

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

| V <sub>RRM</sub> (V) | I <sub>O</sub> (A) | V <sub>F</sub> (V) | I <sub>R</sub> (μA) | t <sub>RR</sub> (ns) |
|----------------------|--------------------|--------------------|---------------------|----------------------|
| 600                  | 8                  | 3.4                | 15                  | 18                   |

**Features and Benefits**

- Soft, Hyper-Fast Switching Capability
- Glass Passivated Die Construction
- Especially Suited for Continuous-Conduction Mode Power Factor Corrections
- High Reliability and Efficiency
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DTH8S06D1Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

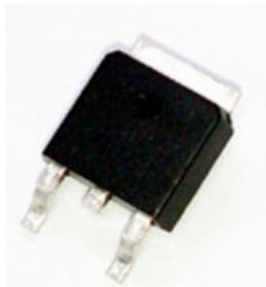
<https://www.diodes.com/quality/product-definitions/>

**Description and Applications**

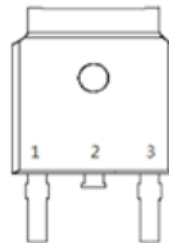
Suitable for rectification and freewheeling for SMPS, LED lighting, adapters, battery chargers, home appliances, office equipment and telecommunication applications.

**Mechanical Data**

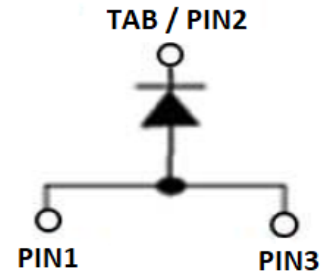
- Package: TO252
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Lead-Frame. Solderable per MIL-STD-202, Method 208 Ⓜ3
- Polarity: See Diagram
- Weight: 0.32 grams (Approximate)



TO252 (Type WX)



Top View Pin-Out



Pins 1 & 3 must be electrically connected at the PCB

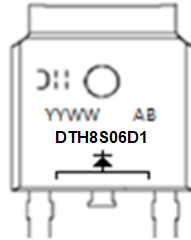
**Ordering Information** (Note 4)

| Part Number   | Package         | Packing     |         |
|---------------|-----------------|-------------|---------|
|               |                 | Qty.        | Carrier |
| DTH8S06D1Q-13 | TO252 (Type WX) | 2500 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 (Type WX)



DTH8S06D1 = Product Type Marking Code  
 DTH = Manufacturers' Code Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 24 for 2024)  
 WW = Week Code (01 to 53)  
 AB = Foundry and Assembly Code

## 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>     | 600   | V    |
| Working Peak Reverse Voltage                                     | V <sub>RWM</sub>     |       |      |
| DC Blocking Voltage  | V <sub>R</sub>       |       |      |
| Average Rectified Output Current                                 | I <sub>O</sub>       | 8     | A    |
| Non-Repetitive Peak Forward Surge Current, t <sub>p</sub> = 1ms  | I <sub>FSM</sub>     | 150   | A    |
| Non-Repetitive Peak Forward Surge Current, t <sub>p</sub> = 10ms |                      | 70    |      |
| Non-Repetitive Avalanche Energy @ L = 15mH                       | E <sub>AS</sub>      | 20    | mJ   |
| ESD Rating   | Human Body Model     | 4     | kV   |
|  | Charged Device Model | 1     |      |

## Thermal Characteristics

| Characteristic                                       | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Case (Note 5) | R <sub>θJC</sub>                  | 2.7         | °C/W |
| Typical Thermal Resistance Junction to Lead (Note 5) | R <sub>θJL</sub>                  | 3.5         | °C/W |
| Operating and Storage Temperature Range              | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

