# 1.0A SURFACE MOUNT GLASS PASSIVATED BRIDGE RECTIFIER

NEW PRODUCT

## Product Summary (@$T_A$ = +25°C)

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ (V) | $I_R$ (µA) |
|---|---|---|---|
| 1000 | 1.0 | 1.1 | 5 |

## 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)**

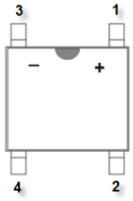
## Description and Applications

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

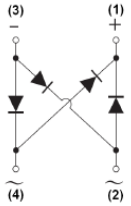
## Mechanical Data

- 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)

Top View




Pin Diagram



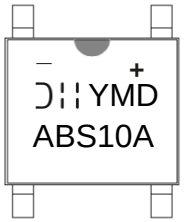

Internal Schematic

## 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 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
= 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 |

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## 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>$V_R$ | 1000 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 700 | V |
| Average Rectified Output Current (Note 6) @ $T_A$ = +30°C | $I_O$ | 1.0 | A |
| Non-Repetitive Peak Forward Surge Current, 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 35 | A |
| $I^2t$ Rating for Fusing (1ms < t < 8.3ms) | $I^2t$ | 5.08 | $A^2S$ |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Typical Thermal Resistance, Junction to Ambient (Note 6)<br>(Per Element) | $R_{\theta JA}$ | 66 | °C/W |
| Typical Thermal Resistance, Junction to Lead (Per Element) | $R_{\theta JL}$ | 37 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +150 | °C |

## Electrical Characteristics (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage (Note 7) | $V_{(BR)R}$ | 1,000 | — | — | V | $I_R$ = 5μA |
| Forward Voltage (Per Element) | $V_F$ | — | — | 1.1 | V | $I_F$ = 1.0A, $T_A$ = +25°C |
| Leakage Current (Note 7) (Per Element) | $I_R$ | —<br>— | —<br>— | 5<br>500 | μA | $V_R$ = 1,000V, $T_A$ = +25°C<br>$V_R$ = 1,000V, $T_A$ = +125°C |
| Total Capacitance (Per Element) | $C_T$ | — | 9 | — | pF | $V_R$ = 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.

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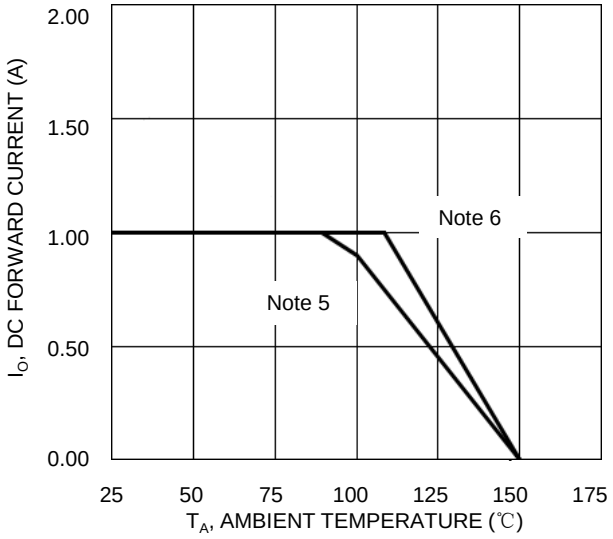


