

Product Summary

V_{RRM} (V)	I_O (A)	V_F max (V)	I_R max (μ A)
45	10	0.55	300

Description

The SBR1045CTLQ is dual center tap rectifier in DPAK package. Offering excellent high temperature stability and low forward voltage drop for cool operation.

Applications

- DC – DC Converters
- DC/AC Inverters
- AC/DC Power Supplies

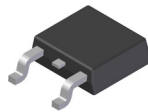
Features

- 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 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)**

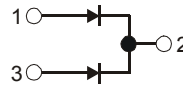
Mechanical Data

- 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: 0.33 grams (approximate)

TO252



Top View



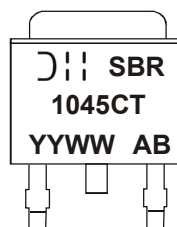
Polarity

Ordering Information (Note 4)

Part Number	Case	Packaging
SBR1045CTLQ-13	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> 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 <http://www.diodes.com>.

Marking Information



SBR1045CT = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year, ex: 07 = 2007
 WW = Week (01 - 53)

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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}	45	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
RMS Reverse Voltage	$V_{R(RMS)}$	31	V
Average Rectified Output Current @ $T_C = +110^\circ\text{C}$	I_O	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	90	A
Repetitive Peak Avalanche Power (1 μs , $+25^\circ\text{C}$)	P_{ARM}	10000	W
Non-Repetitive Avalanche Energy ($T_J = +25^\circ\text{C}$, $I_{AS} = 6\text{A}$, $L = 8.5\text{mH}$)	E_{AS}	200	mJ

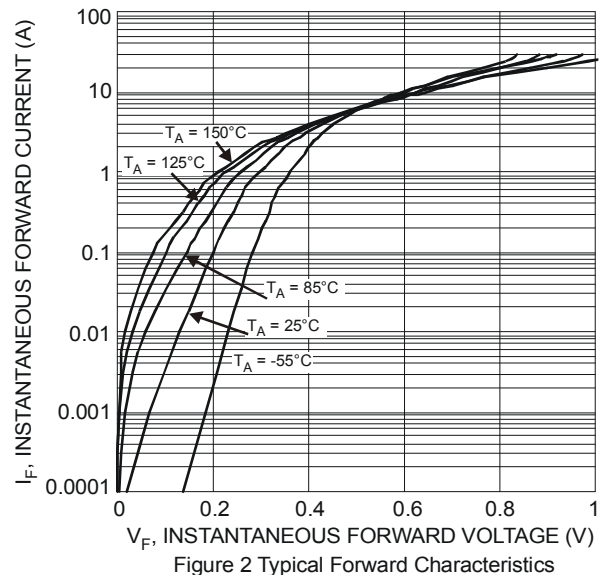
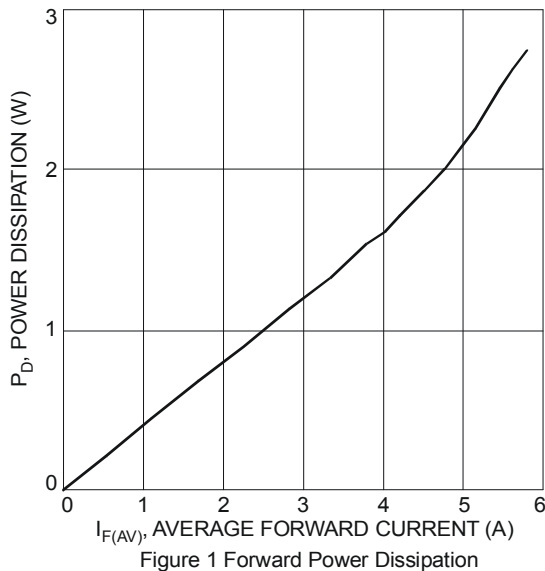
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance (per leg) (Note 5)	$R_{\theta JA}$	47	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to $+150$	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Per Leg)	V_F	-	-	0.55	V	$I_F = 5\text{A}$, $T_J = +25^\circ\text{C}$
Leakage Current (Note 6)	I_R	-	13	0.3 50	mA	$V_R = 45\text{V}$, $T_J = +25^\circ\text{C}$ $V_R = 45\text{V}$, $T_J = +125^\circ\text{C}$

Notes: 5. Device mounted on polyimide substrate 2" x 2", 2oz. Copper, 1 x MRP double-sided, PC boards.
 6. Short duration pulse test used to minimize self-heating effect.



