SBR6100CTLQ

6A SBR
SUPER BARRIER RECTIFIER

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ MAX}$ (V)	$I_{R\ MAX}$ (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

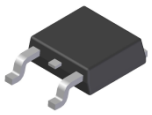
Features

- Low Forward Voltage Drop (V_F); 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®) 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 and is AEC-Q101 qualified, is PPAP capable, and is manufactured in IATF16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

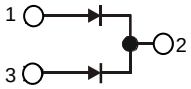
Mechanical Data

- 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 e3
- Polarity: See Below
- Weight: 0.33 grams (Approximate)

TO252 (DPAK)



Top View



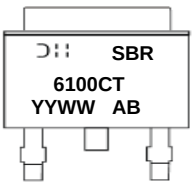
Package Pin-Out Configuration

Ordering Information (Note 4)

Part Number	Package	Packaging
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 http://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: 19 = 2019)
WW = Week (01 to 53)

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	V_{RRM}	100	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
RMS Reverse Voltage	$V_{R(RMS)}$	71	V
Average Rectified Output Current @ T_C = +115°C	I_O	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	78	A
Repetitive Peak Avalanche Power (1µs, +25°C)	P_{ARM}	7000	W
Non-Repetitive Avalanche Energy (T_J = +25°C, I_{AS} = 6A, L = 8.5mH)	E_{AS}	120	mJ

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction to Ambient (Per Leg) (Note 5)	$R_{\theta JA}$	49	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Per Leg)	V_F	—	0.68	0.74	V	I_F = 3A, T_J = +25°C
			0.56	0.62		I_F = 3A, T_J = +125°C
Leakage Current (Note 6) (Per Leg)	I_R	—	—	0.1	mA	V_R = 100V, T_J = +25°C
				12		V_R = 100V, T_J = +125°C

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.

