**SDT3A40SAFS**

**3A**
**TRENCH SCHOTTKY BARRIER RECTIFIER**
**SMA-FS**

## Product Summary (@ $T_A$ = +25°C)

| $V_{RRM}$ (V) | $I_O$ (A) | $V_{F(MAX)}$ (V) | $I_{R(MAX)}$ (µA) |
|---|---|---|---|
| 40 | 3 | 0.45 | 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

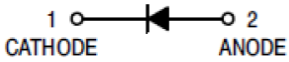
- SMPS
- AC-DC
- DC-DC Converter
- Freewheeling Diodes
- Reverse Polarity Protection
- Blocking Diodes

## Mechanical Data

- Case: SMA-FS
- 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: 0.033 grams (Approximate)

**SMA-FS**

Top View



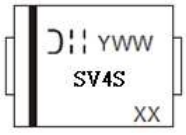

Schematic View

## Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|---|---|---|---|
| SDT3A40SAFS-13 | Commercial | SMA-FS | 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)




SV4S = Product Type Marking Code
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 1 for 2021)
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°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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 40 | V |
| Average Rectified Output Current | $I_O$ | 3 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 60 | A |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance Junction to Case (Note 6)<br>Thermal Resistance Junction to Ambient (Note 6) | $R_{\theta JC}$<br>$R_{\theta JA}$ | 30<br>50 | °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 | $V_F$ | —<br>— | —<br>— | 0.45<br>0.39 | V | $I_F$ = 3.0A, $T_J$ = +25°C<br>$I_F$ = 3.0A, $T_J$ = +100°C |
| Leakage Current (Note 7) | $I_R$ | —<br>— | —<br>— | 300<br>15 | μA<br>mA | $V_R$ = 40V, $T_J$ = +25°C<br>$V_R$ = 40V, $T_J$ = +100°C |

Notes: 6. Device mounted on FR-4 substrate, 1"*1", 2oz, single-sided, PC boards with 0.56"*0.73" copper pad.
7. Short duration pulse test used to minimize self-heating effect.

