



## SBRT3M60P1

#### 3A TrenchSBR TRENCH SUPER BARRIER RECTIFIER POWERDI®123

## Product Summary (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> max (V)	I <sub>R max</sub> (mA)
60	3	0.59	0.1

#### **Features and Benefits**

- Reduced Low Forward Voltage Drop (VF); Better Efficiency and Cooler Operation
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High **Temperature Operation**
- <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

## **Description and Application**

Packaged in the compact thermally efficient POWERDI®123 package, the SBRT3M60P1 provides very low reverse leakage and excellent V<sub>F</sub> 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

#### **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 (9)
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)





Top View



Device Symbol

## **Ordering Information** (Note 4)

Part Number	Case	Packaging
SBRT3M60P1-7	POWERDI <sup>®</sup> 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**

### POWERDI®123



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

Data Cada Kau

Date Code Key								
Year	2013	2014	2015	2016	2017	2018	2019	2020
Code	Α	В	С	D	Е	F	G	Н

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	Ν	D



## **Maximum Ratings** (@T<sub>A</sub> = +25°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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>RM</sub>	60	V
Average Rectified Output Current	Io	3	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	70	А

## **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	60	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	2.4	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V-	_	0.52	0.59	\/	$I_F = 3A$ , $T_J = +25$ °C
Forward Voltage Drop (Note 6)	V <sub>F</sub>	_	_	0.57	V	$I_F = 3A, T_J = +125$ °C
Lookaga Current (Note 6)		_	_	0.1	A	$V_R = 60V, T_J = +25^{\circ}C$
Leakage Current (Note 6)	IR	_		15	mA	$V_R = 60V, T_J = +125$ °C

Notes:

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

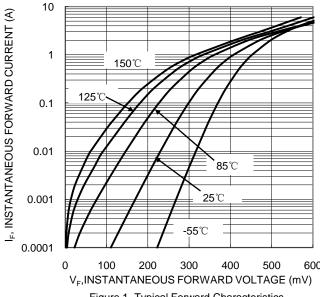


Figure 1. Typical Forward Characteristics

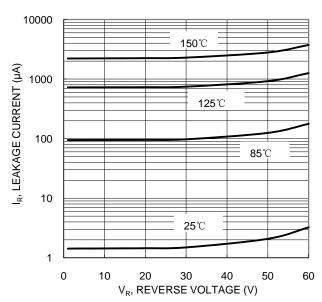


Figure 2. Typical Reverse Characteristics

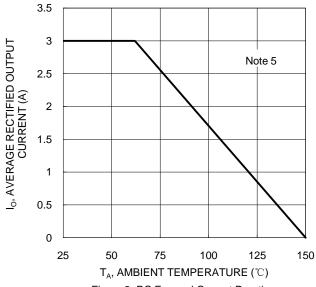


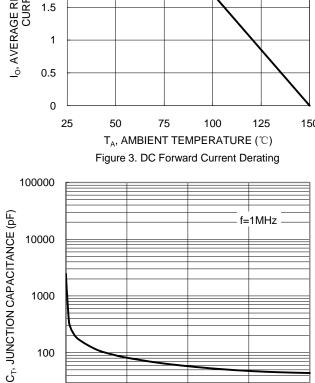
1000

100

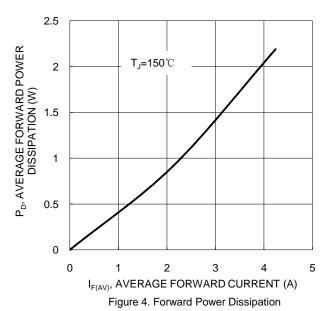
10

0





20 30 10  $V_{\rm R}$ , REVERSE VOLTAGE (V) Figure 5. Typical Junction Capacitance

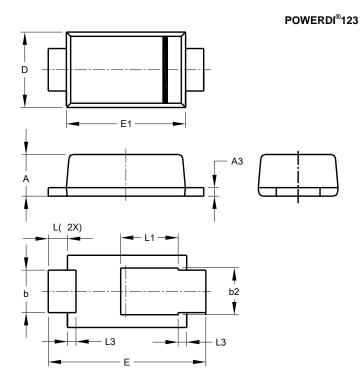


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## **Package Outline Dimensions**

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

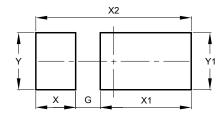


POWERDI®123								
Dim	Min	Max	Тур					
Α	0.93	1.00	0.98					
A3	0.15	0.25	0.20					
b	0.85	1.25	1.00					
b2	1.025	1.125	1.10					
D	1.63	1.93	1.78					
Е	3.50	3.90	3.70					
E1	2.60	3.00	2.80					
L	0.40	0.50	0.45					
L1	1.25	1.40	1.35					
L3	0.125	0.275	0.20					
All Dimensions in mm								

# **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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