

## Product Summary

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>Fmax</sub> (V)	I <sub>R max</sub> (μA)
60	3	0.65	100

## Features and Benefits

- Ultra Low Forward Voltage Drop
- Low reverse leakage current
- Patented Interlocking Clip Design for High Surge Current Capacity
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Description and Applications

The SBR3U60P1 is a single rectifier in POWERDI123 package. Offering excellent high temperature stability and very low forward voltage, this device is ideal for use in the following applications.

- Bridge diodes
- Blocking diodes
- Reverse protection diodes

## Mechanical Data

- Case: POWERDI123
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity Indicator: Cathode Band
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 <sup>(e3)</sup>
- Weight: 0.018 grams (approximate)

POWERDI123



Top View



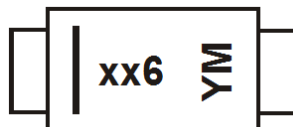
Device symbol

## Ordering Information (Note 4)

Part Number	Case	Packaging
SBR3U60P1-7	POWERDI123	3000/Tape & Reel
SBR3U60P1-13	POWERDI123	10,000/Tape & Reel

- 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](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



SV6, 3U6 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: Y = 2011)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017
Code	Y	Z	A	B	C	D	E

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

### 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	$V_{RM}$		
RMS Reverse Voltage	$V_{R(RMS)}$	42	V
Average Rectified Output Current (See Figure 1)	$I_O$	3.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	80	A
Repetitive Peak Avalanche Energy (1 $\mu\text{s}$ , +25 $^\circ\text{C}$ )	$P_{ARM}$	2100	W

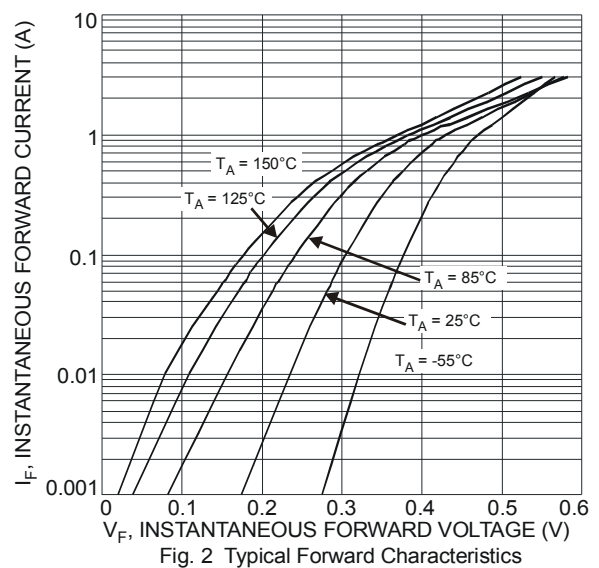
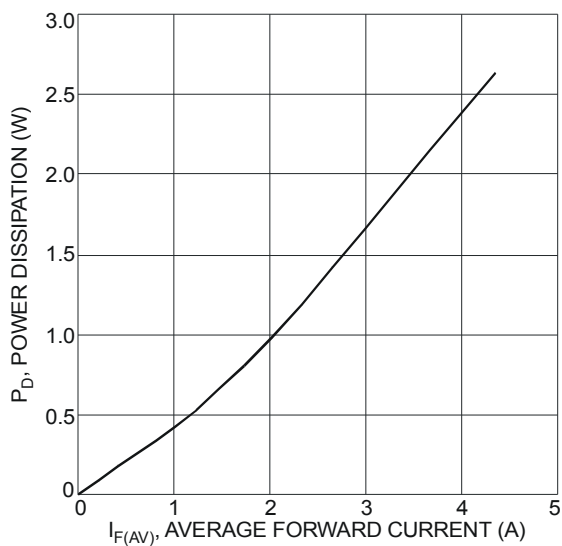
### Thermal Characteristics

