

## Product Summary (@ $T_A = +25^\circ\text{C}$ )

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ Max (V)	$I_R$ Max (mA)
20	0.5	0.39	0.05

## Description and Applications

Packaged in the compact X2-DFN1006-2, the Trench SBR, the SBRT05U20LPS provides ultra-low forward voltage drop ( $V_F$ ) and excellent low reverse leakage stability at high temperatures. It is ideal for use in rectification, freewheeling or polarity protection for applications such as:

- SMPS
- General Switching Applications
- Reverse Polarity Protection
- DC-DC Converters

X2-DFN1006-2



Bottom View

## Ordering Information (Note 4)

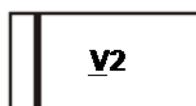
Part Number	Case	Packaging
SBRT05U20LPS-7	X2-DFN1006-2	3000/Tape & Reel
SBRT05U20LPS-7B	X2-DFN1006-2	10000/Tape & Reel

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See [http://www.diodes.com/quality/lead\\_free.html](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

X2-DFN1006-2



V2 = Product Type Marking Code

## 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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	20	V
DC Blocking Voltage	$V_{RM}$		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	14	V
Average Rectified Output Current (See Figure 4)	$I_O$	500	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	10	A

## Thermal Characteristics

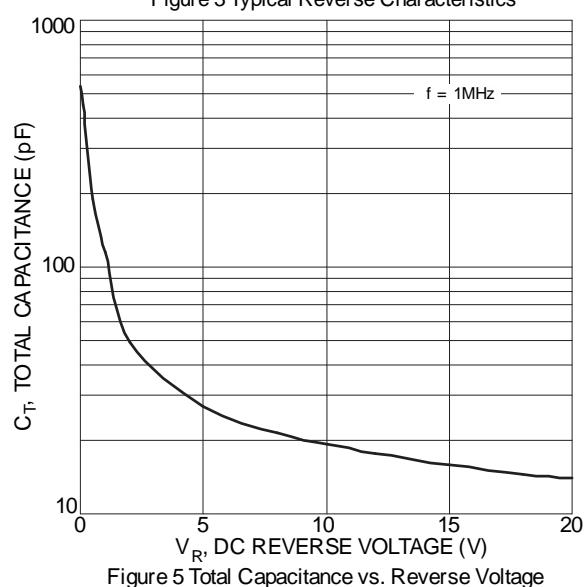
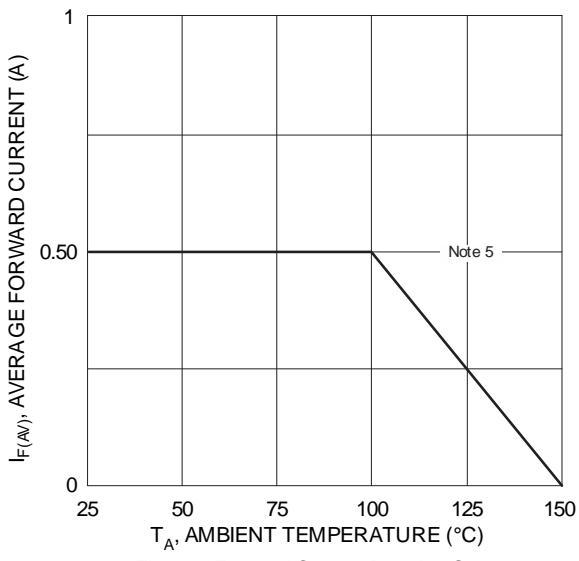
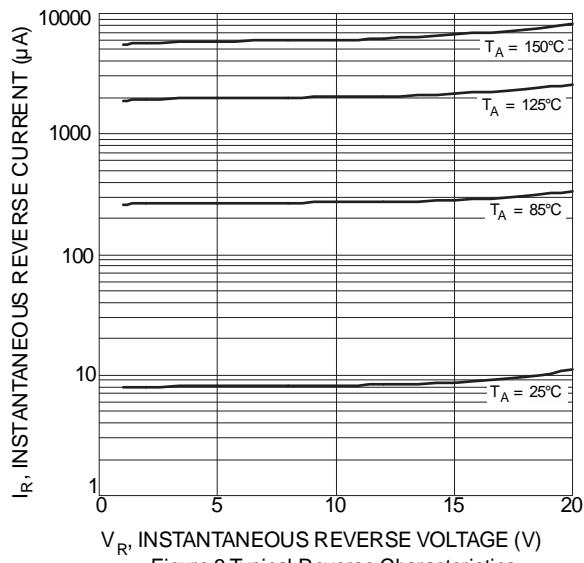
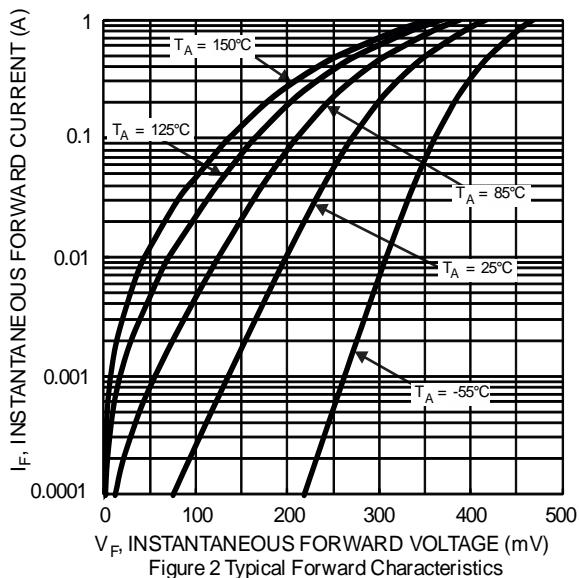
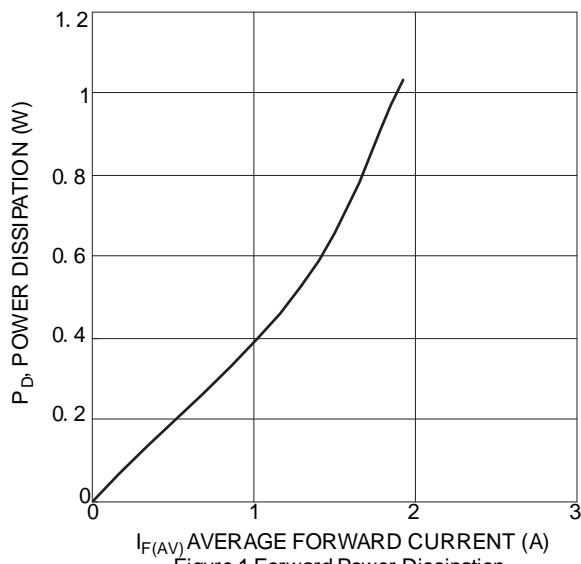
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	236	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	—	0.28	0.32	V	$I_F = 0.1\text{A}, T_J = +25^\circ\text{C}$ $I_F = 0.2\text{A}, T_J = +25^\circ\text{C}$ $I_F = 0.5\text{A}, T_J = +25^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	—	11 2.5	50 10	$\mu\text{A}$ mA	$V_R = 20\text{V}, T_J = +25^\circ\text{C}$ $V_R = 20\text{V}, T_J = +125^\circ\text{C}$
Total Capacitance	$C_T$	—	14	—	pF	$f = 1\text{MHz}, V_R = 20\text{V}$