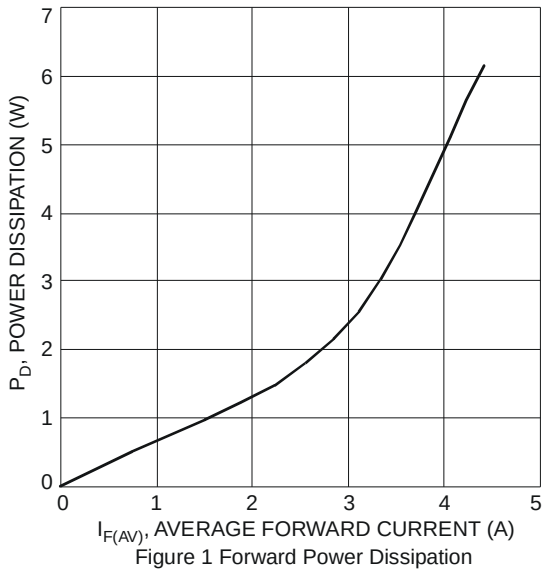


Figure 1 Forward Power Dissipation

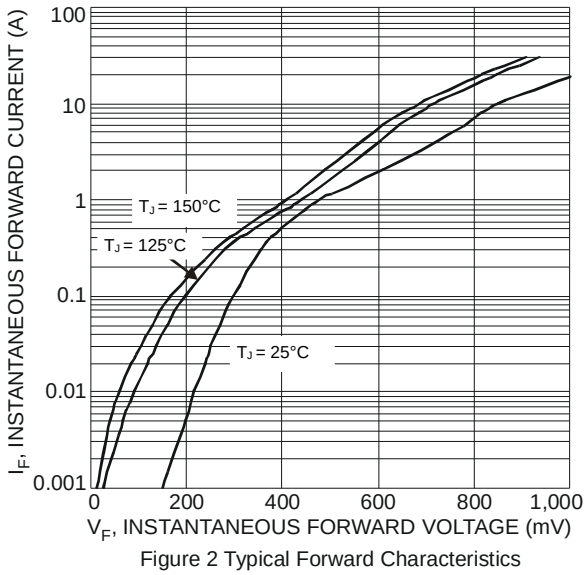


Figure 2 Typical Forward Characteristics

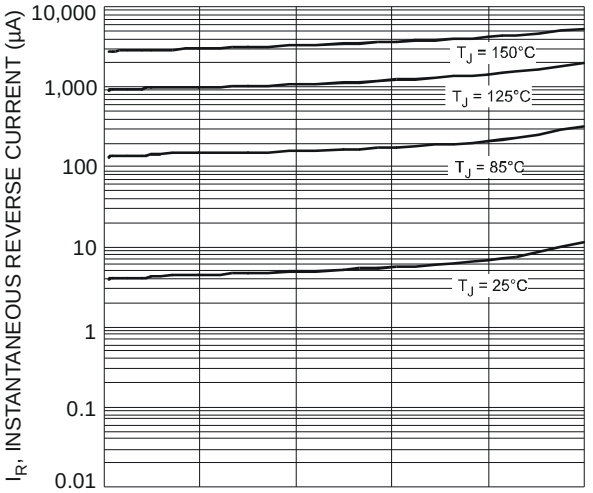


Figure 3 Typical Reverse Characteristics

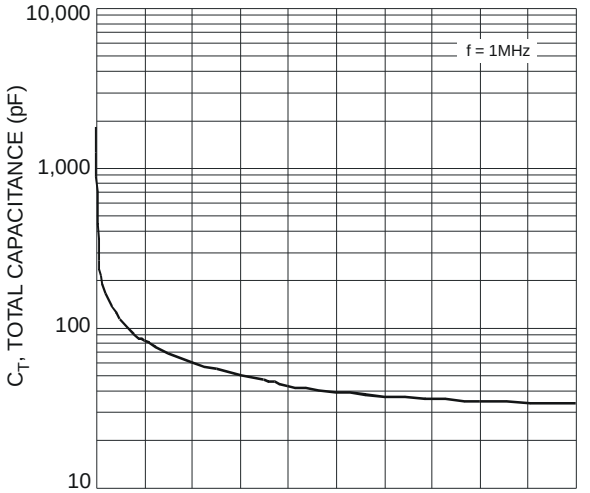


Figure 4 Total Capacitance vs. Reverse Voltage

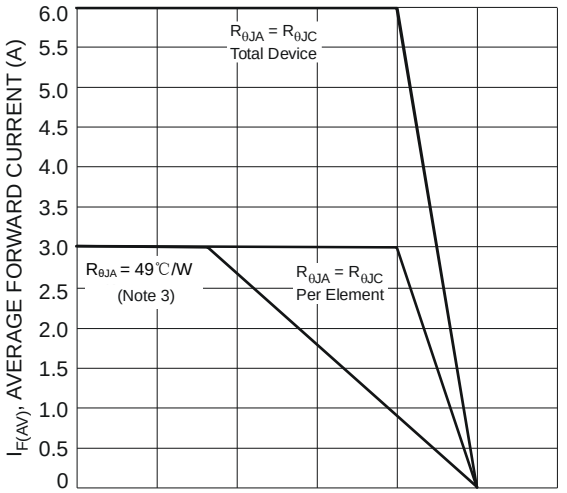


Figure 5 Forward Current Derating Curve

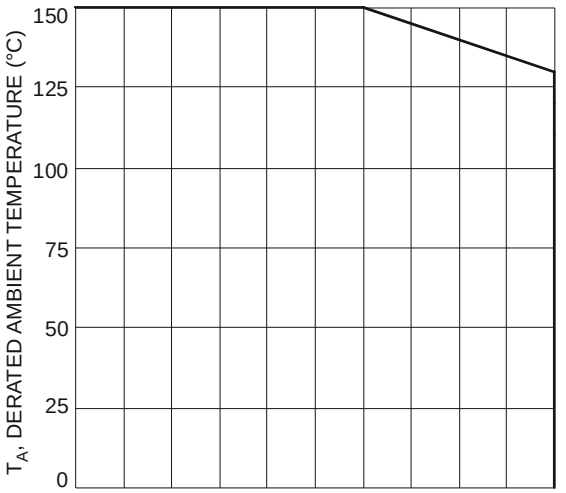


