

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

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ Max (V)	$I_R$ Max ( $\mu\text{A}$ )
10	0.5	0.39	180

## Description and Applications

Packaged in the compact DFN1006 package, the Trench SBR SBRT05U10LP provides ultra-low forward voltage drop ( $V_F$ ) and excellent low reverse leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode in applications such as:

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

X1-DFN1006-2



Top View



Bottom View

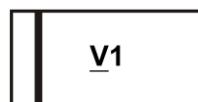
## Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT05U10LP-7B	X1-DFN1006-2	10,000/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



V1 = 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 capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	10	V
DC Blocking Voltage	$V_{RM}$		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	14	V
Average Rectified Output Current (See Figure 1)	$I_O$	500	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	5	A

**Thermal Characteristics**

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

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	—	0.27	0.32	V	$I_F = 0.1\text{A}, T_J = +25^\circ\text{C}$
		—	0.29	0.34		$I_F = 0.2\text{A}, T_J = +25^\circ\text{C}$
		—	0.34	0.39		$I_F = 0.5\text{A}, T_J = +25^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	—	32 3.4	180 15	$\mu\text{A}$ mA	$V_R = 10\text{V}, T_J = +25^\circ\text{C}$ $V_R = 10\text{V}, T_J = +125^\circ\text{C}$

Notes: 5. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.  
 6. Short duration pulse test used to minimize self-heating effect.

