

## Features

- 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 
- Weight: TO-220AB – 1.85 grams (approximate)  
ITO-220AB – 1.65 grams (approximate)



TO-220AB  
Top View



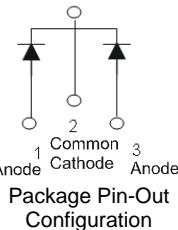
TO-220AB  
Bottom View



ITO-220AB  
Top View



ITO-220AB  
Bottom View



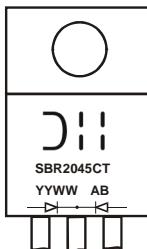
## Ordering Information (Notes 4 and 5)

Part Number	Case	Packaging
 SBR2045CT	TO-220AB	50 pieces/tube
 SBR2045CT-G	TO-220AB	50 pieces/tube
 SBR2045CTFP	ITO-220AB	50 pieces/tube
 SBR2045CTFP-G	ITO-220AB	50 pieces/tube
 SBR2045CTFP-JT	ITO-220AB (Alternate)	50 pieces/tube

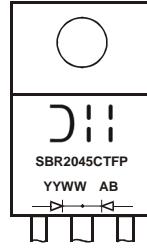
Notes:

1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See <http://www.diodes.com> 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: SBR2045CT-G.
5. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



SBR2045CT = 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 - 53)



SBR2045CTFP = 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 - 53)

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**Maximum Ratings (Per Leg)** @ $T_A = 25^\circ\text{C}$  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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	45	V
DC Blocking Voltage	$V_{RM}$		
Average Rectified Output Current (Per Leg) (Total)	$I_O$	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	120	A
Peak Repetitive Reverse Surge Current (2 $\mu\text{s}$ -1Khz)	$I_{RRM}$	2	A
Isolation Voltage (ITO-220AB Only) From terminal to heatsink $t = 3$ sec.	$V_{AC}$	2000	V

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**Thermal Characteristics (Per Leg)**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Package = TO-220AB	$R_{\theta JC}$	2	$^\circ\text{C}/\text{W}$
Package = ITO-220AB		4	
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

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**Electrical Characteristics (Per Leg)** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	-	- 0.43	0.54 0.49	V	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$ $I_F = 10\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	-	-	0.5 100	mA	$V_R = 45\text{V}, T_J = 25^\circ\text{C}$ $V_R = 45\text{V}, T_J = 125^\circ\text{C}$

