

Product Summary

V _{RRM} (V)	I _O (A)	V _F MAX (V) @+25°C	I _R MAX (mA) @+25°C
100	15	0.8	0.1

Description and Applications

This Super Barrier Rectifier (SBR) diode has been designed to meet the stringent requirements of Automotive Applications. It is ideally suited to use as :

- Polarity Protection Diode
- Re-circulating Diode
- Switching Diode

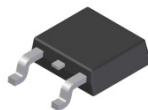
Features and Benefits

- 100% Avalanche Tested
- Patented SBR technology provides a superior avalanche capability than schottky diodes ensuring more rugged and reliable end applications
- Reduced ultra-low forward voltage drop (V_F); better efficiency and cooler operation
- Reduced high temperature reverse leakage; increased reliability against thermal runaway failure at high temperature
- **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)**

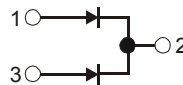
Mechanical Data

- Case: TO252 (DPAK)
- 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 **e3**
- Polarity: See Below
- Weight: 0.34 grams (approximate)

TO252



Top View



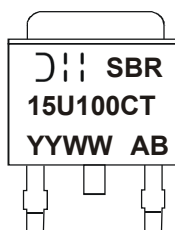
Polarity

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
SBR15U100CTLQ-13	Automotive	TO252	2500 pieces/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. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

Marking Information



SBR15U100CT = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 14 = 2014)
 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}	100	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
Average Rectified Output Current	I _O	15	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	100	A
Repetitive Peak Avalanche Power (1 μs, +25°C)	P _{ARM}	2800	W
Non-Repetitive Avalanche Energy (T _J = +25°C, I _{AS} = 7.5A, L = 10mH)	E _{AS}	192	mJ

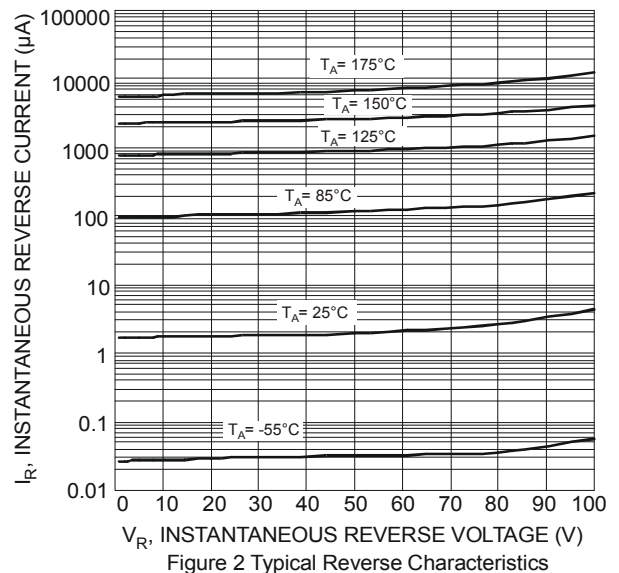
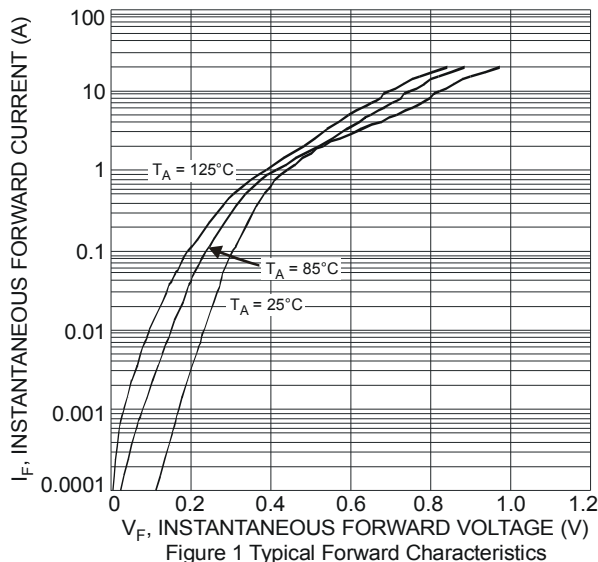
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Per Leg)	R _{θJC}	2	°C/W
Thermal Resistance Junction to Case (Note 6)			
Operating and Storage Temperature Range	T _J , T _{STG}	-55 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	—	—	0.80	V	I _F = 7.5A, T _J = +25°C I _F = 7.5A, T _J = +125°C
Leakage Current (Note 7)	I _R	—	—	0.10	mA	V _R = 100V, T _J = +25°C V _R = 100V, T _J = +125°C

- Notes: 6. Polyimide PCB 2 oz. Copper, minimum recommended pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com>.
7. Short duration pulse test used to minimize self-heating effect.



