SBR15U100CTLQ

15A SBR
SUPER BARRIER RECTIFIER

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

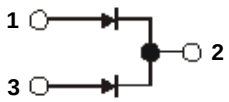
- 100% Avalanche Tested
- Patented Super Barrier Rectifier SBR® Technology, providing a superior avalanche capability than Schottky diodes ensuring more rugged and reliable end applications
- Reduced ultra-low forward voltage drop (V_F); better efficiency and cooler operation
- Reduced high temperature reverse leakage, increasing 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 (DPAK)

Top View



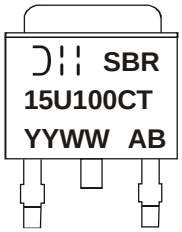
Polarity

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
SBR15U100CTLQ-13	Automotive	TO252 (DPAK)	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. 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.

Marking Information



= Manufacturer's Marking
SBR15U100CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 16 = 2016)
WW = Week (01 to 53)

SBR is a registered trademark of Diodes Incorporated.

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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	100	V
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 (1µs, +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) Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	2	°C/W
Operating and Storage Temperature Range (Note 7)	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	— —	— 0.65	0.80 —	V	I_F = 7.5A, T_J = +25°C I_F = 7.5A, T_J = +125°C
Leakage Current (Note 8)	I_R	— —	— 1.5	0.10 3.0	mA	V_R = 100V, T_J = +25°C V_R = 100V, T_J = +125°C

Notes:
6. Polymide PCB 2 oz. Copper, minimum recommended pad layout as shown on Diodes Incorporated's suggested pad layout document, which can be found on our website at http://www.diodes.com/package-outlines.html.
7. Thermal runaway must be avoided with adequate thermal dissipation design in applications. The heat generated must be less than the thermal dissipated from Junction to Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.
8. Short duration pulse test used to minimize self-heating effect.

