NEW PRODUCT

SDT5A50SAF

5.0A
TRENCH SCHOTTKY BARRIER RECTIFIER
SMAF

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V)	$I_{R(MAX)}$ (µA)
50	5	0.52	300

Features and Benefits

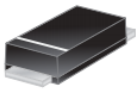
- Low Leakage Current
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Applications

- SMPS
- AC-DC
- DC-DC Converter
- Freewheeling Diodes
  - Reverse Polarity Protection
  - Blocking Diodes

Mechanical Data

- Case: SMAF
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish.) Solderable per MIL-STD-202, Method 208 e3
- Polarity Indicator: Cathode Band
- Weight: 0.036 grams (Approximate)



SMAF

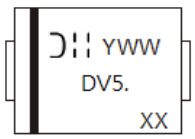
Device Symbol

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
SDT5A50SAF-13	Commercial	SMAF	10,000/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/.

Marking Information (Note 5)



DV5. = Product Type Marking Code
= Manufacturers' Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 9 for 2019)
WW = Week Code 01 to 52
XX = Foundry and Assembly Site

Note: 5. Device has a cathode band (as shown) and may also have a cathode notch.

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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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	50	V
Average Rectified Output Current	I_O	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	50	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Ambient (Note 6) Thermal Resistance Junction to Case (Note 6)	$R_{\theta JA}$ $R_{\theta JC}$	51 28	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 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	— — —	0.35 0.46 0.39	— 0.52 0.45	V	I_F = 1.0A, T_J = +25°C I_F = 5.0A, T_J = +25°C I_F = 5.0A, T_J = +125°C
Leakage Current (Note 7)	I_R	— — —	35 3 12	300 — 90	μA mA mA	V_R = 50V, T_J = +25°C V_R = 45V, T_J = +100°C V_R = 50V, T_J = +125°C

Notes: 6. FR-4 substrate, 0.4"*0.5", 2oz, single-sided, PC boards with 0.2"*0.25" copper pad.
7. Short duration pulse test used to minimize self-heating effect.

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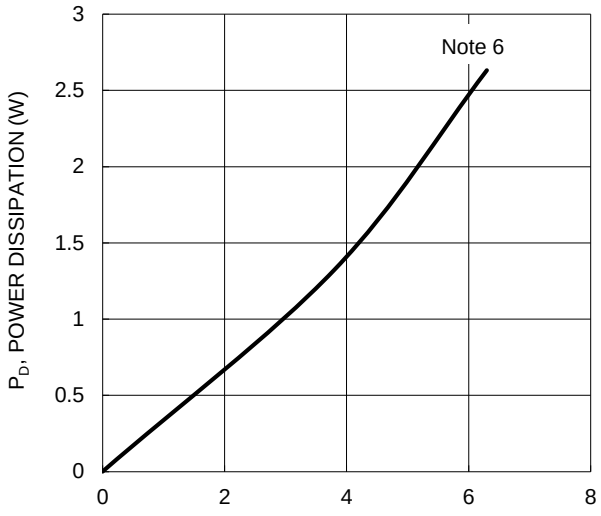

