

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F MAX (V)	I _R MAX (μA)
60	4	0.52	150

Description and Applications

The SBRT4U60LP is a 4A, 60V single rectifier packaged in the low profile DFN3030 package. Providing low V_F and excellent high temperature stability, this device is ideal for use in general rectification applications such as:

- Bypass Diode
- Boost Diode
- Blocking Diode
- Recirculating Diode

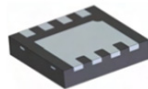
Features and Benefits

- 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
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

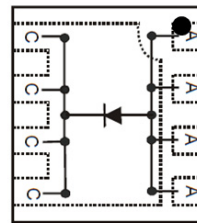
Mechanical Data

- Case: U-DFN3030-8
- Case Material: Molded Plastic, "Green" Molding Compound
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – NiPdAu Annealed over Copper Lead Frame
Solderable per MIL-STD-202, Method 208 (4)
- Weight: 0.0172 grams (approximate)

U-DFN3030-8



Bottom View

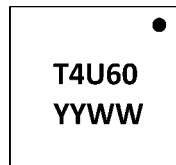

 C = CATHODE
A = ANODE

 Top View
Schematic and Pin Configuration

Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT4U60LP-7	U-DFN3030-8	3000/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 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


T4U60 = Product Type Marking Code
 YYWW = Date Code Marking
 Y Y= Last two digit of year (ex: 14 for 2014)
 WW = Week code 01 to 53

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}	60	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current	I_O	4	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	25	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	110	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	10	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	70	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	4	$^\circ\text{C/W}$
Total Power Dissipation (Note 5)	P_{TOT}	1.4	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	—	0.38	—	V	$I_F = 2\text{A}, T_J = +25^\circ\text{C}$
			0.46	0.52		$I_F = 4\text{A}, T_J = +25^\circ\text{C}$
			0.33	—		$I_F = 2\text{A}, T_J = +125^\circ\text{C}$
			0.45	—		$I_F = 4\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 7)	I_R	—	30	150	μA	$V_R = 60\text{V}, T_J = +25^\circ\text{C}$
			6	—	mA	$V_R = 60\text{V}, T_J = +125^\circ\text{C}$
Total capacitance	C_T	—	180	—	pF	$V_R = 5\text{V}, f = 1\text{MHz}$

- Notes:
- Device mounted on FR-4 substrate, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 - Device mounted on FR-4 substrate, 2 oz. Copper, 1 sq. inch Cu pad.
 - Short duration pulse test used to minimize self-heating effect.

