



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Features

- Ultra Low Forward Voltage Drop
- Patented Super Barrier Rectifier Technology
- 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)**

Mechanical Data

- Case: POWERDI5
- 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 
- Polarity: See Below
- Weight: 0.093 grams (approximate)




POWERDI5



Top View



Bottom View

LEFT PIN  RIGHT PIN   BOTTOMSIDE HEAT SINK

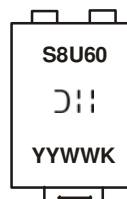
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 4)

Part Number	Case	Packaging
SBR8U60P5-13	POWERDI5	5000/Tape & Reel
SBR8U60P5-13D (Note 5)	POWERDI5	5000/Tape & Reel
SBR8U60P5-7	POWERDI5	1500/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>.
 5. "D" suffix designate for the 12mm Tape and Reel option.

Marking Information



S8U60 = Product Type Marking Code
 111 = Manufacturers' Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 13 for 2013)
 WW = Week Code (01 - 53)
 K = Factory Designator

Maximum Ratings (@T_A = +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	V _{RRM}	60	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
Average Rectified Output Current	I _O	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	280	A
Repetitive Peak Avalanche Power (1μs, +25°C)	P _{ARM}	5,000	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance	R _{θJS}	3	°C/W
Thermal Resistance Junction to Soldering (Note 6)		60	
Thermal Resistance Junction to Ambient (Note 7)	R _{θJA}		
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V _F	—	0.30	0.35	V	I _F = 1.0A, T _J = +25°C
		—	0.46	0.53		I _F = 8A, T _J = +25°C
		—	—	0.5		I _F = 8A, T _J = +125°C
Leakage Current (Note 8)	I _R	—	0.12	0.6	mA	V _R = 60V, T _J = +25°C
		—	—	100		V _R = 60V, T _J = +125°C

Notes: 6. Theoretical R_{θJS} calculated from the top center of the die straight down to the PCB cathode tab solder junction.
7. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
8. Short duration pulse test used to minimize self-heating effect.