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

| Characteristic  | Symbol          | Min | Typ     | Max       | Unit | Test Condition   |
|---|-----------------|-----|---------|-----------|------|--|
| Forward Voltage (Note 7)                                    | V <sub>F</sub>  | —   | —       | 3.4       | V    | I <sub>F</sub> = 8A, T <sub>J</sub> = +25°C  |
| Reverse Leakage Current (Note 6)                            | I <sub>R</sub>  | —   | —       | 15<br>200 | μA   | V <sub>R</sub> = 600V, T <sub>J</sub> = +25°C<br>V <sub>R</sub> = 600V, T <sub>J</sub> = +125°C  |
| Reverse-Recovery Time (Note 8)                              | t <sub>RR</sub> | —   | —<br>12 | 21<br>18  | ns   | I <sub>F</sub> = 0.5A, I <sub>RR</sub> = 0.25A, I <sub>R</sub> = 1.0A<br>I <sub>F</sub> = 1A, dI <sub>F</sub> /dt = -200A/μs, V <sub>R</sub> = 30V |
| Reverse-Recovery Current, @T <sub>J</sub> = +25°C (Note 8)  | I <sub>RM</sub> | —   | 3.0     | —         | A    | I <sub>F</sub> = 8A, dI <sub>F</sub> /dt = -200A/μs, V <sub>R</sub> = 200V   |
| Reverse-Recovery Current, @T <sub>J</sub> = +125°C (Note 8) |                 |     | 6.0     |           |      |  |
| Reverse-Recovery Charge, @T <sub>J</sub> = +25°C (Note 8)   | Q <sub>RR</sub> | —   | 60      | —         | nC   | I <sub>F</sub> = 8A, dI <sub>F</sub> /dt = -200A/μs, V <sub>R</sub> = 200V   |
| Reverse-Recovery Charge, @T <sub>J</sub> = +125°C (Note 8)  |                 |     | 190     |           |      |  |

Notes: 5. Thermal Resistance test performed in accordance with JESD-51. The unit mounted on fin type heatsink (35mm × 24mm × 19.9mm).  
 6. Short duration pulse test used to minimize self-heating effect.  
 7. 300μs pulse width, 2% duty cycle.  
 8. Guaranteed by design.

