

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F Max (V)	I _R Max (mA)
60	3	0.60	0.10

Description

The SBR3U60SLDQ has two independent 3A, 60V rectifiers in one PowerDI[®]5060-8 (Type D) package.

Applications

Offering low leakage at high temperatures and low forward voltage, this device is ideal for use in the following applications:

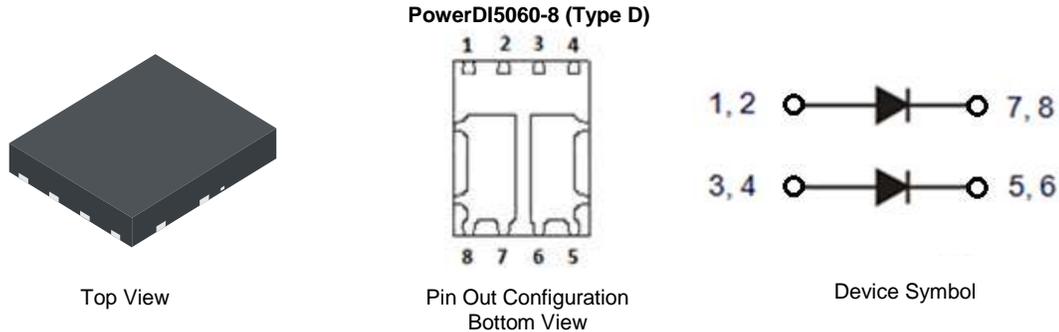
- Bridge Diodes
- Freewheeling Diodes
- Blocking Diodes
- Reverse Protection Diodes

Features and Benefits

- Very Low Forward Voltage Drop
- Excellent High-Temperature Stability
- Patented SBR[®] technology provides a superior avalanche capability than Schottky diodes ensuring more rugged and reliable end applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability PPAP Capable (Note 4)**

Mechanical Data

- Case: PowerDI5060-8 (Type D)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – NiPdAu over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 0.097grams (Approximate)



Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
SBR3U60SLDQ-13	Automotive	PowerDI5060-8 (Type D)	2,500/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> 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. Automotive products are AEC-Q10x qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



= Manufacturers' Marking
 SBR3U60 = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 17 = 2017)
 WW = Week (01–53)

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 (Per Diode)	I _O	3.0	A
Non-Repetitive Avalanche Energy (T _J = +25°C, I _{AS} = 2A, L = 50mH)	E _{AS}	90	mJ
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Per Diode)	I _{FSM}	60	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Note 6)	R _{θJA}	105	°C/W
Typical Thermal Resistance (Note 6)	R _{θJC}	20	°C/W
Typical Thermal Resistance (Note 6)	R _{θJA}	70	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +175	°C

Note: 6. Device mounted on FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
7. Device mounted on 2 inch x 2 inch Al board.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
Forward Voltage Drop (Per Diode)	V _F	—	0.43	—	V	I _F = 1.5A I _F = 3.0A	
		—	0.53	0.60			T _A = +25°C
		—	0.40	—		I _F = 1.5A I _F = 3.0A	T _A = +125°C
		—	0.52	—			
Reverse Current (Note 8) (Per Diode)	I _R	—	0.008	0.10	mA	V _R = 60V, T _J = +25°C	
		—	2.5	15		V _R = 60V, T _J = +125°C	
Total Capacitance	C _T	—	110	—	pF	V _R = 4V, f = 1MHz, T _J = +25°C	

Note: 8. Short duration pulse test used to minimize self-heating effect.

