

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F MAX (V)	I _R MAX (μA)
300	20	0.92	100

Description and Applications

This Super Barrier Rectifier has been designed to meet the general requirements of commercial applications. It is ideally suited for use as:

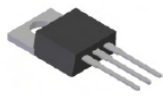
- Polarity Protection Diode
- Re-Circulating Diode
- Boost Diode
- Blocking Diode

Features and Benefits

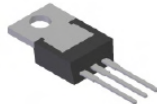
- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Also Available in Green Molding Compound - Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

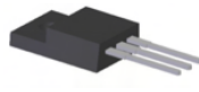
- Case: TO-220AB, ITO-220AB, TO263 (D²Pak)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 Ⓔ³
- Marking Information: See Page 2
- Ordering Information: See Page 1
- Weight: TO-220AB – 1.85 grams (approximate)
 ITO-220AB – 1.65 grams (approximate)
 TO263 (D²Pak) – 2.1 grams (approximate)



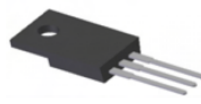
TO-220AB
Top View



TO-220AB
Bottom View



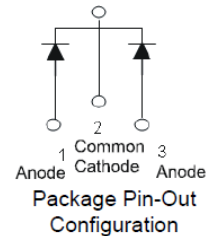
ITO-220AB
Top View



ITO-220AB
Bottom View



D²Pak
Top View

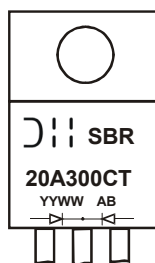


Ordering Information (Notes 4 & 5)

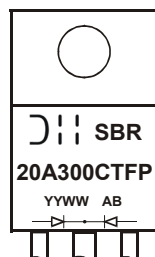
	Part Number	Case	Packaging
	SBR20A300CT	TO-220AB	50 pieces/tube
	SBR20A300CT-G	TO-220AB	50 pieces/tube
	SBR20A300CTFP	ITO-220AB	50 pieces/tube
	SBR20A300CTFP-G	ITO-220AB	50 pieces/tube
	SBR20A300CTFP-JT-G	ITO-220AB (Alternate)	50 pieces/tube
	SBR20A300CTB	TO263 (D ² Pak)	50 pieces/tube

- 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 packaging details, go to our website at <http://www.diodes.com/products/packages.html>
 5. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20A300CT-G.

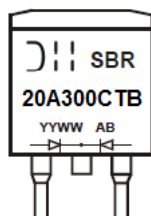
Marking Information



SBR20A300CT = 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)



SBR20A300CTFP = 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)



SBR20A300CTB = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 08 = 2008)
 WW = Week (01-52)

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}	300	V
DC Blocking Voltage	V _{RM}		
Average Rectified Output Current (Per Leg)	I _O	10	A
(Total)		20	
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)	V _{AC}	2000	V
From terminal to heatsink t = 3 sec.			

