

20A SBR[®] SUPER BARRIER RECTIFIER

Product Summary

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) @ +25°C
120	10 (Per leg) 20 (Total)	0.79	0.1

Description and Applications

The SBR20A120CT & SBR20A120CTFP provide very low VF and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

- DC-DC Converters
- AC-DC Adaptors

Features and Benefits

- Patented SBR technology provides superior avalanche capability versus Schottky diodes, ensuring more rugged and reliable end applications.
- Reduced ultra-low forward voltage drop (V_F); Better efficiency and cooler operation.
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation.
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- 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 🚱
- Marking Information: See Below
- Ordering Information: See Below
- Weight: TO-220AB 1.85 grams (Approximate)
- ITO-220AB 1.65 grams (Approximate)



TO-220AB Top View



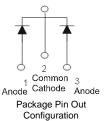
TO-220AB Bottom View



ITO-220AB Top View



ITO-220AB Bottom View



Ordering Information (Notes 4 & 5)

_	Part Number	Case	Packaging
(Po)	SBR20A120CT	TO-220AB	50 pieces/tube
Green	SBR20A120CT-G	TO-220AB	50 pieces/tube
Pb)	SBR20A120CTFP	ITO-220AB	50 pieces/tube
Pb	SBR20A120CTFP-G	ITO-220AB	50 pieces/tube
Phy.	SBR20A120CTFP-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 packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.
- 5. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20A120CT-G.



Marking Information



SBR20A120CT = 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)



SBR20A120CTFP = 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)

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	V_{RRM}		
Working Peak Reverse Voltage	V_{RWM}	120	V
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current Per Device (Per Leg)	la.	10	Δ
(Total)	Ю	20	^
Non-Repetitive Peak Forward Surge Current 8.3ms	I	180	Δ
Single Half Sine-Wave Superimposed on Rated Load	IFSM	100	^
Peak Repetitive Reverse Surge Current (2uS-1Khz)	I _{RRM}	3	Α
Isolation Voltage (ITO-220AB Only)	V	2000	V
From Terminal to Heatsink t = 3 seconds	V _{AC}	2000	V

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Package = TO-220AB (Note 6) Package = ITO-220AB (Note 6)	$R_{ hetaJC}$	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.)

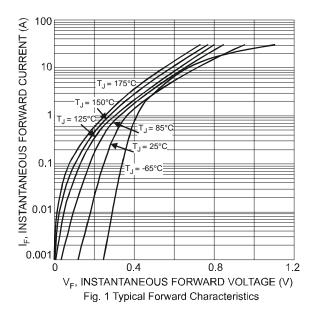
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Drop (Per Leg)	V _F	-	0.75 0.62 0.87	0.79 0.65 0.92	V	I _F = 10A, T _J = +25°C I _F = 10A, T _J = +125°C I _F = 20A, T _J = +25°C
Leakage Current (Note 7)	I _R	-	25 6.3	100 20		$V_R = 120V, T_J = +25$ °C $V_R = 120V, T_J = +125$ °C

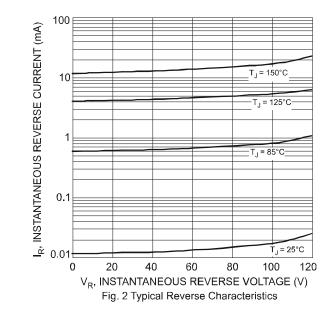
Notes: 6. Test with Aluminum heatsink 50*50*23 mm.

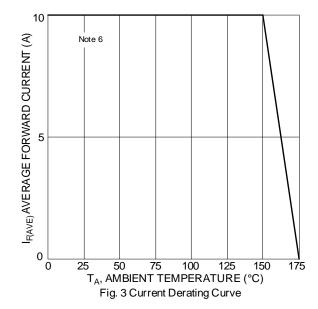
7. Short duration pulse test used to minimize self-heating effect.





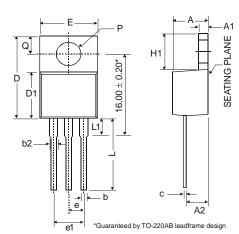




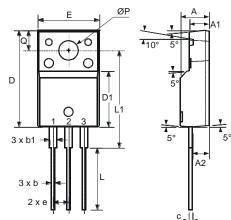




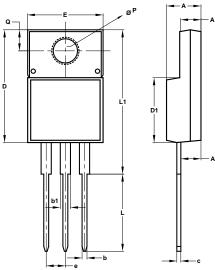
Package Outline Dimensions



	TO-220AB				
Dim	Min	Тур	Max		
Α	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		
С	0.356	•	0.61		
D	14.22	-	16.51		
D1	8.39	1	9.01		
е		2.54			
e1		5.08			
Е	9.66	1	10.66		
H1	5.85	1	6.85		
L	12.70	1	14.73		
L1	-	-	6.35		
Р	3.54		4.08		
Q	2.54	-	3.42		
All Dimensions in mm					



	ITO-220AB				
Dim	Min	Тур	Max		
Α	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		
С	0.50	0.60	0.70		
D	15.67	15.87	16.07		
D1	8.99	9.19	9.39		
е		2.54			
Е	9.91	10.11	10.31		
L	9.45	9.75	10.05		
L1	15.80	16.00	16.20		
Р	2.98	3.18	3.38		
Q	3.10	3.30	3.50		
All Dimensions in mm					



	ITO220AB					
	(Alternate)					
	Dim	Min	Max			
	Α	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			
- A2	D1	8.38	8.89			
	е	2.41	2.67			
	Е	9.72	10.27			
	L	9.87	10.67			
	L1	15.8	17.00			
	Р	3.08	3.39			
	Ø	2.60	3.00			
	All Dimensions in mm					



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