

OBSOLETE - PART DISCONTINUED

Product Summary (Per Leg)

V _{RRM} (V)	I _o (A)	V _F (MAX) (V) @ +25°C	I _R (MAX) (mA) @ +25°C
50	30	0.52	0.7

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
- Patented Super Barrier Rectifier SBR[®] Technology
- **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/>**

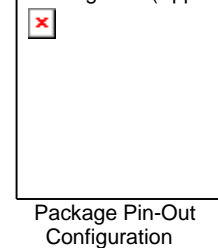
Description and Applications

Packaged in the robust industry-standard TO-220AB package, the SBRT60U50CT 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

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)



Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT60U50CT	TO-220AB	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 packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

TO-220AB



= Manufacturer's Marking
 SBRT60U50CT = 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)

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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	V_{RRM}	50	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current	(Per Leg) (Total)	I_O	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	(Per Leg)	I_{FSM}	A

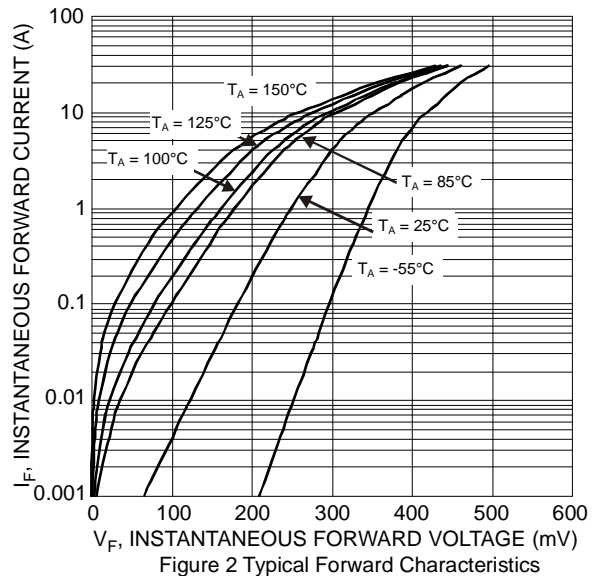
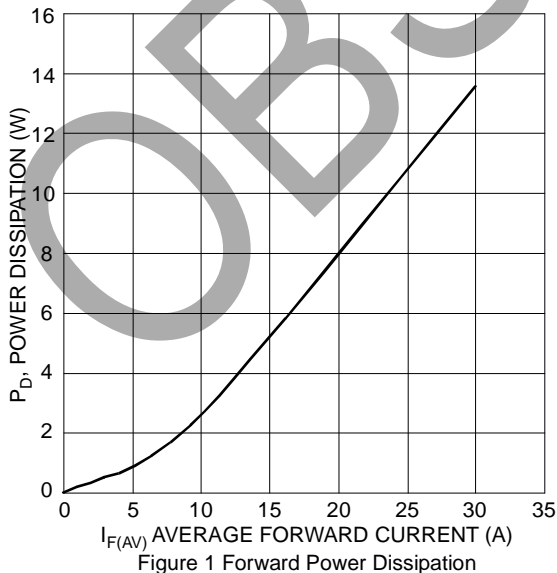
Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5) Package = TO-220AB	$R_{\theta JC}$	1	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (Per Leg) (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V_F	—	0.39	0.45	V	$I_F = 15\text{A}, T_J = +25^\circ\text{C}$
		—	0.33	0.39		$I_F = 15\text{A}, T_J = +125^\circ\text{C}$
		—	0.46	0.52		$I_F = 30\text{A}, T_J = +25^\circ\text{C}$
		—	0.44	0.50		$I_F = 30\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6)	I_R	—	0.20	0.70	mA	$V_R = 50\text{V}, T_J = +25^\circ\text{C}$
		—	—	100		$V_R = 50\text{V}, T_J = +125^\circ\text{C}$

Notes: 5. Test with additional HK1 (37mm x 55mm x 15mm).
6. Short duration pulse test used to minimize self-heating effect.