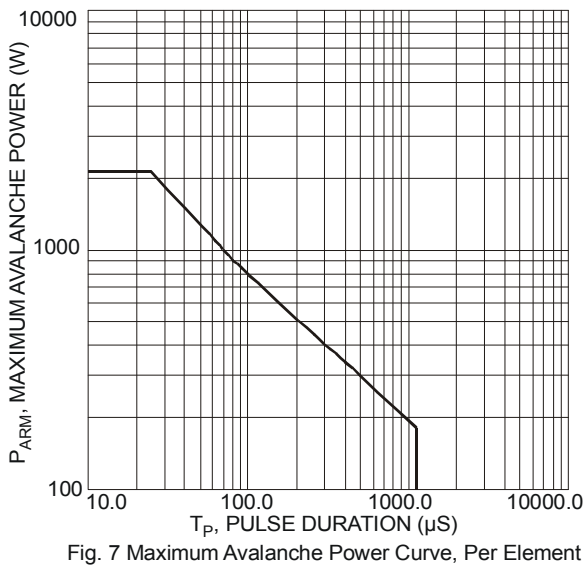
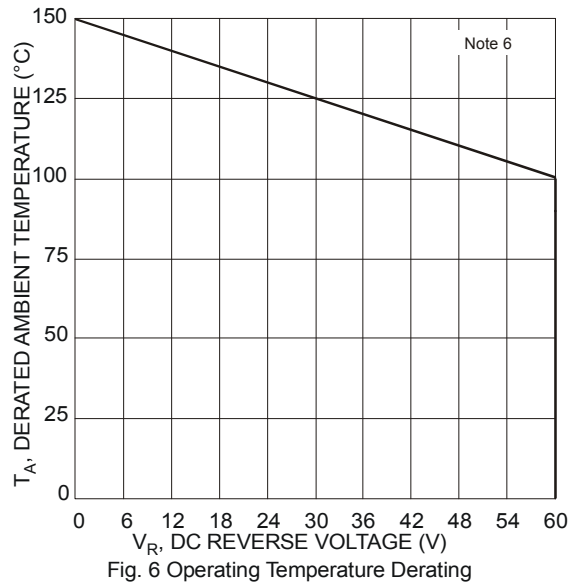
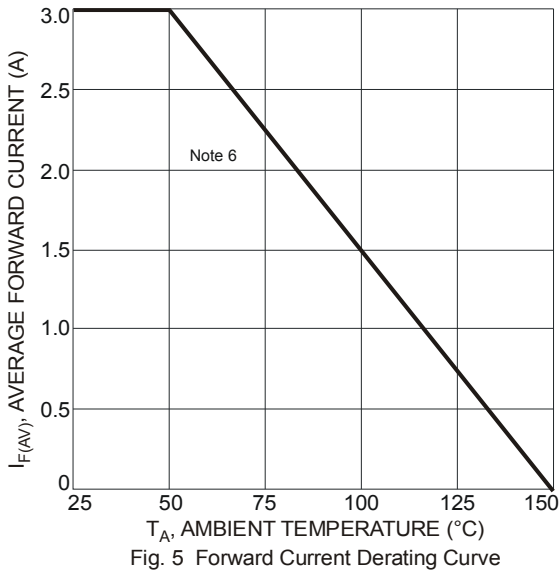
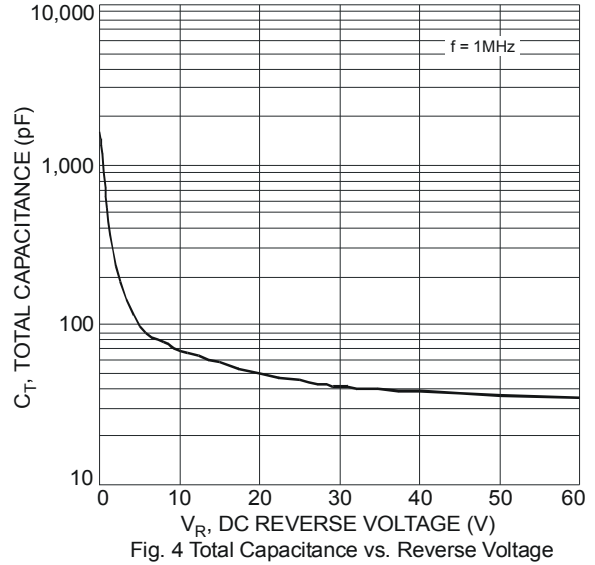
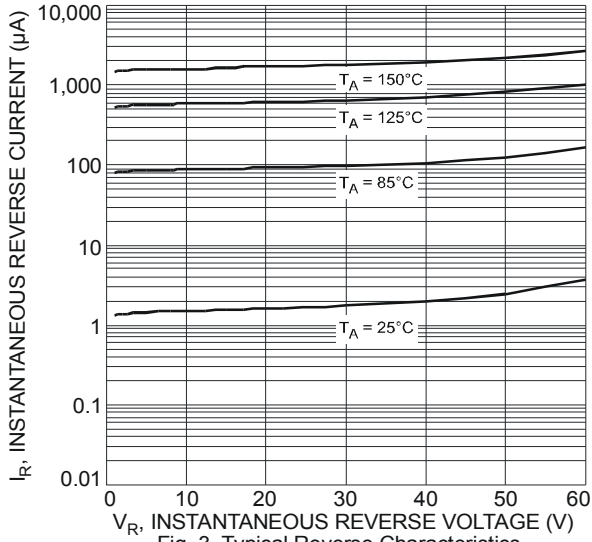
Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Soldering (Note 5)	$R_{\theta JS}$	5	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	175	
Operating and Storage Temperature Range (Note 7)	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

