



**THE DATASHEET OF
SDT3A45SA-13**



Product Summary (@ T_A = +25°C)

| V _{RRM} (V) | I _O (A) | V _{F(MAX)} (mV) | I _{R(MAX)} (μA) |
|----------------------|--------------------|--------------------------|--------------------------|
| 45 | 3 | 480 | 280 |

Features and Benefits

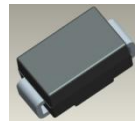
- Low Leakage Current
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Applications

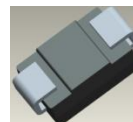
- SMPS
- AC-DC
- DC-DC Converter
- Freewheeling Diodes
- Reverse Polarity Protection
- Blocking Diodes

Mechanical Data

- Case: SMA
- 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
- Polarity Indicator: Cathode Band
- Weight: 0.064 grams (Approximate)



Top View

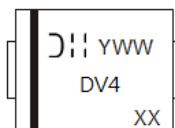


Bottom View

Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|--------------|------------|------|-------------------|
| SDT3A45SA-13 | Commercial | SMA | 5,000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html 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
 ⌋⌋⌋ = Manufacturers' Code Marking
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 7 for 2017)
 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 | V _{RRM} | 45 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current | I _O | 3 | 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) | R _{θJA} | 100 | °C/W |
| Thermal Resistance Junction to Ambient (Note 7) | R _{θJA} | 83 | |
| Thermal Resistance Junction to Case (Note 6) | R _{θJC} | 62 | |
| Thermal Resistance Junction to Case (Note 7) | R _{θJC} | 38 | |
| 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 | – | – | 0.48 | V | I _F = 3.0A, T _J = +25°C |
| | | – | – | 0.40 | | I _F = 3.0A, T _J = +125°C |
| Leakage Current (Note 8) | I _R | – | – | 280 | μA | V _R = 45V, T _J = +25°C |
| | | – | 8 | – | mA | V _R = 45V, T _J = +100°C |
| | | – | – | 80 | mA | V _R = 45V, T _J = +125°C |

- Notes:
6. FR-4 substrate, 1"×1", 2oz, single-sided, PC boards with 0.1"×0.15" 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.