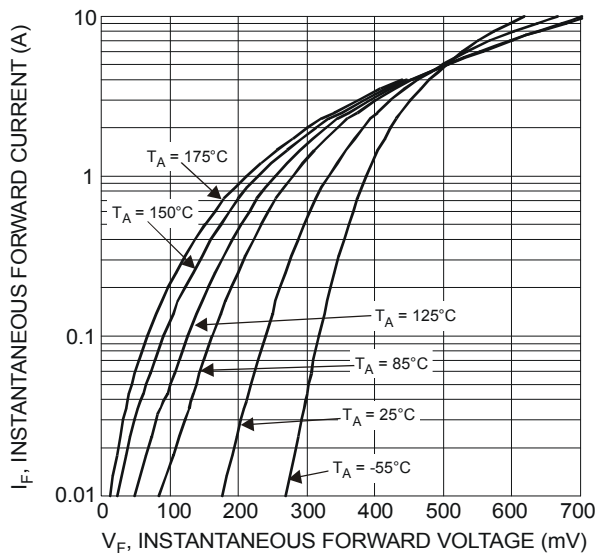


Figure 1 Typical Forward Characteristics

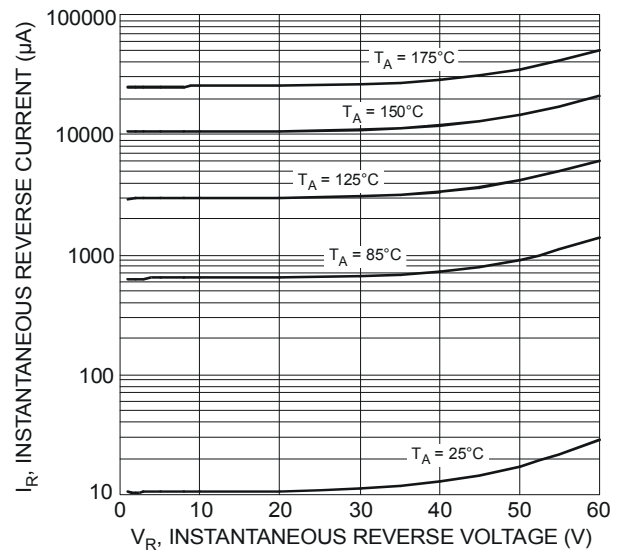


Figure 2 Typical Reverse Characteristics

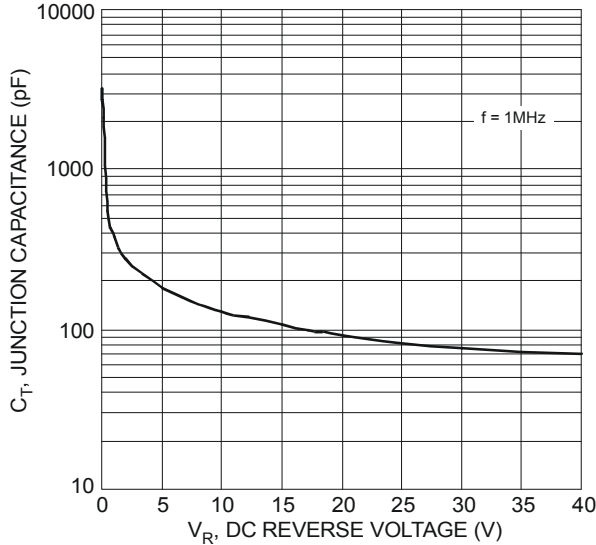


Figure 3 Typical Junction Capacitance

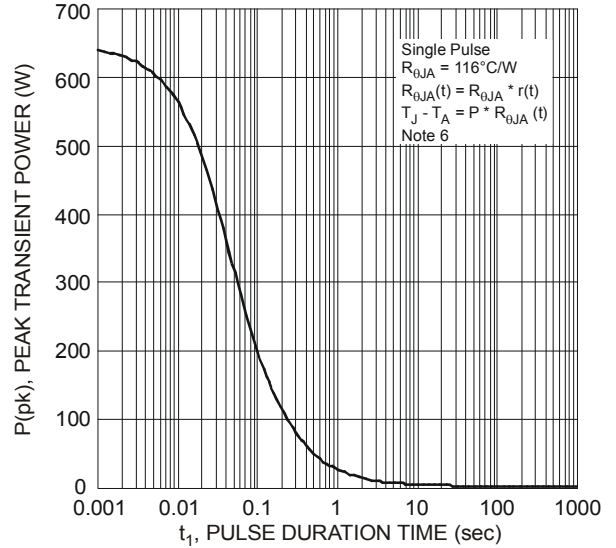


Figure 4 Single Pulse Maximum Power Dissipation

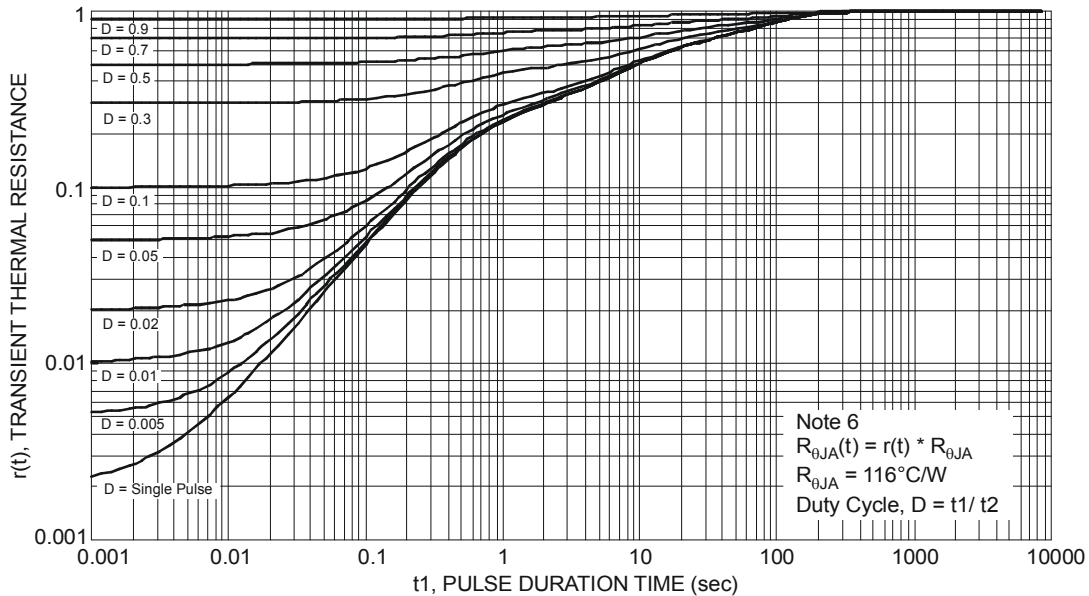


Figure 5 Transient Thermal Resistance

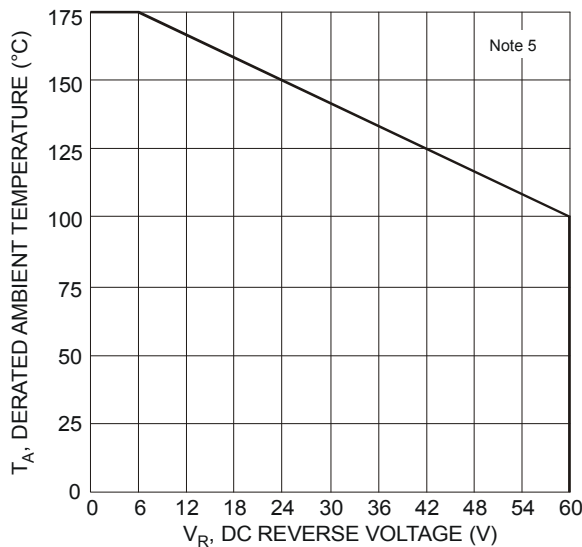
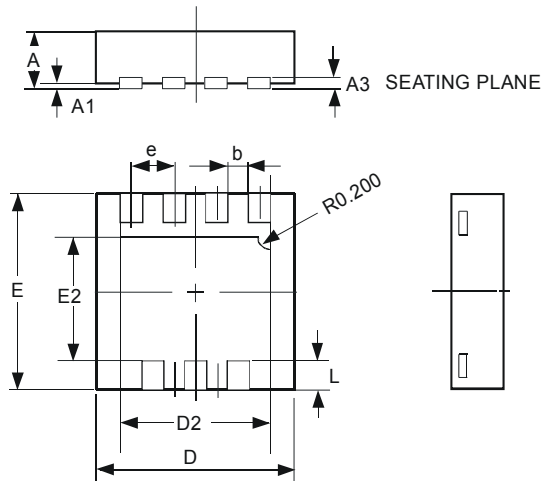


Figure 6 Operating Temperature Derating

Package Outline Dimensions

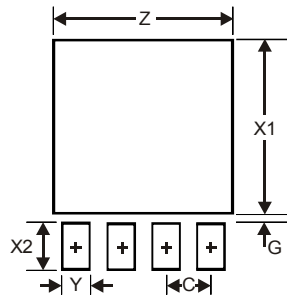
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



U-DFN3030-8			
Dim	Min	Max	Typ
A	0.57	0.63	0.60
A1	0	0.05	0.02
A3	—	—	0.15
b	0.29	0.39	0.34
D	2.90	3.10	3.00
D2	2.19	2.39	2.29
e	—	—	0.65
E	2.90	3.10	3.00
E2	1.64	1.84	1.74
L	0.30	0.60	0.45
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.59
G	0.11
X1	2.49
X2	0.65
Y	0.39
C	0.65

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