

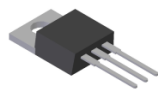
## Product Summary (Per Leg)

| $V_{RRM}$ (V) | $I_o$ (A) | $V_F$ max (V) | $I_R$ max (mA) |
|---------------|-----------|---------------|----------------|
| 45            | 15        | 0.5           | 0.4            |

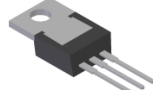
## Description and Applications

Packaged in the robust industry-standard TO220AB, ITO220AB package, the SBRT30U45CT, SBRT30U45CTFP provides very low  $V_F$  and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

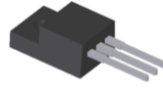
- DC-DC Converters
- AC-DC Adaptors



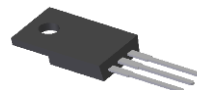
TO-220AB  
Top View



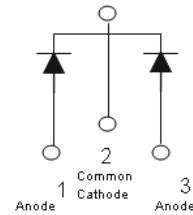
TO-220AB  
Bottom View



ITO-220AB  
Top View



ITO-220AB  
Bottom View



Package Pin-Out  
Configuration

## Features and Benefits

- Reduced Ultra-Low Forward Voltage Drop ( $V_F$ ); Better Efficiency and Cooler Operation
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High Temperature Operation
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

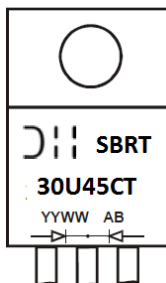
- Case: TO220, ITO220AB
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208 **e3**
- Weight: TO-220AB – 1.85 grams (Approximate)  
ITO-220AB –1.65 grams (Approximate)

## Ordering Information (Note 4)

| Part Number   | Case     | Packaging      |
|---------------|----------|----------------|
| SBRT30U45CT   | TO220AB  | 50 pieces/tube |
| SBRT30U45CTFP | ITO220AB | 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](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>.

## Marking Information



SBRT30U45CT = 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)



SBRT30U45CTFP = Product Type Marking Code  
 AB = Foundry and Assembly Code  
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## Maximum Ratings (@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> | 45       | V    |
| Working Peak Reverse Voltage                                                                                  | V <sub>RWM</sub> |          |      |
| DC Blocking Voltage                                                                                           | V <sub>RM</sub>  |          |      |
| Average Rectified Output Current (Per Leg)<br>(Total)                                                         | I <sub>O</sub>   | 15<br>30 | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load (Per Leg) | I <sub>FSM</sub> | 250      | A    |

