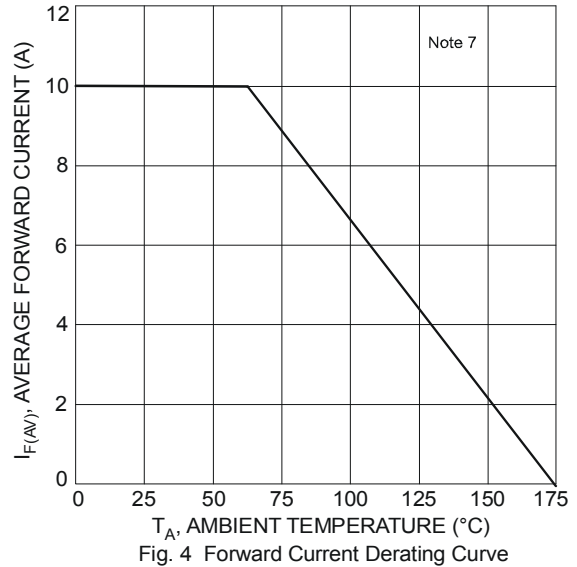
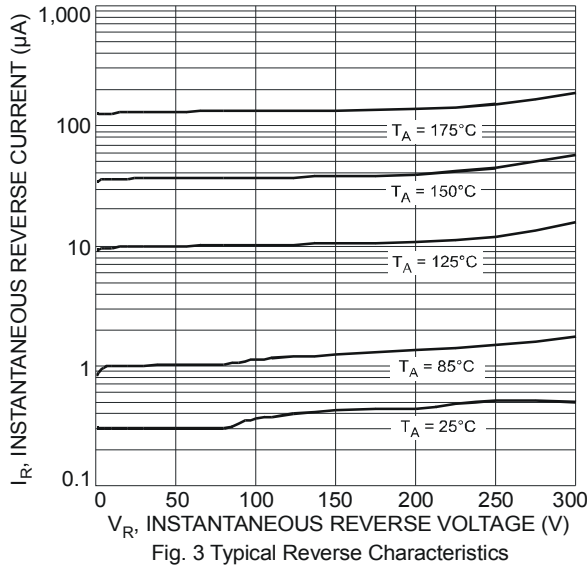
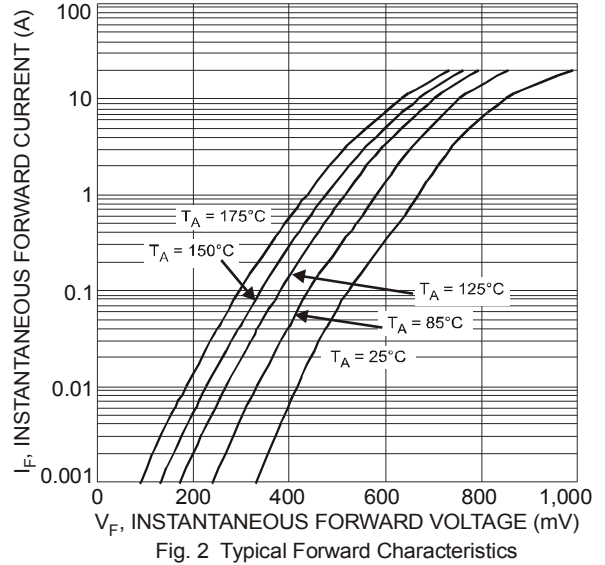
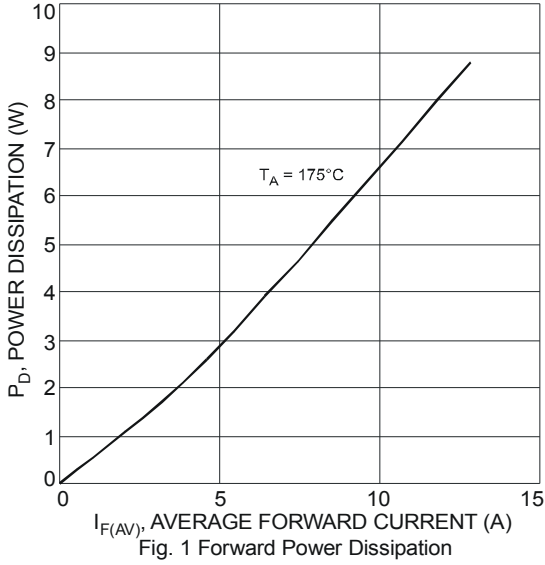
Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance | R _{θJC} | 2 | °C/W |
| Package = TO-220AB | | 4 | |
| Package = ITO-220AB | | 2 | |
| Package = TO263 | | | |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +175 | °C |