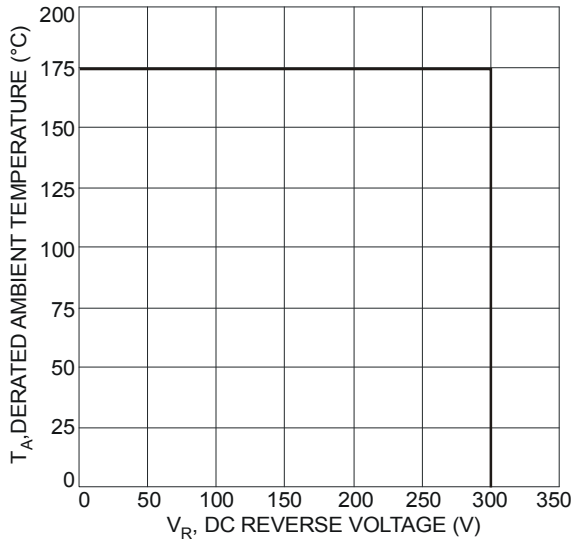
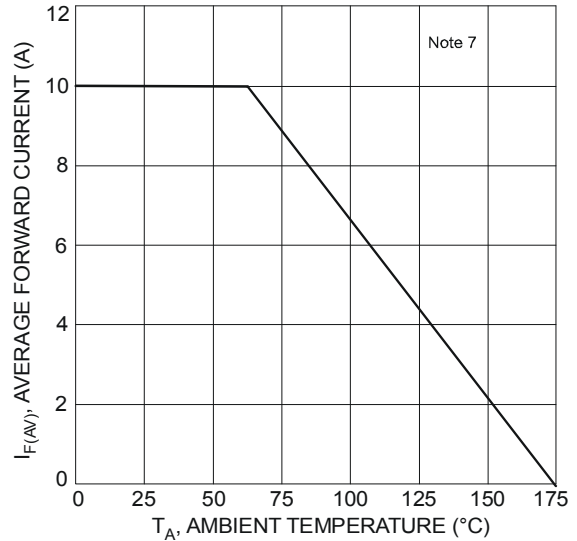
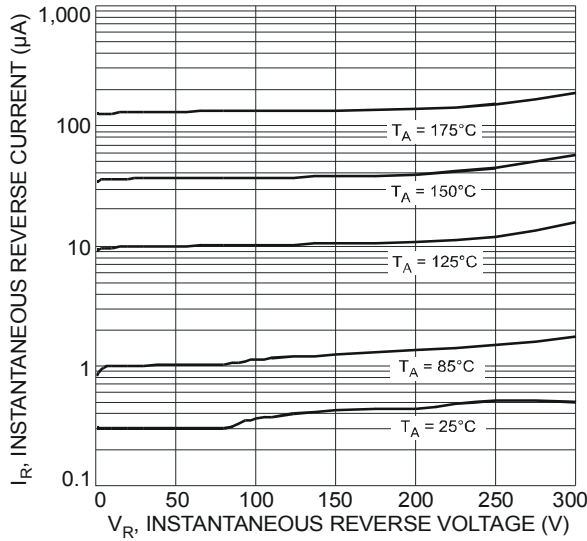
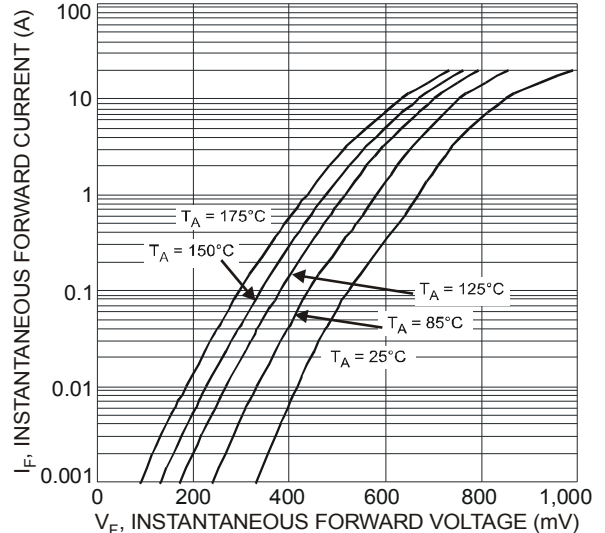
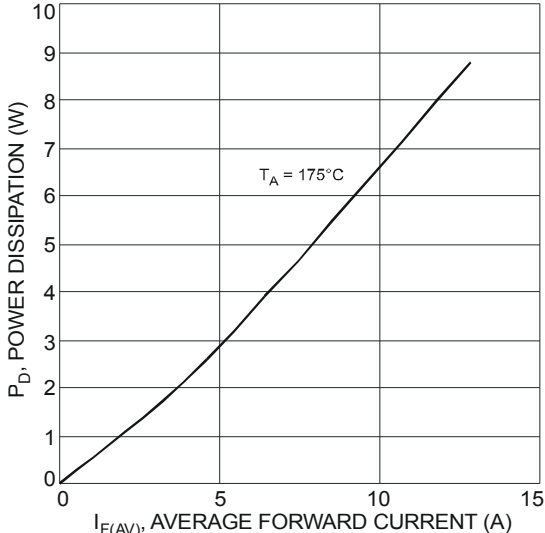
Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance		2	
Package = TO-220AB	R _{θJC}	4	°C/W
Package = ITO-220AB		2	
Package = TO263			
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +175	°C

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

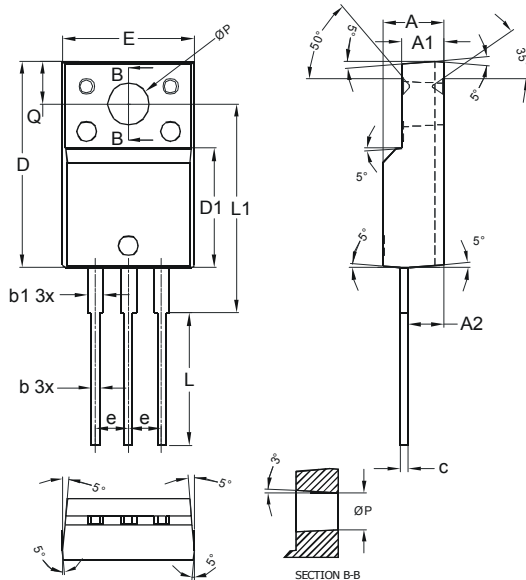
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V _F	—	—	0.92	V	I _F = 10A, T _J = +25°C
		—	0.70	0.78		I _F = 10A, T _J = +125°C
		—	—	1.06		I _F = 20A, T _J = +25°C
Leakage Current (Note 6)	I _R	—	—	0.1	mA	V _R = 300V, T _J = +25°C
		—	—	10		V _R = 300V, T _J = +125°C
Reverse Recovery Time	T _{rr}	—	45	—	ns	I _F = 0.5A, I _R = 1A, I _{RR} = 0.25A

