

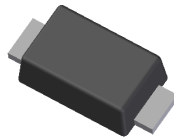
Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F max (V)	I _R max (mA)
60	3	0.56	0.15

Description and Application

Packaged in the compact thermally efficient POWERDI[®]123 package, the SBRT3U60P1 provides very low reverse leakage and excellent V_F stability at high temperatures. It is ideally suited to use as a rectifier diode in MR16 bridge rectifier applications.

- Bridge Diodes
- Blocking Diodes
- Reverse Protection Diodes



Top View



Device Symbol

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 Trench Super Barrier Rectifier SBR[®] Technology
- <1.1mm Package Profile – Ideal for Thin Applications
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

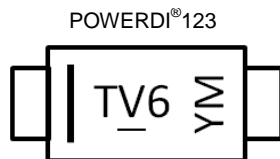
Mechanical Data

- Case: POWERDI[®]123
- Case Material: Molded Plastic, “Green” Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 ③
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT3U60P1-7	POWERDI [®] 123	3,000/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 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


TV6 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: A = 2015)
 M = Month (ex: 9 = September)

Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019	2020
Code	A	B	C	D	E	F	G	H

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}		
Average Rectified Output Current	I_O	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	70	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	53	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	2.1	$^\circ\text{C/W}$
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 (Note 6)	V_F	—	0.47	0.56 0.52	V	$I_F = 3\text{A}, T_J = +25^\circ\text{C}$ $I_F = 3\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6)	I_R	—	—	0.15 30	mA	$V_R = 60\text{V}, T_J = +25^\circ\text{C}$ $V_R = 60\text{V}, T_J = +125^\circ\text{C}$

Notes: 5. Device mounted on 1inch sq. copper pad, 2oz.
6. Short duration pulse test used to minimize self-heating effect.