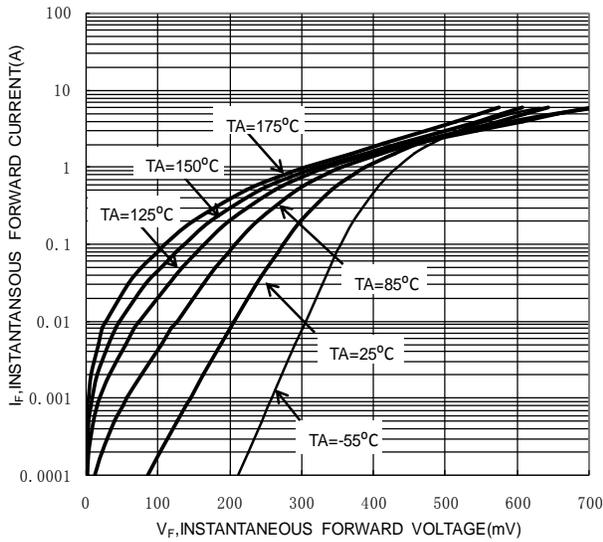


Figure.1 Typical Forward Characteristics

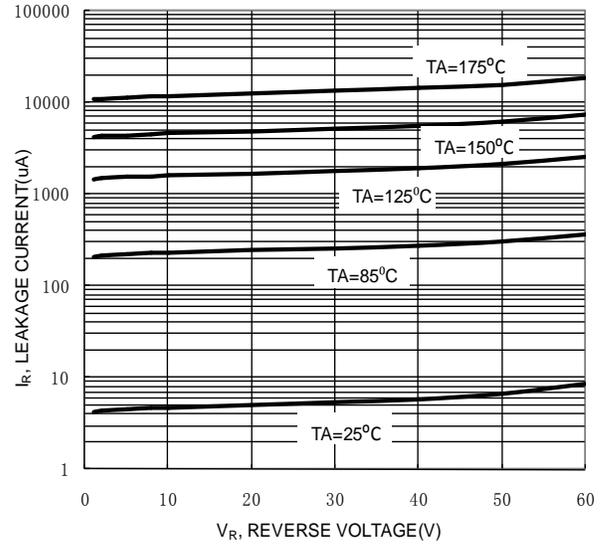


Figure.2 Typical Reverse Characteristics

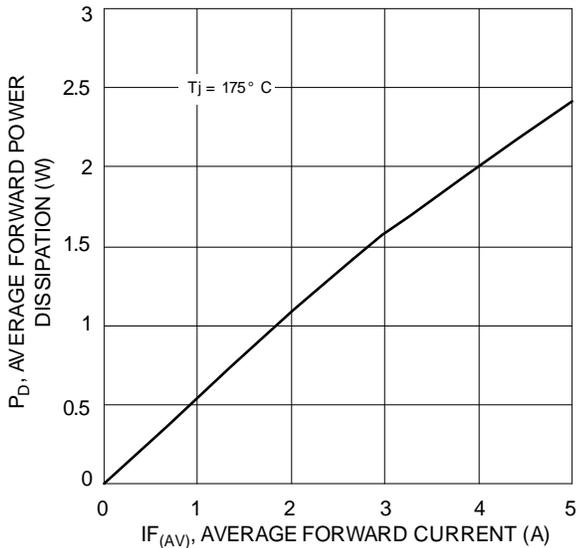


Figure 3 Forward Power Dissipation

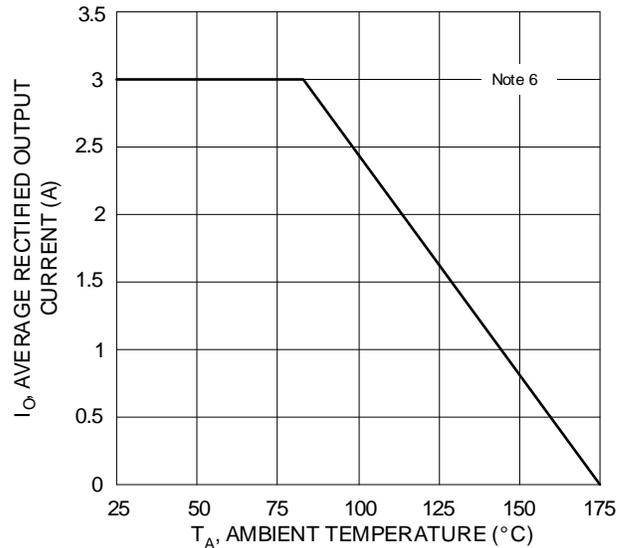


Figure 4 DC Forward Current Derating Curve

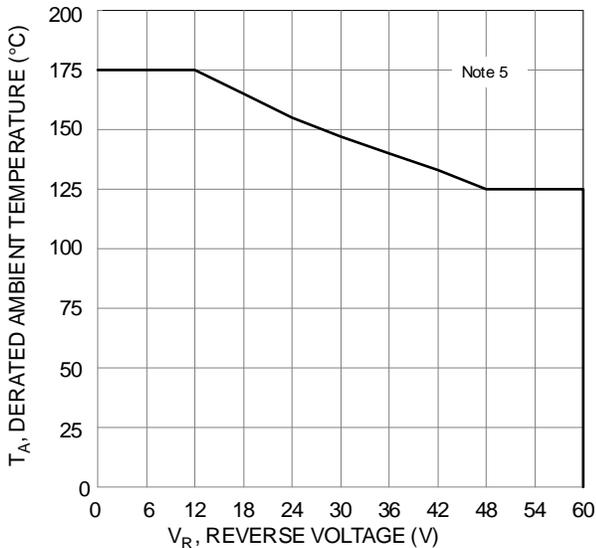


Figure 5 Operating Temperature Derating Curve

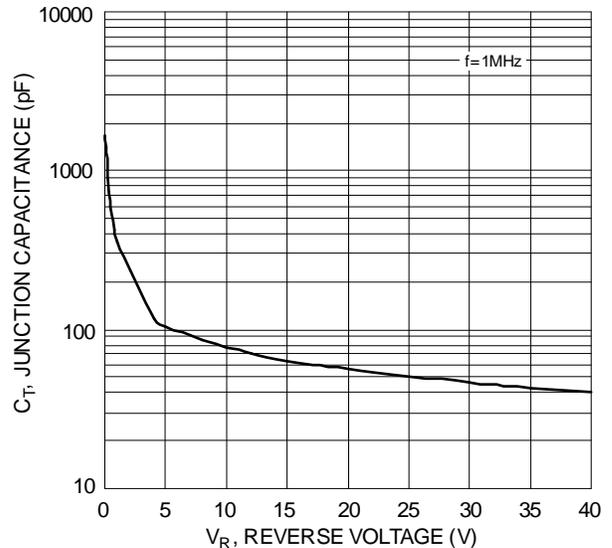
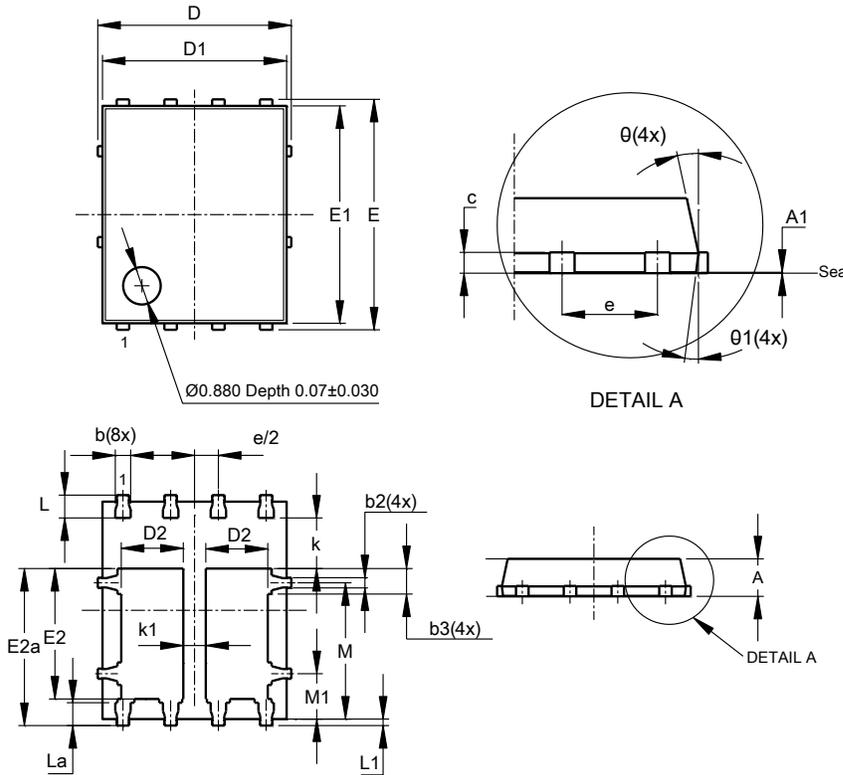


Figure 6 Typical Junction Capacitance

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

PowerDI5060-8 (Type D)

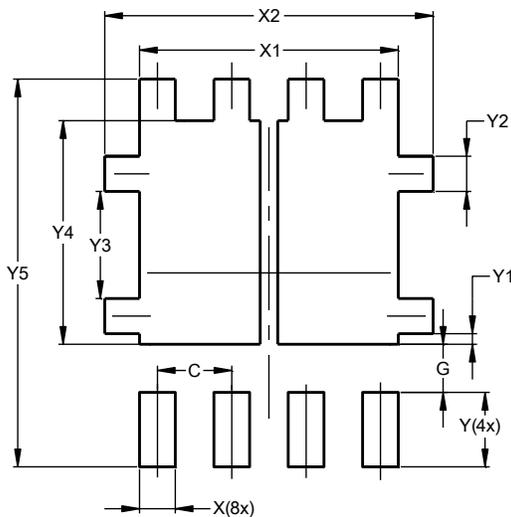


PowerDI5060-8 (Type D)			
Dim	Min	Max	Typ
A	0.90	1.10	1.00
A1	0.00	0.05	0.02
b	0.33	0.51	0.41
b2	0.200	0.350	0.273
b3	0.48	0.88	0.68
c	0.230	0.330	0.277
D	5.15 BSC		
D1	4.70	5.10	4.90
D2	1.45	1.85	1.65
E	6.15 BSC		
E1	5.60	6.00	5.80
E2	3.28	3.68	3.48
E2a	3.99	4.39	4.19
e	1.27BSC		
k	0.51	—	—
k1	0.60 BSC		
L	0.51	0.71	0.61
La	0.51	0.71	0.61
L1	0.10	0.20	0.175
M	3.235	4.035	3.635
M1	1.00	1.40	1.21
θ	10°	12°	11°
θ1	6°	8°	7°
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

PowerDI5060-8 (Type D)



Dimensions	Value (in mm)
C	1.270
G	0.820
X	0.610
X1	4.420
X2	5.610
Y	1.270
Y1	0.180
Y2	0.600
Y3	1.825
Y4	3.810
Y5	6.610

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