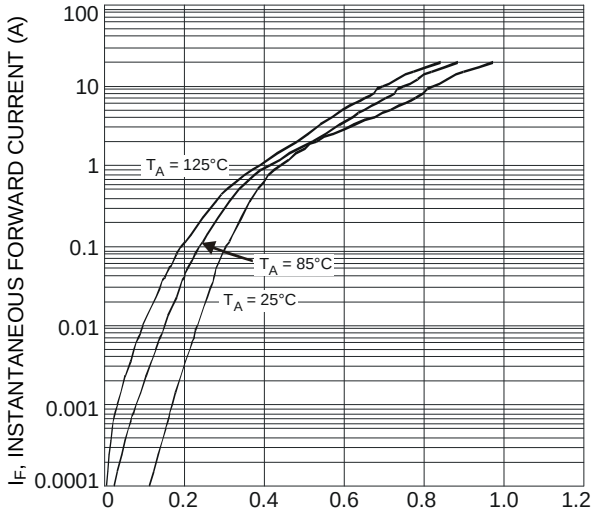


Figure 1 Typical Forward Characteristics

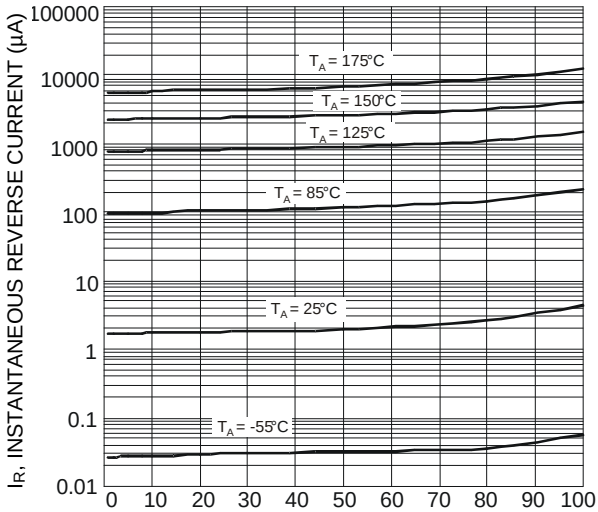


Figure 2 Typical Reverse Characteristics

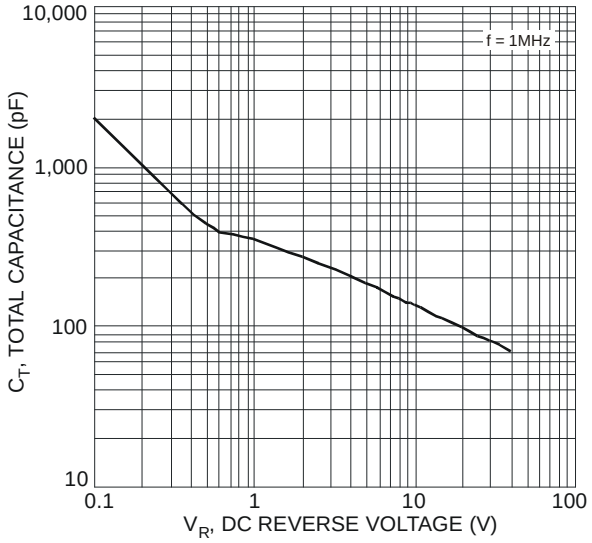


Figure 3 Total Capacitance vs. Reverse Voltage

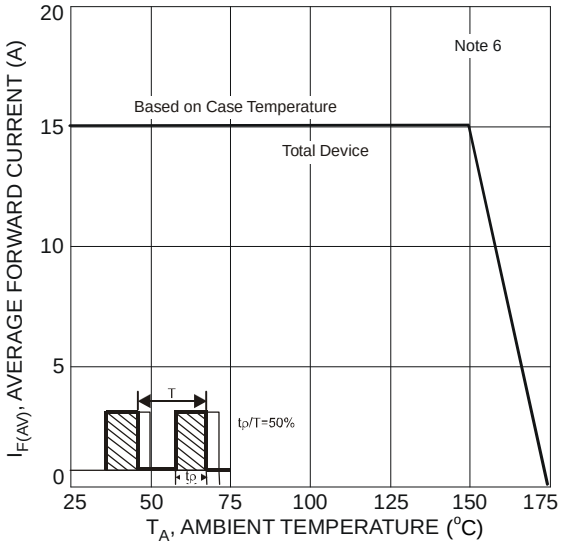


Figure 4 Forward Current Derating Curve

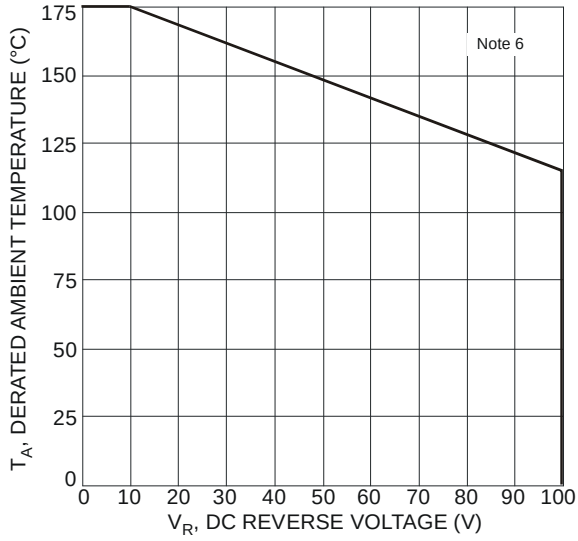


Figure 5 Operating Temperature Derating