Notes: 5. Device mounted on 1\*MRP FR-4 PC board, 2oz.

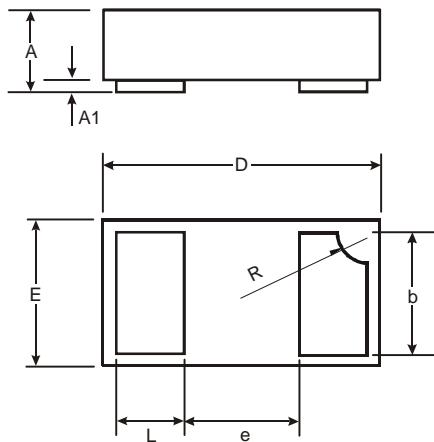
6. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

X2-DFN1006-2



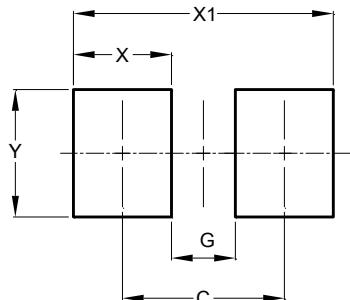
X2-DFN1006-2			
Dim	Min	Max	Typ
<b>A</b>	0.34	0.4	0.37
<b>A1</b>	0	0.05	0.03
<b>b</b>	0.45	0.55	0.50
<b>D</b>	0.95	1.075	1.00
<b>E</b>	0.55	0.675	0.60
<b>e</b>	—	—	0.40
<b>L</b>	0.20	0.30	0.25
<b>R</b>	0.05	0.15	0.10

All Dimensions in mm

## Suggested Pad Layout

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

X2-DFN1006-2



Dimensions	Value (in mm)
<b>C</b>	0.70
<b>G</b>	0.30
<b>X</b>	0.40
<b>X1</b>	1.10
<b>Y</b>	0.70

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