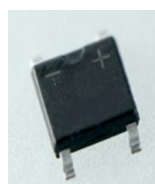


## Product Summary (@T<sub>A</sub> = +25°C)

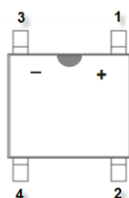
| V <sub>RRM</sub> (V) | I <sub>O</sub> (A) | V <sub>F</sub> (V) | I <sub>R</sub> (μA) |
|----------------------|--------------------|--------------------|---------------------|
| 1000                 | 1.0                | 1.1                | 5                   |

## Description and Applications

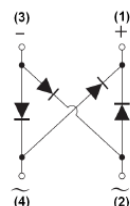
Suitable for AC to DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.



Top View



Pin Diagram



Internal Schematic

## Features and Benefits

- Glass Passivated Die Construction
- Miniature Package Saves Space on PC Boards
- High Current Capability
- Ideal for SMT Manufacturing
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

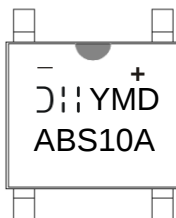
- Case: SOPA-4
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 **(e3)**
- Polarity: As Marked on Body
- Weight: 0.10 grams (Approximate)

## Ordering Information (Note 4)

| Part Number | Compliance | Case   | Packaging         |
|-------------|------------|--------|-------------------|
| ABS10A-13   | Commercial | SOPA-4 | 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](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 <http://www.diodes.com/products/packages.html>.

## Marking Information



ABS10A = Product Type Marking Code

**D** = Manufacturers' Code Marking

YMD = Date Code Marking

Y = Last Digit of Year (ex: 7 = 2017)

M = See Month/Code Table Below

D = Day 1 to 9 = 1 to 9; Day 10 to 31 = A to V

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

## 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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage               | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 1000  | V                |
| RMS Reverse Voltage                                                                                  | V <sub>R(RMS)</sub>                                    | 700   | V                |
| Average Rectified Output Current (Note 6) @ T <sub>A</sub> = +30°C                                   | I <sub>O</sub>                                         | 1.0   | A                |
| Non-Repetitive Peak Forward Surge Current, 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                       | 35    | A                |
| I <sup>2</sup> t Rating for Fusing (1ms < t < 8.3ms)                                                 | I <sup>2</sup> t                                       | 5.08  | A <sup>2</sup> S |

## Thermal Characteristics

| Characteristic                                                            | Symbol                            | Value       | Unit |
|---------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Ambient (Note 6)<br>(Per Element) | R <sub>θJA</sub>                  | 66          | °C/W |
| Typical Thermal Resistance, Junction to Lead (Per Element)                | R <sub>θJL</sub>                  | 37          | °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                                                                                      |
|----------------------------------------|--------------------|-------|-----|----------|------|-----------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 7)     | V <sub>(BR)R</sub> | 1,000 | —   | —        | V    | I <sub>R</sub> = 5μA                                                                                |
| Forward Voltage (Per Element)          | V <sub>F</sub>     | —     | —   | 1.1      | V    | I <sub>F</sub> = 1.0A, T <sub>A</sub> = +25°C                                                       |
| Leakage Current (Note 7) (Per Element) | I <sub>R</sub>     | —     | —   | 5<br>500 | μA   | V <sub>R</sub> = 1,000V, T <sub>A</sub> = +25°C<br>V <sub>R</sub> = 1,000V, T <sub>A</sub> = +125°C |
| Total Capacitance (Per Element)        | C <sub>T</sub>     | —     | 9   | —        | pF   | V <sub>R</sub> = 4V, f = 1.0MHz                                                                     |

Notes: 5. Device mounted on FR-4 substrate, 1"\*1", 2oz, single-sided, PC boards with 0.15"\*0.26" copper pad.  
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.

