

Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V)	I _{R(MAX)} (mA)
50	10	0.45	0.30

Features and Benefits

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- 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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative.**
<https://www.diodes.com/quality/product-definitions/>

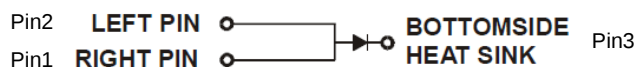
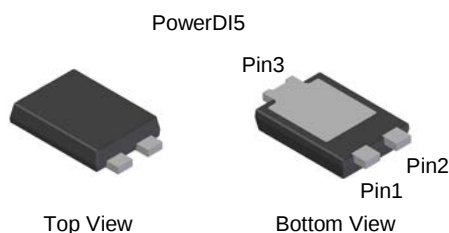
Description and Applications

Packaged in the compact, thermally-efficient PowerDI[®]5 package, the SDT10H50P5 provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

- DC/DC Converters
- AC/DC Adaptors

Mechanical Data

- Case: PowerDI5
- Case Material: Molded Plastic, "Green" Molding compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.093 grams (Approximate)



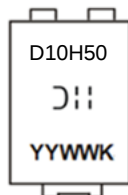
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 4)

Part Number	Case	Packaging
SDT10H50P5-7	PowerDI5	1500/Tape & Reel
SDT10H50P5-7D (Note 5)	PowerDI5	1500/Tape & Reel
SDT10H50P5-13	PowerDI5	5000/Tape & Reel
SDT10H50P5-13D (Note 5)	PowerDI5	5000/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/>.
 5. PowerDI5 available in 5K quantity on 13-inch reel & 12mm tape, part number suffix "13D"; Diodes Incorporated also provides 12mm tape with 7-inch reel, part number suffix "7D."

Marking Information



𐄀𐄀 = Manufacturers' Marking
 D10H50 = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 20 = 2020)
 WW = Week Code (01 to 53)
 K = Factory Designator

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM}	50	V
Average Rectified Output Current	I_O	10	A
Non-Repetitive Peak Forward Surge Current 8.3mS	I_{FSM}	320	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	90	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	25	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	15	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Note 7)	$R_{\theta JC}$	3	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 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	V_F	—	0.40 0.30	0.45 —	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$ $I_F = 10\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 8)	I_R	—	0.06 —	0.30 75	mA	$V_R = 50\text{V}, T_J = +25^\circ\text{C}$ $V_R = 50\text{V}, T_J = +125^\circ\text{C}$

Notes: 6. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
 7. Mount on 2inch*2inch Al heatsink.
 8. Short duration pulse test used to minimize self-heating effect.