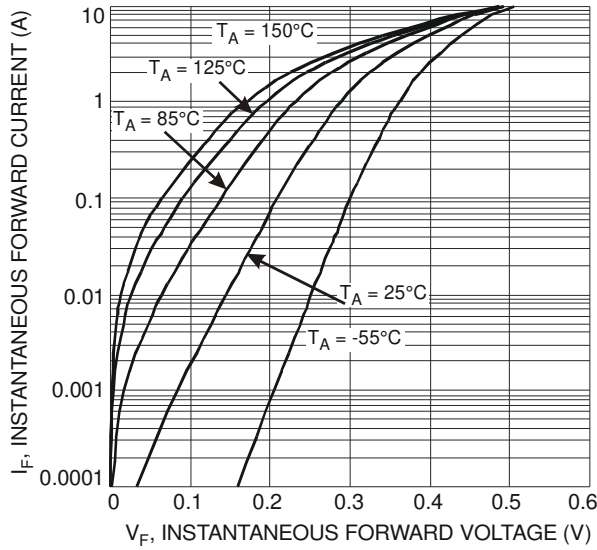


Fig. 1 Typical Forward Characteristics

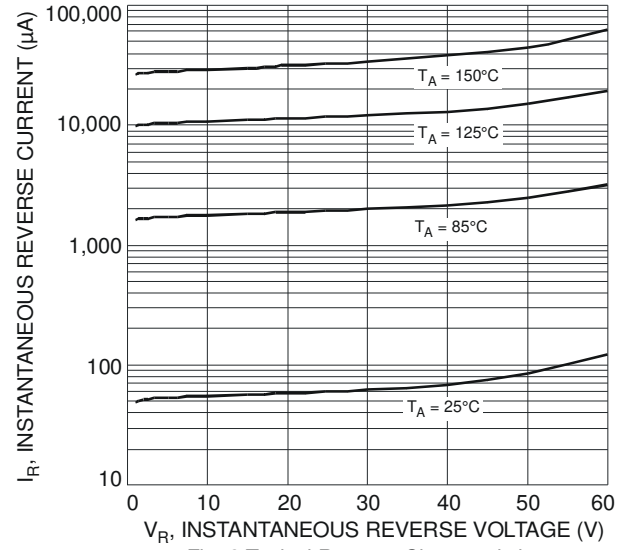


Fig. 2 Typical Reverse Characteristics

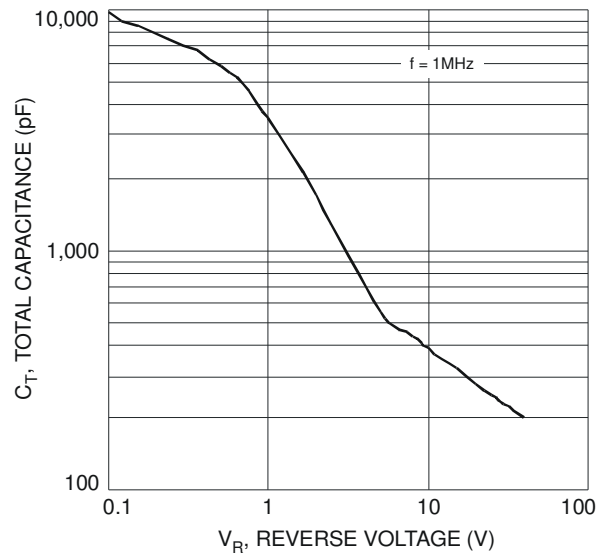


Fig. 3 Typical Total Capacitance

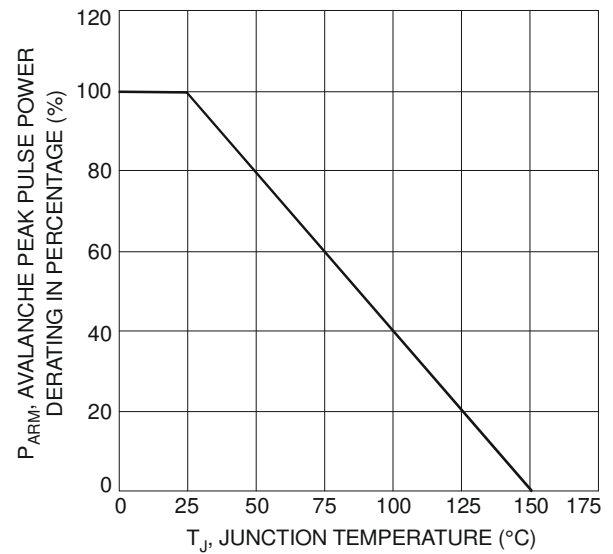


Fig. 4 Pulse Derating Curve

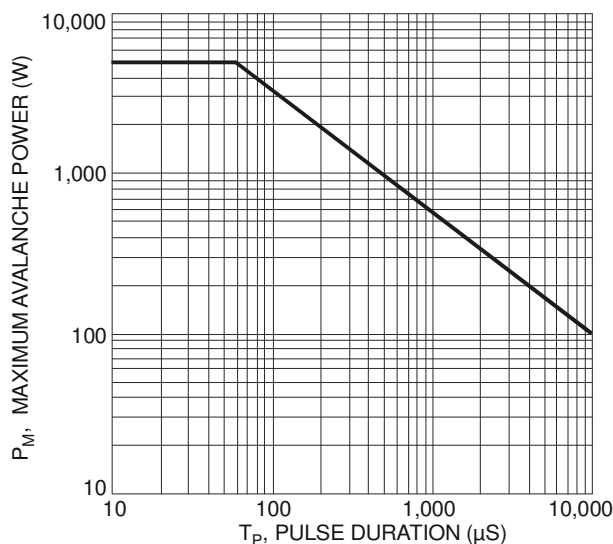


Fig. 5 Maximum Avalanche Power vs. Pulse Duration

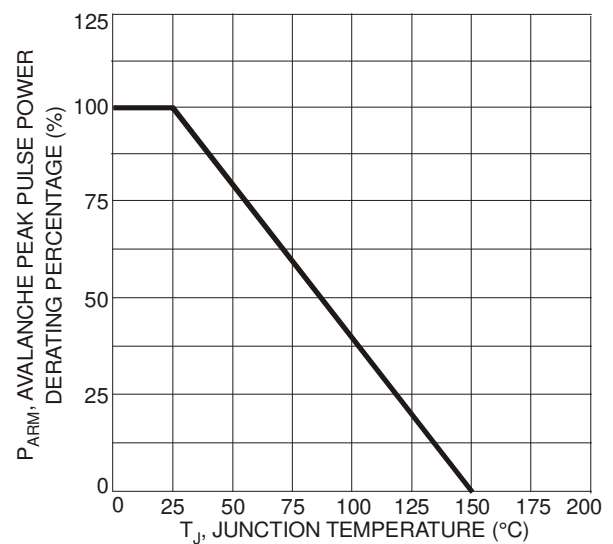


Fig. 6 Pulse Derating Curve

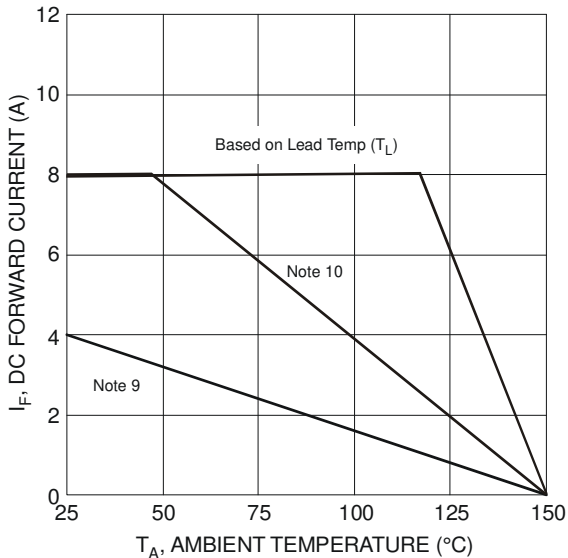


Figure 7 DC Forward Current Derating Curve

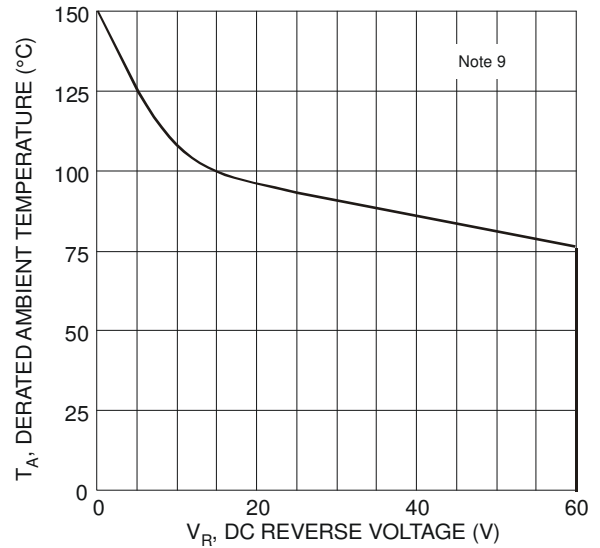
