

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


These Super Barrier Rectifier (SBR®) diodes have been designed to meet the stringent requirements of automotive applications. They are ideally suited to use as:

- Polarity protection diodes
- Re-circulating diodes
- Switching diodes

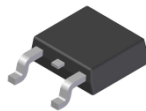
Features and Benefits

- 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)**
- **The SBR15U100CTLQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
<https://www.diodes.com/quality/product-definitions/>

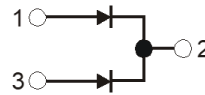
Mechanical Data

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

TO252 (DPAK)



Top View



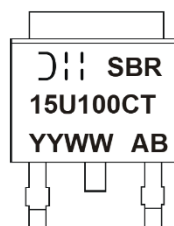
Polarity


Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBR15U100CTLQ-13	TO252 (DPAK)	2500 Pieces	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



 = Manufacturer's Marking
 SBR15U100CT = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 25 = 2025)
 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}		
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

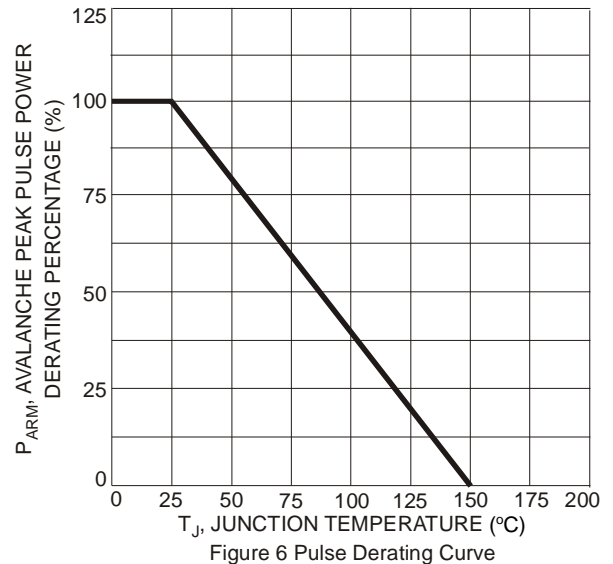
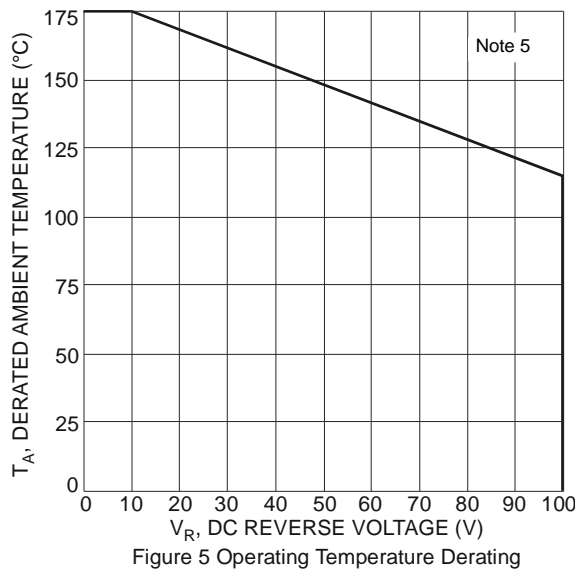
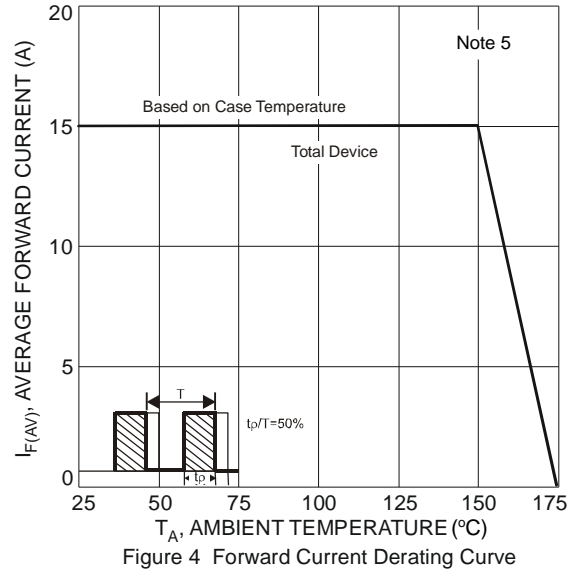
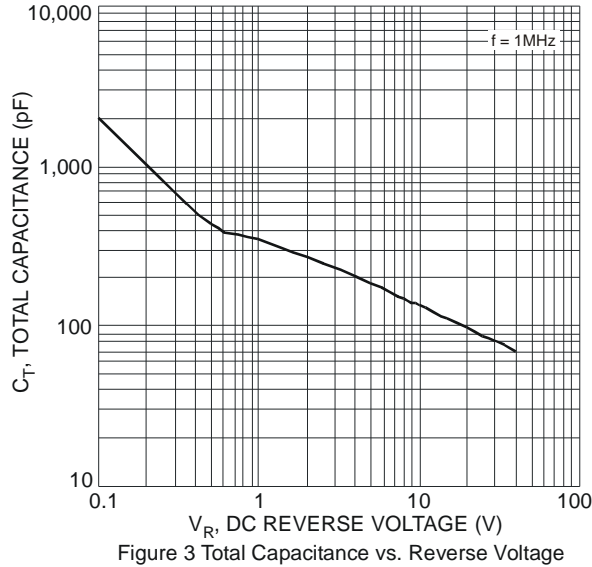
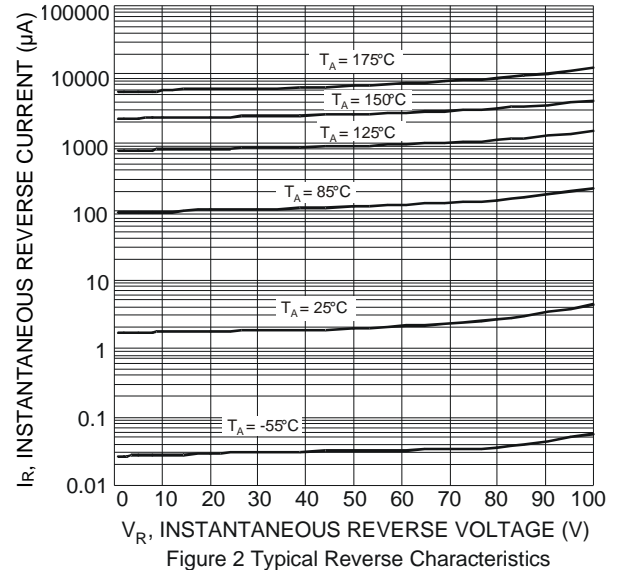
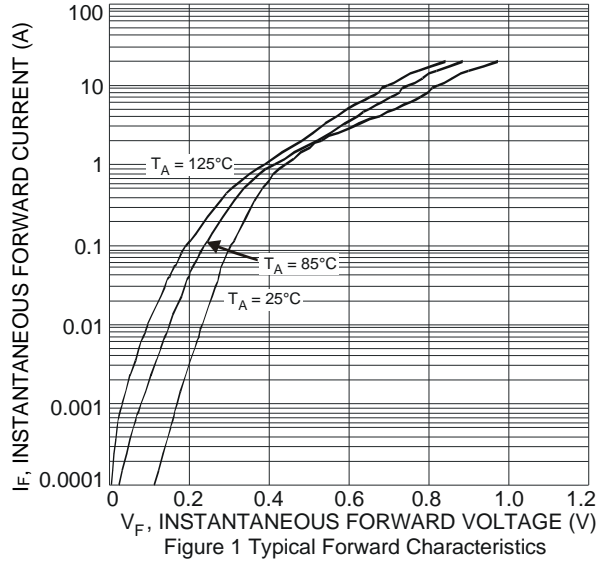
Thermal Characteristics

