NEW PRODUCT

SDT10A45P5

10A
TRENCH SCHOTTKY BARRIER RECTIFIER
PowerDI5

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (mA)
45	10	0.47	0.3

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)**

Description and Applications

Packaged in the compact thermally efficient PowerDI®5, the SDT10A45P5 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 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Weight: 0.093 grams (Approximate)

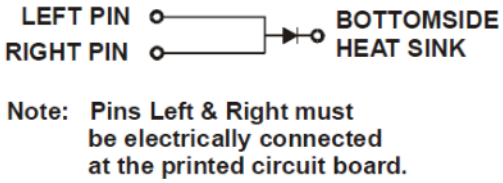
PowerDI5



Top View



Bottom View



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

Ordering Information (Note 4)

Part Number	Case	Packaging
SDT10A45P5-7	PowerDI5	1,500/Tape & Reel
SDT10A45P5-7D (Note 5)	PowerDI5	1,500/Tape & Reel
SDT10A45P5-13	PowerDI5	5,000/Tape & Reel
SDT10A45P5-13D (Note 5)	PowerDI5	5,000/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
D10A45 = Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 19 = 2019)
WW = Week Code (01 to 53)
K = Day in the Week (1 to 7 Represent Monday to Sunday)

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM}	45	V
Average Rectified Output Current	I_O	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I_{FSM}	180	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	88	°C/W
Typical Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	18	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	10	°C/W
Typical Thermal Resistance Junction to Case (Note 7)	$R_{\theta JC}$	2	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— —	0.42 0.35	0.47 0.40	V	I_F = 10A, T_J = +25°C I_F = 10A, T_J = +125°C
Leakage Current (Note 8)	I_R	— —	— 38	0.3 80	mA	V_R = 45V , T_J = +25°C V_R = 45V , T_J = +125°C

Notes: 6. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
7. Aluminum 2inch x 2inch substrate PCB.
8. Short duration pulse test used to minimize self-heating effect.

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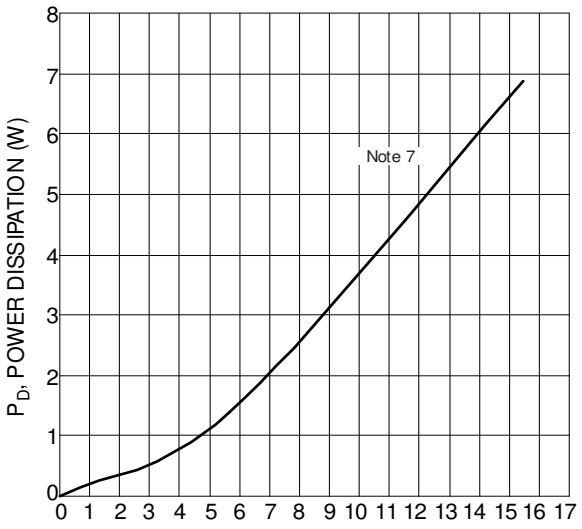


