

## Product Summary

SDT30B100D1

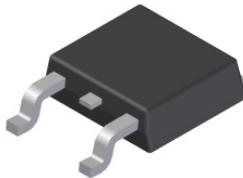
| $V_{RRM}$ (V) | $I_o$ (A) | $V_F$ (MAX) (V)<br>@ +25°C | $I_R$ (MAX) ( $\mu$ A)<br>@ +25°C |
|---------------|-----------|----------------------------|-----------------------------------|
| 100           | 30        | 0.85                       | 120                               |

## Description and Applications

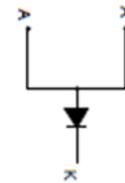
The SDT30B100D1 provides very low  $V_F$  and extremely excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

- DC-DC Converters
- AC-DC Adaptors

TO252 (DPAK) (Type TH)



Top View



Package Pin Out Configuration

## Features and Benefits

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Soft, Fast Switching Capability
- **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](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

- Case: TO252
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: See Below
- Weight: 0.317 grams (Approximate)

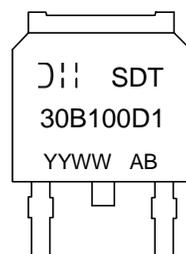
## Ordering Information (Note 4)

| Part Number    | Case                   | Packaging         |
|----------------|------------------------|-------------------|
| SDT30B100D1-13 | TO252 (DPAK) (Type TH) | 2,500 pieces/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

TO252 (DPAK) (Type TH)



= Manufacturer's Marking  
 SDT30B100D1 = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 20 = 2020)  
 WW = Week (01 to 53)

**Maximum Ratings** (@T<sub>A</sub> = +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 <sub>RRM</sub> | 100   | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub> |       |      |
| DC Blocking Voltage   | V <sub>RM</sub>  |       |      |
| Average Rectified Output Current  | I <sub>O</sub>   | 30    | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 130   | A    |

**Thermal Characteristics**

| Characteristic  | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Case (Note 5) | R <sub>θJC</sub>                  | 2           | °C/W |
| Operating and Storage Temperature Range               | T <sub>J</sub> , T <sub>STG</sub> | -55 to +175 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic           | Symbol         | Min | Typ  | Max  | Unit | Test Condition                                 |
|--------------------------|----------------|-----|------|------|------|--|
| Forward Voltage Drop     | V <sub>F</sub> | —   | 0.48 | 0.54 | V    | I <sub>F</sub> = 5A, T <sub>J</sub> = +25°C    |
|                          |                | —   | 0.40 | 0.46 |      | I <sub>F</sub> = 5A, T <sub>J</sub> = +125°C   |
|                          |                | —   | 0.56 | 0.62 |      | I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C   |
|                          |                | —   | 0.51 | 0.57 |      | I <sub>F</sub> = 10A, T <sub>J</sub> = +125°C  |
|                          |                | —   | 0.78 | 0.85 |      | I <sub>F</sub> = 30A, T <sub>J</sub> = +25°C   |
|                          |                | —   | 0.72 | 0.79 |      | I <sub>F</sub> = 30A, T <sub>J</sub> = +125°C  |
| Leakage Current (Note 6) | I <sub>R</sub> | —   | 12   | 120  | μA   | V <sub>R</sub> = 100V, T <sub>J</sub> = +25°C  |
|                          |                | —   | 5    | 20   | mA   | V <sub>R</sub> = 100V, T <sub>J</sub> = +125°C |

Notes: 5. Test with 2inch\*2inch Al board + 50mm\*50mm\*23mm Al heatsink.  
 6. Short duration pulse test used to minimize self-heating effect.

