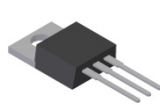


## Features

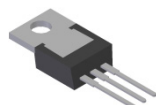
- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead Free Finish, RoHS Compliant (Note 2)**
- **Also Available in Green Molding Compound (Note 4)**

## 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 ③
- 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



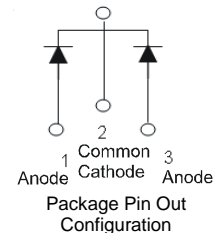
TO-220AB  
Bottom View



ITO-220AB  
Top View



ITO-220AB  
Bottom View



## Maximum Ratings (Per Leg) @ $T_A = 25^\circ\text{C}$ 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	$V_{RRM}$	45	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_{RM}$		
Average Rectified Output Current Per Device (Per Leg) (Total)	$I_O$	20 40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	280	A
Peak Repetitive Reverse Surge Current (2 $\mu$ S-1KHz)	$I_{RRM}$	2	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 Package = TO-220AB Package = ITO-220AB	$R_{\theta JC}$	2 4	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	-	- 0.47	0.55 0.50	V	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$ $I_F = 20\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 1)	$I_R$	-	-	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: 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).

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SBR4045

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December 2009  
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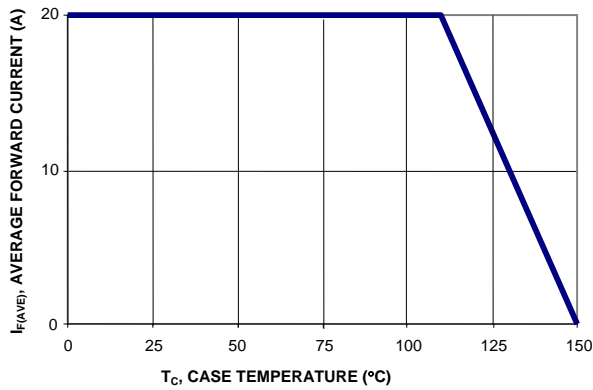


Figure 1: Current Derating Curve, Per Element

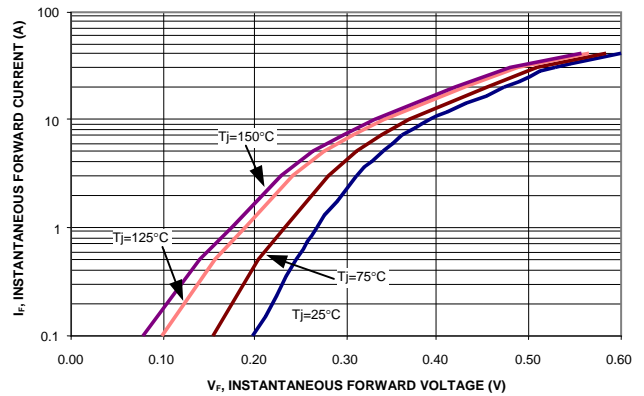


Figure 2: Typical Forward Characteristics, Per Element

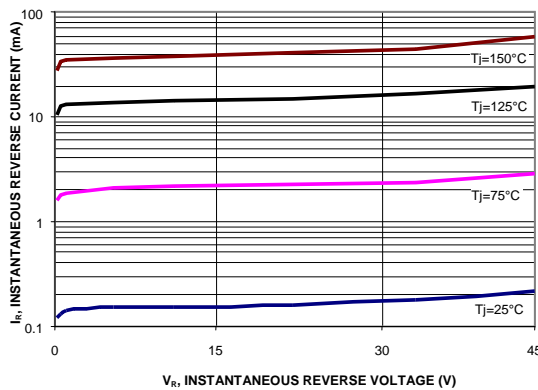


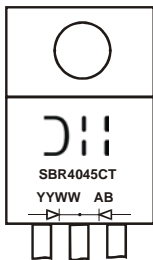
Figure 3: Typical Reverse Characteristics, Per Element

## Ordering Information (Notes 3 & 4)

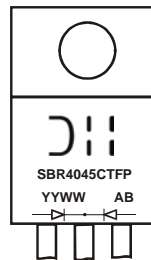
Part Number	Case	Packaging
SBR4045CT	TO-220AB	50 pieces/tube
SBR4045CT-G	TO-220AB	50 pieces/tube
SBR4045CTFP	ITO-220AB	50 pieces/tube
SBR4045CTFP-G	ITO-220AB	50 pieces/tube

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: SBR4045CT-G.

## Marking Information

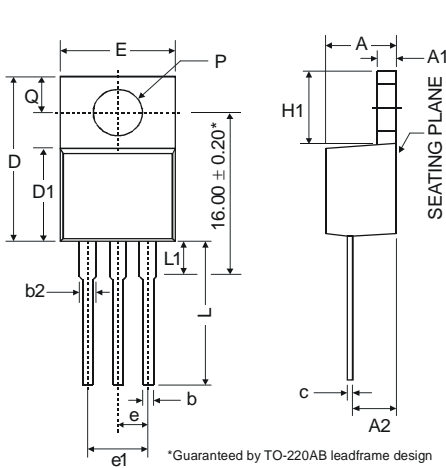


SBR4045CT = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last two digits of year (ex: 06 = 2006)  
WW = Week (01-52)

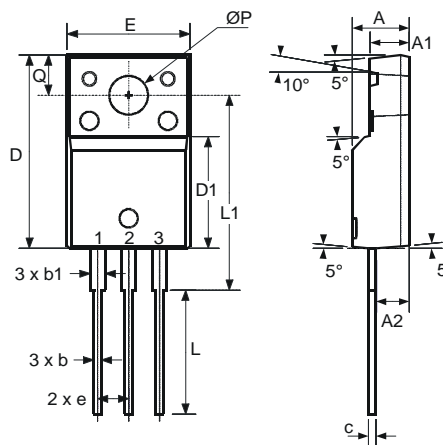


SBR4045CTFP = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last two digits of year (ex: 06 = 2006)  
WW = Week (01-52)

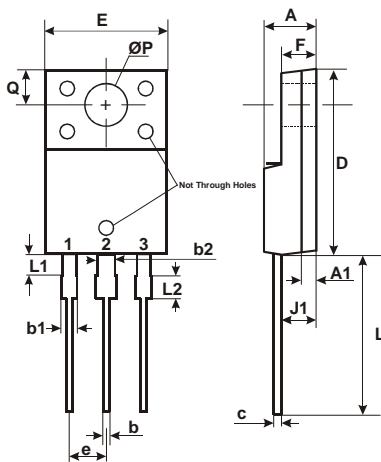
## Package Outline Dimensions



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
<b>All Dimensions in mm</b>			



ITO-220AB (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
<b>All Dimensions in mm</b>			



ITO-220AB ALTERNATE (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	
<b>All Dimensions in mm</b>		

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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