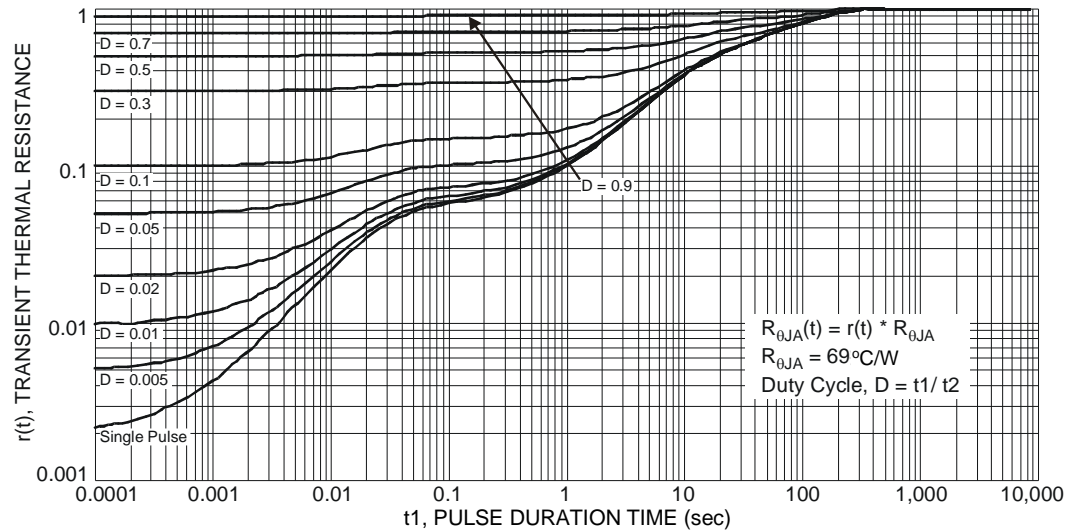
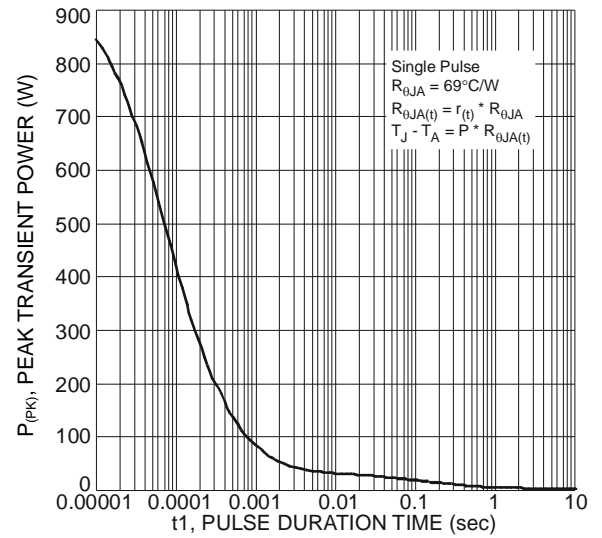
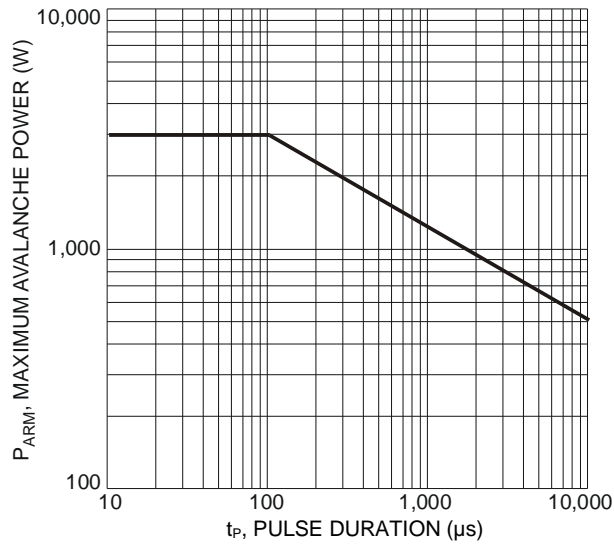
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Per Leg)	R _{θJC}	2	°C/W
Thermal Resistance Junction to Case (Note 5)			
Operating and Storage Temperature Range (Note 6)	T _J , T _{STG}	-55 to +175	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V _F	—	—	0.80	V	I _F = 7.5A, T _J = +25°C
		—	0.65	—		I _F = 7.5A, T _J = +125°C
Leakage Current (Note 7)	I _R	—	—	0.10	mA	V _R = 100V, T _J = +25°C
		—	1.5	3.0		V _R = 100V, T _J = +125°C
Junction Capacitance	C _J	—	200	—	pF	V _R = 4V, T _J = +25°C
Switching Speed	t _{RR}	—	15	—	ns	I _F = 0.5A, I _R = 1.0A, I _{RR} = 0.25A, T _A = +25°C

