

## Product Summary

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (mA)
100	6	0.74	0.1

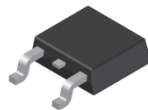
## Description

The SBR6100CTLQ is dual center tap rectifier in TO252 (DPAK) package. Offering excellent high-temperature stability and superior avalanche capability, this device is specifically intended for use in automotive applications.

## Applications

- DC/DC converters
- DC/AC inverters
- AC/DC power supplies

TO252 (DPAK)



Top View

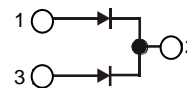
## Features

- Low-Forward Voltage Drop (V<sub>F</sub>); Better Efficiency and Cooler Operation
- Reduced High-Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High-Temperature Operation
- Excellent High-Temperature Stability
- Patented Super Barrier Rectifier (SBR<sup>®</sup>) Technology
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**
- **The SBR6100CTLQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Mechanical Data

- Package: TO252
- Package 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 (63)
- Polarity: See Below
- Weight: 0.33 grams (Approximate)



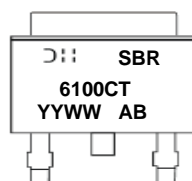
Package Pinout Configuration

## Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBR6100CTLQ-13	TO252 (DPAK)	2500	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



SBR6100CT = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 24 = 2024)  
 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	V <sub>RRM</sub>	100	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	71	V
Average Rectified Output Current @ T <sub>C</sub> = +115°C	I <sub>O</sub>	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I <sub>FSM</sub>	78	A
Repetitive Peak Avalanche Power (1μs, +25°C)	P <sub>ARM</sub>	7000	W
Non-Repetitive Avalanche Energy (T <sub>J</sub> = +25°C, I <sub>AS</sub> = 6A, L = 8.5mH)	E <sub>AS</sub>	120	mJ

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction to Ambient (Per Leg) (Note 5)	R <sub>θJA</sub>	49	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Per Leg)	V <sub>F</sub>	—	0.68	0.74	V	I <sub>F</sub> = 3A, T <sub>J</sub> = +25°C
			0.56	0.62		I <sub>F</sub> = 3A, T <sub>J</sub> = +125°C
Leakage Current (Note 6) (Per Leg)	I <sub>R</sub>	—	—	0.1	mA	V <sub>R</sub> = 100V, T <sub>J</sub> = +25°C
				12		V <sub>R</sub> = 100V, T <sub>J</sub> = +125°C
Junction Capacitance	C <sub>J</sub>	—	132	—	pF	V <sub>R</sub> = 4V, T <sub>J</sub> = +25°C
Switching Speed	t <sub>RR</sub>	—	12	—	ns	I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1A I <sub>RR</sub> = 0.25A (RG1)

Notes: 5. Device mounted on Poly substrate PC board, 1oz copper, with minimum recommended pad layout.  
6. Short duration pulse test used to minimize self-heating effect.