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

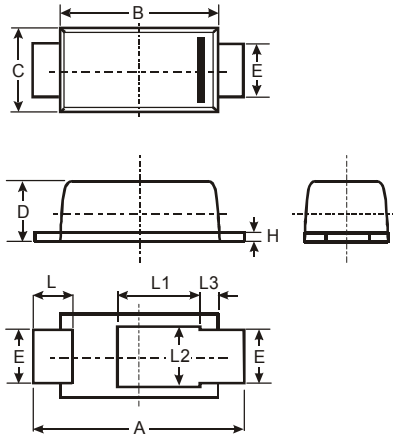
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	-	-	0.650	V	$I_F = 3.0\text{A}, T_J = +25^\circ\text{C}$
Leakage Current (Note 7)	$I_R$	-	-	100	$\mu\text{A}$	$V_R = 60\text{V}, T_J = +25^\circ\text{C}$

- Notes:
- Theoretical  $R_{\theta JS}$  calculated from the top center of the die straight down to the PCB cathode tab solder junction.
  - FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
  - Short duration pulse test used to minimize self-heating effect.



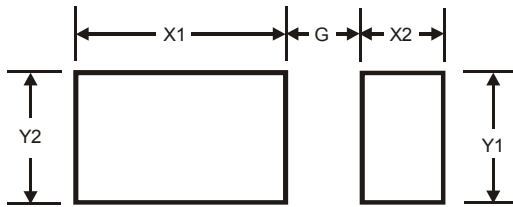


**Package Outline Dimensions**



POWERDI123			
Dim	Min	Max	Typ
A	3.50	3.90	3.70
B	2.60	3.00	2.80
C	1.63	1.93	1.78
D	0.93	1.00	0.98
E	0.85	1.25	1.00
H	0.15	0.25	0.20
L	0.40	0.50	0.45
L1	-	-	1.35
L2	-	-	1.10
L3	-	-	0.20
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**



Dimensions	Value (in mm)
G	1.0
X1	2.2
X2	0.9
Y1	1.4
Y2	1.4

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