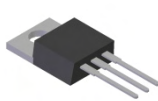


## Features

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

## Mechanical Data

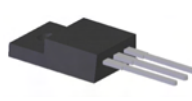
- Case: TO-220AB, ITO-220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ②
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: TO-220AB – 1.85 grams (approximate)  
ITO-220AB – 1.65 grams (approximate)



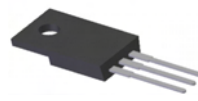
TO-220AB  
Top View



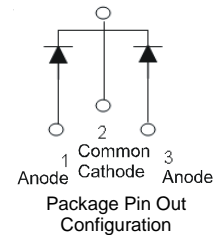
TO-220AB  
Bottom View



ITO-220AB  
Top View



ITO-220AB  
Bottom View



## Maximum Ratings (Per Leg) @T<sub>A</sub> = 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 <sub>RRM</sub> | 40    | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub> |       |      |
| DC Blocking Voltage   | V <sub>RM</sub>  |       |      |
| Average Rectified Output Current Per Device (Per Leg)   | I <sub>O</sub>   | 20    | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 120   | A    |
| Peak Repetitive Reverse Surge Current (2µs-1Khz)  | I <sub>RRM</sub> | 2     | A    |
| Isolation Voltage (ITO-220AB Only)<br>From terminal to heatsink t = 3 sec.                          | V <sub>AC</sub>  | 2000  | V    |

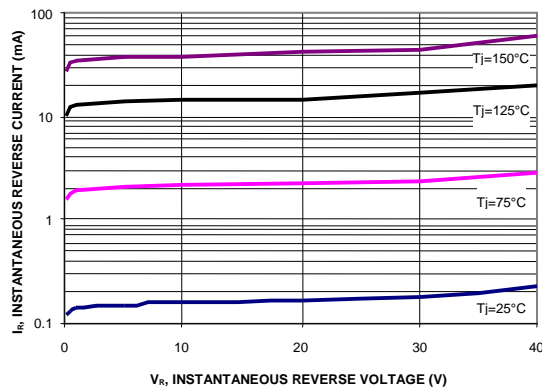
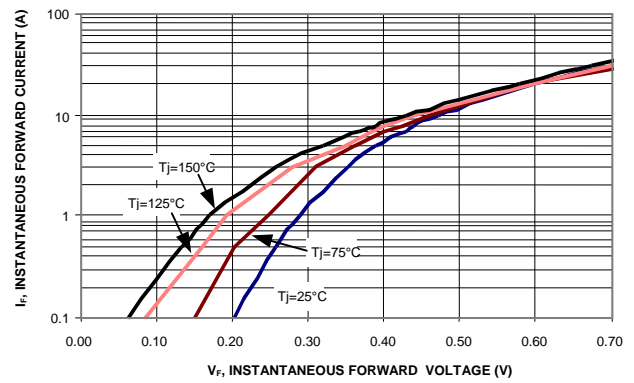
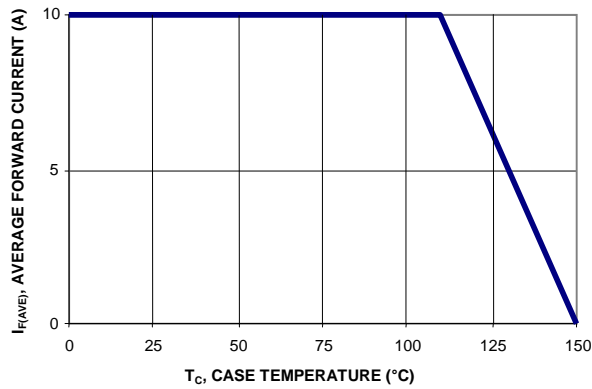
## Thermal Characteristics (Per Leg)

| Characteristic                                   | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Typical Thermal Resistance<br>Package = TO-220AB | R <sub>θJC</sub>                  | 2           | °C/W |
| Package = ITO-220AB                              |                                   | 4           |      |
| Operating and Storage Temperature Range          | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

