

Product Summary (@ $T_A = +25^\circ\text{C}$)

V_{RRM} (V)	I_o (A)	V_F Max (V)	I_R Max (μA)
150	20	0.90	10

Applications

- Switching Power Supplies
- DC-DC Converter
- Freewheeling Diodes

Features and Benefits

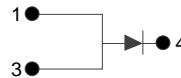
- Ultra-Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier (SBR[®]) Technology
- Soft, Fast Switching Capability
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for 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: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: See Below
- Weight: 0.4 grams (Approximate)



Top View



Package Pin Out Configuration

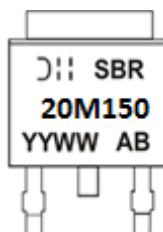
Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
SBR20M150D1Q-13	Automotive	TO252 (DPAK)	2,500 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



SBR20M150 = Product Type Marking Code

DII = Manufacturers' Code Marking

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 (@ $T_A = +25^\circ\text{C}$, 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}		
Working Peak Reverse Voltage	V_{RWM}	150	V
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current	I_O	20	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I_{FSM}	160	A
Single Half Sine-Wave Superimposed on Rated Load			

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	85	
Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	15	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient (Note 8)	$R_{\theta JA}$	12	
Thermal Resistance Junction to Case (Note 8)	$R_{\theta JC}$	1.8	
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

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

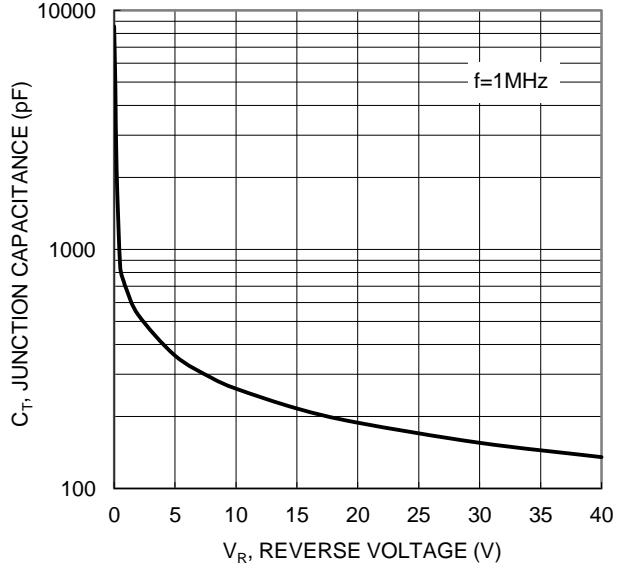
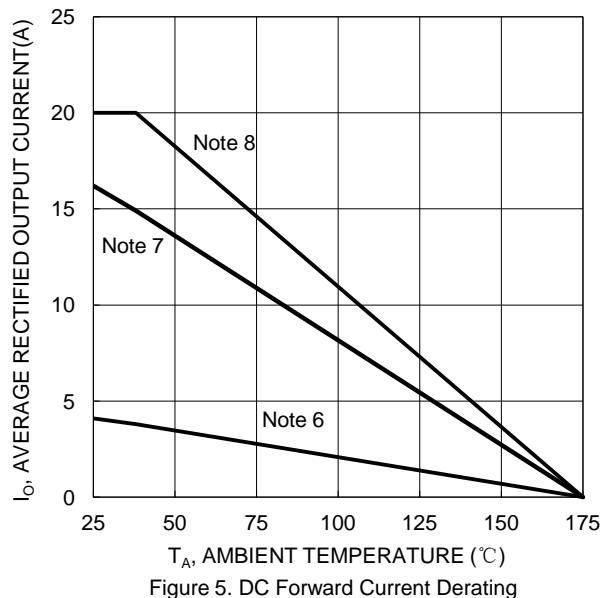
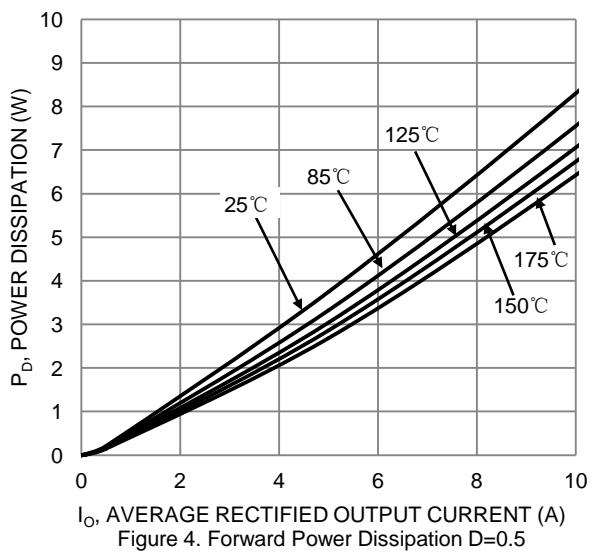
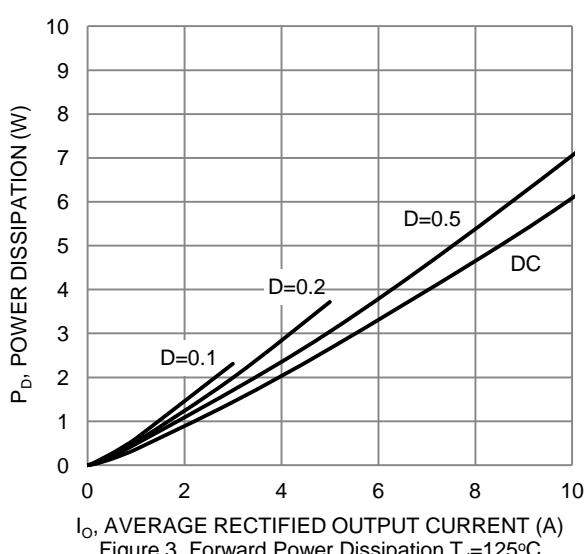
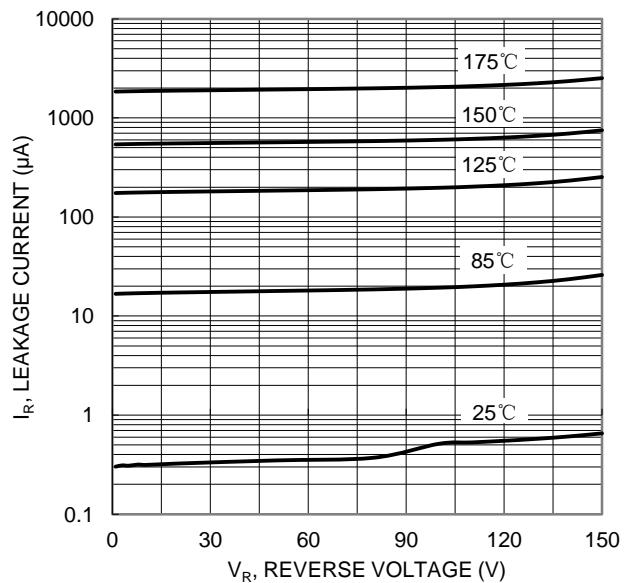
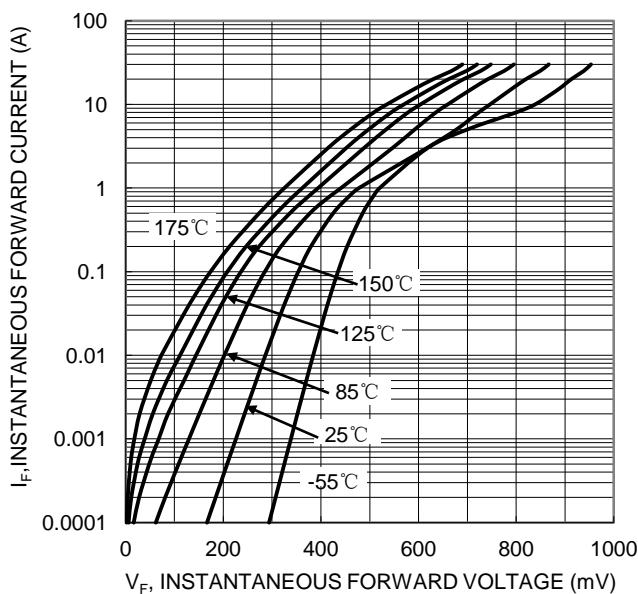
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	—	830 900 710 660	830 900 710 780	mV	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$ $I_F = 20\text{A}, T_J = +25^\circ\text{C}$ $I_F = 10\text{A}, T_J = +125^\circ\text{C}$ $I_F = 20\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 9)	I_R	—	—	0.05 10	mA	$V_R = 150\text{V}, T_J = +25^\circ\text{C}$ $V_R = 150\text{V}, T_J = +125^\circ\text{C}$
Switching Speed t_{RR}	t_{RR}	—	24	—	ns	$I_F=0.5\text{A}, I_R=1\text{A},$ $I_{RR}=0.25\text{A}$ (RG1)

