WINSOURCE ELECTRONICS

THE DATASHEET OF

SBR20A150CT

20A SBR®
SUPER BARRIER RECTIFIER

Product Summary (Per leg)

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (mA) @ +25°C
150	10	0.82	0.1

Features and Benefits

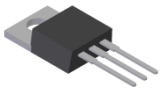
- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Also Available in Green Molding Compound**

Application

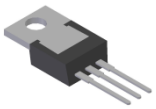
- Switching Power Supplies
- DC-DC Converters
- Freewheeling Diodes

Mechanical Data

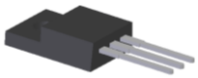
- Case: TO-220AB, ITO-220AB, ITO-220AB (Type E)
- Case Material: Molded Plastic.
  UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe.
  Solderable per MIL-STD-202, Method 208 e3
- Weight: TO-220AB – 1.85 grams (Approximate)
  ITO-220AB – 1.65 grams (Approximate)



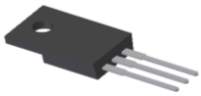
TO-220AB
Top View



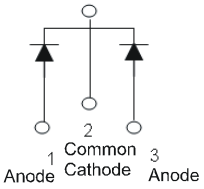
TO-220AB
Bottom View



ITO-220AB
Top



ITO-220AB
Bottom View



Package Pin Out
Configuration

Ordering Information (Notes 4 & 5)

	Part Number	Case	Packaging
Pb	SBR20A150CT	TO-220AB	50 pieces/tube
Pb Green	SBR20A150CT-G	TO-220AB	50 pieces/tube
Pb	SBR20A150CTFP	ITO-220AB	50 pieces/tube
Pb Green	SBR20A150CTFP-G	ITO-220AB	50 pieces/tube
Pb Green	SBR20A150CTFP-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/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: SBR20A150CT-G.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



SBR20A150CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last two Digits of Year (ex: 14 = 2014)
WW = Week (01 – 53)



SBR20A150CTFP = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last two Digits of Year (ex: 14 = 2014)
WW = Week (01 – 53)

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Maximum Ratings (Per Leg) (@T_A = +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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	150	V
Average Rectified Output Current Per Device (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}	180	A
Peak Repetitive Reverse Surge Current (2µS-1Khz)	I_{RRM}	3	A
Isolation Voltage (ITO-220AB Only) From terminal to heatsink t = 3 sec.	V_{AC}	2,000	V

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Note 6) Package = TO-220AB Package = ITO-220AB	$R_{\theta JC}$	 2 4	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	°C

Electrical Characteristics (Per Leg) (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— —	— 0.64	0.82 0.68	V	I_F = 10A, T_J = +25°C I_F = 10A, T_J = +125°C
Leakage Current (Note 7)	I_R	— —	—	0.1 10	mA	V_R = 150V, T_J = +25°C V_R = 150V, T_J = +125°C

Notes: 6. Device mounted on additional heatsink, (50mm x 50mm x 23mm Al heatsink).
7. Short duration pulse test used to minimize self-heating effect.