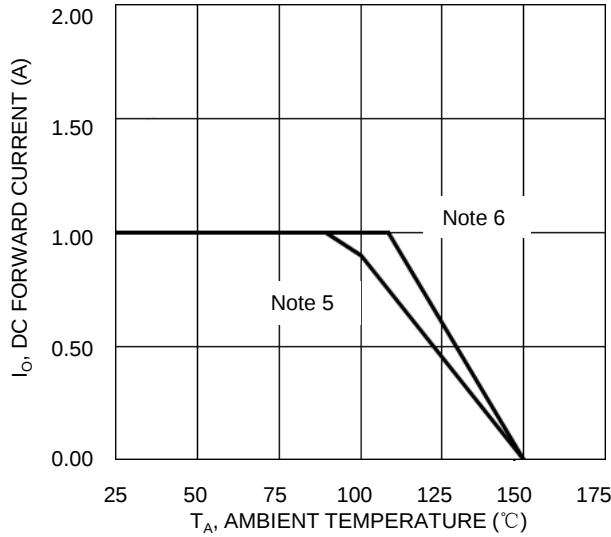


Figure 1. DC Forward Current Derating

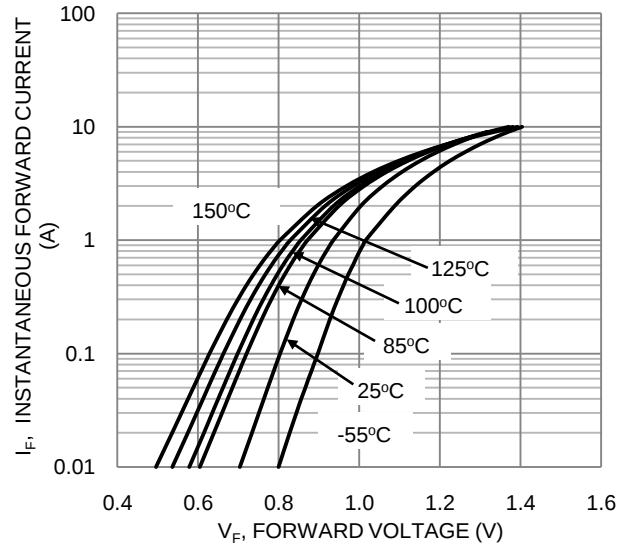


Figure 2. Typical Forward Characteristics

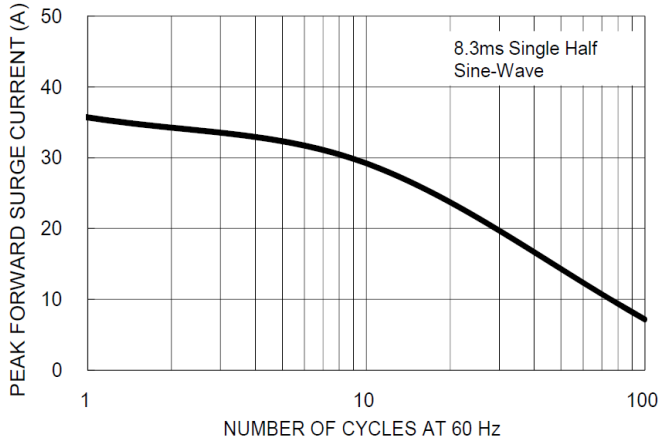


Figure 3. Maximum Non-repetitive Forward Surge Current

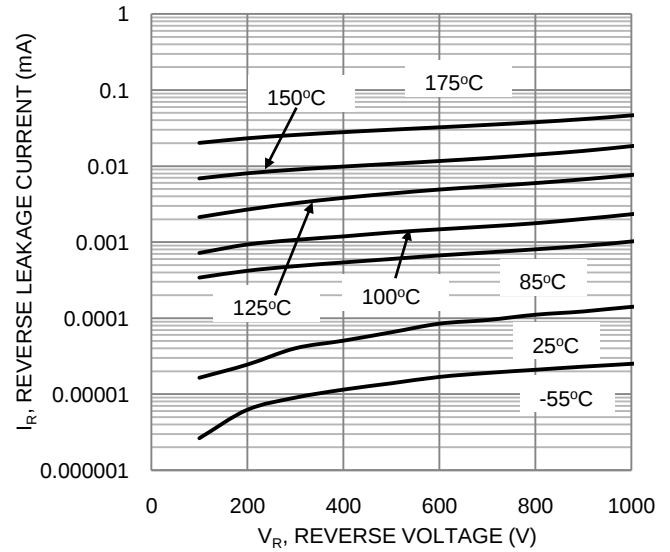


Figure 4. Typical Reverse Characteristics

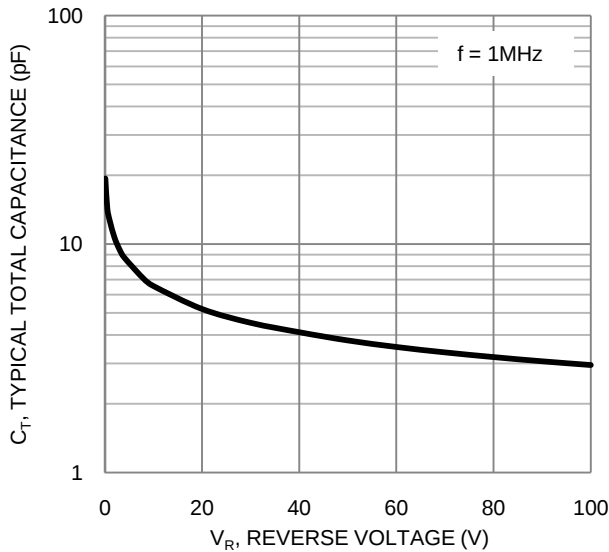
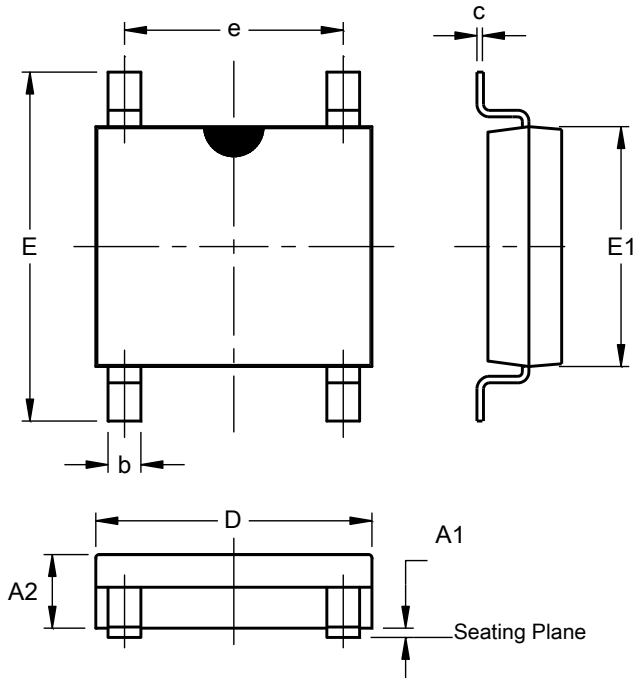


Figure 5. Typical Total Capacitance

## Package Outline Dimensions

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

**SOPA-4**

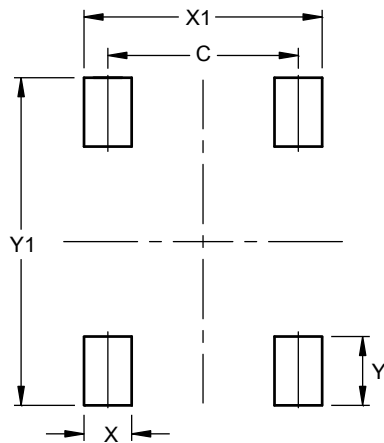


| SOPA-4               |      |      |     |
|----------------------|------|------|-----|
| Dim                  | Min  | Max  | Typ |
| A1                   | --   | 0.20 | --  |
| A2                   | 1.20 | 1.50 | --  |
| b                    | 0.50 | 0.70 | --  |
| c                    | 0.15 | 0.25 | --  |
| D                    | 4.80 | 5.30 | --  |
| E                    | 6.00 | 6.80 | --  |
| E1                   | 4.20 | 4.60 | --  |
| e                    | 3.80 | 4.20 | --  |
| All Dimensions in mm |      |      |     |

## Suggested Pad Layout

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

**SOPA-4**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 4.00          |
| X          | 1.00          |
| X1         | 5.00          |
| Y          | 1.45          |
| Y1         | 6.90          |

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