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

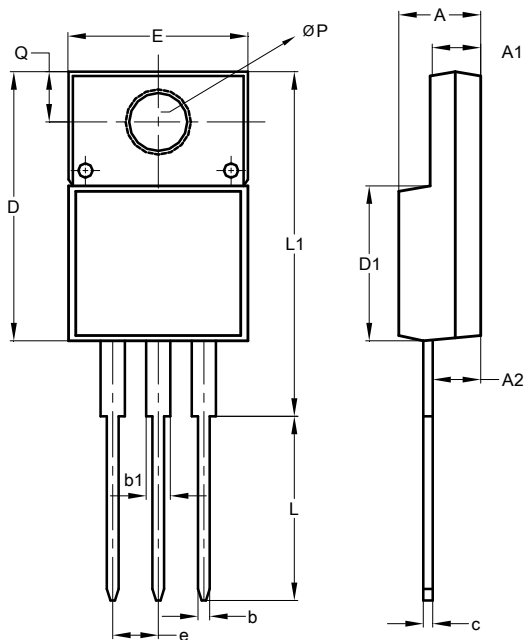


Package Outline Dimensions

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



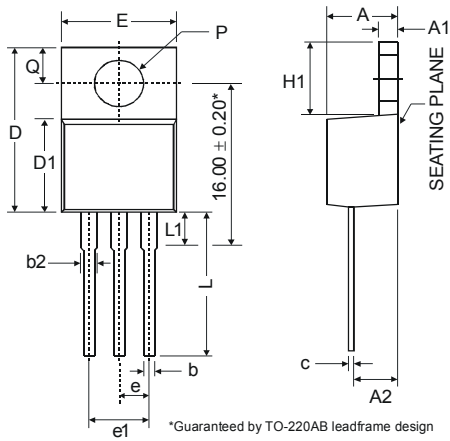
ITO-220AB			
Dim	Min	Typ	Max
A	4.50	4.70	4.90
A1	3.04	3.24	3.44
A2	2.56	2.76	2.96
b	0.50	0.60	0.75
b1	1.10	1.20	1.35
c	0.50	0.60	0.70
D	15.67	15.87	16.07
D1	8.99	9.19	9.39
e	2.54		
E	9.91	10.11	10.31
L	9.45	9.75	10.05
L1	15.80	16.00	16.20
P	2.98	3.18	3.38
Q	3.10	3.30	3.50
All Dimensions in mm			



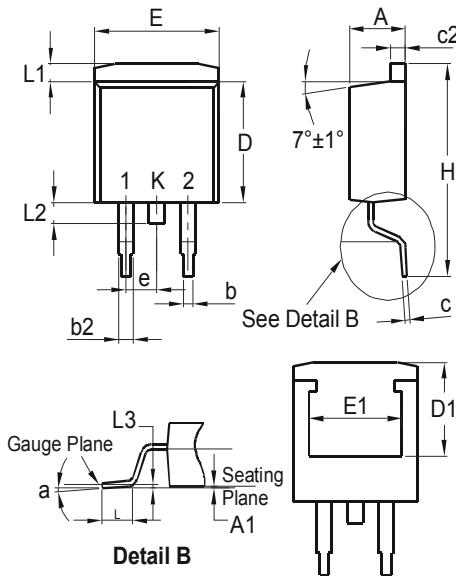
ITO220AB Alternate		
Dim	Min	Max
A	4.36	4.77
A1	2.54	3.10
A2	2.54	2.80
b	0.55	0.75
b1	1.20	1.50
c	0.38	0.68
D	14.50	15.50
D1	8.38	8.89
e	2.41	2.67
E	9.72	10.27
L	9.87	10.67
L1	15.8	17.00
P	3.08	3.39
Q	2.60	3.00
All Dimensions in mm		

Package Outline Dimensions (Cont.)

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
All Dimensions in mm			



TO263		
Dim	Min	Max
A	4.07	4.82
A1	0.00	0.25
b	0.51	0.99
b2	1.15	1.77
c	0.356	0.73
c2	1.143	1.65
D	8.39	9.65
D1	6.55	—
E	9.66	10.66
E1	6.23	—
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		

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