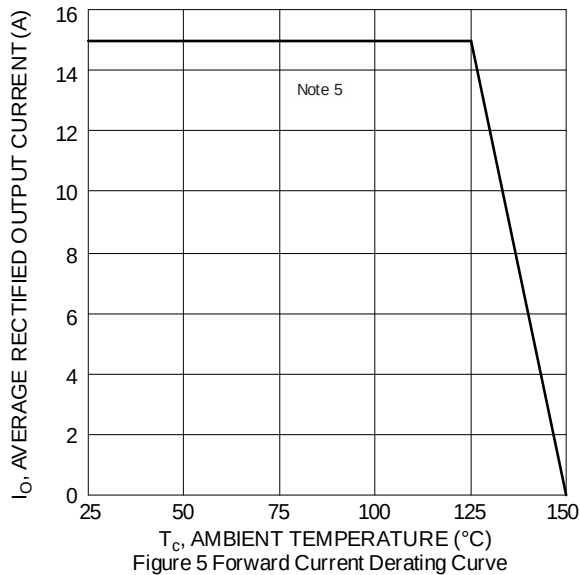
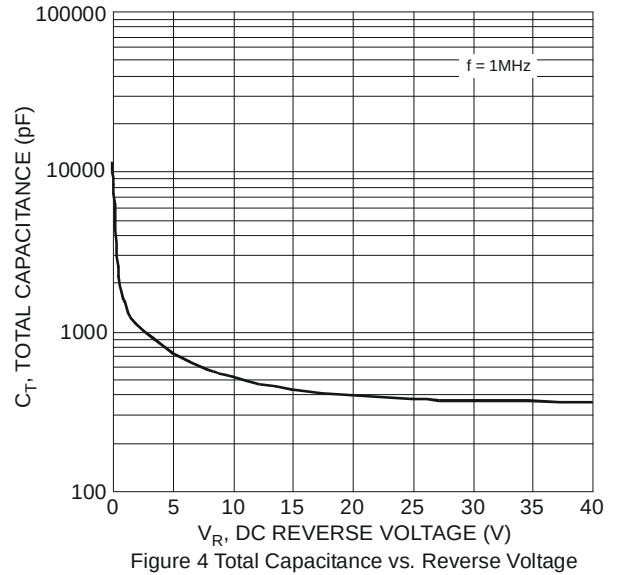
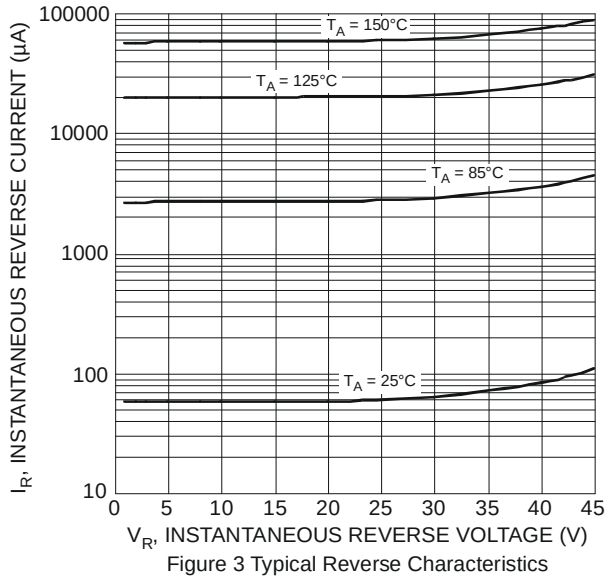
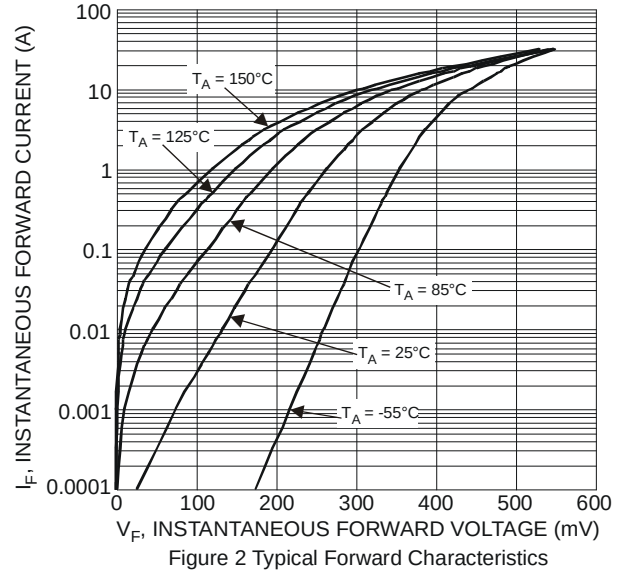
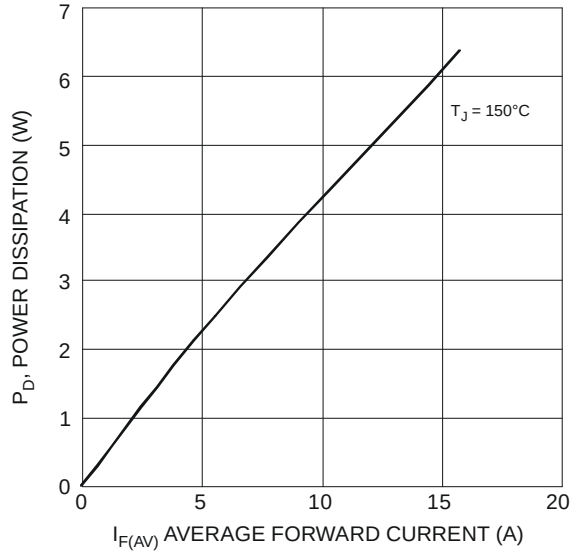
## Thermal Characteristics (Per Leg)

| Characteristic                                                         | Symbol                            | Value       | Unit |
|------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Case (Note 5)<br>TO220 (Note 5) | R <sub>θJC</sub>                  | 2           | °C/W |
| ITO220 (Note 6)                                                        |                                   | 4           |      |
| Operating and Storage Temperature Range                                | T <sub>J</sub> , T <sub>STG</sub> | -55 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> | —   | 0.34<br>0.44<br>— | —<br>0.50<br>0.46 | V    | I <sub>F</sub> = 5A, T <sub>J</sub> = +25°C<br>I <sub>F</sub> = 15A, T <sub>J</sub> = +25°C<br>I <sub>F</sub> = 15A, T <sub>J</sub> = +125°C |
| Leakage Current (Note 7) | I <sub>R</sub> | —   | 0.1<br>—          | 0.4<br>80         | mA   | V <sub>R</sub> = 45V, T <sub>J</sub> = +25°C<br>V <sub>R</sub> = 45V, T <sub>J</sub> = +125°C                                                |

Notes: 5. Test with additional heatsink (50mm x 50mm x 23mm Al heatsink).  
 6. Device with additional heatsink (45mm\*20mm\*12mm).  
 7. Short duration pulse test used to minimize self-heating effect.





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**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331