



**THE DATASHEET OF  
SBR2045CTFP-G**

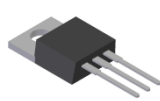


## Features

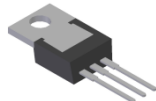
- Low Forward Voltage Drop
- Patented Superior Barrier Rectifier SBR<sup>®</sup> Technology
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- TO220AB, ITO220AB and ITO220AB (Type E)
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Available in "Green" Packages: TO220AB and ITO220AB
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
  - **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

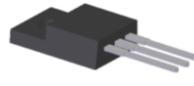
- Case: TO220AB, ITO220AB and ITO220AB (Type E)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: TO220AB – 1.85 grams (Approximate)  
ITO220AB – 1.65 grams (Approximate)  
ITO220AB (Type E) – 1.65 grams (Approximate)



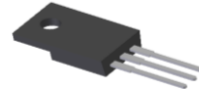
TO220AB  
Top View



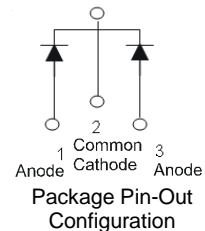
TO220AB  
Bottom View



ITO220AB  
Top View



ITO220AB  
Bottom View



## Ordering Information (Notes 4 and 5)

	Part Number	Case	Packaging
	SBR2045CT	TO220AB	50 Pieces/Tube
	SBR2045CT-G	TO220AB	50 Pieces/Tube
	SBR2045CTFP	ITO220AB	50 Pieces/Tube
	SBR2045CTFP-G	ITO220AB	50 Pieces/Tube
	SBR2045CTFP-JT	ITO220AB (Type E)	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 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/products/packages.html>.

## Marking Information



SBR2045CT = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last Two Digits of Year (ex: 16 = 2016)  
WW = Week (01 to 53)



SBR2045CTFP = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last Two Digits of Year (ex: 16 = 2016)  
WW = Week (01 to 53)

### Maximum Ratings (Per Leg) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
 For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>RM</sub>	45	V
Average Rectified Output Current (Per Leg) (Total)	I <sub>O</sub>	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms 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 (ITO220AB Only) From Terminal to Heatsink t = 3 sec.	V <sub>AC</sub>	2000	V

### Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Package: TO220AB(Note 6) Package: ITO220AB(Note 6)	R <sub>θJC</sub>	2 4	°C/W
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>	-	- 0.43	0.54 0.49	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C I <sub>F</sub> = 10A, T <sub>J</sub> = +125°C
Leakage Current (Note 7)	I <sub>R</sub>	-	-	0.3 50	mA	V <sub>R</sub> = 45V, T <sub>J</sub> = +25°C V <sub>R</sub> = 45V, T <sub>J</sub> = +125°C

Notes: 6. Test with Aluminum heatsink 50 x 50 x 23 mm.  
 7. Short duration pulse test used to minimize self-heating effect.