Figure 1. DC Forward Current Derating

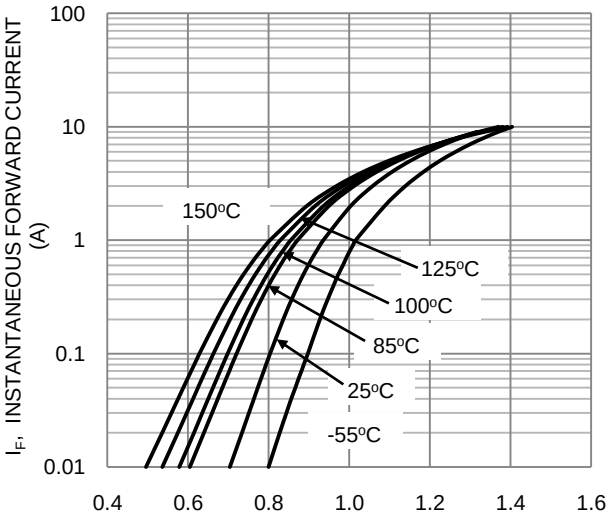


Figure 2. Typical Forward Characteristics

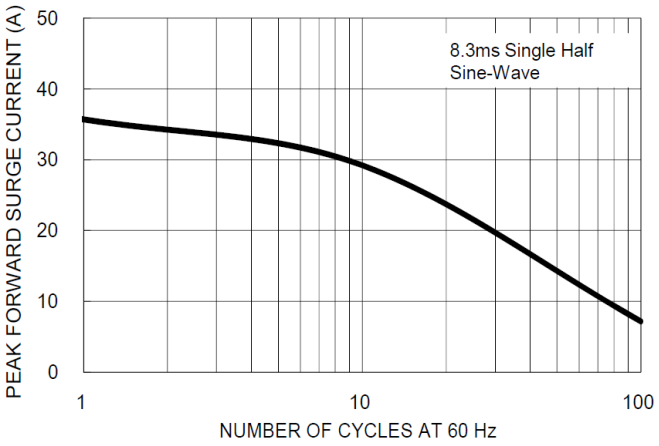


Figure 3. Maximum Non-repetitive Forward Surge Current

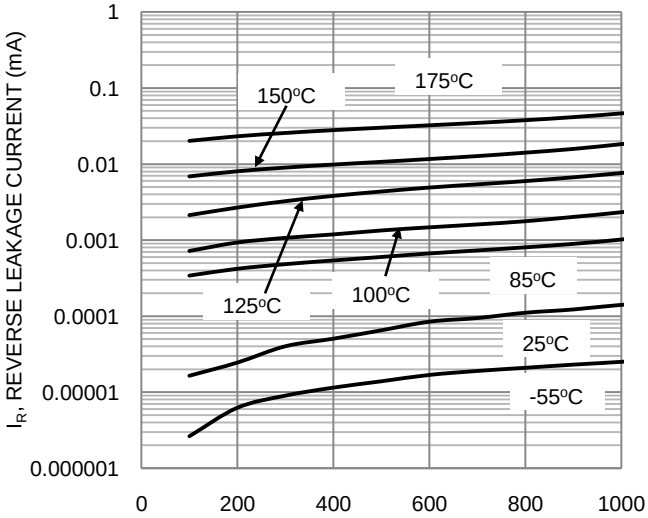


Figure 4. Typical Reverse Characteristics

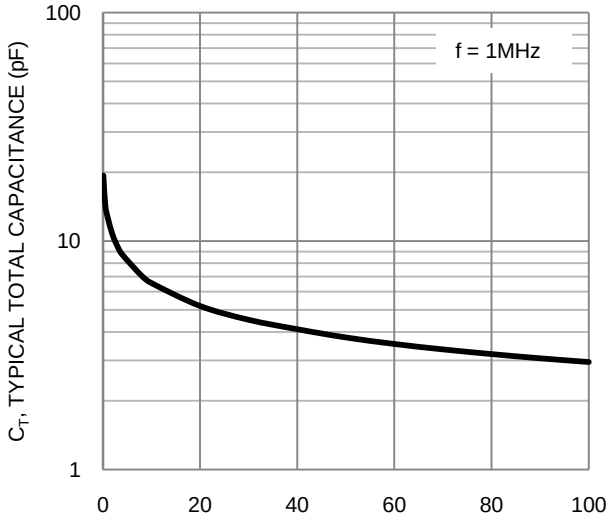


Figure 5. Typical Total Capacitance

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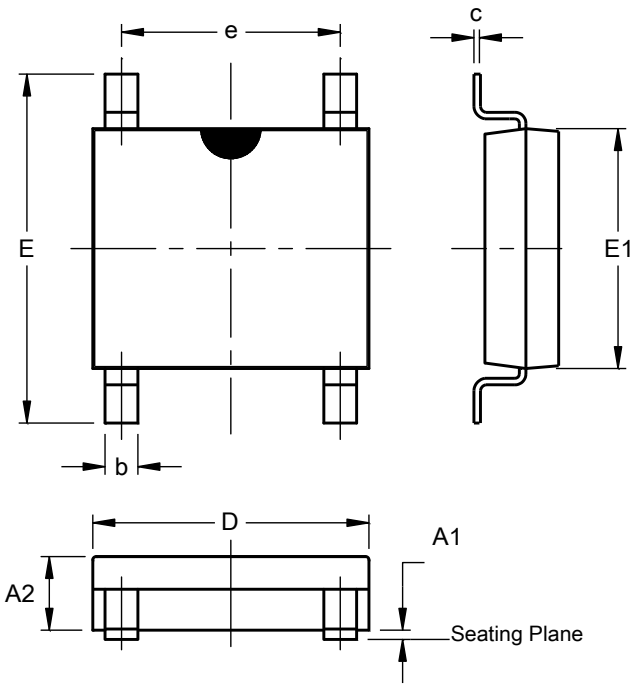
## Package Outline Dimensions

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

**SOPA-4**

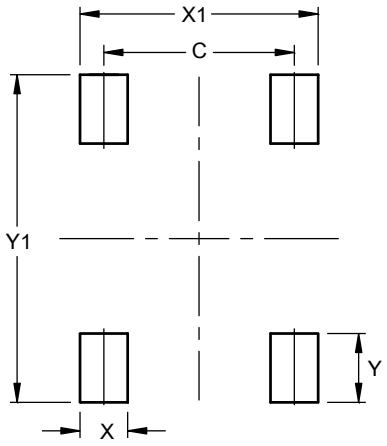



| SOPA-4 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A1** | -- | 0.20 | -- |
| **A2** | 1.20 | 1.50 | -- |
| **b** | 0.50 | 0.70 | -- |
| **c** | 0.15 | 0.25 | -- |
| **D** | 4.80 | 5.30 | -- |
| **E** | 6.00 | 6.80 | -- |
| **E1** | 4.20 | 4.60 | -- |
| **e** | 3.80 | 4.20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