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

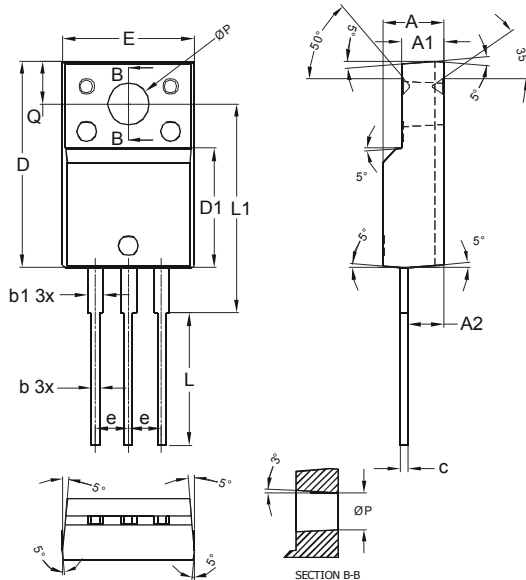
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------|-----------------|-----|------|------|------|---|
| Forward Voltage Drop | V _F | — | — | 0.92 | V | I _F = 10A, T _J = +25°C |
| | | — | 0.70 | 0.78 | | I _F = 10A, T _J = +125°C |
| | | — | — | 1.06 | | I _F = 20A, T _J = +25°C |
| Leakage Current (Note 6) | I _R | — | — | 0.1 | mA | V _R = 300V, T _J = +25°C |
| | | — | — | 10 | | V _R = 300V, T _J = +125°C |
| Reverse Recovery Time | T _{rr} | — | 45 | — | ns | I _F = 0.5A, I _R = 1A, I _{RR} = 0.25A |

Notes: 6. Short duration pulse test used to minimize self-heating effect.
 7. Using heatsink (by black Aluminum 45mm * 20mm * 12mm)

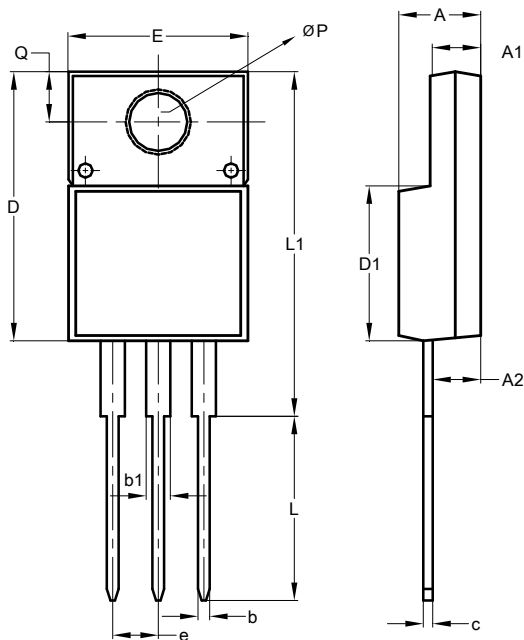


Package Outline Dimensions

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



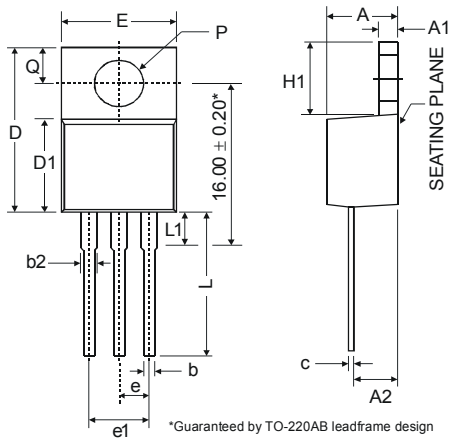
| ITO-220AB | | | |
|-----------------------------|-------|-------|-------|
| Dim | Min | Typ | Max |
| A | 4.50 | 4.70 | 4.90 |
| A1 | 3.04 | 3.24 | 3.44 |
| A2 | 2.56 | 2.76 | 2.96 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| c | 0.50 | 0.60 | 0.70 |
| D | 15.67 | 15.87 | 16.07 |
| D1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



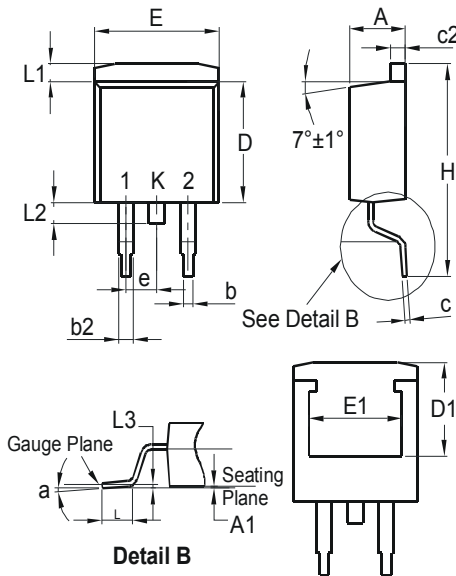
| ITO220AB Alternate | | |
|-----------------------------|-------|-------|
| Dim | Min | Max |
| A | 4.36 | 4.77 |
| A1 | 2.54 | 3.10 |
| A2 | 2.54 | 2.80 |
| b | 0.55 | 0.75 |
| b1 | 1.20 | 1.50 |
| c | 0.38 | 0.68 |
| D | 14.50 | 15.50 |
| D1 | 8.38 | 8.89 |
| e | 2.41 | 2.67 |
| E | 9.72 | 10.27 |
| 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 latest version.



| 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 | | | |



| TO263 | | |
|-----------------------------|----------|-------|
| Dim | Min | Max |
| A | 4.07 | 4.82 |
| A1 | 0.00 | 0.25 |
| b | 0.51 | 0.99 |
| b2 | 1.15 | 1.77 |
| c | 0.356 | 0.73 |
| c2 | 1.143 | 1.65 |
| D | 8.39 | 9.65 |
| D1 | 6.55 | — |
| E | 9.66 | 10.66 |
| E1 | 6.23 | — |
| e | 2.54 Typ | |
| H | 14.61 | 15.87 |
| L | 1.78 | 2.79 |
| L1 | — | 1.67 |
| L2 | — | 1.77 |
| a | 0° | 8° |
| All Dimensions in mm | | |

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