



## SBR15U100CTLQ

#### 15A SBR SUPER BARRIER RECTIFIER

### **Product Summary**

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> MAX (V) @+25°C	I <sub>R MAX</sub> (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<sup>®</sup> Technology, providing a superior avalanche capability than Schottky diodes ensuring more rugged and reliable end applications
- Reduced ultra-low forward voltage drop (V<sub>F</sub>); 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)

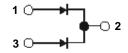
### **Mechanical Data**

- 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 (3)
- Polarity: See Below
- Weight: 0.34 grams (Approximate)

TO252 (DPAK)



Top View



Polarity

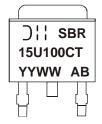
## Ordering Information (Note 5)

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**



Dill = 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)



## Maximum Ratings (@T<sub>A</sub> = +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 <sub>RM</sub> V <sub>RM</sub> V <sub>RM</sub>	100	V
Average Rectified Output Current	I <sub>O</sub>	15	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	100	А
Repetitive Peak Avalanche Power (1µs, +25°C)	P <sub>ARM</sub>	2800	W
Non-Repetitive Avalanche Energy $(T_J = +25^{\circ}C, I_{AS} = 7.5A, L = 10mH)$	E <sub>AS</sub>	192	mJ

### **Thermal Characteristics**

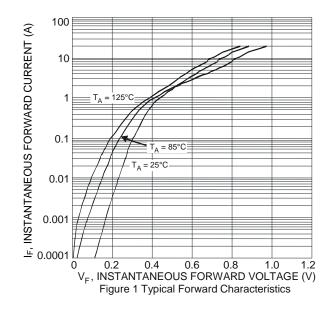
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Per Leg) Thermal Resistance Junction to Case (Note 6)	$R_{ hetaJC}$	2	°C/W
Operating and Storage Temperature Range (Note 7)	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

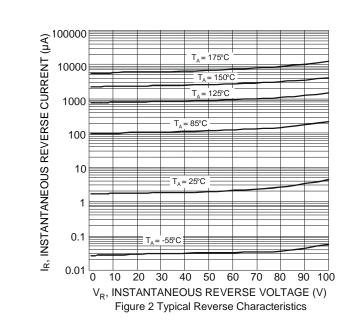
## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Dren	V <sub>F</sub>		_	0.80		$I_F = 7.5A, T_J = +25^{\circ}C$
Forward Voltage Drop		_	0.65	_		$I_F = 7.5A, T_J = +125$ °C
Lookaga Current (Note 9)		_	_	0.10	I MA	V <sub>R</sub> = 100V, T <sub>J</sub> = +25°C
Leakage Current (Note 8)	IR IR	_	1.5	3.0		$V_R = 100V, T_J = +125$ °C

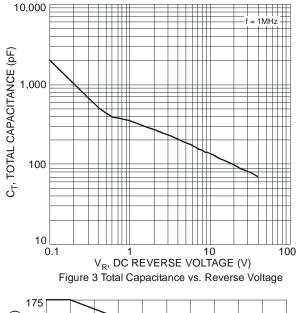
Notes:

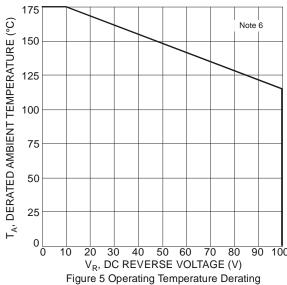
- 6. Polymide PCB 2 oz. Copper, minimum recommended pad layout as shown on Diodes Incorporated's suggested pad layout document, which can be found on our website at http://www.diodes.com/package-outlines.html.
- 7. Thermal runaway must be avoided with adequate thermal dissipation design in applications. The heat generated must be less than the thermal dissipated from Junction to Ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>0JA</sub>.
- 8. Short duration pulse test used to minimize self-heating effect.











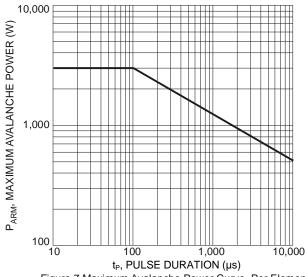
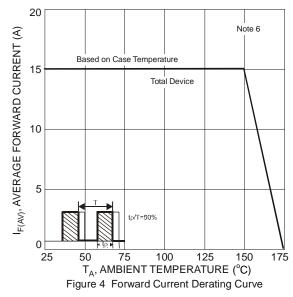
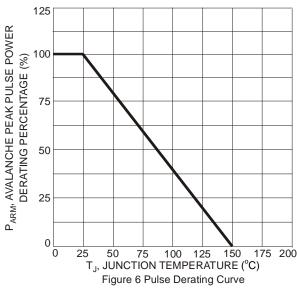


Figure 7 Maximum Avalanche Power Curve, Per Element





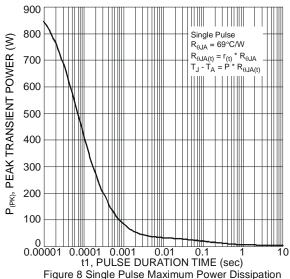
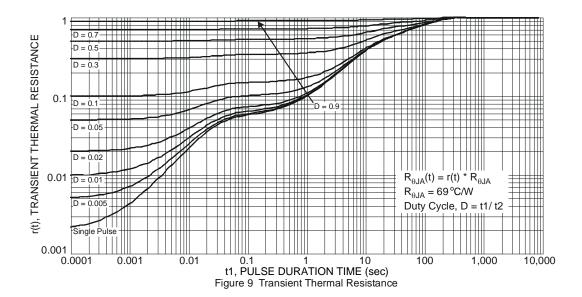


Figure 8 Single Pulse Maximum Power Dissipation



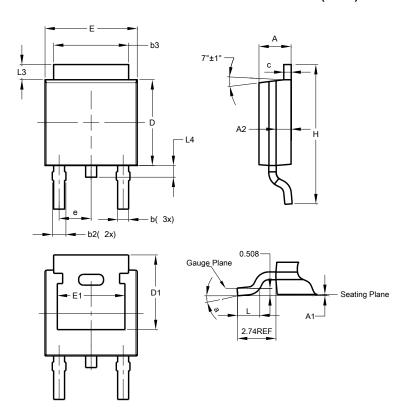




# **Package Outline Dimensions**

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

### TO252 (DPAK)

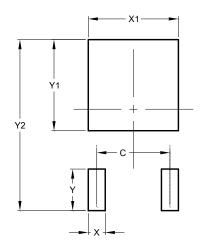


TO252 (DPAK)				
Dim	Min	Max	Тур	
Α	2.19	2.39	2.29	
A1	0.00	0.13	0.08	
A2	0.97	1.17	1.07	
b	0.64	0.88	0.783	
b2	0.76	1.14	0.95	
b3	5.21	5.46	5.33	
С	0.45	0.58	0.531	
D	6.00	6.20	6.10	
D1	5.21	-	-	
е	-	-	2.286	
Е	6.45	6.70	6.58	
E1	4.32	-	-	
Н	9.40	10.41	9.91	
٦	1.40	1.78	1.59	
L3	0.88	1.27	1.08	
L4	0.64	1.02	0.83	
а	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)		
С	4.572		
X	1.060		
X1	5.632		
Y	2.600		
Y1	5.700		
٧2	10.700		



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