

**Product Summary** (@ T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F(MAX)</sub> (mV)	I <sub>R(MAX)</sub> (μA)
45	3	480	280

**Applications**

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



SMAF



Device Symbol

**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/>

**Mechanical Data**

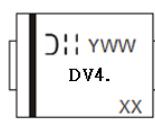
- Case: SMAF
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish.) Solderable per MIL-STD-202, Method 208 ③
- Polarity Indicator: Cathode Band
- Weight: 0.036 grams (Approximate)

**Ordering Information** (Note 4)

Part Number	Compliance	Case	Packaging
SDT3A45SAF-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)

DV4. = Product Type Marking Code  
 DV4. = 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 above) and may also have a cathode notch.

## 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	$V_{RWM}$	45	V
DC Blocking Voltage	$V_{RM}$		
Average Rectified Output Current	$I_O$	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms	$I_{FSM}$		
Single Half Sine-Wave Superimposed on Rated Load		30	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	100	
Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	83	
Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	66	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Case (Note 7)	$R_{\theta JC}$	38	
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 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	$V_F$	—	—	0.48	V	$I_F = 3.0\text{A}, T_J = +25^\circ\text{C}$ $I_F = 3.0\text{A}, T_J = +100^\circ\text{C}$ $I_F = 3.0\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 8)	$I_R$	—	—	280	$\mu\text{A}$	$V_R = 45\text{V}, T_J = +25^\circ\text{C}$ $V_R = 45\text{V}, T_J = +100^\circ\text{C}$ $V_R = 45\text{V}, T_J = +125^\circ\text{C}$
		—	4	—	$\text{mA}$	
		—	—	80	$\text{mA}$	

Notes: 6. FR-4 substrate, 1" \* 1", 2oz, single-sided, PC boards with 0.06" \* 0.09" copper pad.