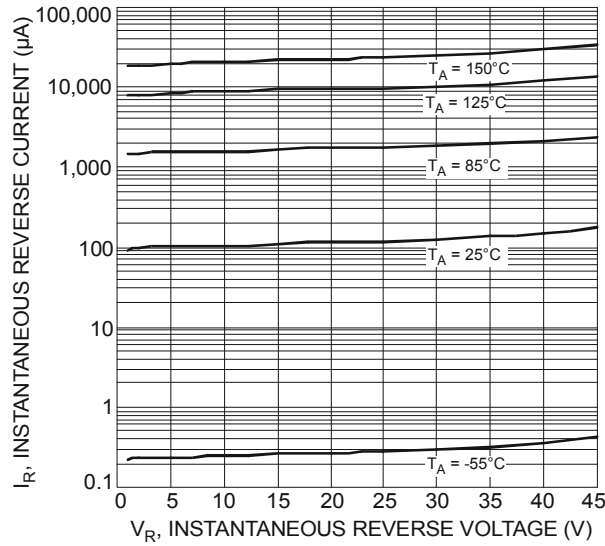


Figure 3 Typical Reverse Characteristics

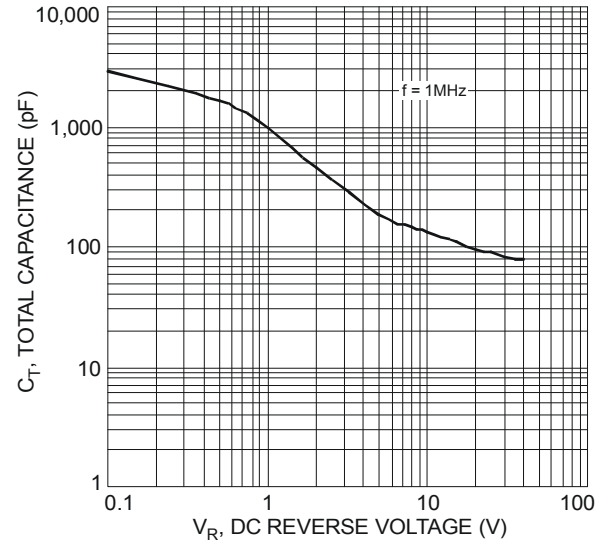


Figure 4 Total Capacitance vs. Reverse Voltage

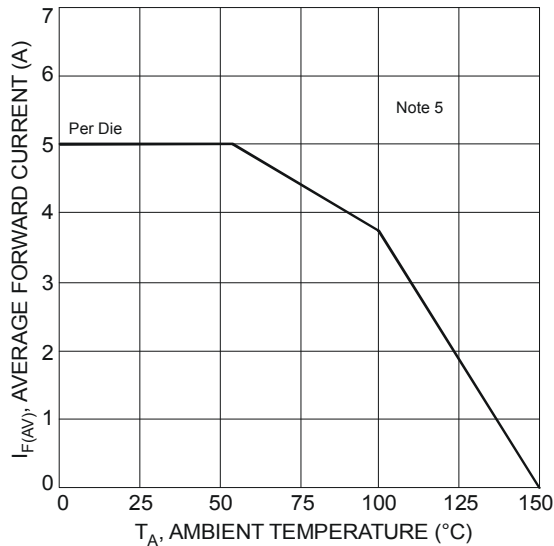


Figure 5 Forward Current Derating Curve

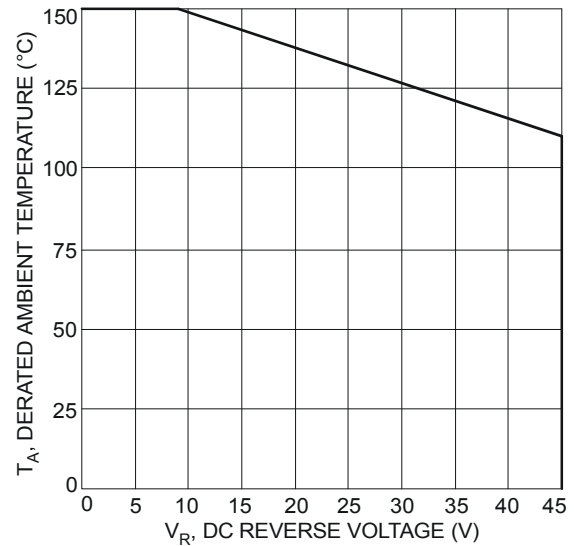