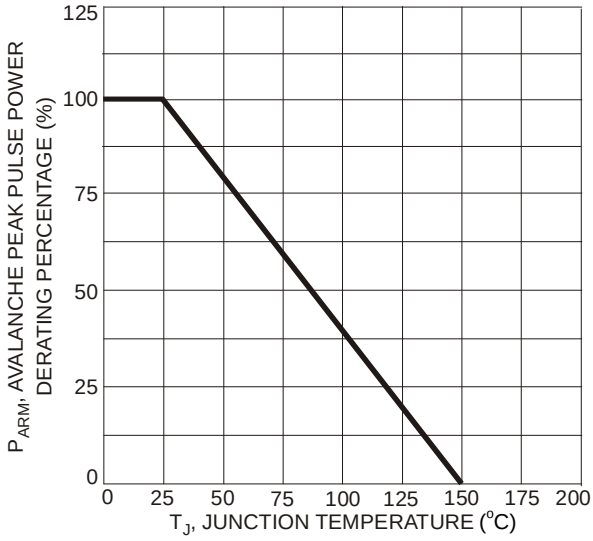


Figure 6 Pulse Derating Curve

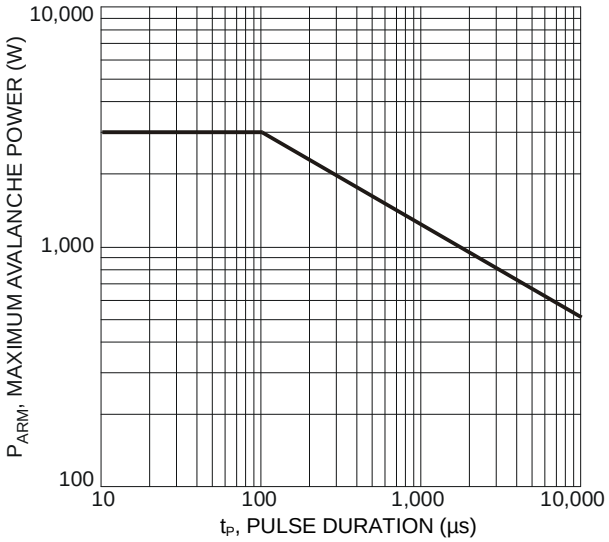


Figure 7 Maximum Avalanche Power Curve, Per Element

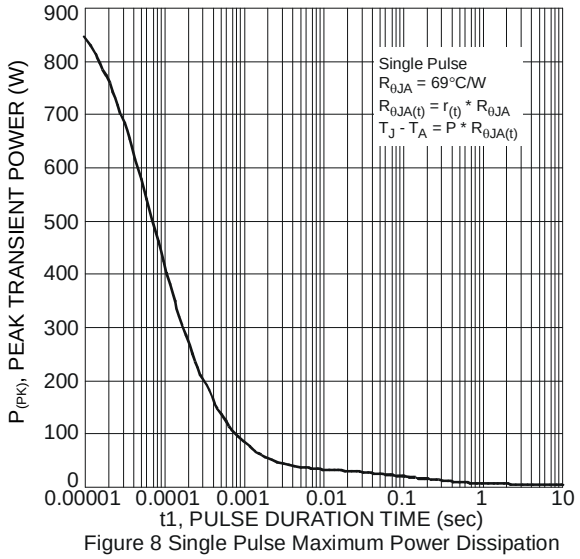


Figure 8 Single Pulse Maximum Power Dissipation

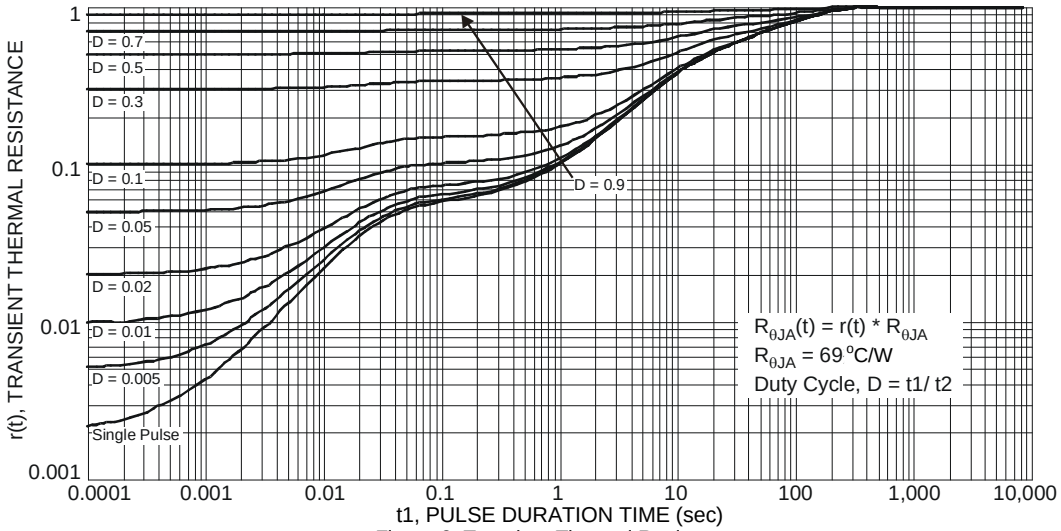
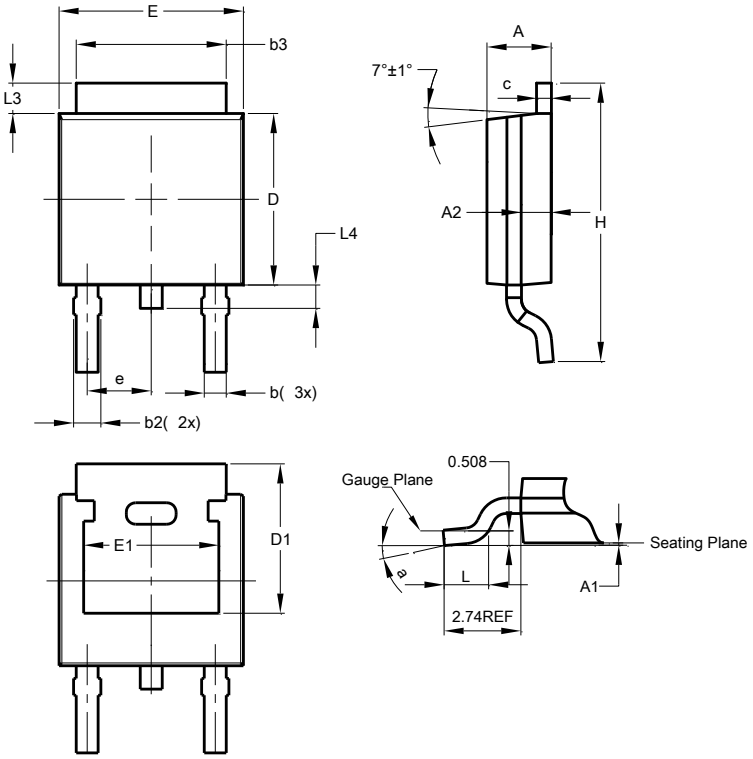


Figure 9 Transient Thermal Resistance

Package Outline Dimensions

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

TO252 (DPAK)

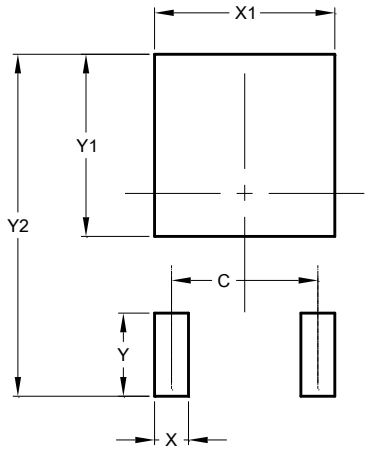


TO252 (DPAK)			
Dim	**Min**	**Max**	**Typ**
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-
All Dimensions in mm			

Suggested Pad Layout

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

TO252 (DPAK)



Dimensions	Value (in mm)
C	4.572
X	1.060
X1	5.632
Y	2.600
Y1	5.700
Y2	10.700

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