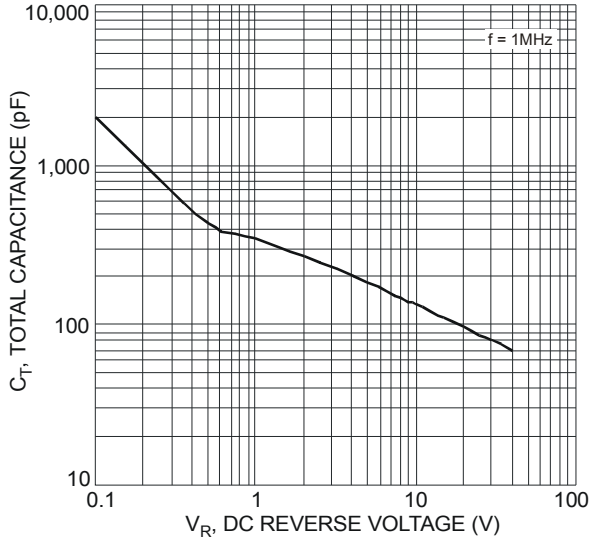


Figure 3 Total Capacitance vs. Reverse Voltage

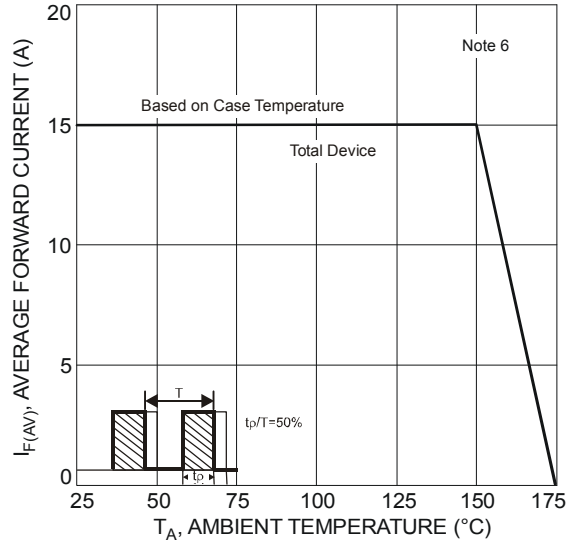


Figure 4 Forward Current Derating Curve

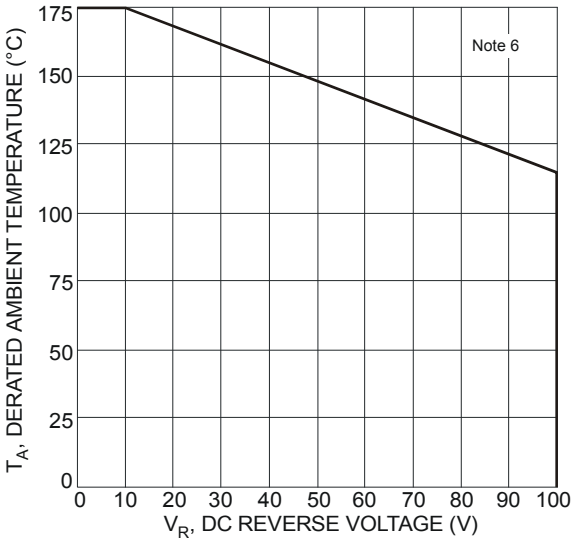


Figure 5 Operating Temperature Derating

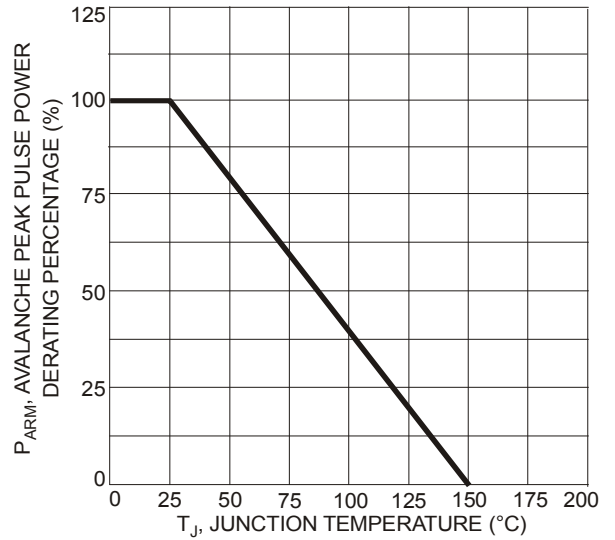


Figure 6 Pulse Derating Curve

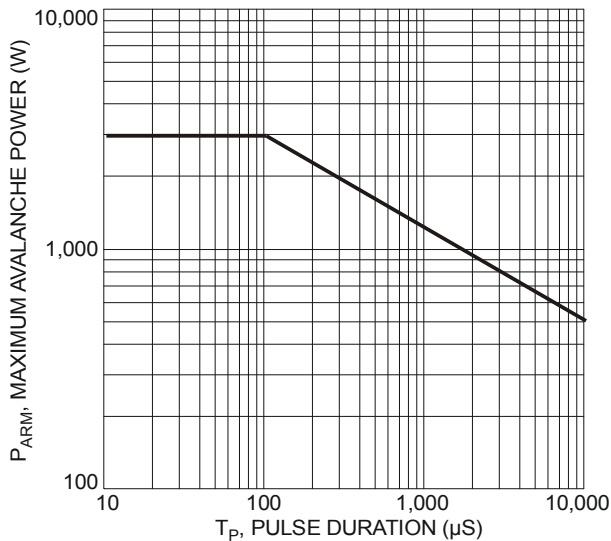


Figure 7 Maximum Avalanche Power Curve, Per Element

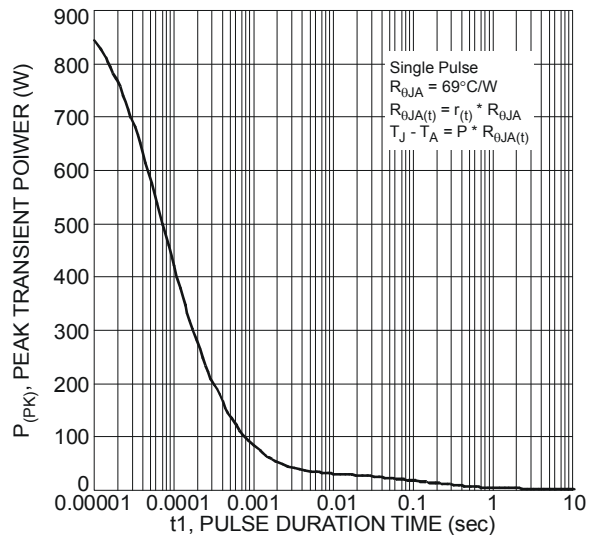


Figure 8 Single Pulse Maximum Power Dissipation