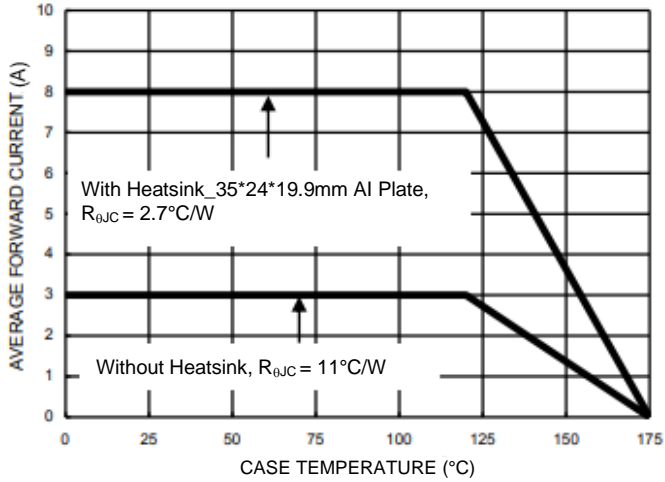


Figure 1. Forward Current Derating Curve

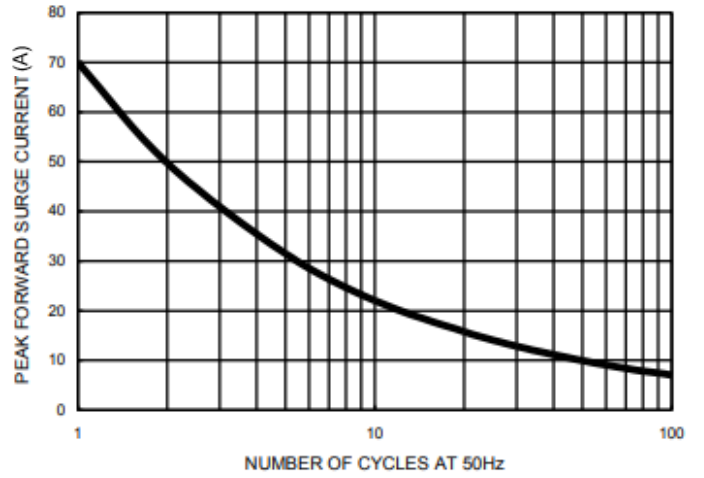


Figure 2. Maximum Non-Repetitive Surge Current

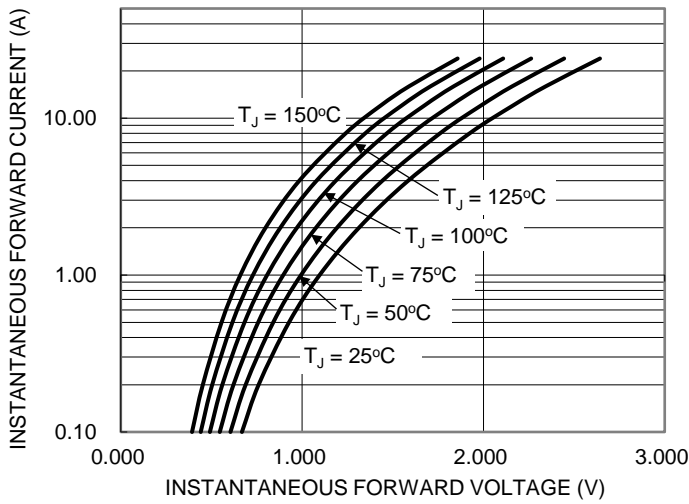


Figure 3. Typical Forward Characteristics

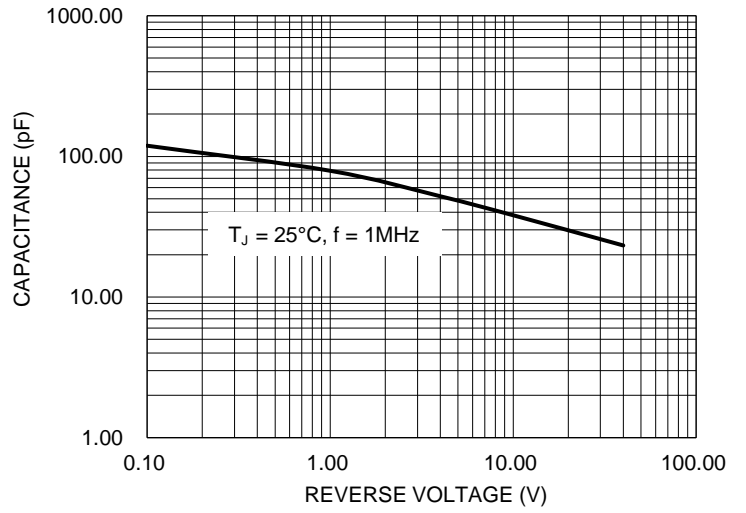


Figure 4. Typical Total Capacitance

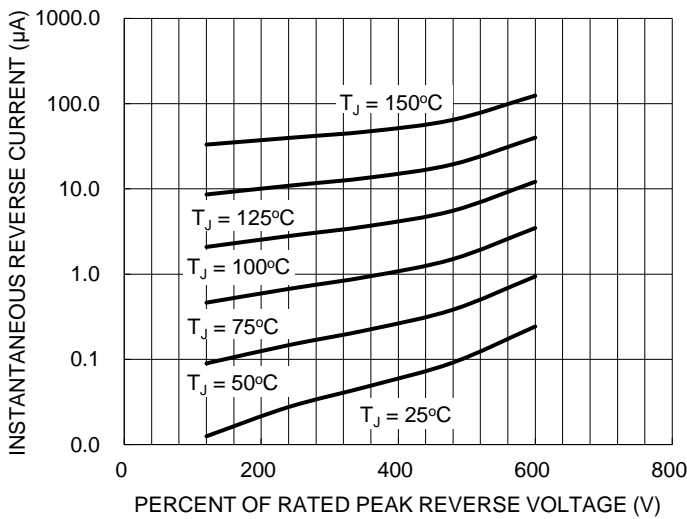
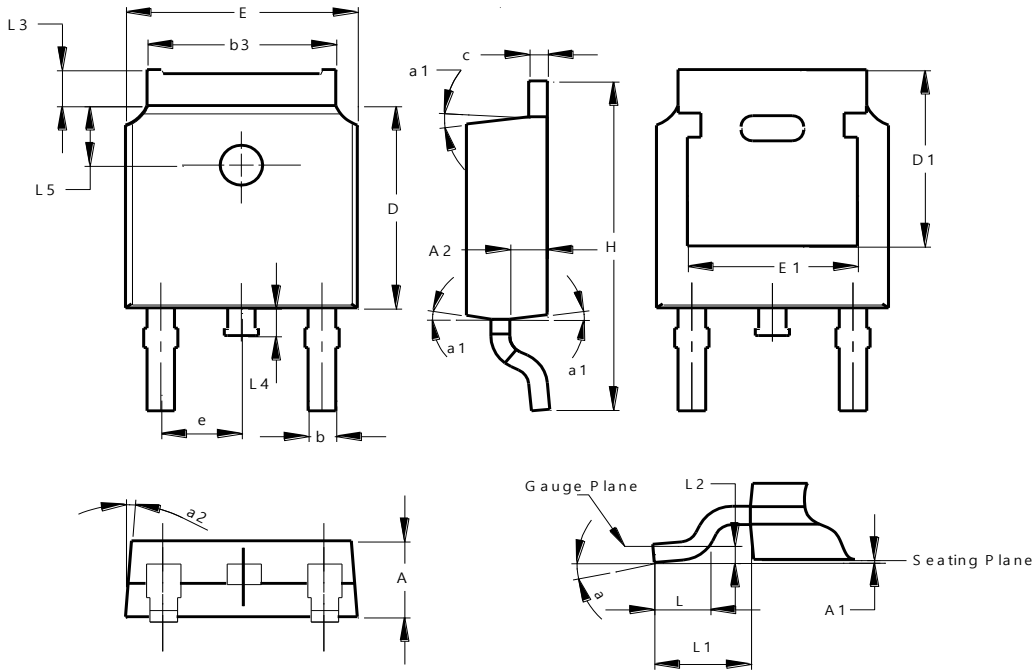


Figure 5. Typical Reverse Characteristics

**Package Outline Dimensions**

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

**TO252 (Type WX)**

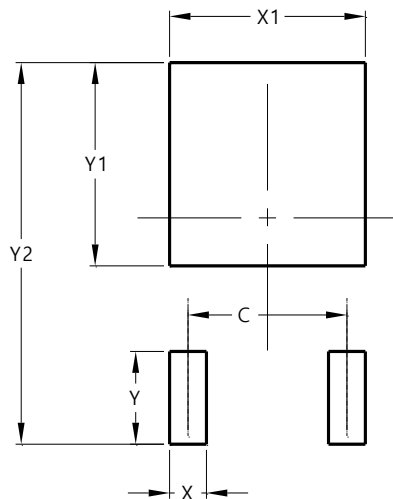


| TO252 (Type WX)             |           |       |       |
|-----------------------------|-----------|-------|-------|
| Dim                         | Min       | Max   | Typ   |
| A                           | 2.20      | 2.40  | 2.30  |
| A1                          | 0.00      | 0.15  | --    |
| A2                          | 0.97      | 1.17  | 1.07  |
| b                           | 0.68      | 0.90  | 0.78  |
| b3                          | 5.20      | 5.50  | 5.33  |
| c                           | 0.43      | 0.63  | 0.53  |
| D                           | 5.98      | 6.22  | 6.10  |
| D1                          | 5.30 REF  |       |       |
| e                           | 2.286 REF |       |       |
| E                           | 6.40      | 6.80  | 6.60  |
| E1                          | 4.63      | 5.03  | 4.83  |
| H                           | 9.40      | 10.50 | 10.10 |
| L                           | 1.38      | 1.75  | 1.50  |
| L1                          | 2.90 REF  |       |       |
| L2                          | 0.51 BSC  |       |       |
| L3                          | 0.88      | 1.28  | --    |
| L4                          | --        | 1.00  | --    |
| L5                          | 1.65      | 1.95  | 1.80  |
| a                           | 0°        | 8°    | -     |
| a1                          | 5°        | 9°    | 7°    |
| a2                          | 5°        | 9°    | 7°    |
| <b>All Dimensions in mm</b> |           |       |       |

**Suggested Pad Layout**

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

**TO252 (Type WX)**



| 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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