

Product Summary (Per Leg)

V_{RRM} (V)	I_o (A)	V_F (MAX) (V) @ +25°C	I_R (MAX) (mA) @ +25°C
45	10	0.52	0.3

Description and Applications

Packaged in the robust industry-standard TO-220AB package, the SBRT20V45CT provides very low V_F 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



TO-220AB
Top View



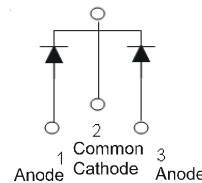
TO-220AB
Bottom View

Features and Benefits

- 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
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish;
Solderable per MIL-STD-202, Method 208 **e3**
- Polarity: See Below
- Weight: TO-220AB – 1.85 grams (Approximate)



Package Pin-Out
Configuration

Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT20V45CT	TO-220AB	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>.

Marking Information

TO-220AB



SBRT20V45CT = 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 (@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}	45	V
Working Peak Reverse Voltage	V _{RWM}		
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 (Per Leg)	I _{FSM}	180	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5) Package = TO-220AB	R _{θJC}	2.5	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V _F	—	0.46	0.52	V	I _F = 10A, T _J = +25°C
		—	0.43	0.49		I _F = 10A, T _J = +125°C
		—	0.58	0.62		I _F = 20A, T _J = +25°C
Leakage Current (Note 6)	I _R	—	0.05	0.30	mA	V _R = 45V, T _J = +25°C
		—	—	50		V _R = 45V, T _J = +125°C

Notes: 5. Test with additional heatsink (45mmX20mmX12mm).
6. Short duration pulse test used to minimize self-heating effect.