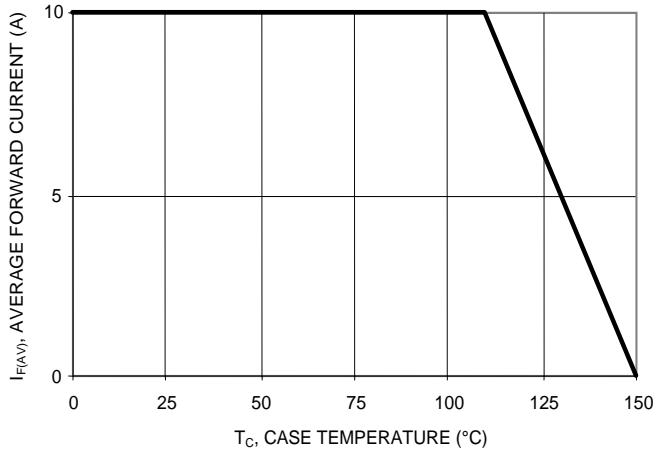


Figure 1. Current Derating Curve, Per Element

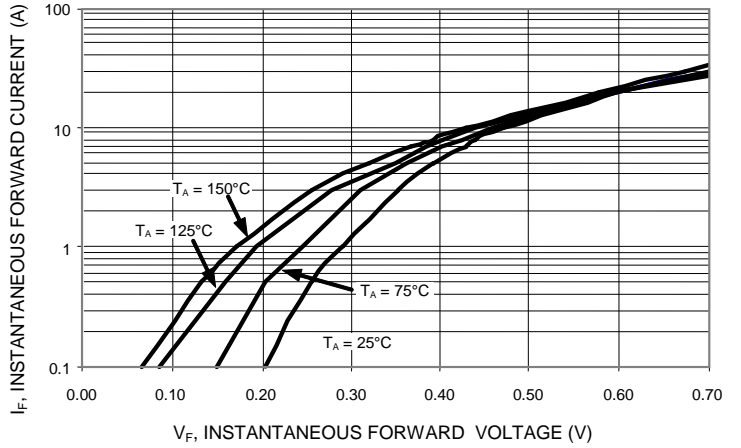


Figure 2. Typical Forward Characteristics, Per Element

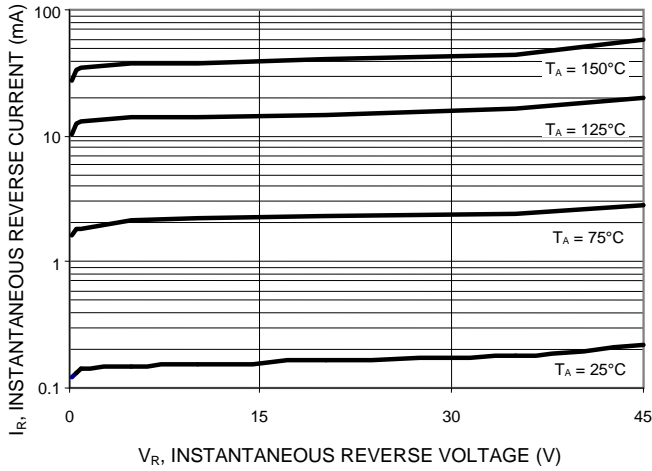


Figure 3. Typical Reverse Characteristics, Per Element

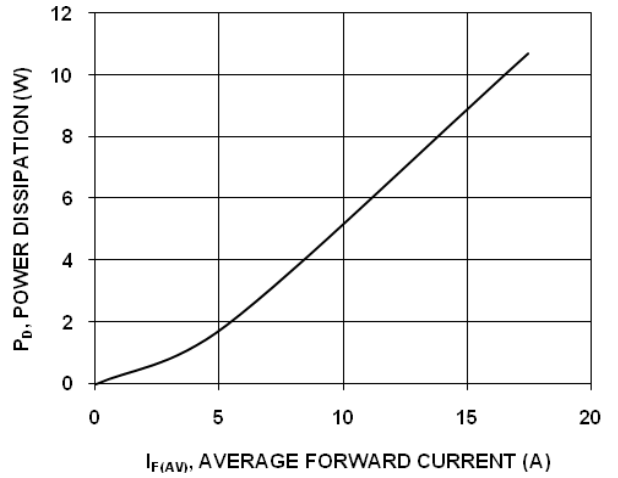
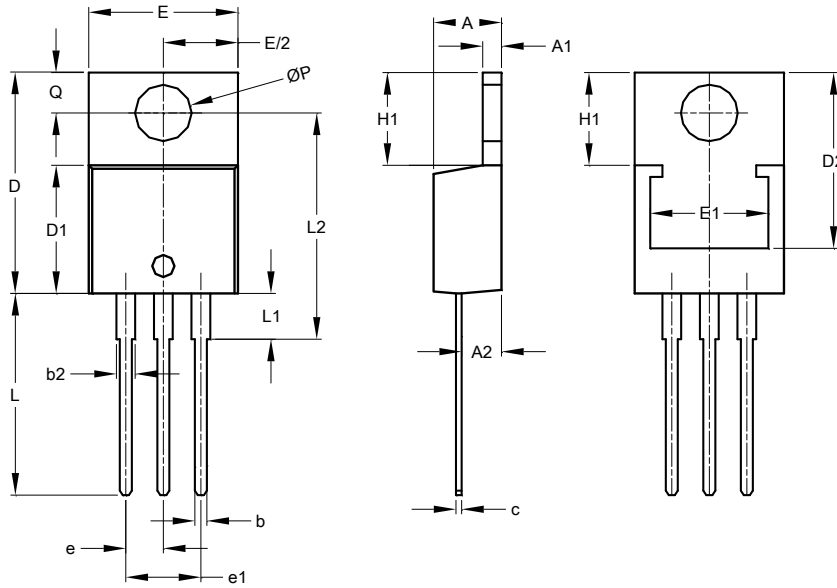