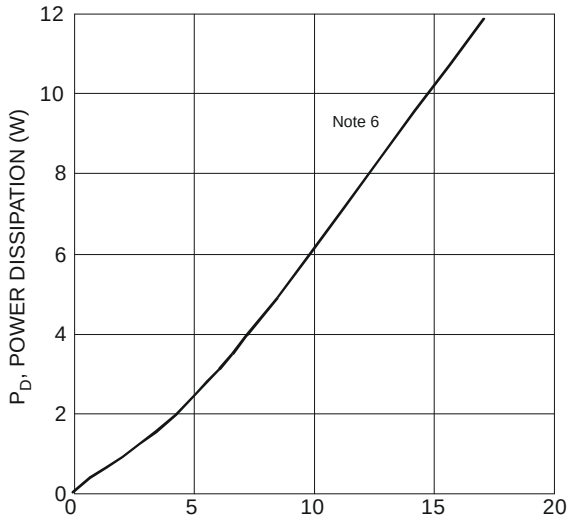


Figure 1 Forward Power Dissipation

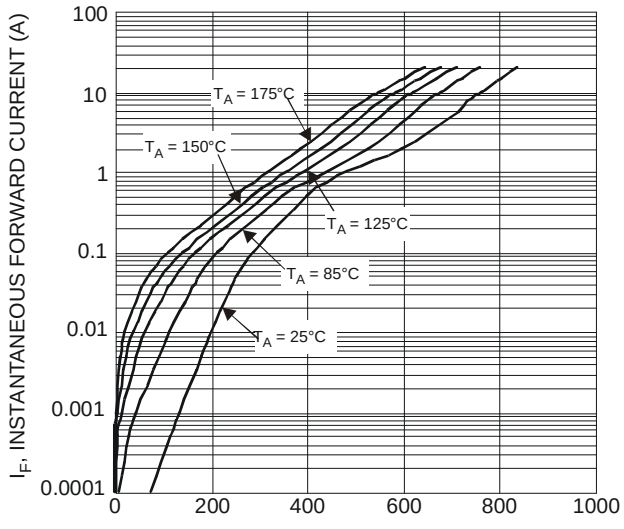


Figure 2 Typical Forward Characteristics

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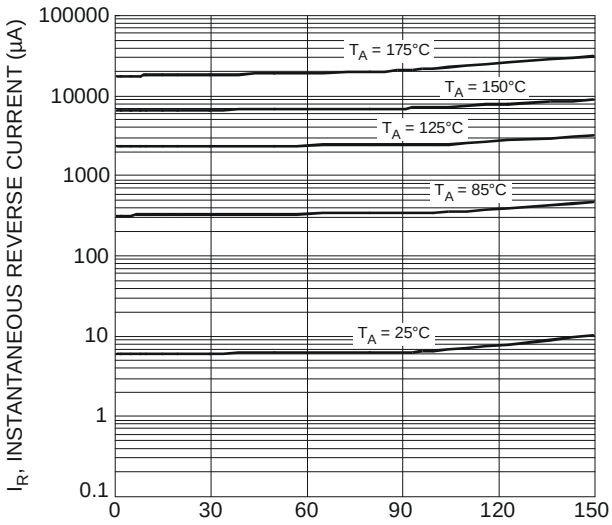


Figure 3 Typical Reverse Characteristics

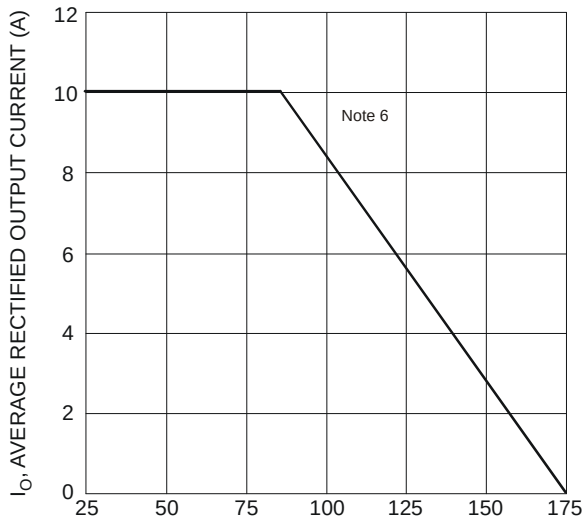
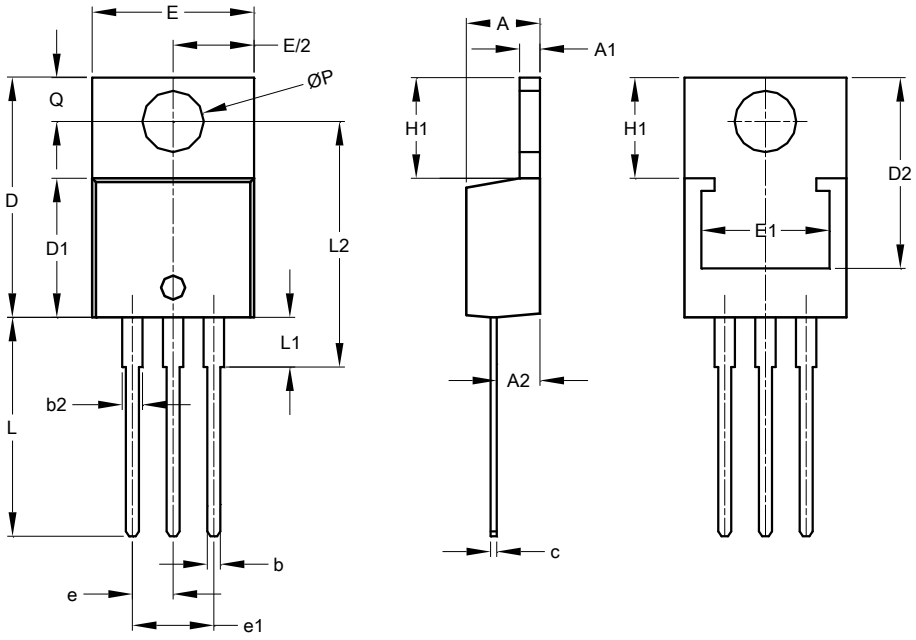