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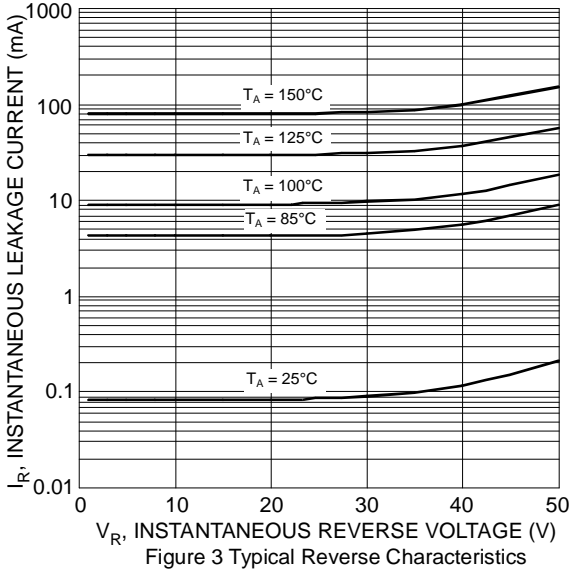


Figure 3 Typical Reverse Characteristics

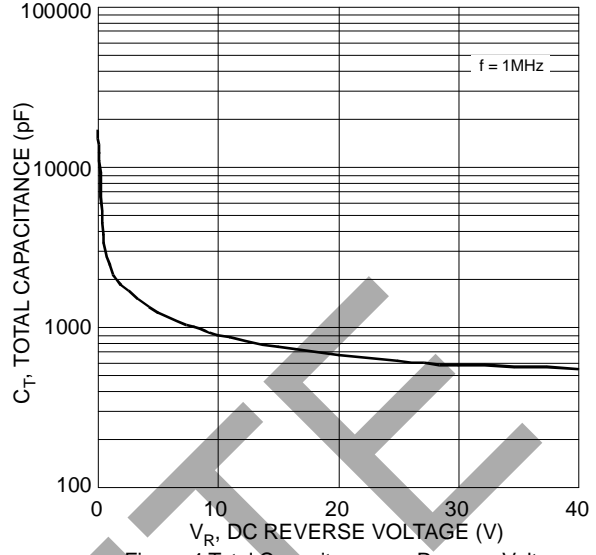


Figure 4 Total Capacitance vs. Reverse Voltage

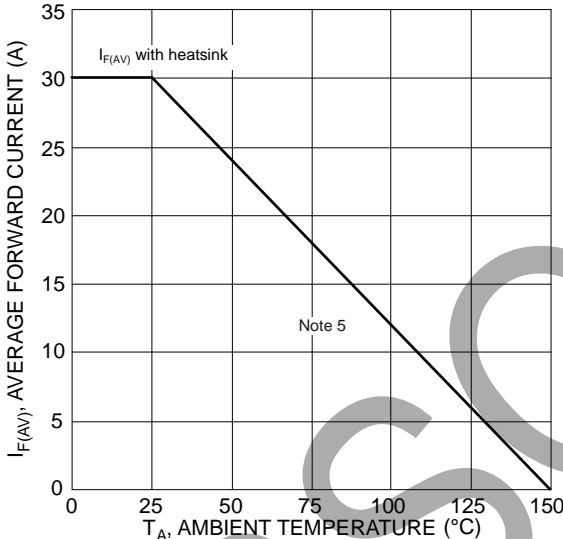


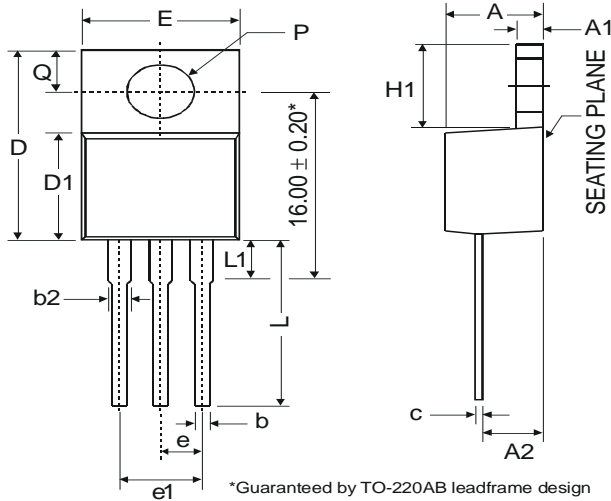
Figure 5 Forward Current Derating Curve

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Package Outline Dimensions

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

TO-220AB



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			

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