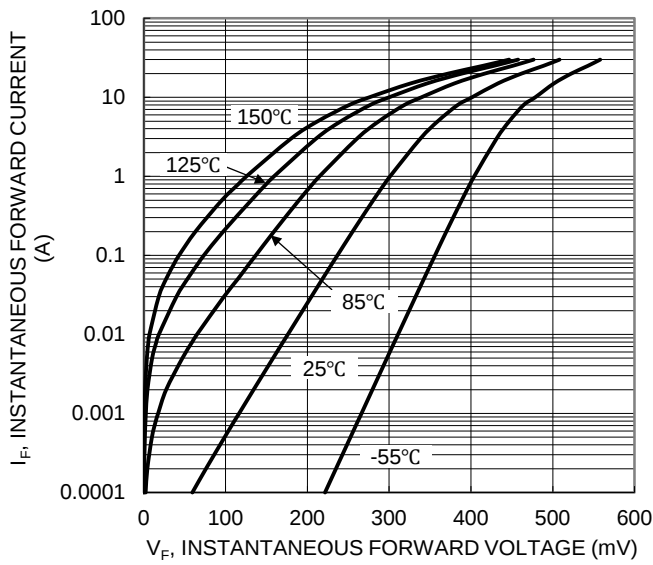


Figure 1. Typical Forward Characteristics

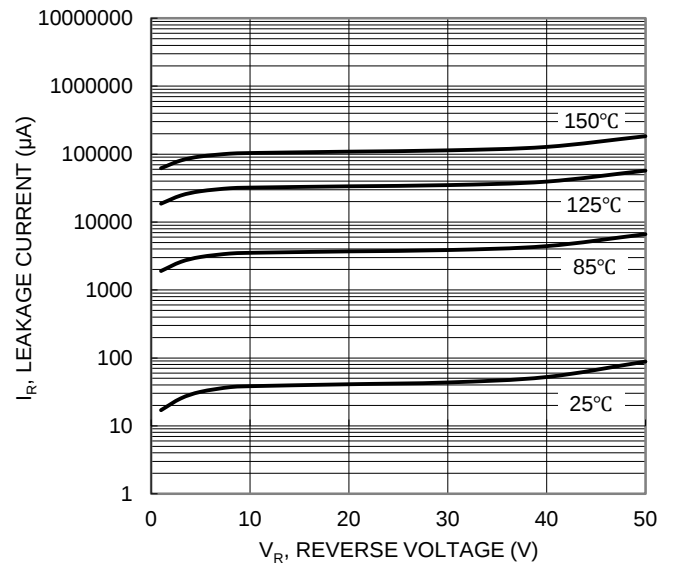


Figure 2. Typical Reverse Characteristics

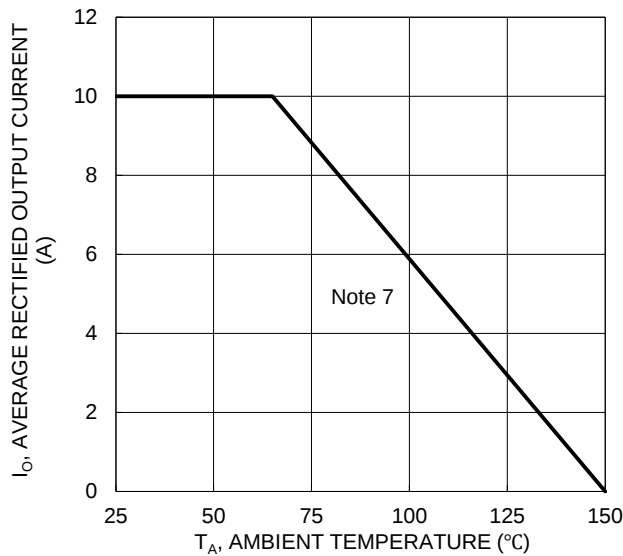


Figure 3. DC Forward Current Derating

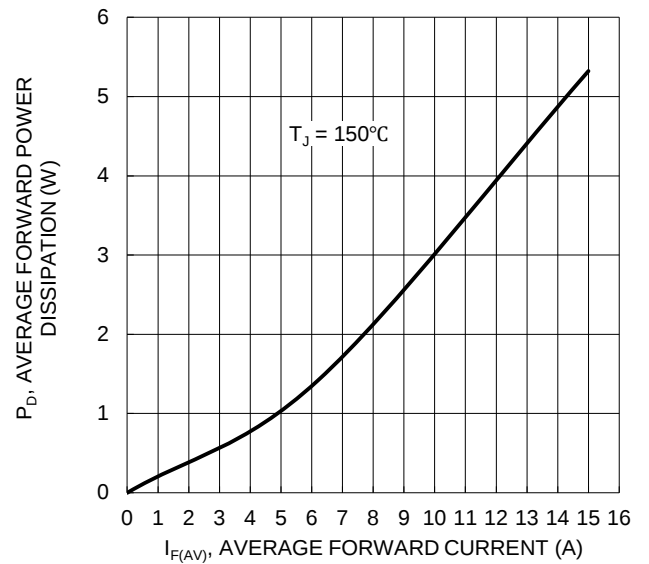
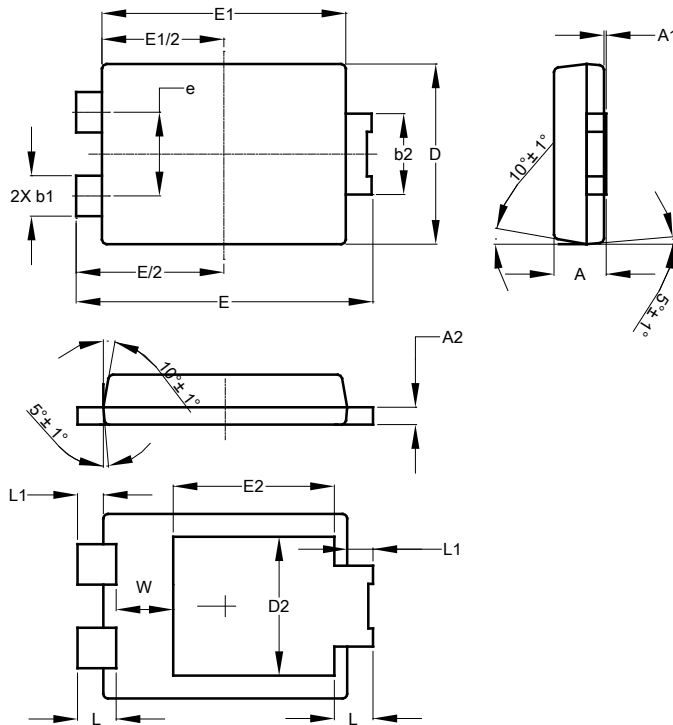


Figure 4. Forward Power Dissipation

Package Outline Dimensions

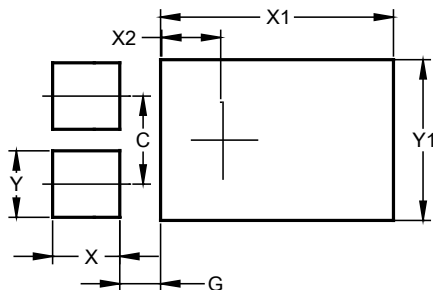
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.51
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

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



Dimensions	Value (in mm)
C	1.840
G	0.852
X	1.400
X1	4.860
X2	1.310
Y	1.390
Y1	3.360

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