Figure 6 Operating Temperature Derating

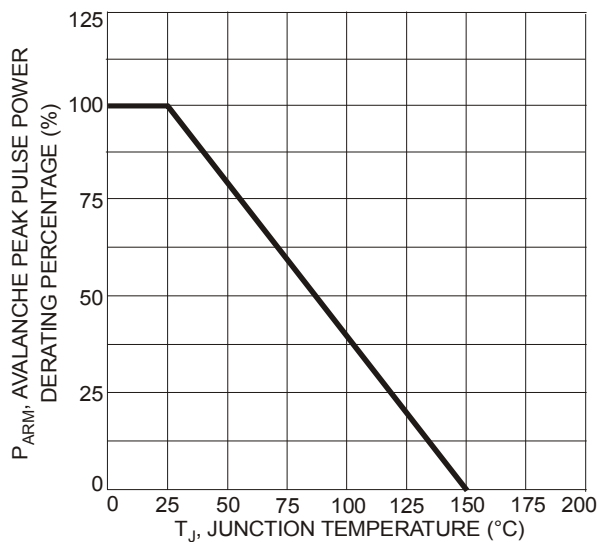


Figure 7 Pulse Derating Curve

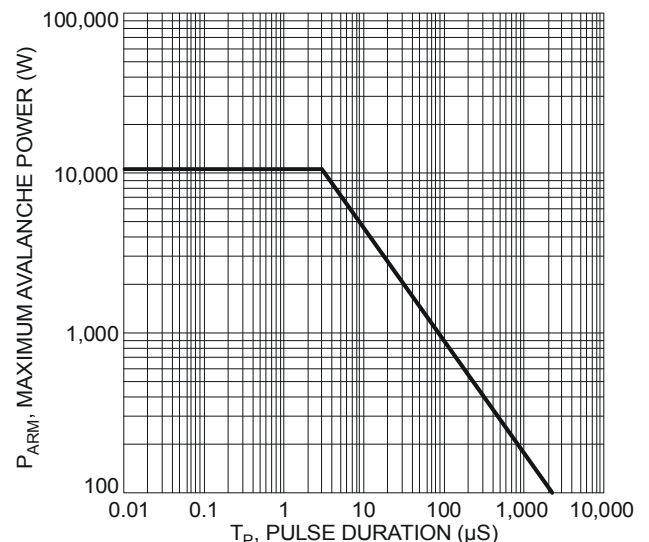


Figure 8 Maximum Avalanche Power Curve, Per Element

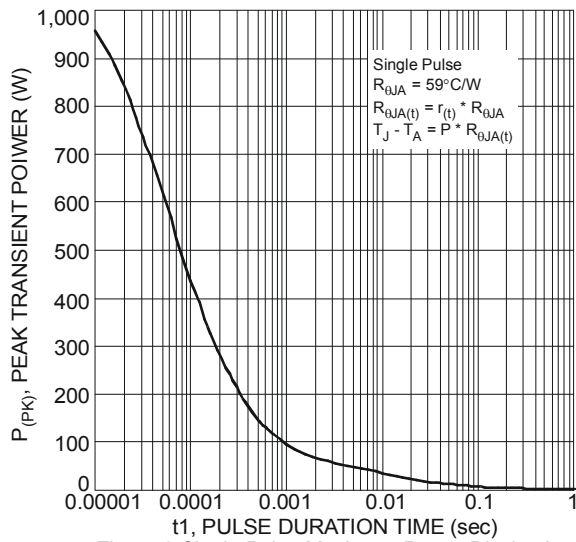


Figure 9 Single Pulse Maximum Power Dissipation