Figure 4 Forward Current Derating Curve

Package Outline Dimensions

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

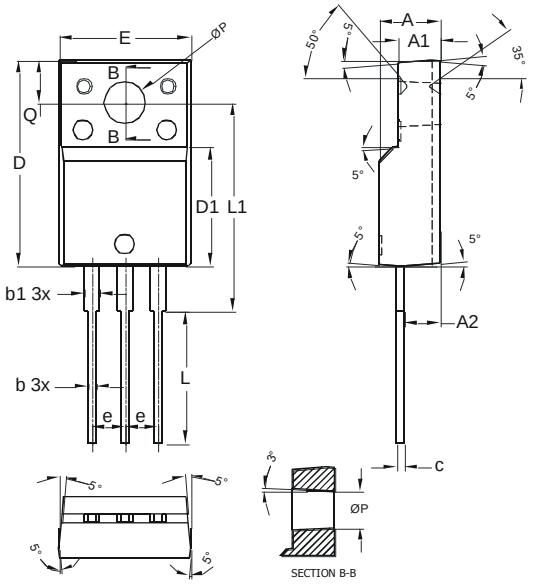


TO220AB			
Dim	**Min**	**Max**	**Typ**
A	3.56	4.82	-
A1	0.51	1.39	-
A2	2.04	2.92	-
b	0.39	1.01	0.81
b2	1.15	1.77	1.24
c	0.356	0.61	-
D	14.22	16.51	-
D1	8.39	9.01	-
D2	11.45	12.87	-
e	-	-	2.54
e1	-	-	5.08
E	9.66	10.66	-
E1	6.86	8.89	-
H1	5.85	6.85	-
L	12.70	14.73	-
L1	-	6.35	-
L2	15.80	16.20	16.00
P	3.54	4.08	-
Q	2.54	3.42	-
All Dimensions in mm			

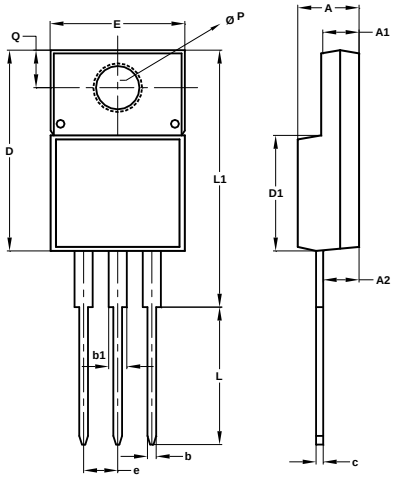
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Package Outline Dimensions (continued)

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



ITO-220AB			
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 (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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