SBR3U60P5Q

3A SBR
SUPER BARRIER RECTIFIER
PowerDI5

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F Max (V) @ +25°C	I_R Max (mA) @ +25°C
60	3	0.60	0.06

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.
- **Lead-Free Finish; 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)**

Description & Applications

Packaged in the compact thermally efficient PowerDI5 package, provides low V_F and low reverse leakage at high temperatures.

It is ideal for use in the following applications:

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

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
- Terminal Connections: See Diagram Below
- Weight: 0.093 grams (Approximate)

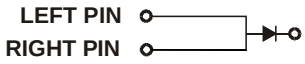
PowerDI5



Top View



Bottom View



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

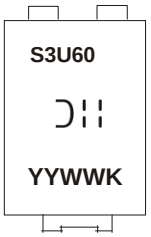
Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
SBR3U60P5Q-13	Automotive	PowerDI5	5,000/Tape & Reel
SBR3U60P5Q-13D (Note 6)	Automotive	PowerDI5	5,000/Tape & Reel
SBR3U60P5Q-7 (Note 6)	Automotive	PowerDI5	1,500/Tape & Reel
SBR3U60P5Q-7D (Note 6)	Automotive	PowerDI5	1,500/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/product_compliance_definitions.html.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.
6. PowerDI5 available in 5K quantity on 13-inch reel & 12mm tape, part number suffix "13D"; 1.5K quantity on 7-inch reel, part number suffix "7". Diodes also provides 12mm tape with 7-inch reel, part number suffix "7D".

Marking Information

PowerDI5



= Manufacturers' Marking
S3U60 = Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 = 2015)
WW = Week Code (01 to 53)
K = Factory Designator

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM}	60	V
Average Rectified Output Current	I_O	3	A
Non-Repetitive Avalanche Energy (T_J= +25°C, I_{AS}= 2A, L = 50mH)	E_{AS}	120	mJ
Non-Repetitive Peak Forward Surge Current 8.3mS	I_{FSM}	80	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Note 7)	$R_{\theta JA}$	95	°C/W
Typical Thermal Resistance (Note 8)	$R_{\theta JA}$	35	°C/W
Typical Thermal Resistance (Note 7)	$R_{\theta JC}$	15	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— — — —	0.43 0.53 0.40 0.52	— 0.60 — —	V	I_F =1.5A, T_J = +25°C I_F =3.0A, T_J = +25°C I_F =1.5A, T_J = +125°C I_F =3.0A, T_J = +125°C
Leakage Current (Note 9)	I_R	— —	0.009 2.7	0.06 15	mA	V_R = 60V , T_J = +25°C V_R = 60V , T_J = +125°C
Total Capacitance	C_T	—	110	—	pF	V_R = 4V , T_J = +25°C, f=1MHz

Notes: 7. Device mounted on FR-4 PCB, 2oz. copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
8. Device mounted on 2 inch x 2 inch Al board.
9. Short duration pulse test used to minimize self-heating effect.

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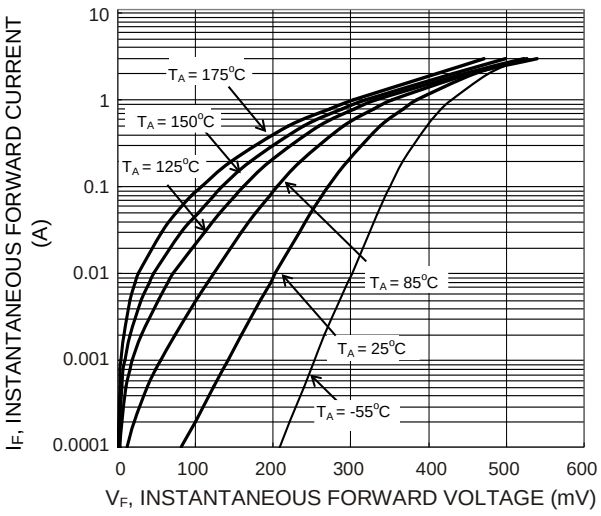