Notes: 6. 1*MRP FR-4 PC board, 2oz.

7. 2inch*2inch Al board.

8. With 2inch x 2inch Al board + 50mm x 50mm x 23mm Al heatsink.

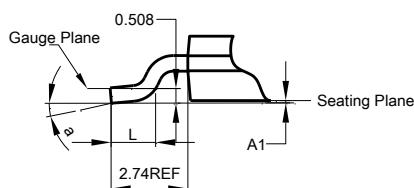
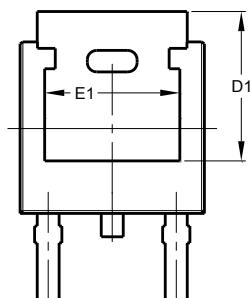
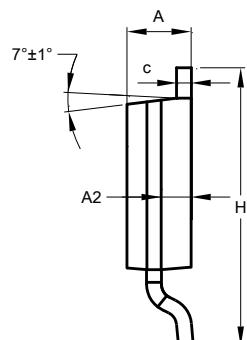
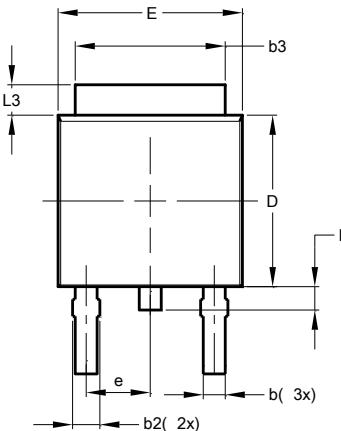
9. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

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

TO252 (DPAK)



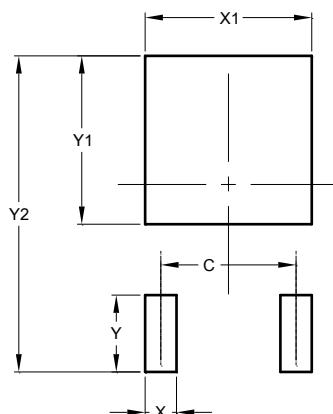
TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-

All Dimensions in mm

Suggested Pad Layout

Please see <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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