## Electrical Characteristics (Per Leg) @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic           | Symbol         | Min | Typ       | Max          | Unit | Test Condition  |
|--------------------------|----------------|-----|-----------|--------------|------|---|
| Forward Voltage Drop     | V <sub>F</sub> | -   | -<br>0.43 | 0.53<br>0.48 | V    | I <sub>F</sub> = 10A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 10A, T <sub>J</sub> = 125°C |
| Leakage Current (Note 1) | I <sub>R</sub> | -   | -         | 0.5<br>100   | mA   | V <sub>R</sub> = 40V, T <sub>J</sub> = 25°C<br>V <sub>R</sub> = 40V, T <sub>J</sub> = 125°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. Please visit our website at [http://www.diodes.com/products/lead\\_free.html](http://www.diodes.com/products/lead_free.html).

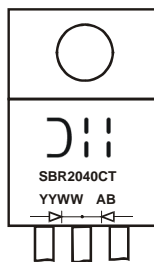


## Ordering Information (Notes 3 & 4)

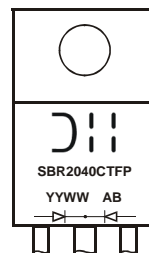
| Part Number   | Case      | Packaging      |
|---------------|-----------|----------------|
| SBR2040CT     | TO-220AB  | 50 pieces/tube |
| SBR2040CT-G   | TO-220AB  | 50 pieces/tube |
| SBR2040CTFP   | ITO-220AB | 50 pieces/tube |
| SBR2040CTFP-G | ITO-220AB | 50 pieces/tube |

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: SBR2040CT-G.

## Marking Information

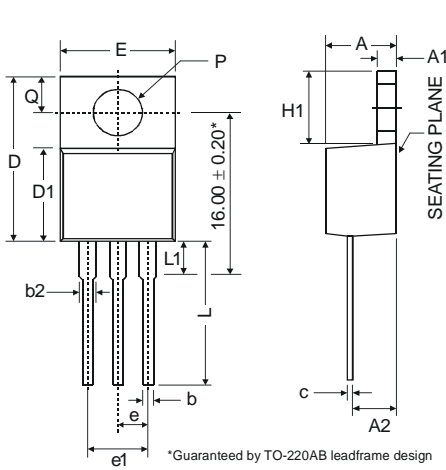


SBR2040CT = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 06 = 2006)  
 WW = Week (01-52)

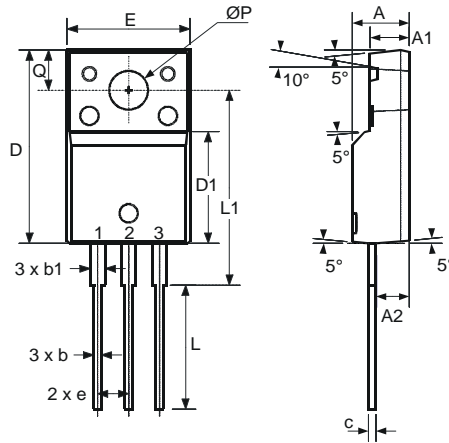


SBR2040CTFP = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 06 = 2006)  
 WW = Week (01-52)

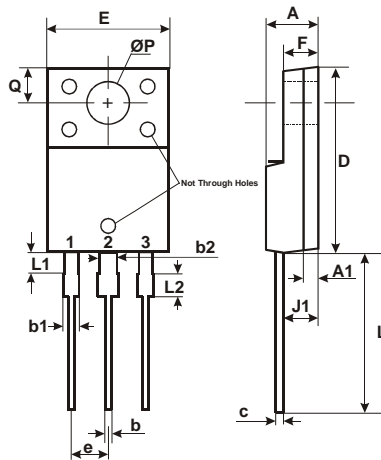
## Package Outline Dimensions



| 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<br>(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<br>ALTERNATE<br>(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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