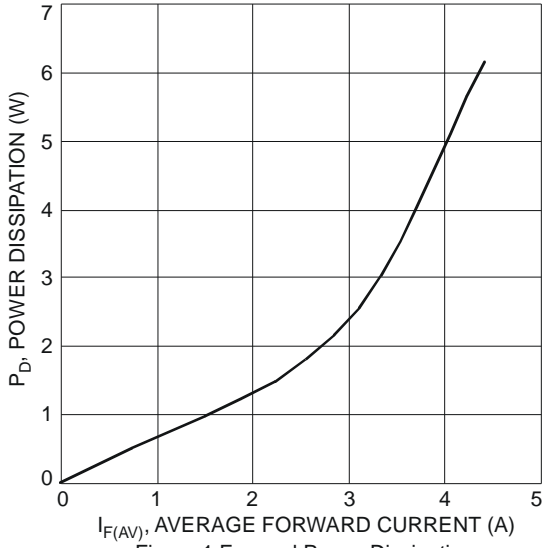


Figure 1 Forward Power Dissipation

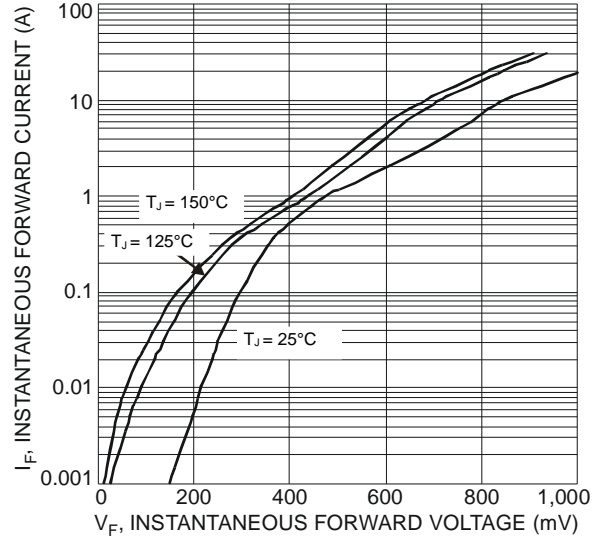


Figure 2 Typical Forward Characteristics

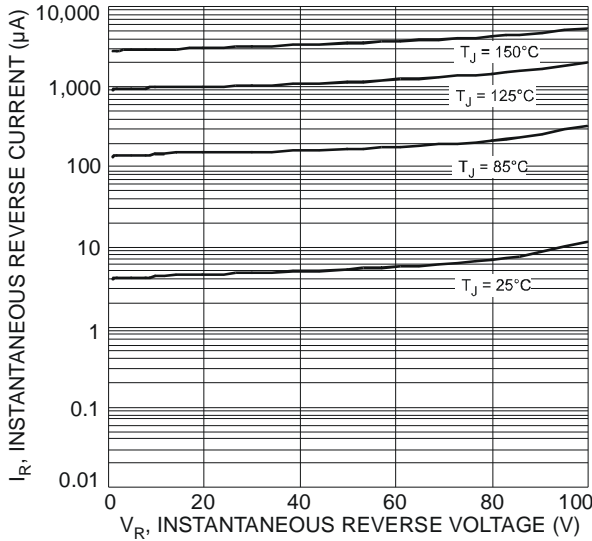


Figure 3 Typical Reverse Characteristics

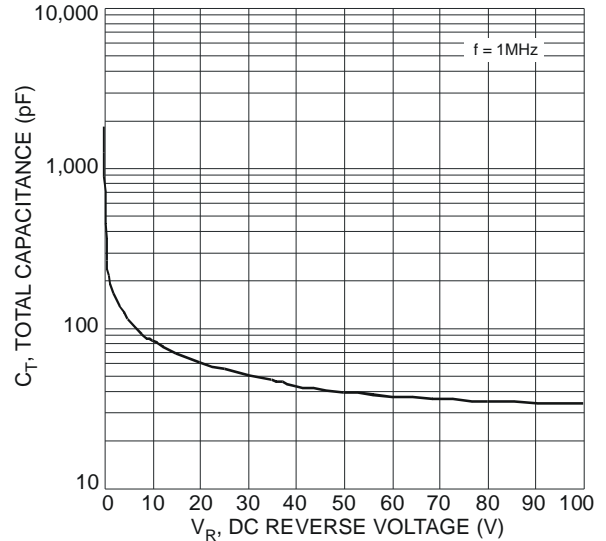


Figure 4 Total Capacitance vs. Reverse Voltage

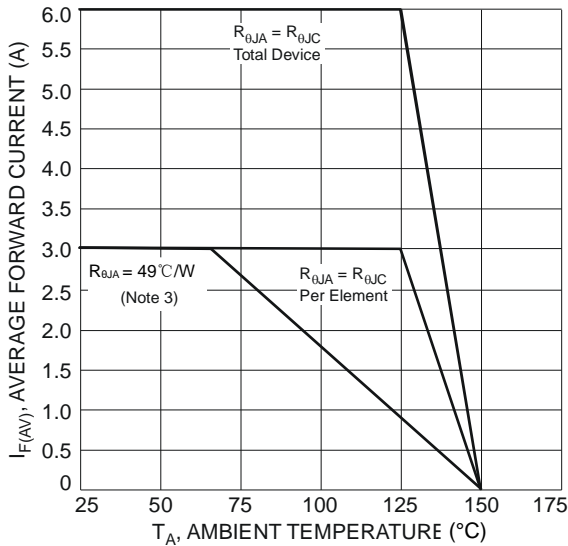


Figure 5 Forward Current Derating Curve

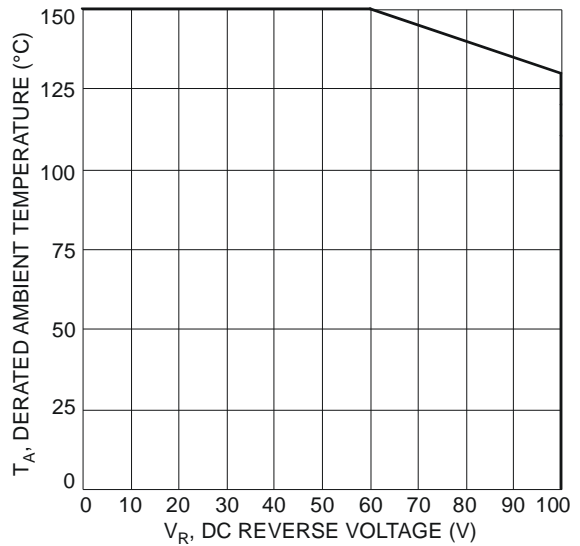


