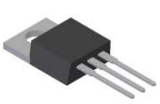
10A SBR
SUPER BARRIER RECTIFIER

Features

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier SBR® Technology
- Soft, Fast Switching Capability
- TO220AB, ITO220AB, ITO220AB (Type E)
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Available in "Green" Packages: TO220AB, ITO220AB
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
  - **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

- Case: TO220AB and ITO220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight:
  - TO220AB – 1.85 grams (Approximate)
  - ITO220AB, ITO220AB (Type E) – 1.65 grams (Approximate)

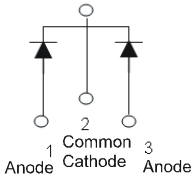


TO220AB
Top View

TO220AB
Bottom View

ITO220AB,
ITO220AB (Type E)
Top View

ITO220AB,
ITO220AB (Type E)
Bottom View



Package Pin-Out
Configuration

Ordering Information (Notes 4 and 5)

Part Number	Case	Packaging
SBR10U300CT	TO220AB	50 Pieces/Tube
SBR10U300CT-G (NRND) (Note 6)	TO220AB	50 Pieces/Tube
SBR10U300CTFP	ITO220AB	50 Pieces/Tube
SBR10U300CTFP-G	ITO220AB	50 Pieces/Tube
SBR10U300CTFP-JT	ITO220AB (Type E)	50 Pieces/Tube

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ 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: SBR10U300CT-G.
5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.
6. NRND: Not recommended for new design.

Marking Information

= Manufacturer's Marking
SBR10U300CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 20 = 2020)
WW = Week (01 to 53)

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Maximum Ratings (@T_A = +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_{RRM} V_{RWM} V_{RM}	300	V
Average Rectified Output Current @T_C = +150°C	I_O	10	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 (2µS-1kHz)	I_{RRM}	3	A
Isolation Voltage (ITO220AB Only) From Terminal to Heatsink t = 3s.	V_{AC}	2000	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Per Leg) Package = TO220AB Package = ITO220AB, ITO220AB (Type E)	$R_{\theta JC}$	 2 4	ºC/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	ºC

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	—	— 0.64 —	0.86 0.71 0.92	V	I_F = 5A, T_J = +25°C I_F = 5A, T_J = +125°C I_F = 10A, T_J = +25°C
Leakage Current (Note 7)	I_R	—	—	0.2 25	mA	V_R = 300V, T_J = +25°C V_R = 300V, T_J = +125°C
Reverse Recovery Time	t_{RR}	—	25	30	ns	I_F = 0.5A, I_R = 1A, I_{RR} = 0.25A
		—	28	35		I_F = 1A, V_R = 30V di/dt = 100A/µs, T_J = +25°C