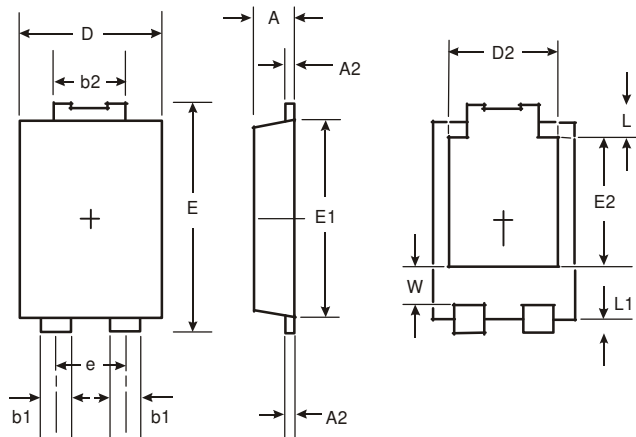


Figure 8 Operating Temperature Derating

- Notes:
- 9. Device mounted on FR-4 substrate, 2oz copper, with minimum recommended pad layout.
 - 10. Device mounted on FR-4 substrate, 2oz copper, with 10cm x 10cm pad layout.

Package Outline Dimensions

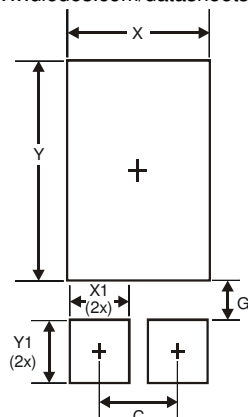
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



POWERDI5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
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)
C	1.840
G	0.852
X	3.360
X1	1.390
Y	4.860
Y1	1.400

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