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

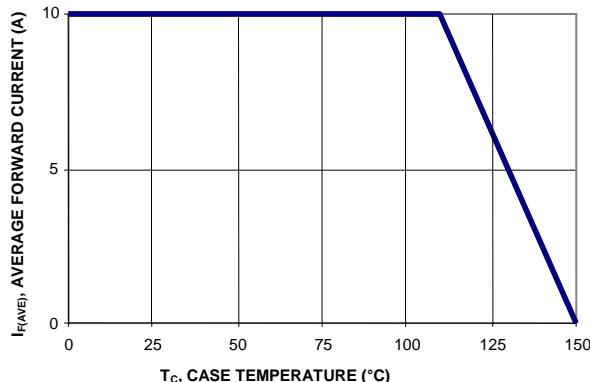


Figure 1: Current Derating Curve, Per Element

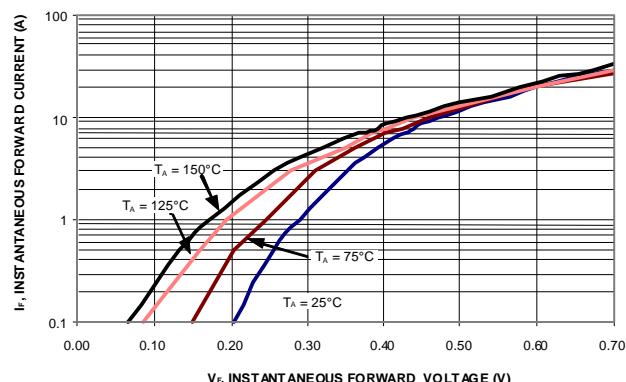


Figure 2: Typical Forward Characteristics, Per Element

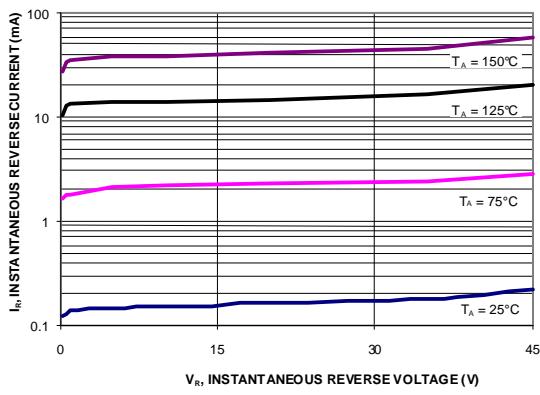


Figure 3: Typical Reverse Characteristics, Per Element

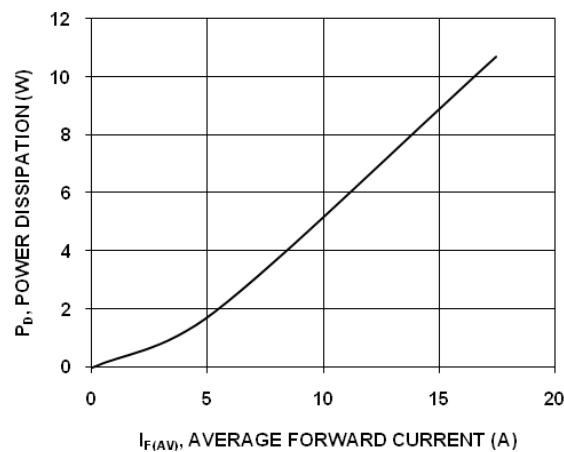
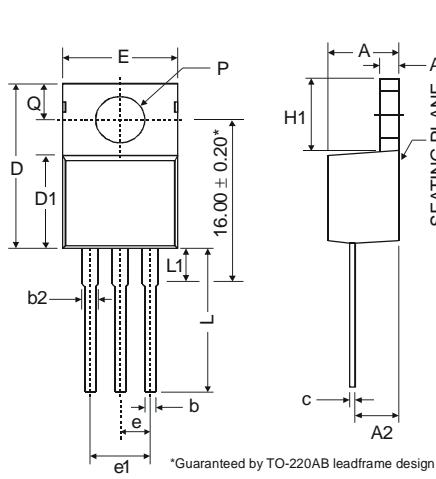


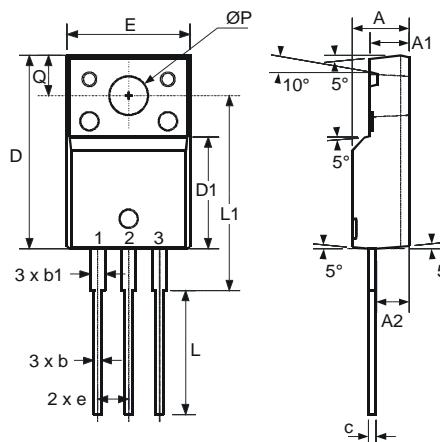
Figure 4: Forward Power Dissipation

## Package Outline Dimensions



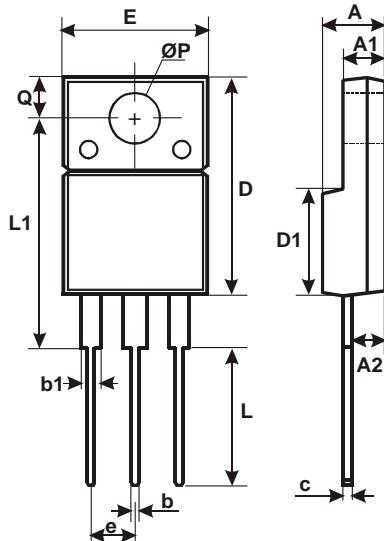
TO-220AB			
Dim	Min	Typ	Max
<b>A</b>	3.56	-	4.82
<b>A1</b>	0.51	-	1.39
<b>A2</b>	2.04	-	2.92
<b>b</b>	0.39	0.81	1.01
<b>b2</b>	1.15	1.24	1.77
<b>c</b>	0.356	-	0.61
<b>D</b>	14.22	-	16.51
<b>D1</b>	8.39	-	9.01
<b>e</b>	2.54		
<b>e1</b>	5.08		
<b>E</b>	9.66	-	10.66
<b>H1</b>	5.85	-	6.85
<b>L</b>	12.70	-	14.73
<b>L1</b>	-	-	6.35
<b>P</b>	3.54	-	4.08
<b>Q</b>	2.54	-	3.42

All Dimensions in mm



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

All Dimensions in mm



ITO-220AB Alternate		
Dim	Min	Max
<b>A</b>	4.36	4.77
<b>A1</b>	2.54	3.1
<b>A2</b>	2.54	2.8
<b>b</b>	0.55	0.75
<b>b1</b>	1.2	1.5
<b>c</b>	0.38	0.68
<b>D</b>	14.5	15.5
<b>D1</b>	8.38	8.89
<b>E</b>	9.72	10.27
<b>L</b>	9.87	10.67
<b>L1</b>	15.8	17
<b>ØP</b>	3.08	3.39
<b>Q</b>	2.6	3.0

All Dimensions in mm

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