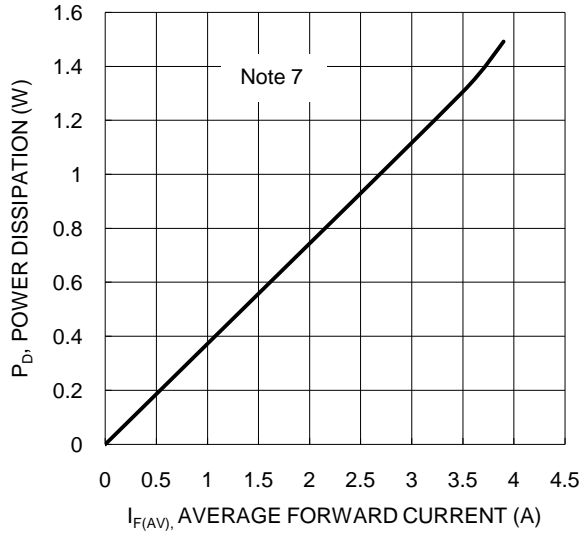


Figure 1. Forward Power Dissipation

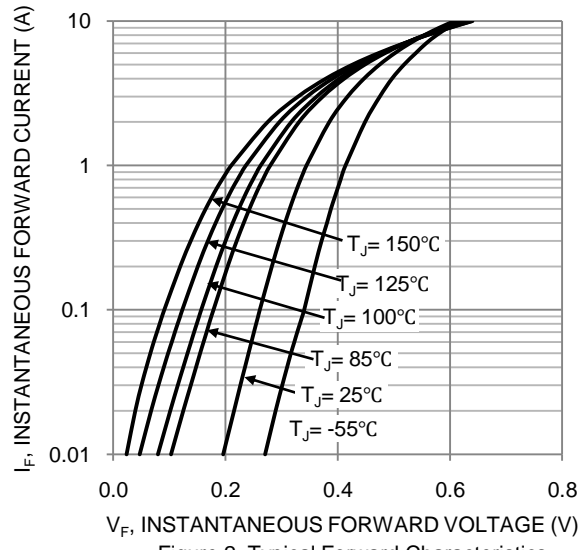


Figure 2. Typical Forward Characteristics

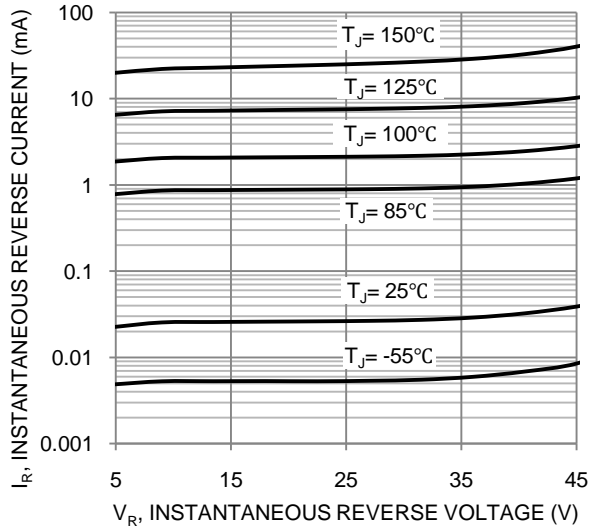


Figure 3. Typical Reverse Characteristics

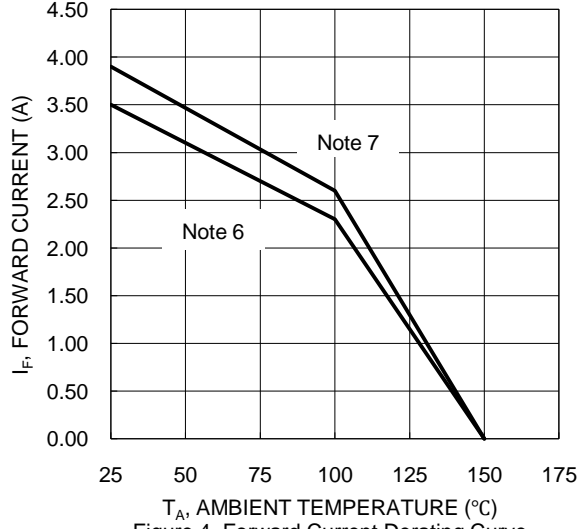
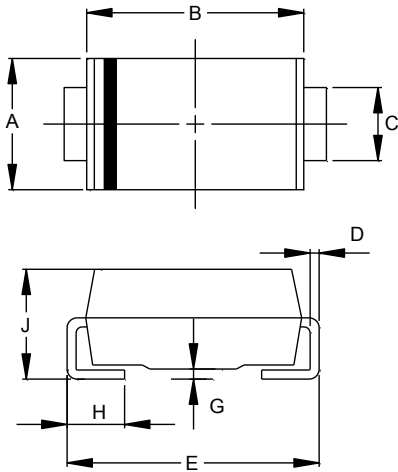


Figure 4. Forward Current Derating Curve

Package Outline Dimensions

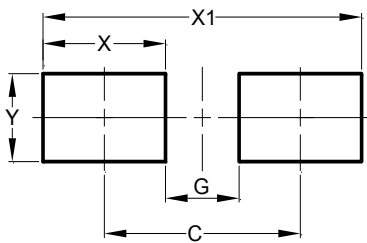
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| SMA | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 2.29 | 2.92 |
| B | 4.00 | 4.60 |
| C | 1.27 | 1.63 |
| D | 0.15 | 0.31 |
| E | 4.80 | 5.59 |
| G | 0.05 | 0.20 |
| H | 0.76 | 1.52 |
| J | 1.96 | 2.40 |
| 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 | 4.00 |
| G | 1.50 |
| X | 2.50 |
| X1 | 6.50 |
| Y | 1.70 |

NEW PRODUCT

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