Figure 1. Forward Power Dissipation

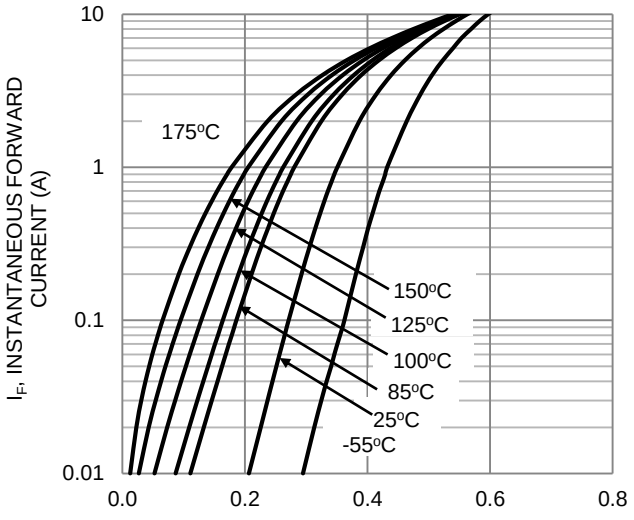

Figure 2. Typical Forward Characteristics

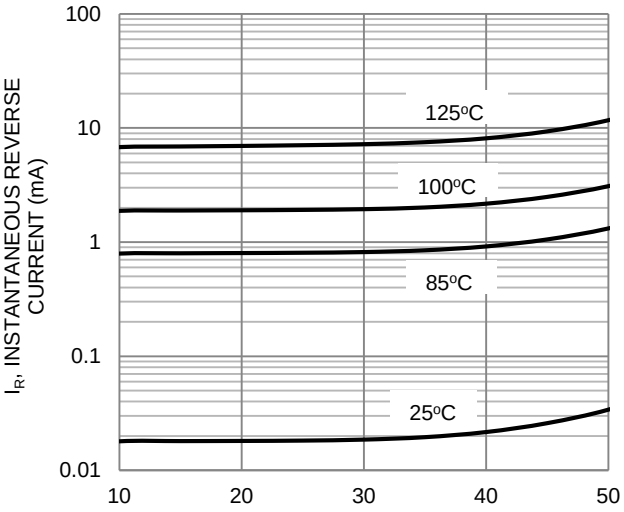

Figure 3. Typical Reverse Characteristics

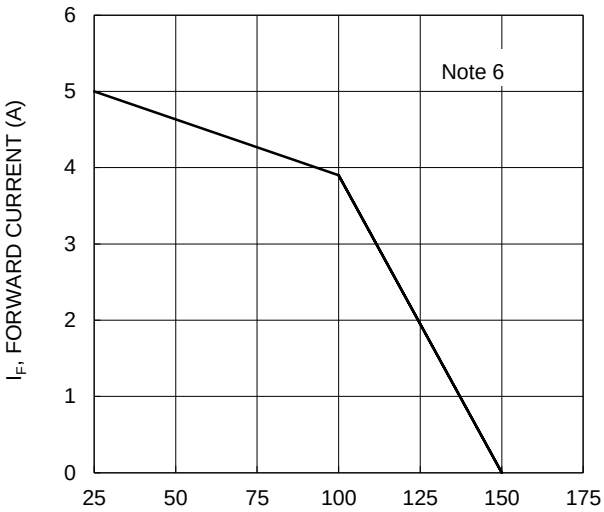

Figure 4. Forward Current Derating Curve

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Package Outline Dimensions

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

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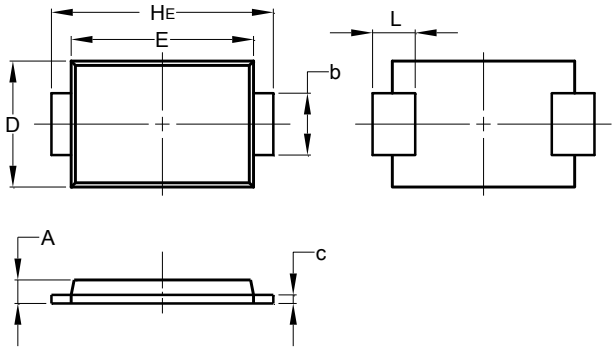

SMAF		
Dim	**Min**	**Max**
A	0.90	1.10
b	1.25	1.65
c	0.10	0.40
D	2.25	2.95
E	3.95	4.60
H_E	4.80	5.60
L	0.50	1.50
All Dimensions in mm		

Suggested Pad Layout

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

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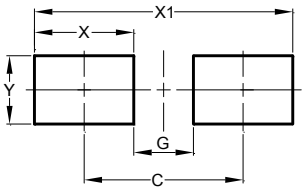

Dimensions	Value (in mm)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

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