

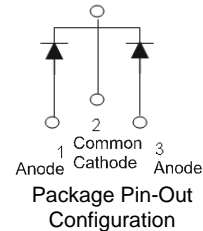
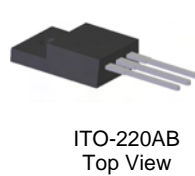


## Features

- 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 (Note 4)**
  - **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 <sup>(3)</sup>
- Weight: TO-220AB – 1.85 grams (approximate)  
ITO-220AB – 1.65 grams (approximate)

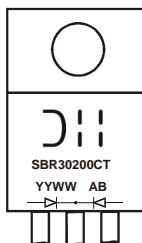


## Ordering Information (Notes 4 and 5)

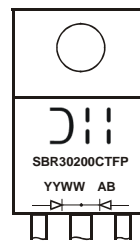
	Part Number	Case	Packaging
	SBR30200CT	TO-220AB	50 pieces/tube
	SBR30200CT-G	TO-220AB	50 pieces/tube
	SBR30200CTFP	ITO-220AB	50 pieces/tube
	SBR30200CTFP-G	ITO-220AB	50 pieces/tube
	SBR30200CTFP-JT-G	ITO-220AB (Alternate)	50 pieces/tube

- 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: SBR30200CT-G.
  5. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



SBR30200CT = 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)



SBR30200CTFP = 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)

**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	$V_{RRM}$	200	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_{RM}$		
Average Rectified Output Current Per Device	$I_o$	15	A
(Per Leg) (Total)		30	
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	250	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
Repetitive Peak Avalanche Power (1 $\mu\text{s}$ 25 °C)	$P_{ARM}$	10,000	W

**Thermal Characteristics (Per Leg)**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Package = TO-220AB Package = ITO-220AB	$R_{\theta JC}$	2	$^\circ\text{C/W}$
		4	
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +175	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	-	- 0.72	0.98 0.88	V	$I_F = 15\text{A}, T_J = 25^\circ\text{C}$ $I_F = 15\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	-	-	0.1 10	mA	$V_R = 200\text{V}, T_J = 25^\circ\text{C}$ $V_R = 200\text{V}, T_J = 125^\circ\text{C}$
Reverse Recovery Time	$t_{rr}$	-	24	30	ns	$I_F = 0.5\text{A}, I_R = 1\text{A},$ $I_{RR} = 0.25\text{A}$ $I_F = 1\text{A}, V_R = 30\text{V},$ $di/dt = 100\text{A}/\mu\text{s}, T_J = 25^\circ\text{C}$
		-	20	25		

Notes: 6. Short duration pulse test used to minimize self-heating effect.  
7. Using heatsink (by Black Aluminum 45mm \* 20mm \* 12mm)