Figure 1 Forward Power Dissipation

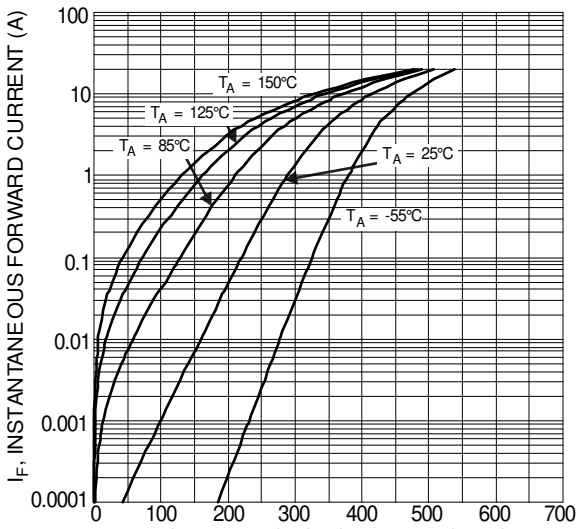


Figure 2 Typical Forward Characteristics

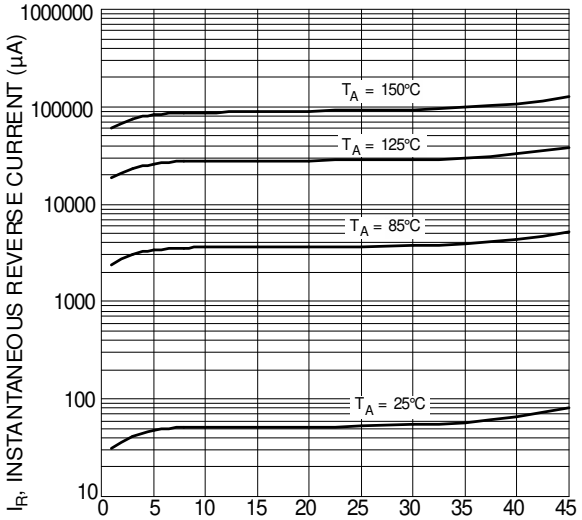


Figure 3 Typical Reverse Characteristics

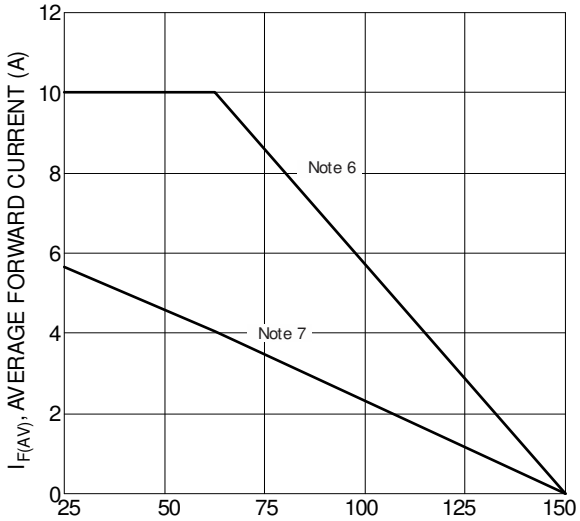


Figure 4 Forward Current Derating Curve

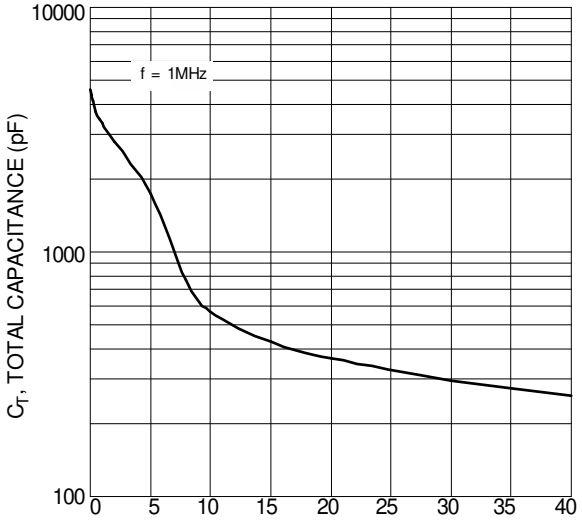


Figure 5 Total Capacitance vs. Reverse Voltage

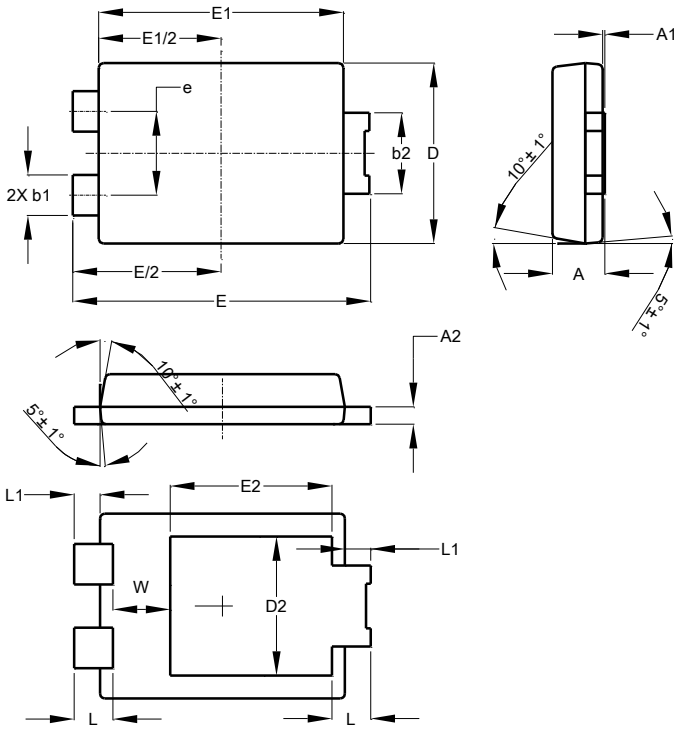
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Package Outline Dimensions

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

PowerDI5

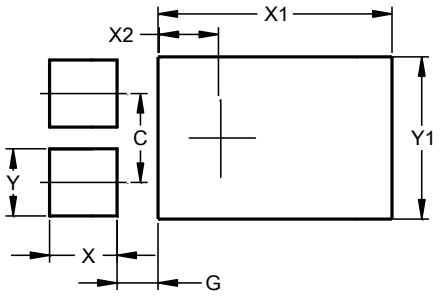


PowerDI5			
Dim	**Min**	**Max**	**Typ**
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.51
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

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

PowerDI5



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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