7. FR-4 substrate, 0.4" \* 0.5", 2oz, single-sided, PC boards with 0.2" \* 0.25" copper pad.

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

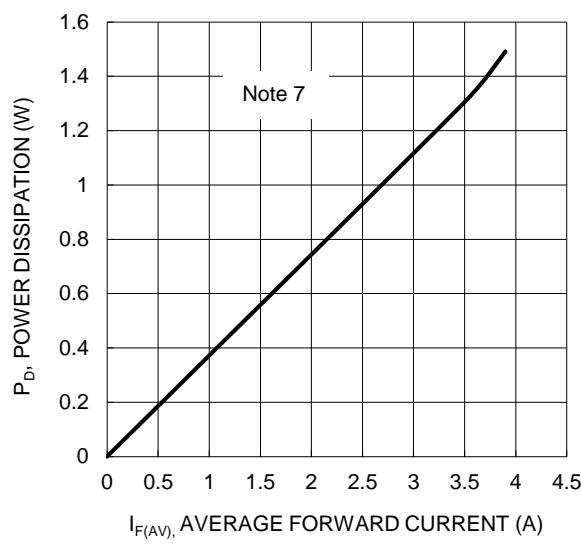


Figure 1. Forward Power Dissipation

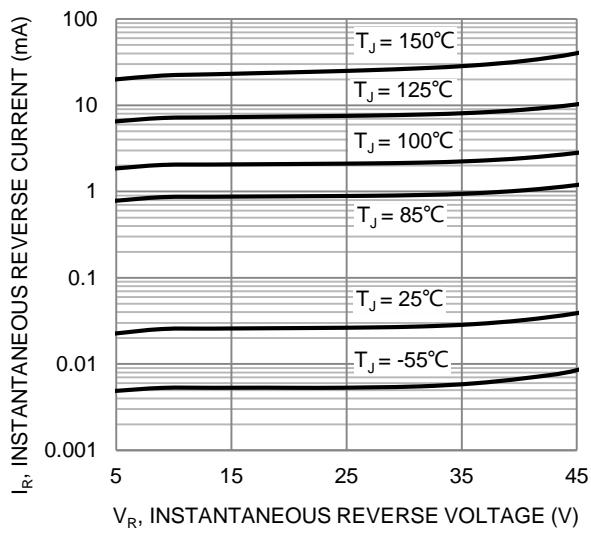


Figure 3. Typical Reverse Characteristics

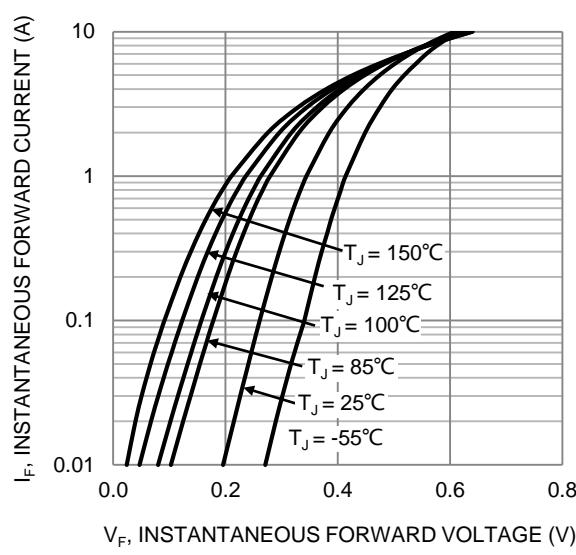


Figure 2. Typical Forward Characteristics

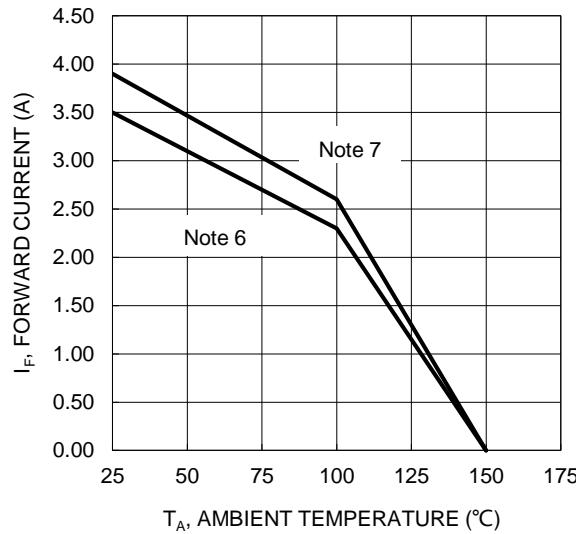
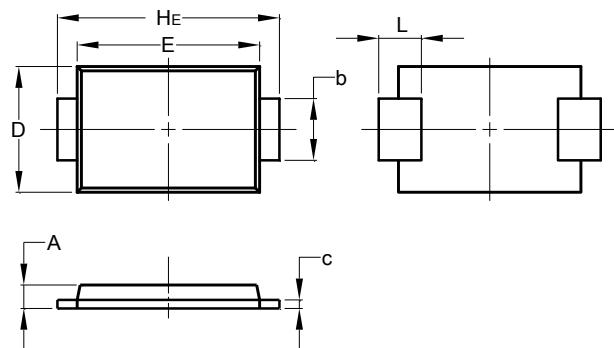


Figure 4. Forward Current Derating Curve

## Package Outline Dimensions

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

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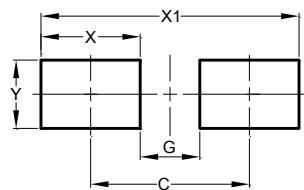
SMAF		
Dim	Min	Max
<b>A</b>	0.90	1.10
<b>b</b>	1.25	1.65
<b>c</b>	0.10	0.40
<b>D</b>	2.25	2.95
<b>E</b>	3.95	4.60
<b>H<sub>E</sub></b>	4.80	5.60
<b>L</b>	0.50	1.50

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)
<b>C</b>	4.00
<b>G</b>	1.50
<b>X</b>	2.50
<b>X1</b>	6.50
<b>Y</b>	1.70

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