Figure 6 Operating Temperature Derating

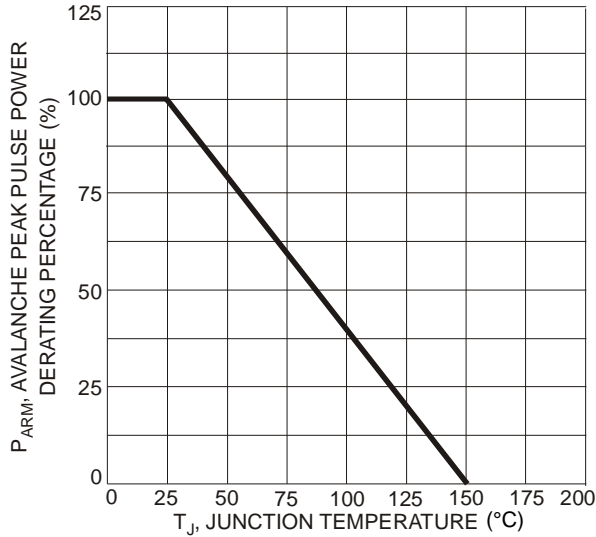


Figure 7 Pulse Derating Curve, Per Element

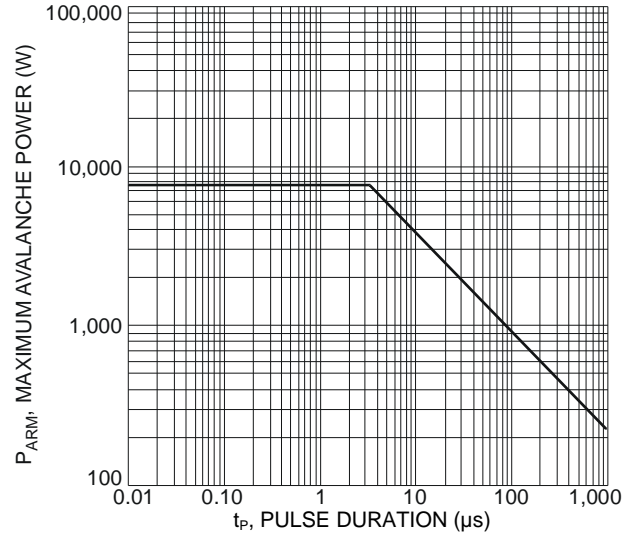


Figure 8 Maximum Avalanche Power Curve, Per Element

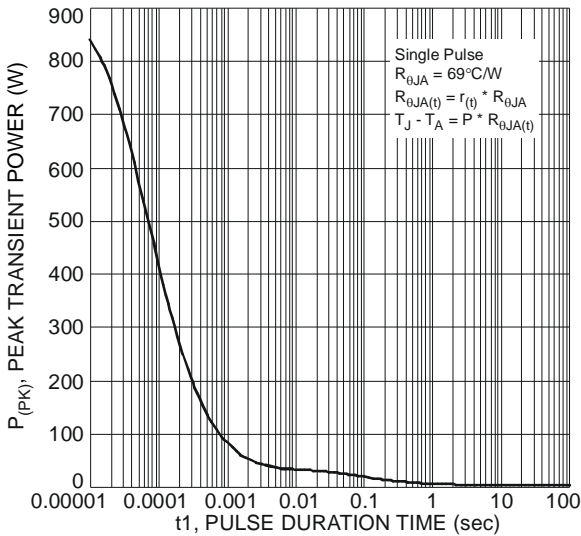


Figure 9 Single Pulse Maximum Power Dissipation

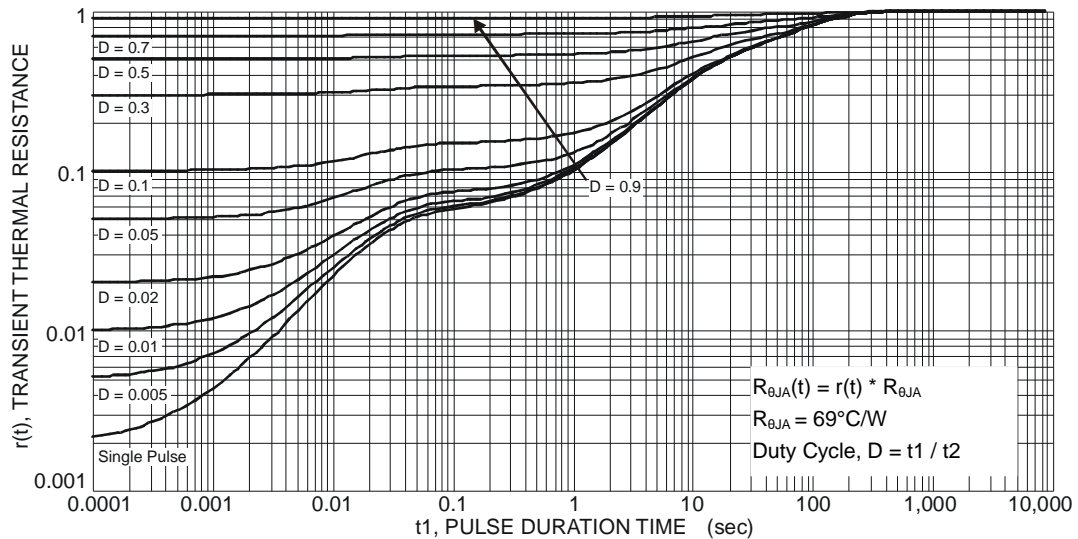
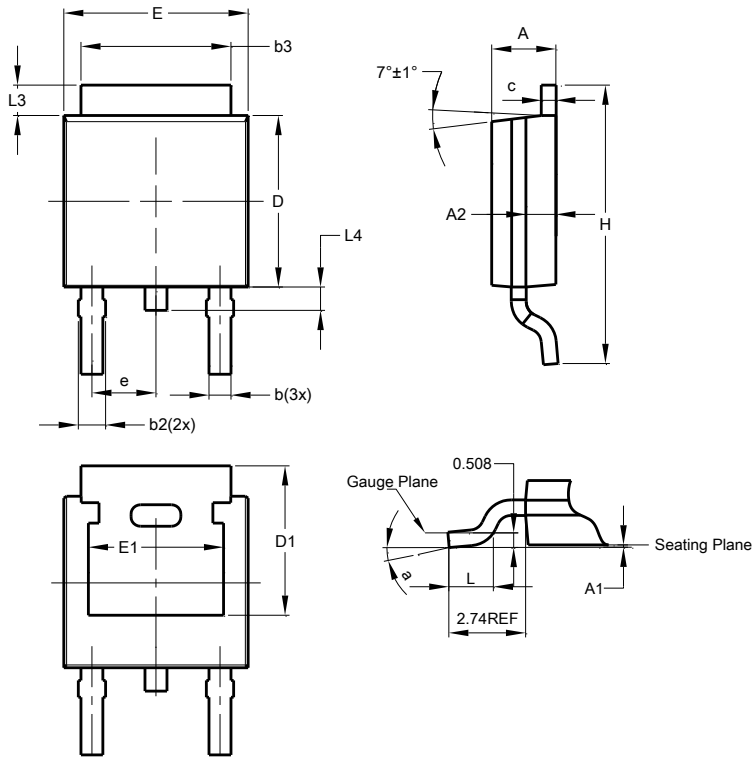


Figure 10 Transient Thermal Resistance

## Package Outline Dimensions

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

### TO252 (DPAK)

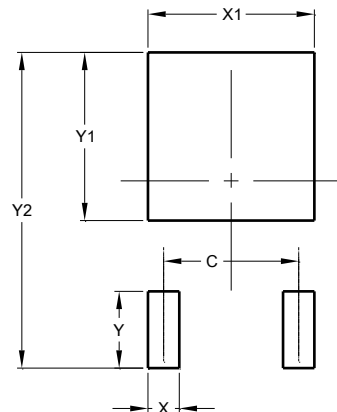


TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.50	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	--	--
e	2.286 BSC		
E	6.45	6.70	6.58
E1	4.32	--	--
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
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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