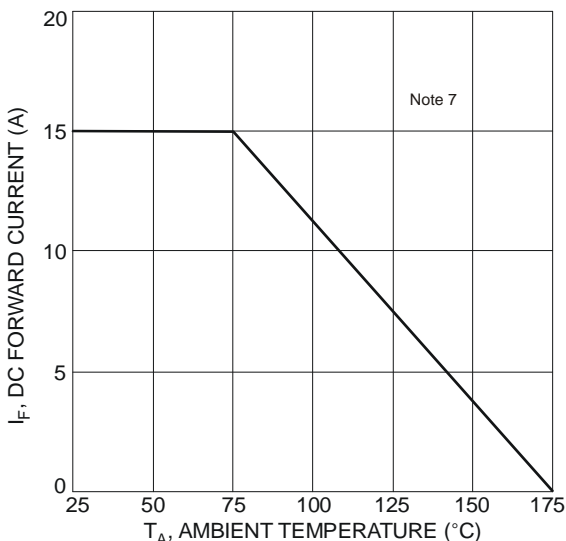


Fig. 1 DC Forward Current Derating

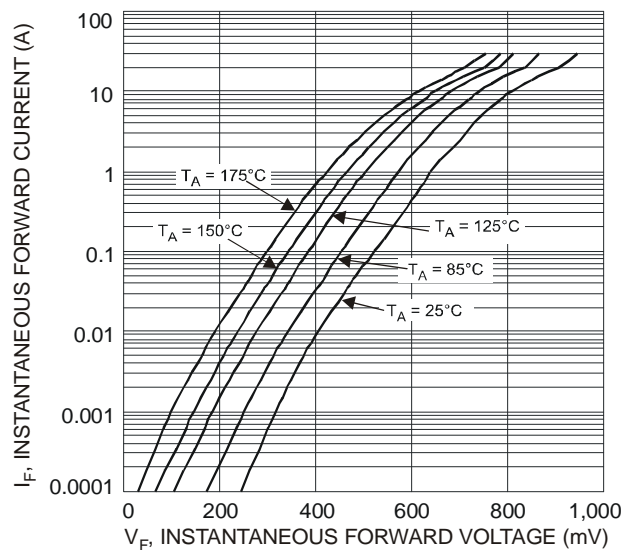


Fig. 2 Typical Forward Characteristics

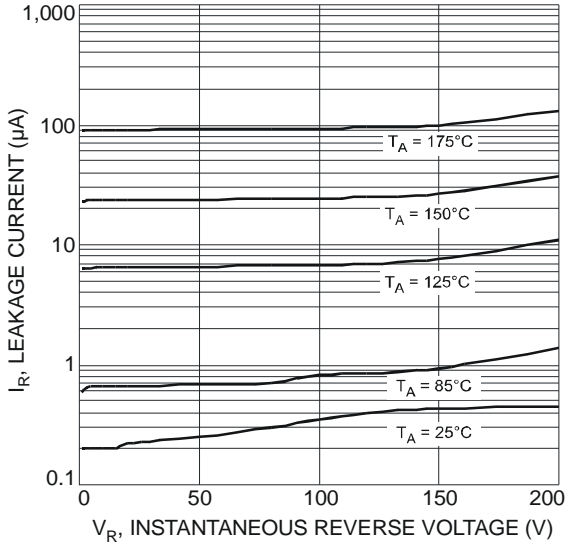


Fig. 3 Typical Reverse Characteristics

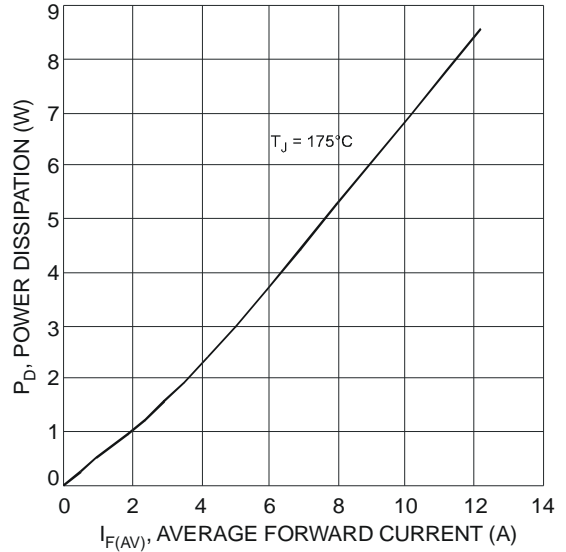


Fig. 4 Forward Power Dissipation

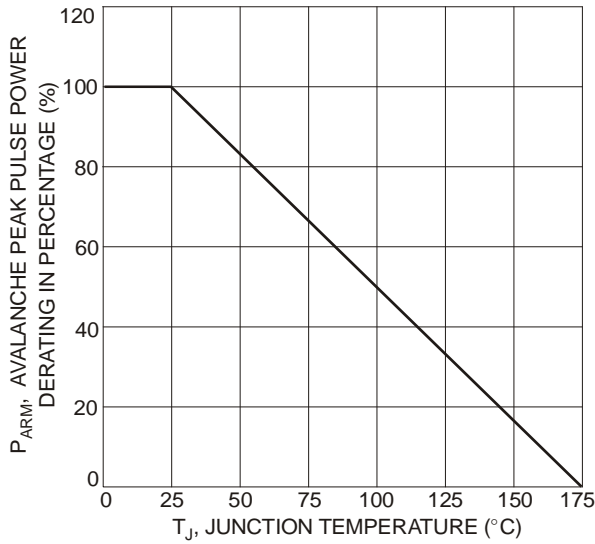


Fig. 5 Pulse Derating Curve

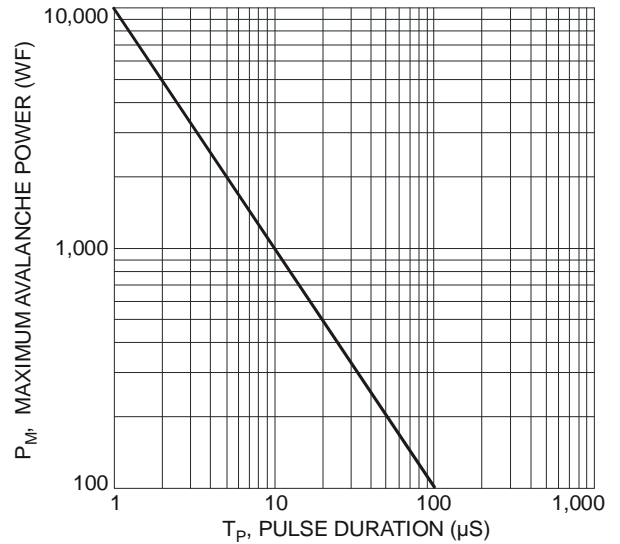


Fig. 6 Maximum Avalanche Power vs. Pulse Duration

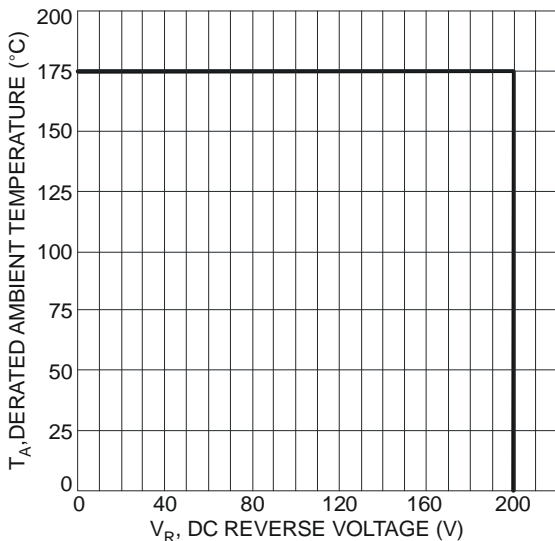
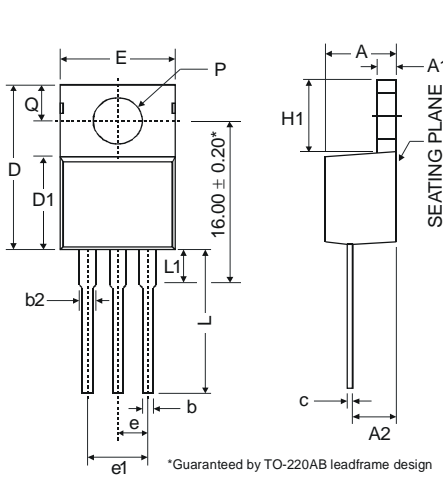


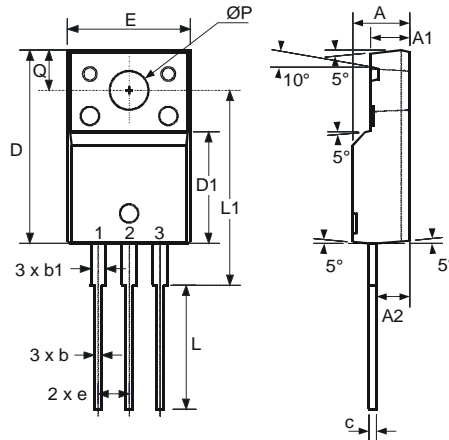
Fig. 7 Operating Temperature Derating

**Package Outline Dimensions**

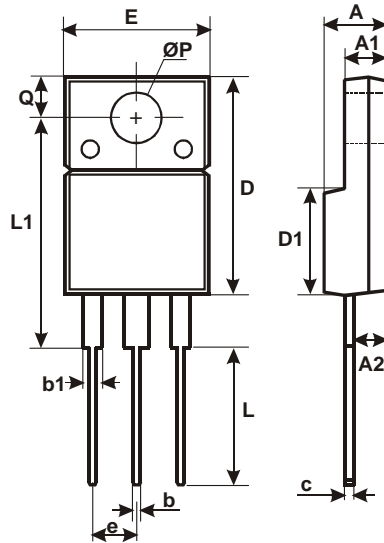
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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 8)			
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 8)		
Dim	Min	Max
A	4.36	4.77
A1	2.54	3.1
A2	2.54	2.8
b	0.55	0.75
b1	1.2	1.5
c	0.38	0.68
D	14.5	15.5
D1	8.38	8.89
E	9.72	10.27
e	2.41	2.67
L	9.87	10.67
L1	15.8	17
ØP	3.08	3.39
Q	2.6	3.0
<b>All Dimensions in mm</b>		

Notes: 8. 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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