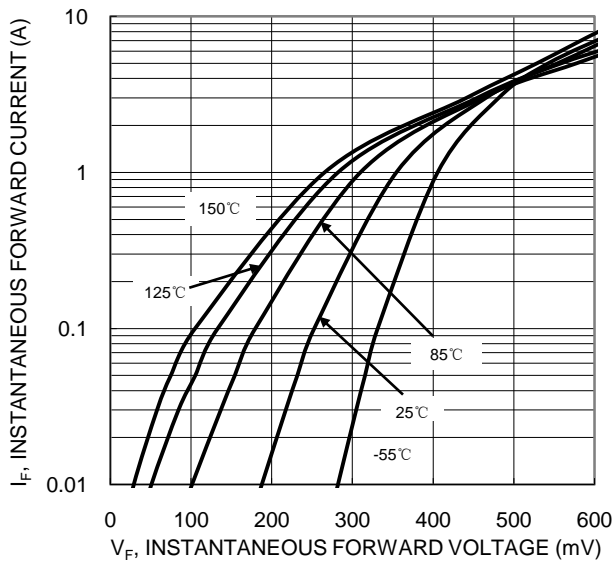


Figure 1 Typical Forward Characteristics

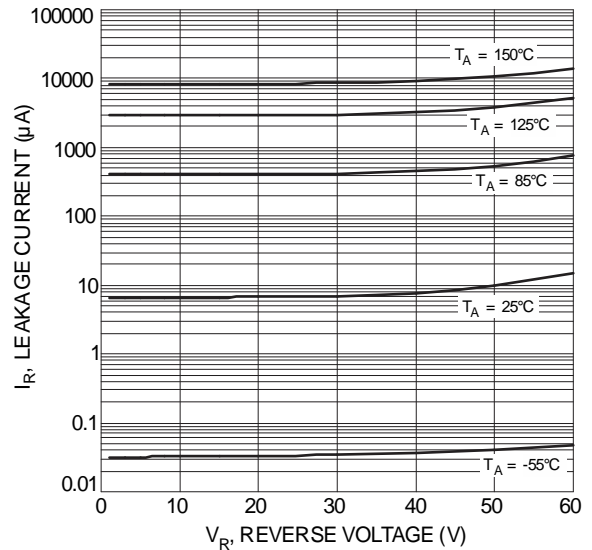
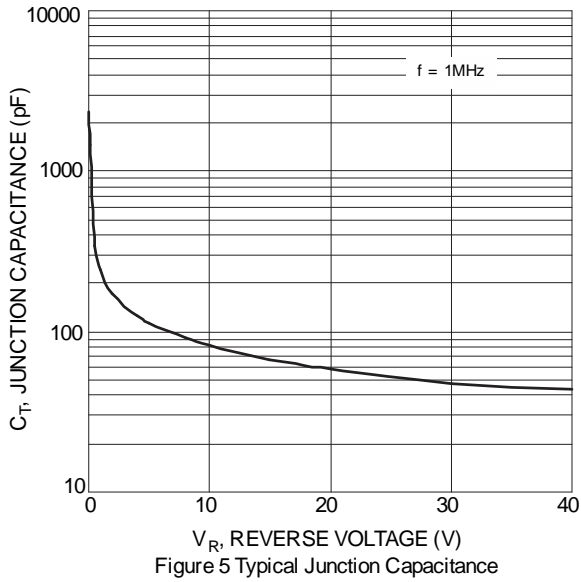
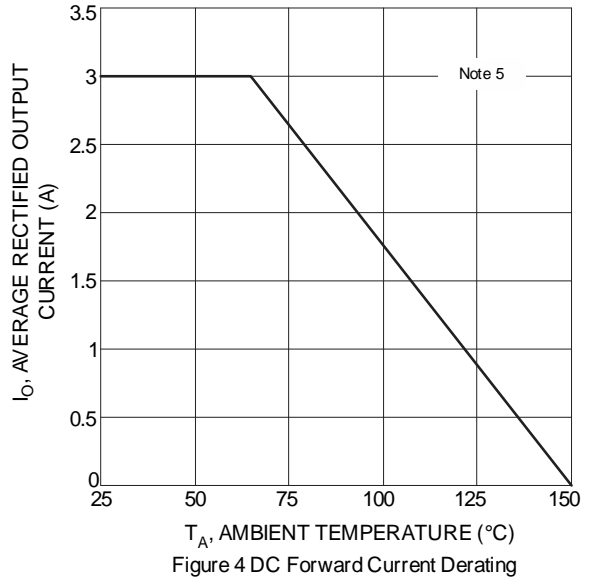
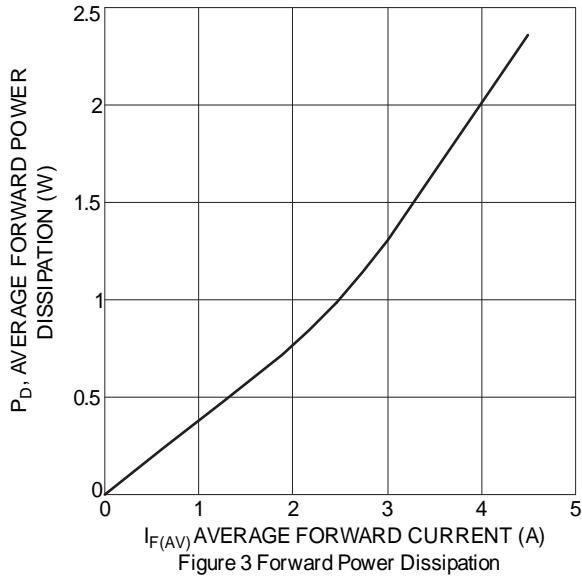


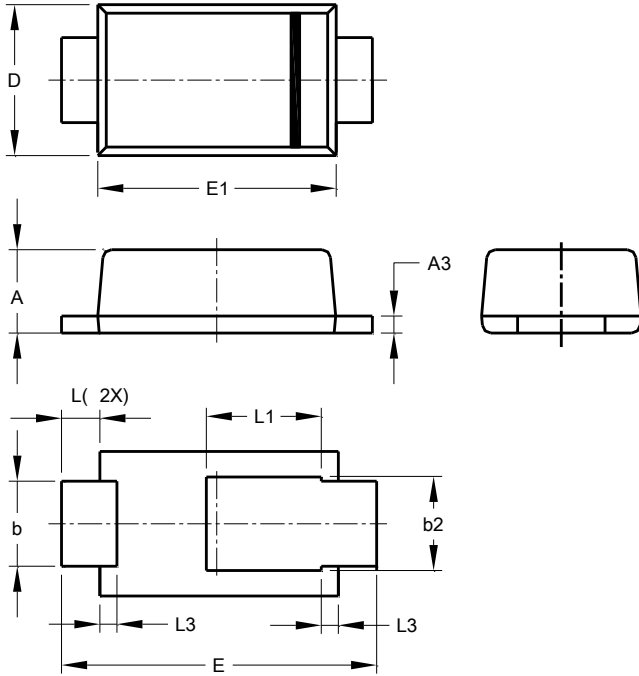
Figure 2 Typical Reverse Characteristics



Package Outline Dimensions

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

POWERDI®123

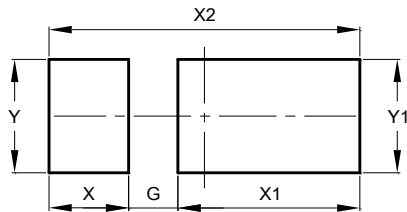


POWERDI®123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

Suggested Pad Layout

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

POWERDI®123



Dimensions	Value (in mm)
G	0.65
X	1.05
X1	2.40
X2	4.10
Y	1.50
Y1	1.50

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