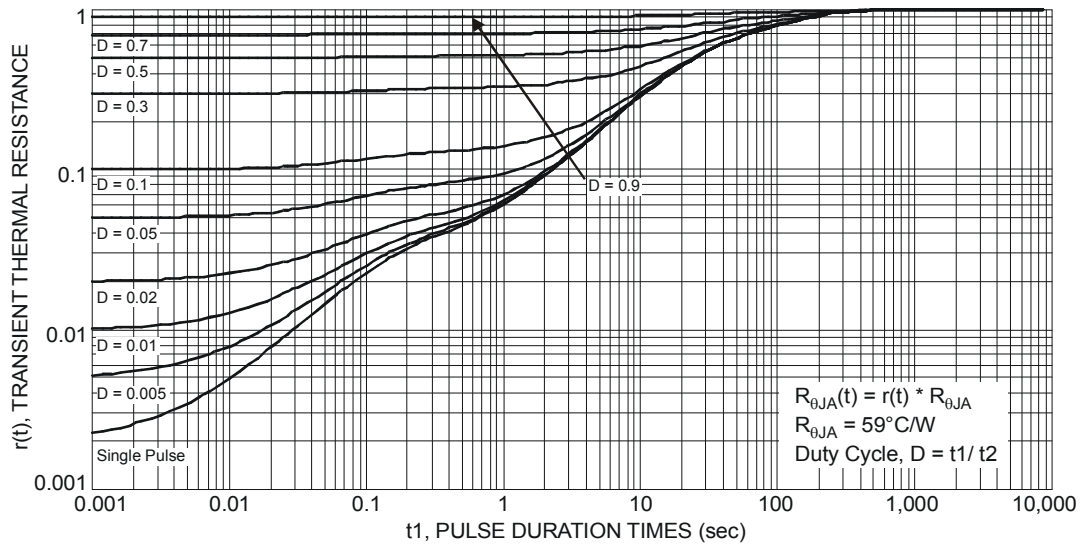
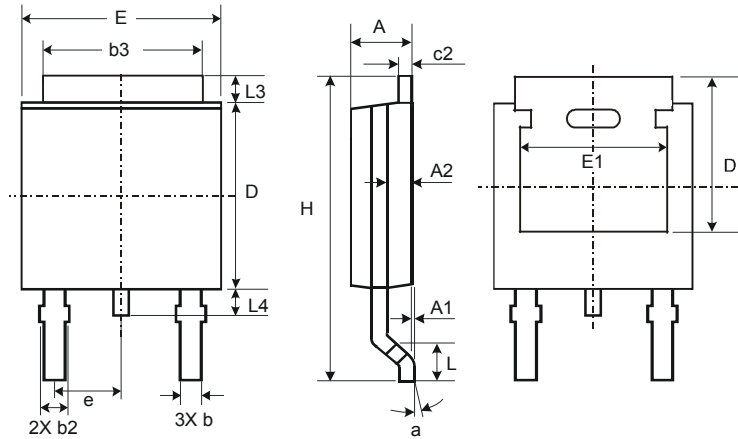


Figure 10 Transient Thermal Resistance

Package Outline Dimensions

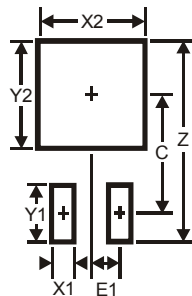
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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