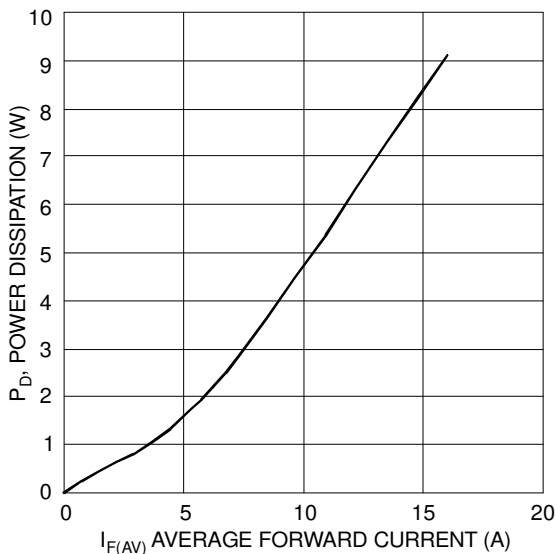


Figure 1 Forward Power Dissipation

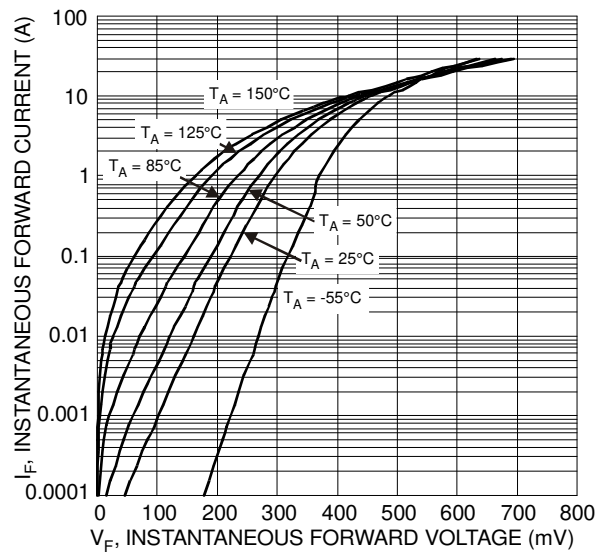


Figure 2 Typical Forward Characteristics

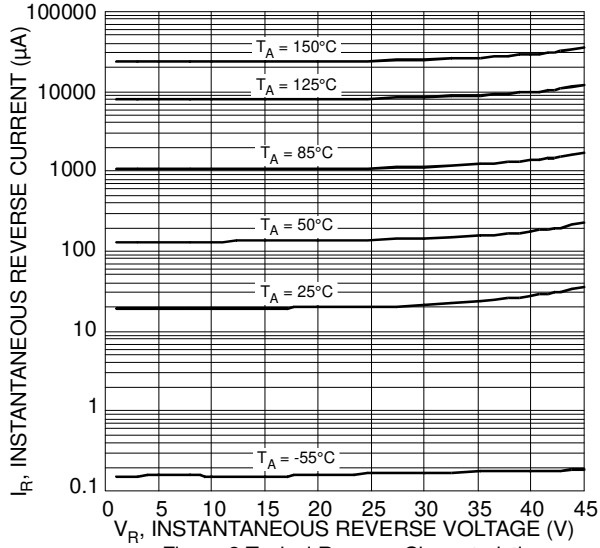


Figure 3 Typical Reverse Characteristics

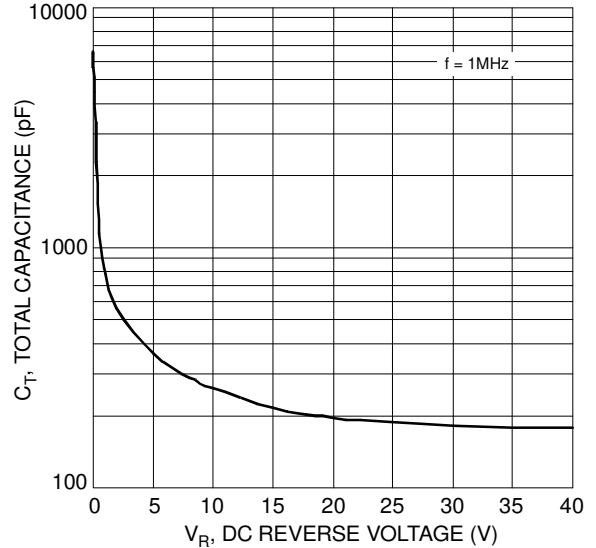


Figure 4 Total Capacitance vs. Reverse Voltage

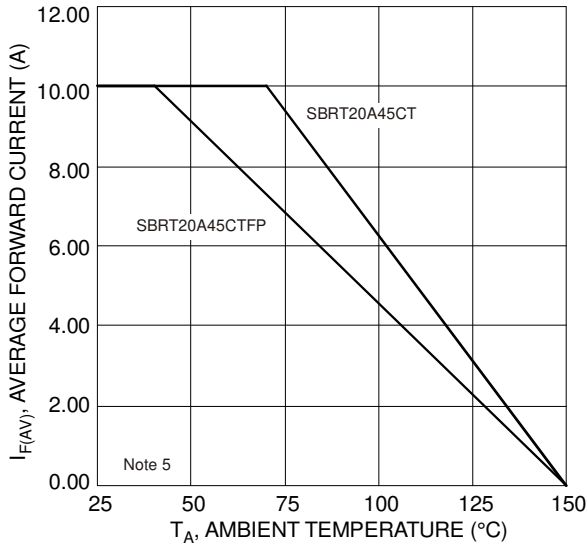
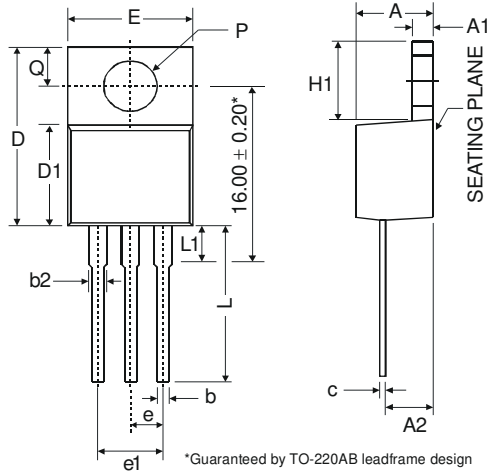


Figure 5 Forward Current Derating Curve

Package Outline Dimensions

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



TO-220AB			
Dim	Min	Typ	Max
A	3.56	-	4.82
A 1	0.51	-	1.39
A 2	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
D 1	8.39	-	9.01
e	2.54		
e1	5.08		
E	9.66	-	10.66
H 1	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			

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