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

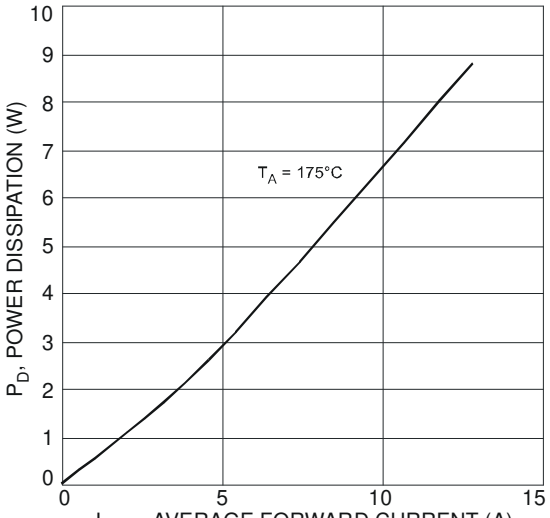


Fig. 1 Forward Power Dissipation

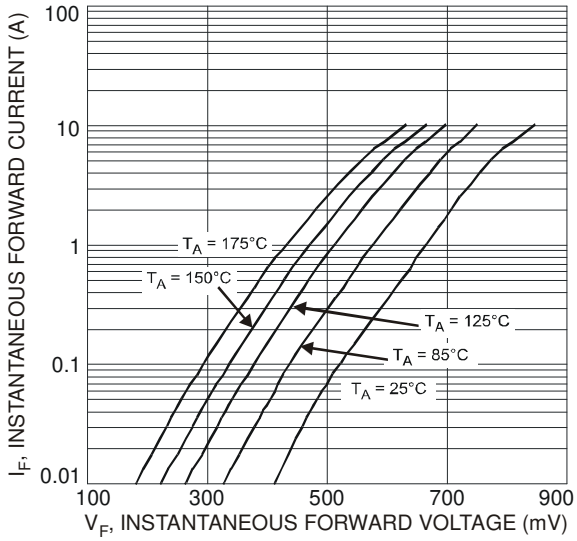


Fig. 2 Typical Forward Characteristics

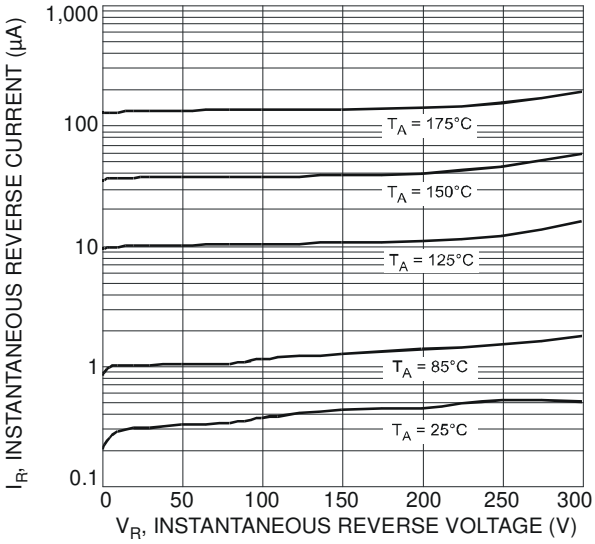


Fig. 3 Typical Reverse Characteristics

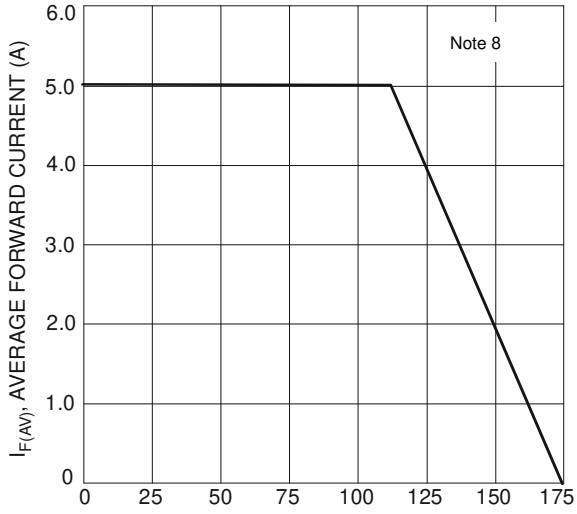


Fig. 4 Forward Current Derating Curve

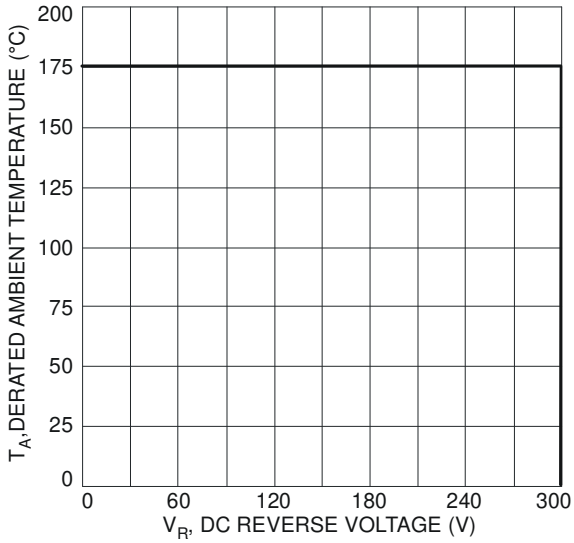
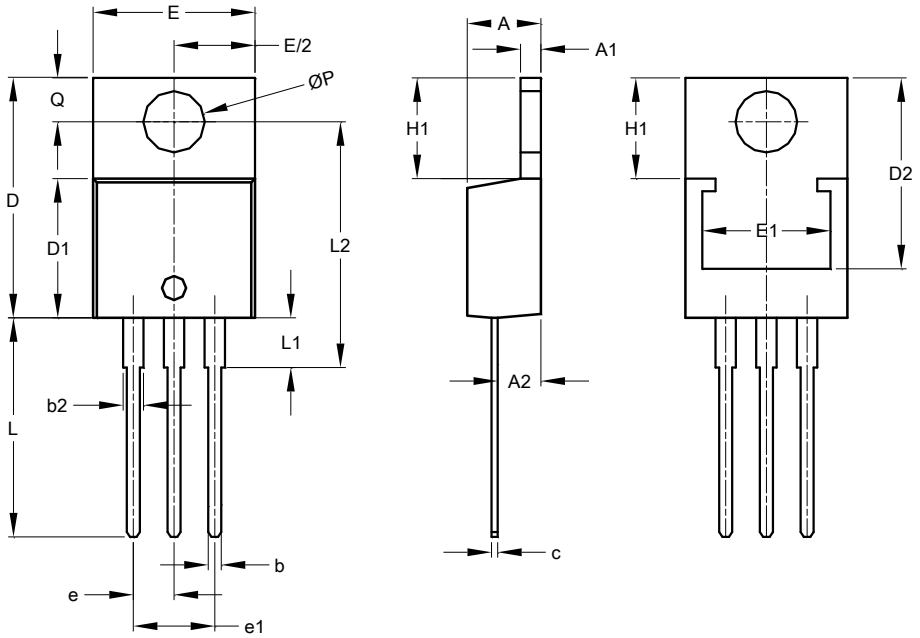