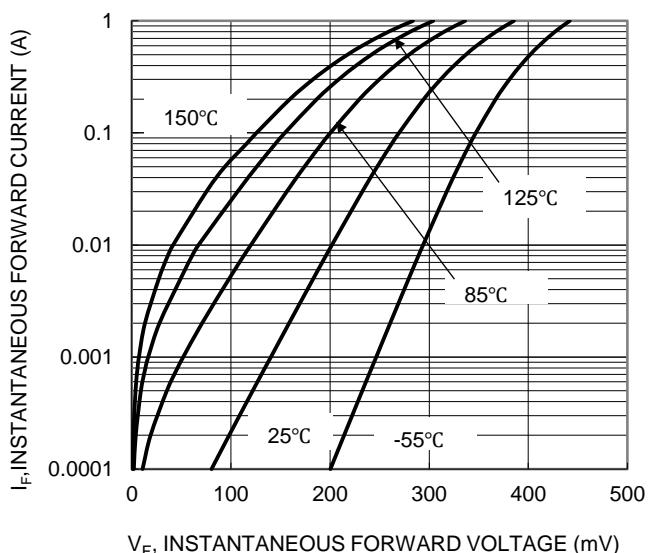


Figure 1. Typical Forward Characteristics

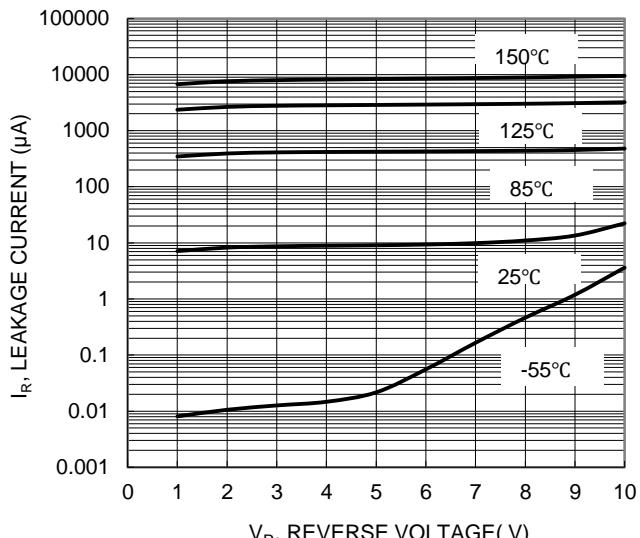


Figure 2. Typical Reverse Characteristics

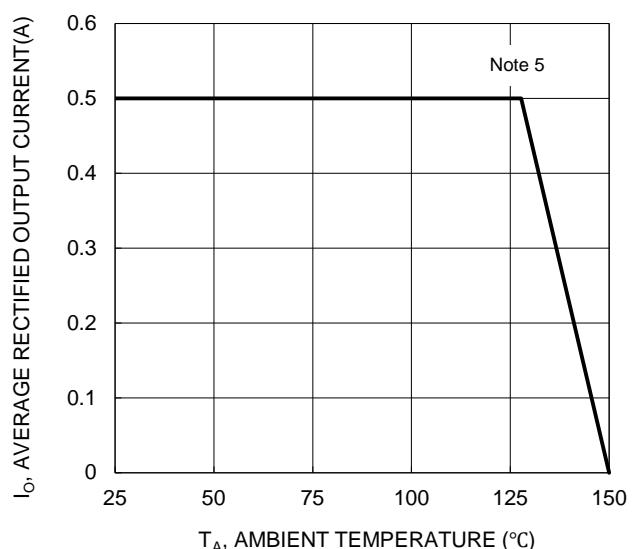


Figure 3. DC Forward Current Derating

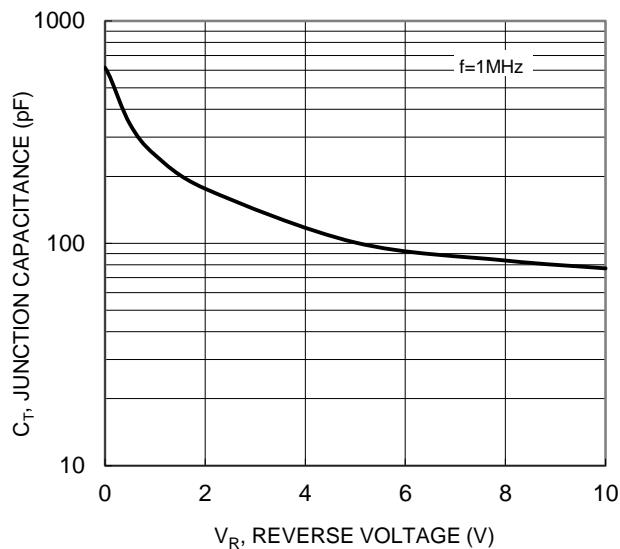
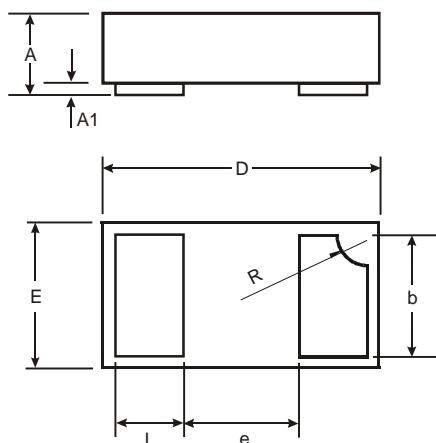


Figure 4. Typical Junction Capacitance

## Package Outline Dimensions

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

**X1-DFN1006-2**



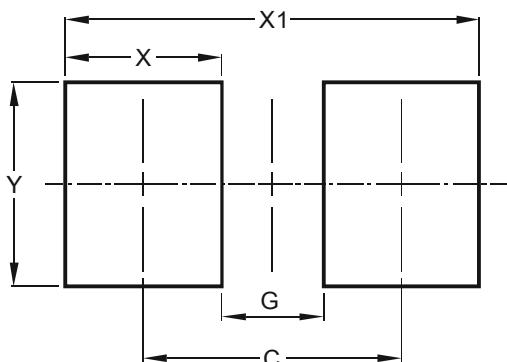
X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.40
L	0.20	0.30	0.25
R	0.05	0.15	0.10

All Dimensions in mm

## Suggested Pad Layout

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

**X1-DFN1006-2**



Dimensions	Value (in mm)
C	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70

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