Figure 1 Typical Forward Characteristics

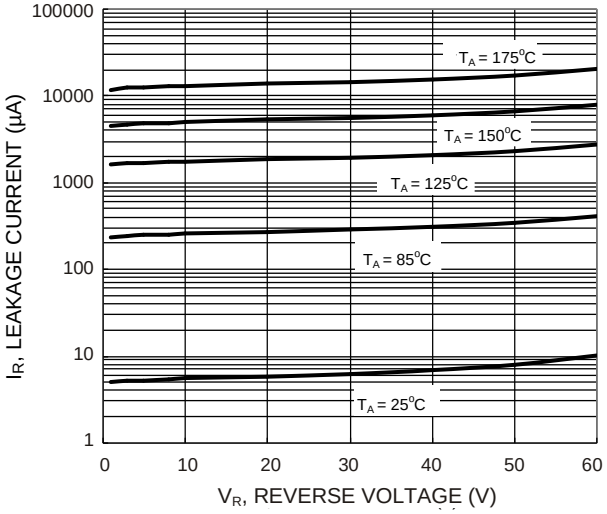


Figure 2 Typical Reverse Characteristics

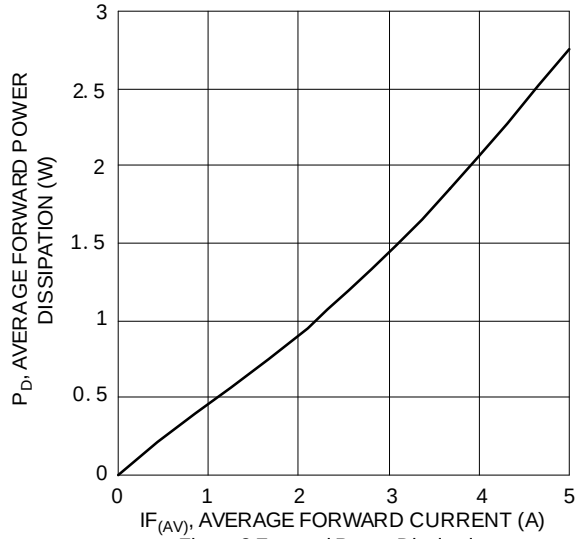


Figure 3 Forward Power Dissipation

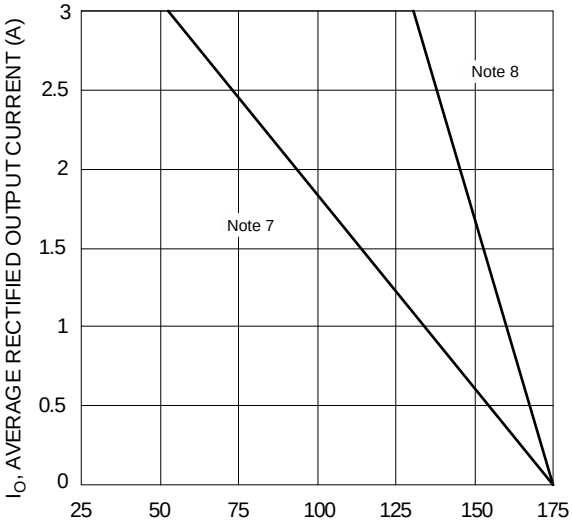


Figure 4 DC Forward Current Derating Curve

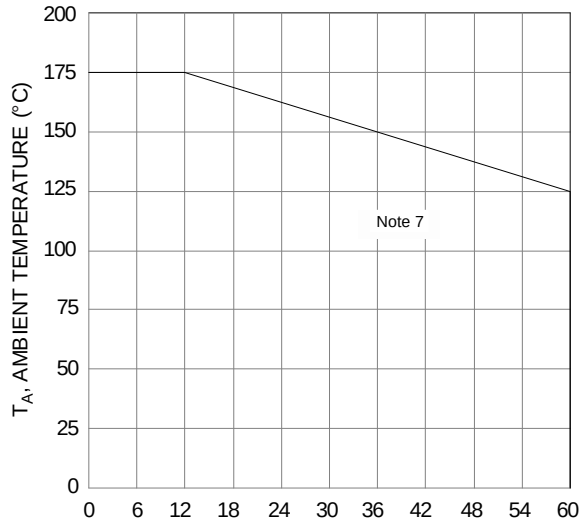


Figure 5 Operating Temperature Derating

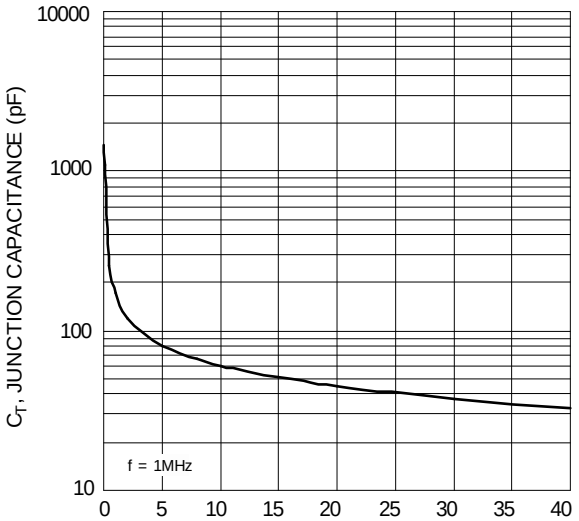


Figure 6 Typical Junction Capacitance

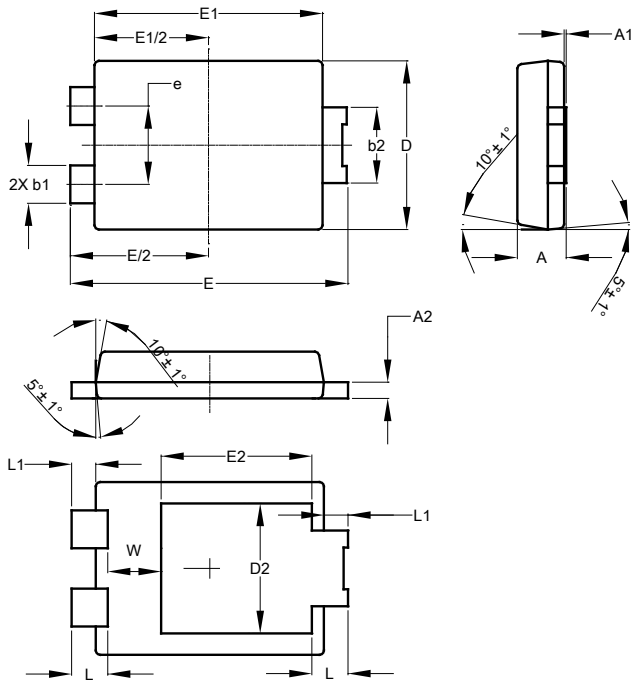
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Package Outline Dimensions

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

PowerDI5

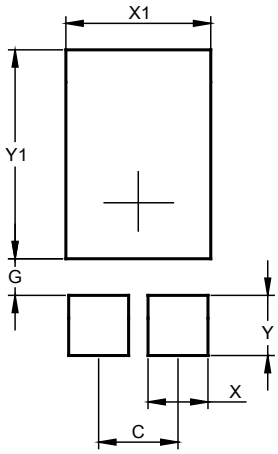


PowerDI5			
Dim	**Min**	**Max**	**Typ**
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.504
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

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

PowerDI5



Dimensions	Value (in mm)
C	1.840
G	0.852
X	1.390
X1	3.360
Y	1.400
Y1	4.860

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