Fig. 5 Operating Temperature Derating

Package Outline Dimensions

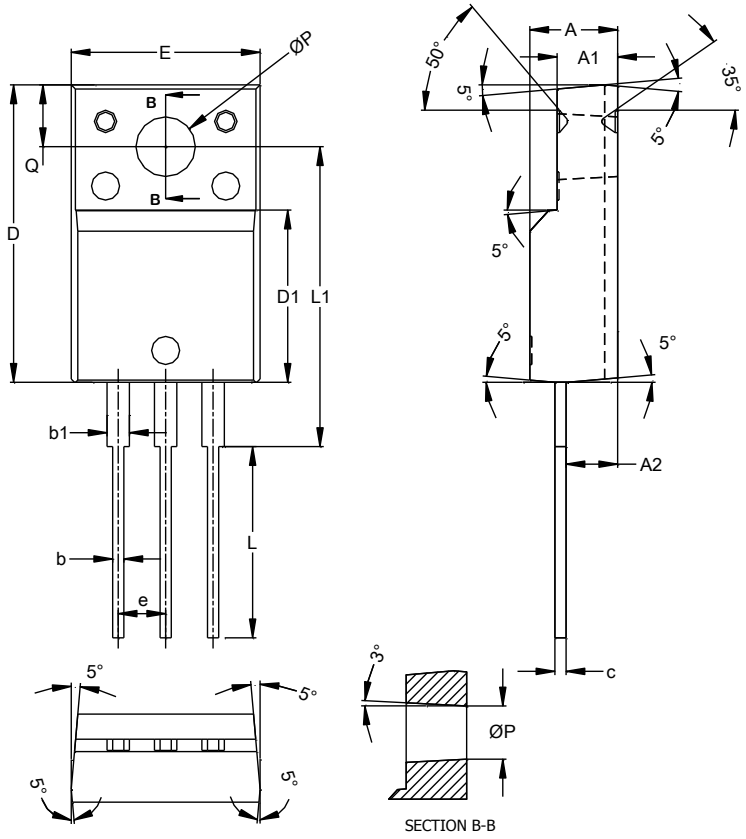
Please see http://www.diodes.com/package-outlines.html for the latest version.

(1) Package Type: 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			

(2) Package Type: ITO220AB

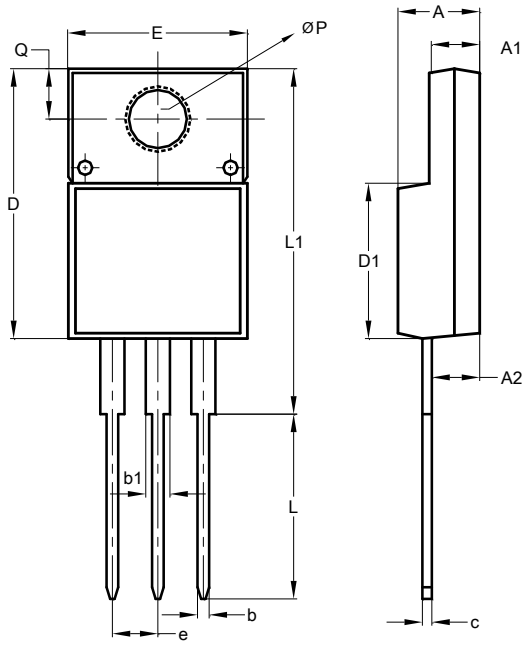


ITO220AB			
Dim	**Min**	**Max**	**Typ**
A	4.50	4.90	4.70
A1	3.04	3.44	3.24
A2	2.56	2.96	2.76
b	0.50	0.75	0.60
b1	1.10	1.35	1.20
c	0.50	0.70	0.60
D	15.67	16.07	15.87
D1	8.99	9.39	9.19
E	9.91	10.31	10.11
e	--	--	2.54
L	9.45	10.05	9.75
L1	15.80	16.20	16.00
P	2.98	3.38	3.18
Q	3.10	3.50	3.30
All Dimensions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

Package Outline Dimensions (continued)

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

(3) Package Type: 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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