- Notes:
5. Polyimide 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>.
 6. 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: $dP_D/dT_J < 1/R_{\theta JA}$.
 7. Short duration pulse test used to minimize self-heating effect.

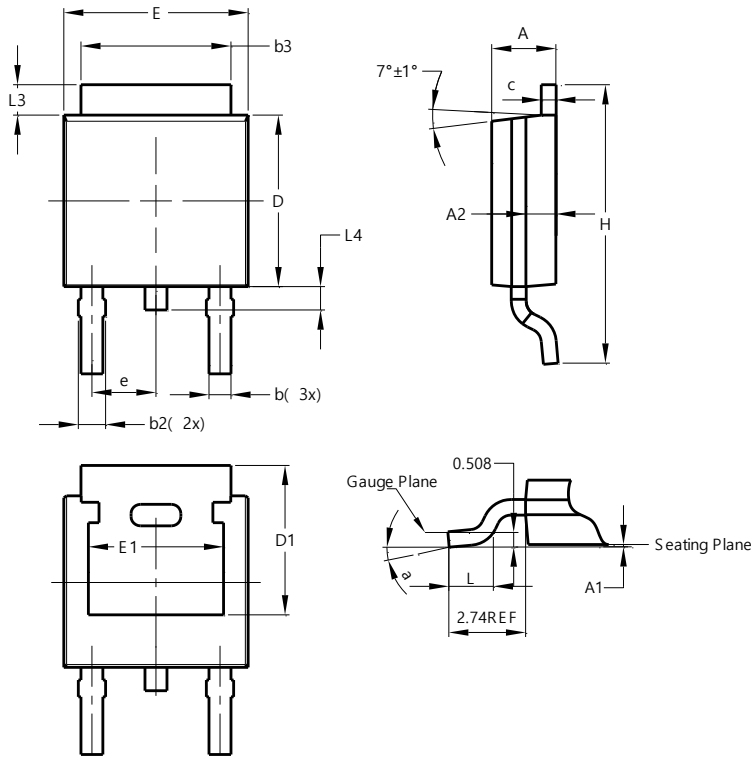




Package Outline Dimensions

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

TO252 (DPAK)

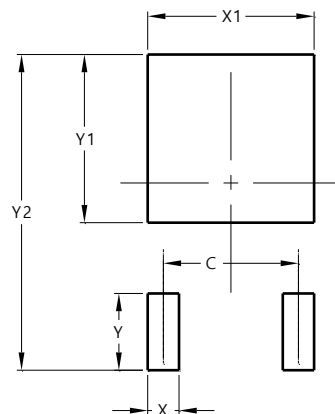


TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.50	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	--	--
e	2.286 BSC		
E	6.45	6.70	6.58
E1	4.32	--	--
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83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