Figure 6 Operating Temperature Derating

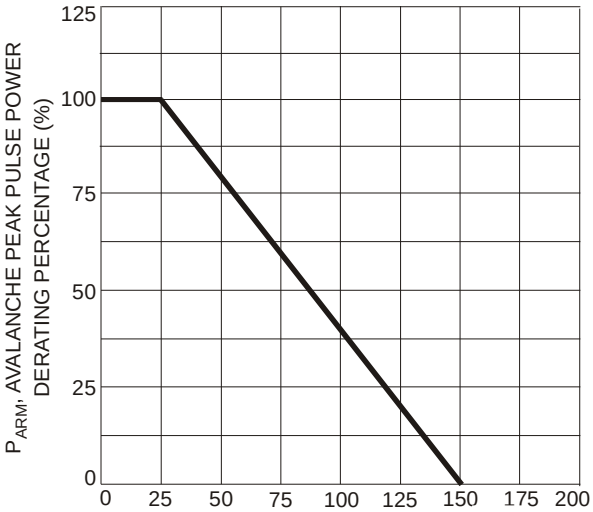


Figure 7 Pulse Derating Curve, Per Element

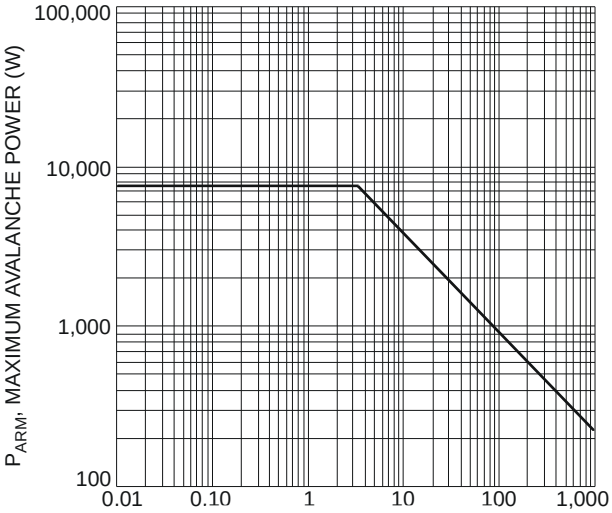


Figure 8 Maximum Avalanche Power Curve, Per Element

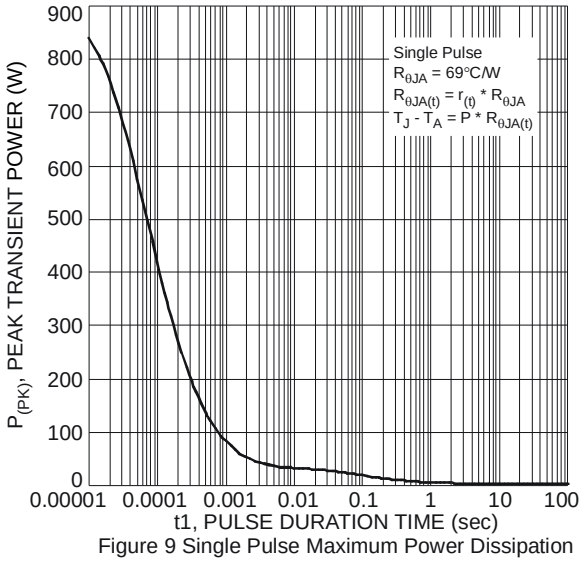


Figure 9 Single Pulse Maximum Power Dissipation

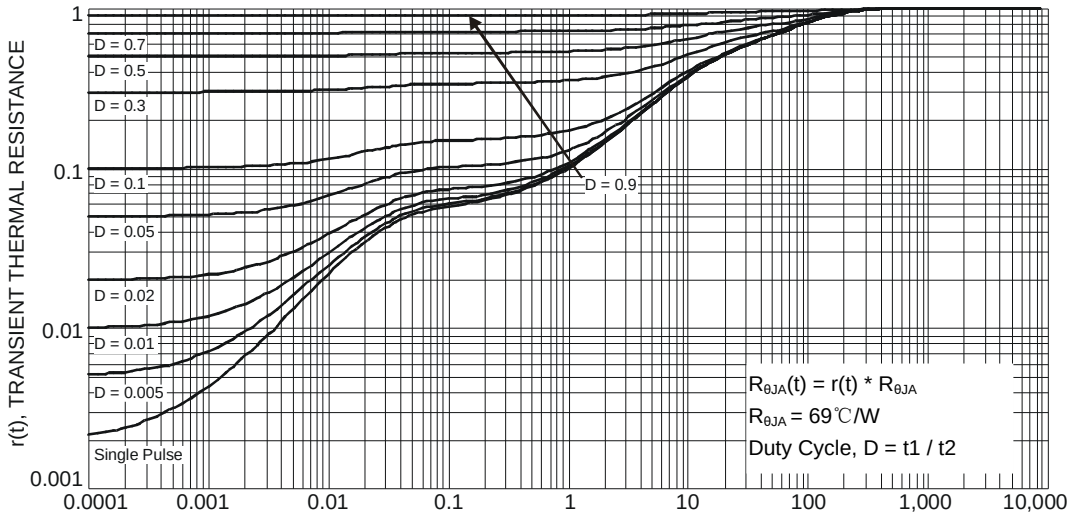
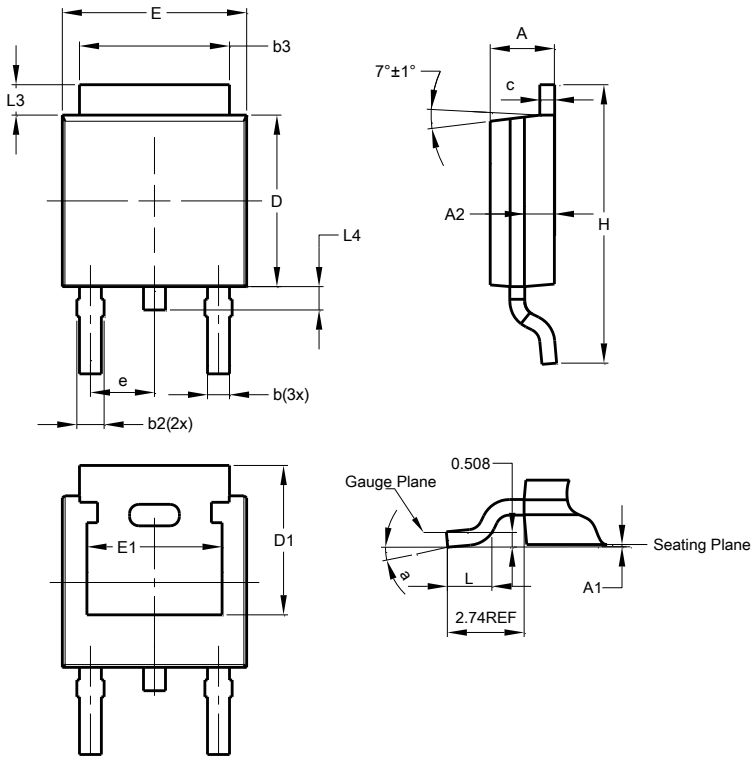


Figure 10 Transient Thermal Resistance

Package Outline Dimensions

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

TO252 (DPAK)

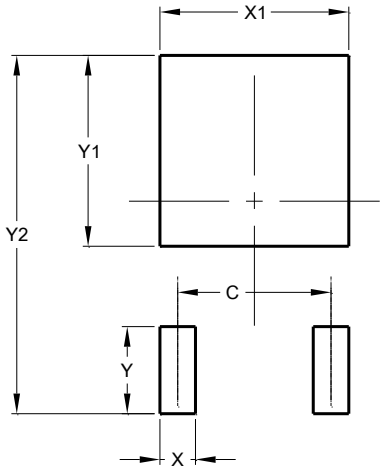


TO252 (DPAK)			
Dim	**Min**	**Max**	**Typ**
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.50	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	--	--
e	2.286 BSC		
E	6.45	6.70	6.58
E1	4.32	--	--
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4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