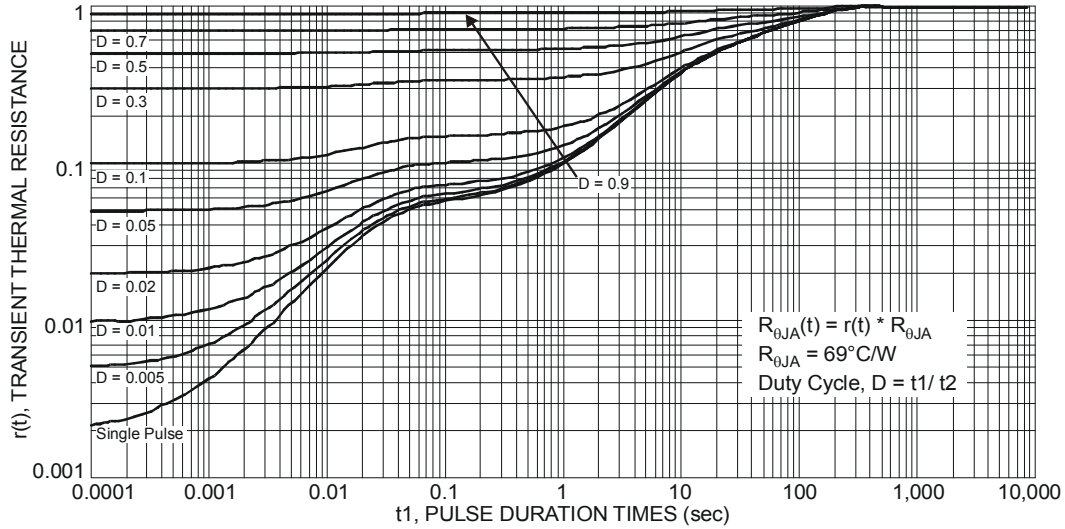
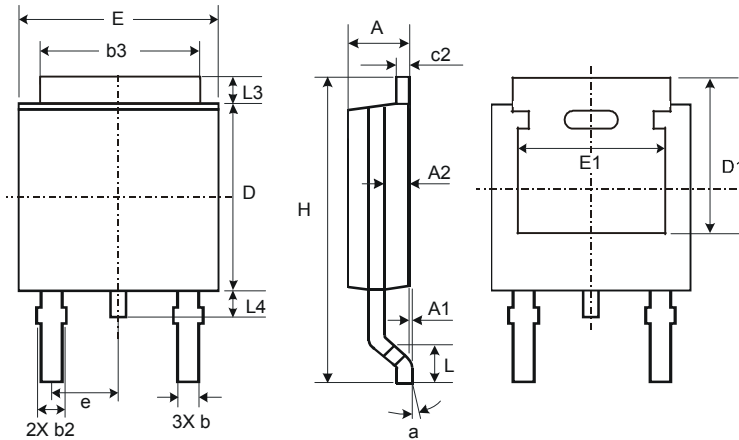


Figure 9 Transient Thermal Resistance

Package Outline Dimensions

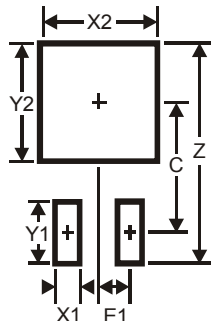
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version



TO252			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c2	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-
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)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
C	6.9
E1	2.3

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