

## Features

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- $\pm 10\text{kV}$  ESD Protection Per IEC 61000-4-2
- **Lead Free Finish, RoHS Compliant (Note 2)**

## Mechanical Data

- Case: TO-220AB, ITO-220AB and D<sup>2</sup>PAK
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: TO-220AB – 2.1 grams (approximate)  
 ITO-220AB – 1.9 grams (approximate)  
 D<sup>2</sup>PAK – 1.6 grams (approximate)



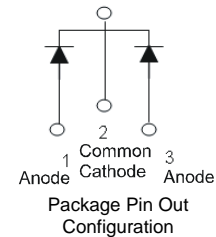
TO-220AB



ITO-220AB



D<sup>2</sup>PAK



## Maximum Ratings @<sub>T<sub>A</sub></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	$V_{RRM}$	100	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_{RM}$		
RMS Reverse Voltage	$V_{R(RMS)}$	71	V
Average Rectified Output Current @ $T_C = 150^\circ\text{C}$	$I_O$	20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	150	A
Peak Repetitive Reverse Surge Current (2 $\mu\text{s}$ -1KHz)	$I_{RRM}$	2	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance (per leg) Package = TO-220AB & D <sup>2</sup> Pak Package = ITO-220AB	$R_{\theta JC}$	2 4	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +175	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	$V_{(BR)R}$	100	-	-	V	$I_R = 0.1\text{mA}$
Forward Voltage Drop	$V_F$	-	0.67	0.82 0.75	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 1)	$I_R$	-	-	0.1 10	mA	$V_R = 100\text{V}, T_J = 25^\circ\text{C}$ $V_R = 100\text{V}, T_J = 125^\circ\text{C}$

- Notes: 1. Short duration pulse test used to minimize self-heating effect.  
 2. RoHS revision 13.2.2003. High temperature solder exemption applied, see EU Directive Annex Note 7.

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SBR20100

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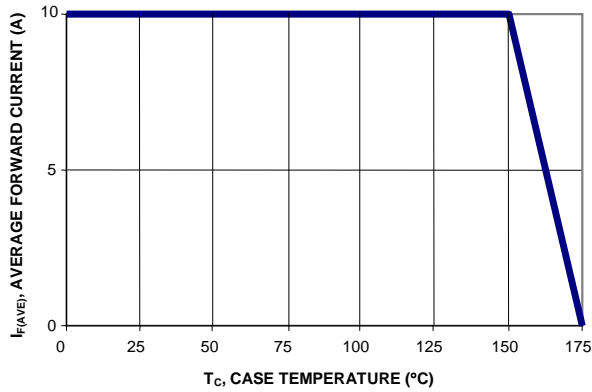


Figure 1: Current Derating Curve, Per Element

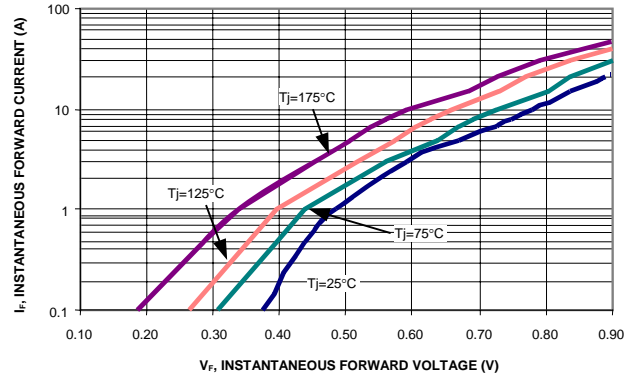


Figure 2: Typical Forward Characteristics, Per Element

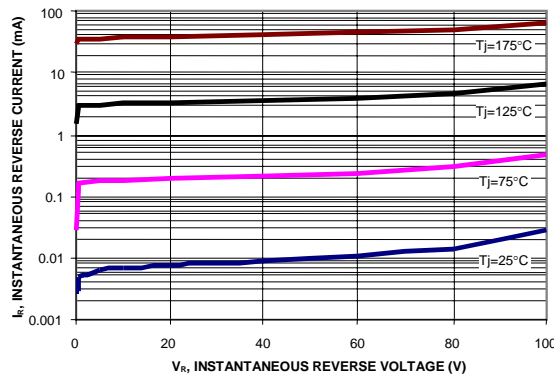


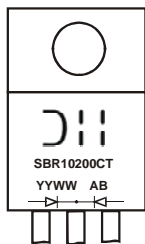
Figure 3: Typical Reverse Characteristics, Per Element

**Ordering Information** (Note 3)

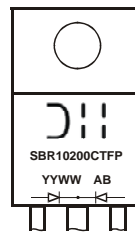
Part Number	Case	Packaging
SBR20100CT	TO-220AB	50 pieces/tube
SBR20100CTFP	ITO-220AB	50 pieces/tube
SBR20100CTB	D <sup>2</sup> PAK	50 pieces/tube

Notes: 3. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

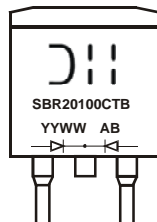
**Marking Information**



SBR20100CT = 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)