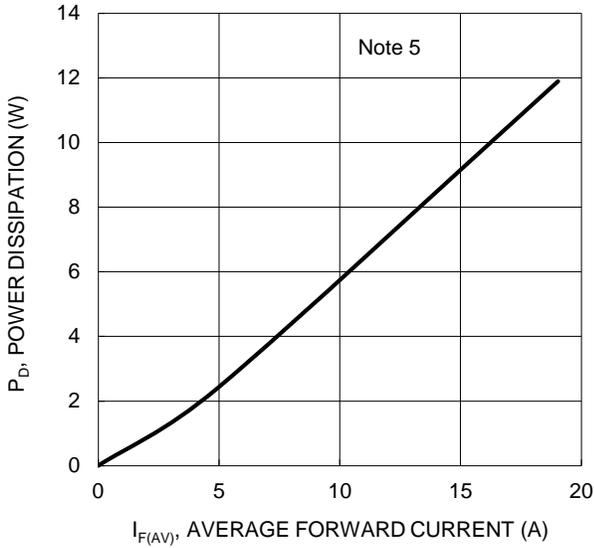


Figure 1. Forward Power Dissipation

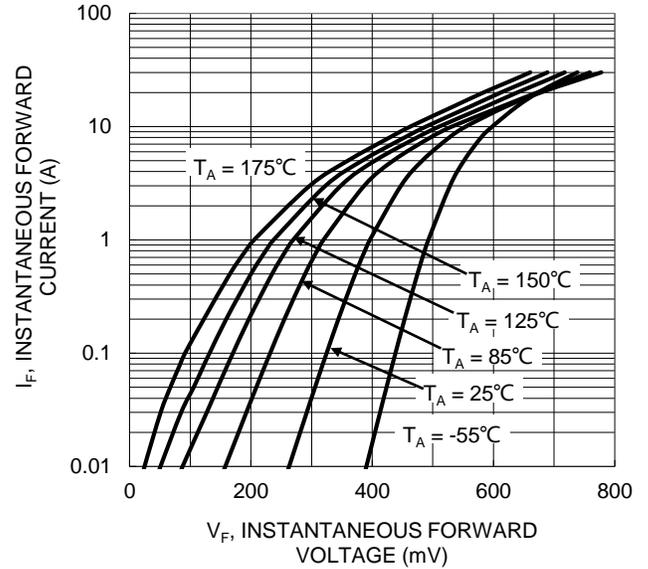


Figure 2. Typical Forward Characteristics

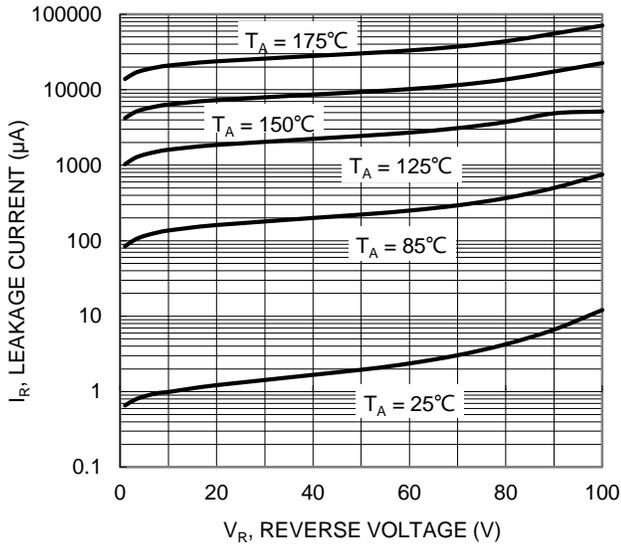


Figure 3. Typical Reverse Characteristics

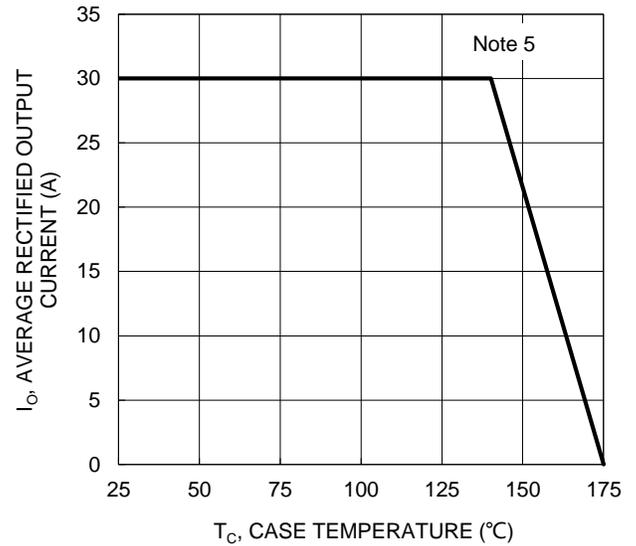


Figure 4. DC Forward Current Derating

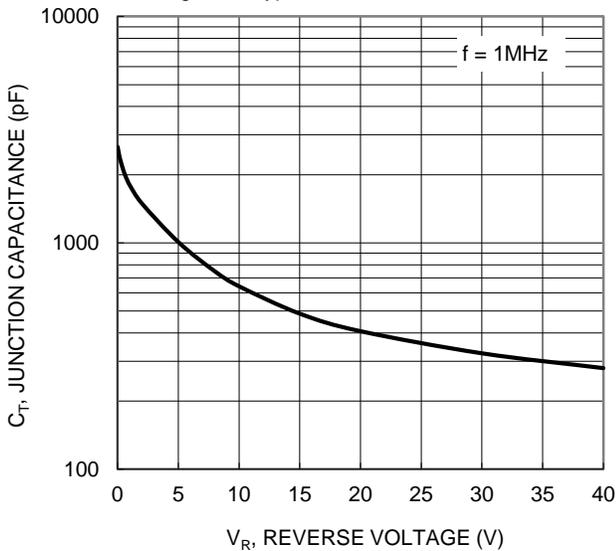
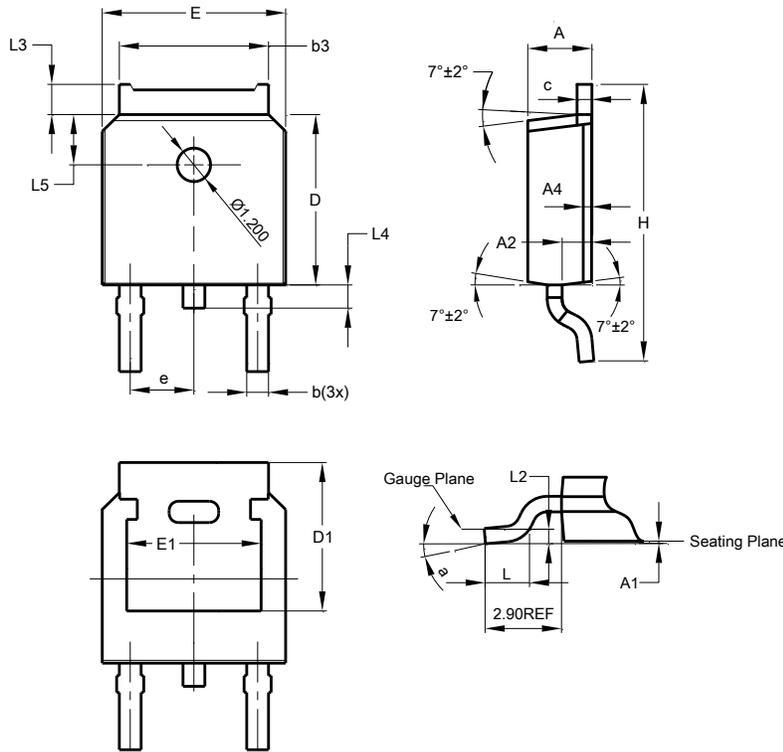


Figure 5. Typical Junction Capacitance

## Package Outline Dimensions

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

**TO252 (DPAK) (Type TH)**

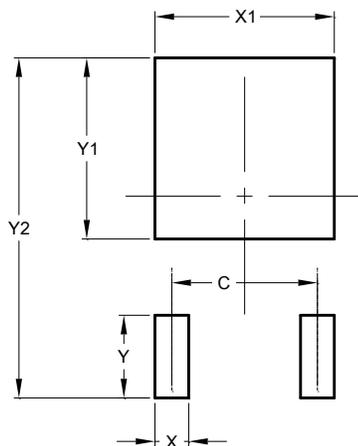


| TO252 (DPAK)<br>(Type TH) |           |       |       |
|---------------------------|-----------|-------|-------|
| Dim                       | Min       | Max   | Typ   |
| A                         | 2.20      | 2.38  | 2.30  |
| A1                        | 0.00      | 0.10  | -     |
| A2                        | 0.97      | 1.17  | 1.07  |
| A4                        | 0.10 REF  |       |       |
| b                         | 0.72      | 0.85  | 0.78  |
| b3                        | 5.23      | 5.45  | 5.33  |
| c                         | 0.47      | 0.58  | 0.53  |
| D                         | 6.00      | 6.20  | 6.10  |
| D1                        | 5.30 REF  |       |       |
| e                         | 2.286 BSC |       |       |
| E                         | 6.50      | 6.70  | 6.60  |
| E1                        | 4.70      | 4.92  | 4.83  |
| H                         | 9.90      | 10.30 | 10.10 |
| L                         | 1.40      | 1.70  | 1.60  |
| L2                        | 0.51 BSC  |       |       |
| L3                        | 0.90      | 1.25  | -     |
| L4                        | 0.60      | 1.00  | 0.80  |
| L5                        | 1.70      | 1.90  | 1.80  |
| a                         | 0°        | 8°    | -     |
| All Dimensions in mm      |           |       |       |

## Suggested Pad Layout

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

**TO252 (DPAK) (Type TH)**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 4.572         |
| X          | 1.060         |
| X1         | 5.632         |
| Y          | 2.600         |
| Y1         | 5.700         |
| Y2         | 10.700        |

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