Figure 4. Forward Power Dissipation

**Package Outline Dimensions**

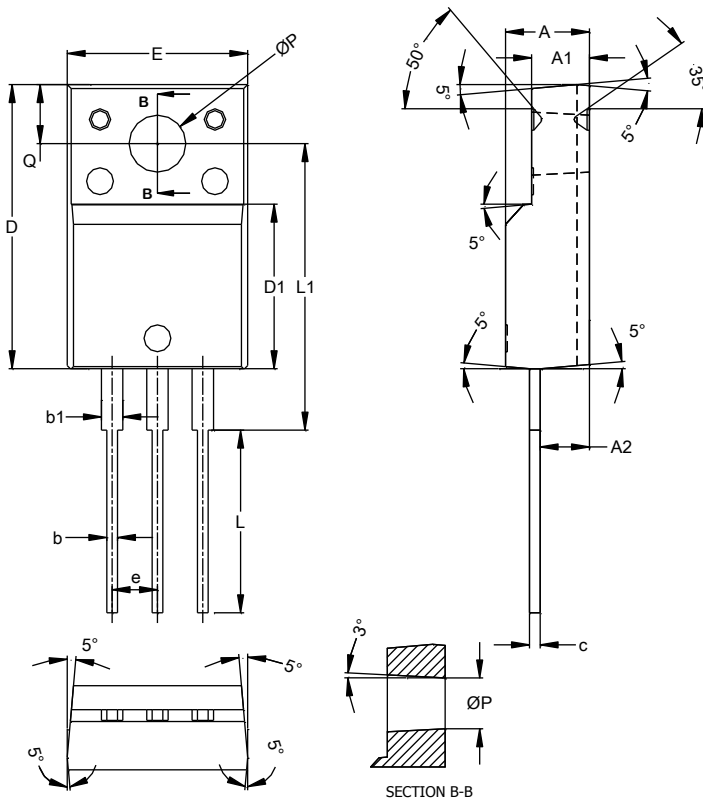
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**TO220AB**



TO220AB			
Dim	Min	Max	Typ
A	3.56	4.82	-
A1	0.51	1.39	-
A2	2.04	2.92	-
b	0.39	1.01	0.81
b2	1.15	1.77	1.24
c	0.356	0.61	-
D	14.22	16.51	-
D1	8.39	9.01	-
D2	11.45	12.87	-
e	-	-	2.54
e1	-	-	5.08
E	9.66	10.66	-
E1	6.86	8.89	-
H1	5.85	6.85	-
L	12.70	14.73	-
L1	-	4.42	-
L2	15.80	17.51	16.00
P	3.54	4.08	-
Q	2.54	3.42	-
All Dimensions in mm			

**ITO220AB**

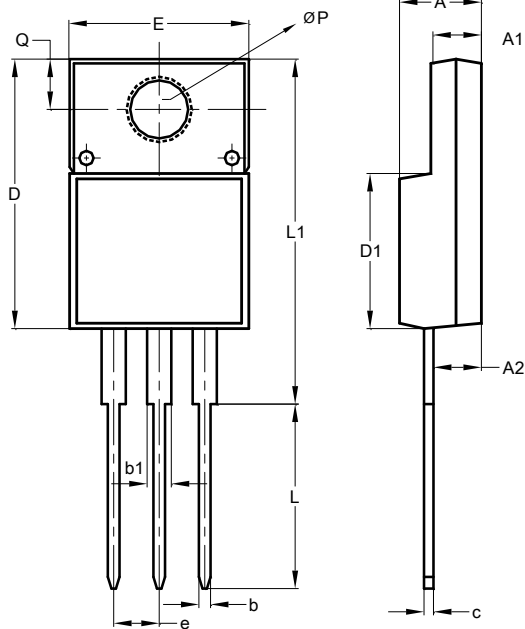


ITO220AB			
Dim	Min	Max	Typ
A	4.50	4.90	4.70
A1	3.04	3.44	3.24
A2	2.56	2.96	2.76
b	0.50	0.75	0.60
b1	1.10	1.35	1.20
c	0.50	0.70	0.60
D	15.67	16.07	15.87
D1	8.99	9.39	9.19
E	9.91	10.31	10.11
e	--	--	2.54
L	9.45	10.05	9.75
L1	15.80	16.20	16.00
P	2.98	3.38	3.18
Q	3.10	3.50	3.30
All Dimensions in mm			

**Package Outline Dimensions (Cont.)**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**ITO220AB (Type E)**



ITO220AB (Type E)		
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		

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