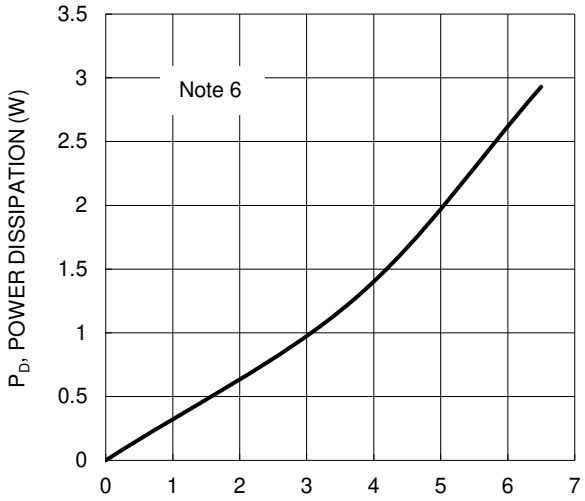


Figure 1. Forward Power Dissipation

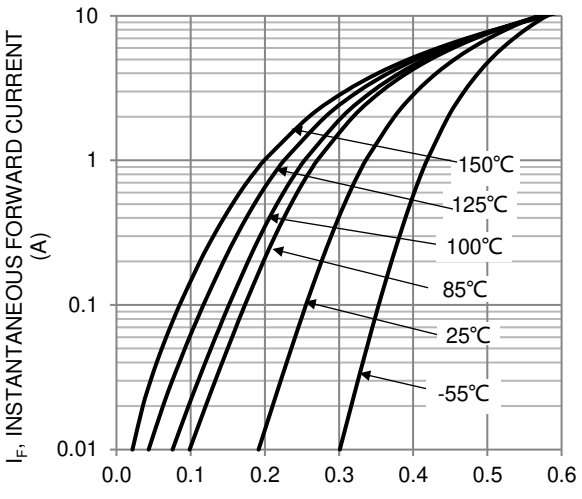


Figure 2. Typical Forward Characteristics

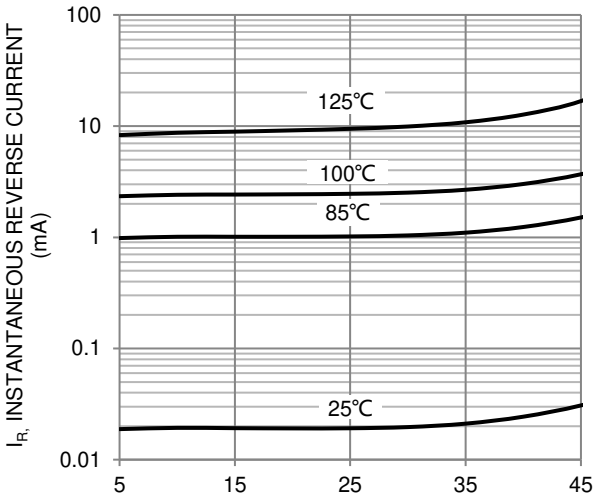


Figure 3. Typical Reverse Characteristics

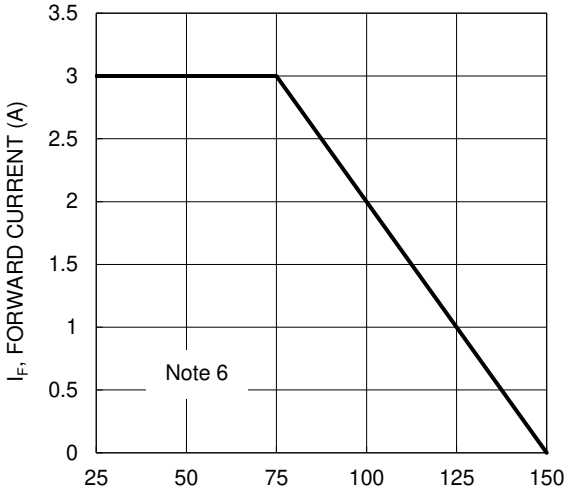
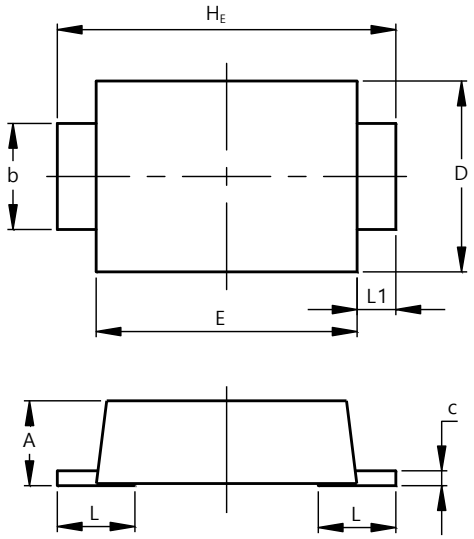


Figure 4. Forward Current Derating Curve

## Package Outline Dimensions

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

**SMA-FS**

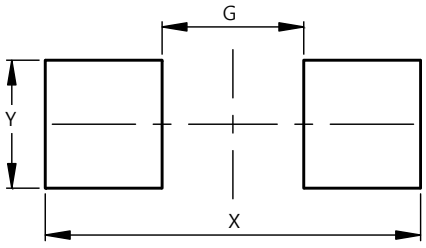



| SMA-FS | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 0.90 | 1.20 |
| **b** | 1.30 | 1.50 |
| **c** | 0.11 | 0.21 |
| **D** | 2.30 | 2.70 |
| **E** | 3.30 | 3.70 |
| **$H_E$** | 4.40 | 4.80 |
| **L** | 0.70 | 1.10 |
| **L1** | 0.45 | 0.65 |
| **All Dimensions in mm** | | |

## Suggested Pad Layout

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

**SMA-FS**




| Dimensions | Value (in mm) |
|---|---|
| **G** | 2.10 |
| **X** | 5.30 |
| **Y** | 1.77 |

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