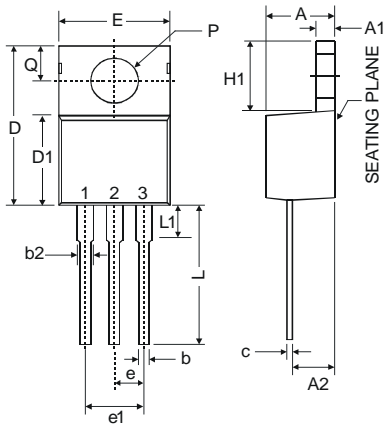
SBR20100CTFP = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last two digits of year, ex: 06 = 2006  
WW = Week (01-52)



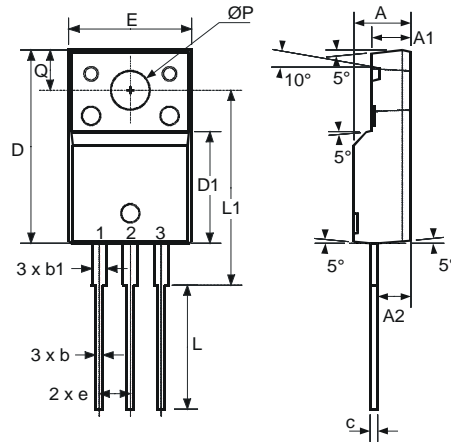
SBR20100CTB = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last two digits of year, ex: 06 = 2006  
WW = Week (01-52)

**Package Outline Dimensions**

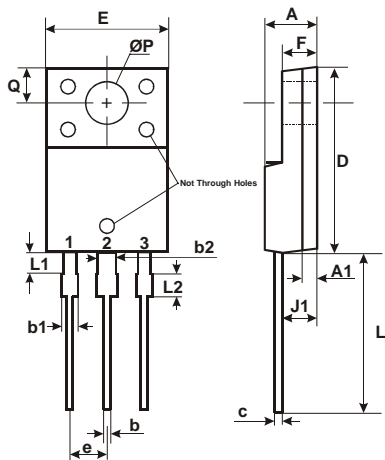
NEW PRODUCT



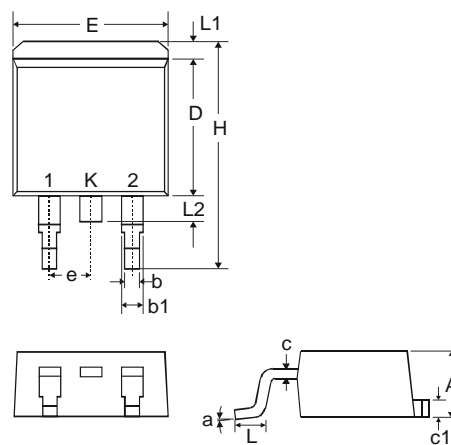
TO-220AB			
Dim	Min	Typ	Max
A	3.56	-	4.82
A1	0.51	-	1.39
A2	2.04	-	2.92
b	0.39	0.81	1.01
c	0.356	-	0.61
D	14.22	-	16.51
D1	8.39	-	9.01
e	2.54		
e1	5.08		
E	9.66	-	10.66
H1	5.85	-	6.85
L	12.70	-	14.73
L1	-	-	6.35
P	3.54	-	4.08
Q	2.54	-	3.42
All Dimensions in mm			



ITO-220AB (Note 4)			
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			



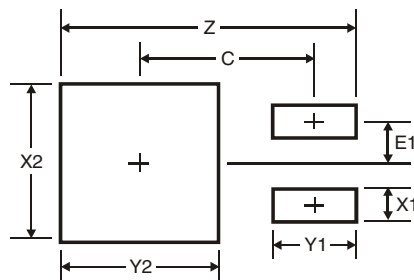
ITO-220AB ALTERNATE (Note 4)		
DIM.	MIN.	MAX.
A	4.30	4.70
A1	1.3	
b	0.50	0.75
b1	1.10	1.35
b2	1.50	1.75
c	0.50	0.75
D	14.80	15.20
E	9.96	10.36
e	2.54 typ	
F	2.80	3.20
J1	2.50	2.90
L	12.80	13.60
L1	1.70	1.90
L2	1.90	2.10
ØP	3.50 typ	
Q	2.70 typ	
All Dimensions in mm		



D²PAK		
Dim	Min	Max
A	4.07	4.82
b	0.51	0.99
b1	1.15	1.77
c	0.356	0.58
c1	1.143	1.65
D	8.39	9.65
E	9.66	10.66
e	2.54 Typ.	
H	14.61	15.87
L	1.78	2.79
L1	—	1.67
L2	—	1.77
a	0°	8°
All Dimensions in mm		

Notes: 4. 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.

**Suggested Pad Layout**



D²Pak	
Dimensions	Value (in mm)
Z	16.9
X1	1.1
X2	10.8
Y1	3.5
Y2	11.4
C	9.5
E1	2.5

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