

**2A SURFACE MOUNT GLASS PASSIVATED BRIDGE RECTIFIER**
**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                 | 2                  | 1.1                | 5                   |

**Features and Benefits**

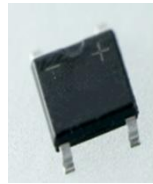
- Glass Passivated Die Construction
- Miniature Package Saves Space on PC Boards
- High Current Capability
- Ideal for SMT Manufacturing
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Description and Applications**

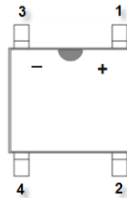
Suitable for AC to DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

**Mechanical Data**

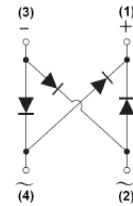
- Case: SOPA-4
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 **(e3)**
- Polarity: As Marked on Body
- Weight: 0.10 grams (Approximate)



Top View



Pin Diagram

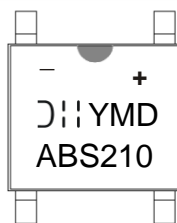


Internal Schematic

**Ordering Information** (Note 4)

| Part Number | Compliance | Case   | Packaging         |
|-------------|------------|--------|-------------------|
| ABS210-13   | 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**


ABS210 = Product Type Marking Code  
 DII = 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> = +50°C                                   | I <sub>O</sub>   | 2.0   | A                |
| Non-Repetitive Peak Forward Surge Current, 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                       | 60    | A                |
| I <sup>2</sup> t Rating for Fusing (1ms < t < 8.3ms)   | I <sup>2</sup> t                                       | 14.9  | 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>                  | 62.5        | °C/W |
| Typical Thermal Resistance, Junction to Lead (Per Element)                | R <sub>θJL</sub>                  | 25          | °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> = 2A, 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>     | —     | 17  | —        | 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 0.1\*\*0.15" 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.

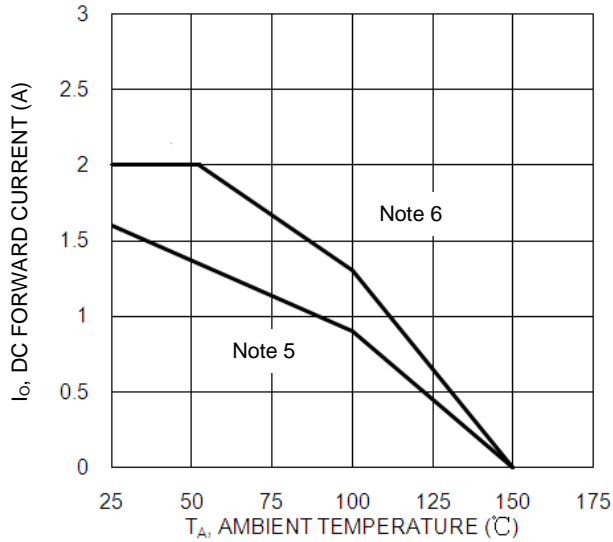


Figure 1. DC Forward Current Derating

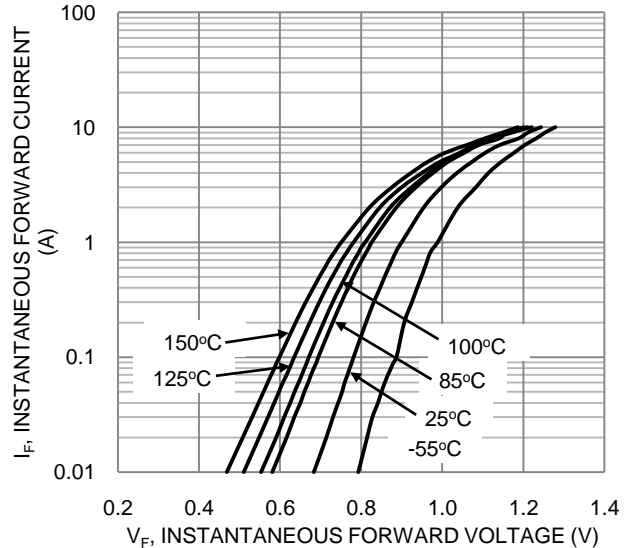


Figure 2. Typical Forward Characteristics (Per Leg)

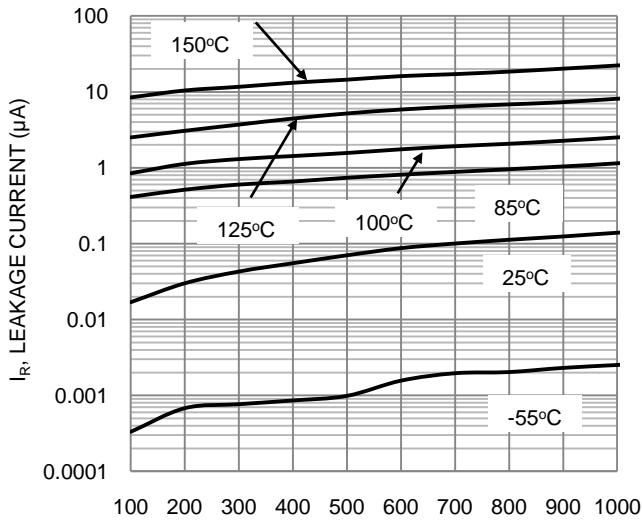


Figure 3. Typical Reverse Characteristics (Per Leg)

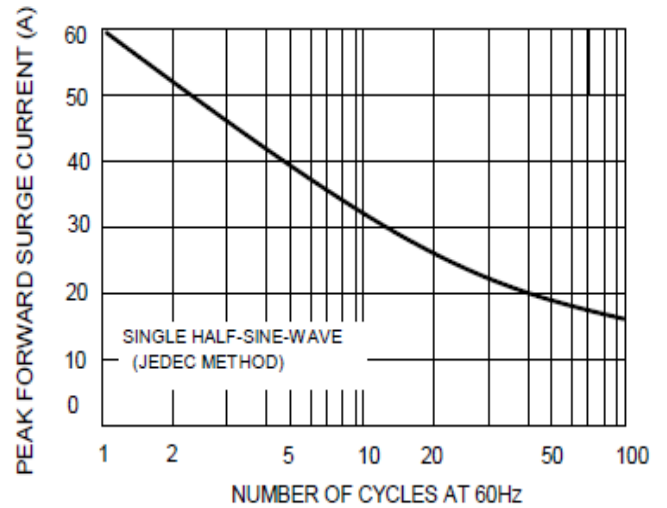


Figure 4. Maximum Non-Repetitive Surge Current

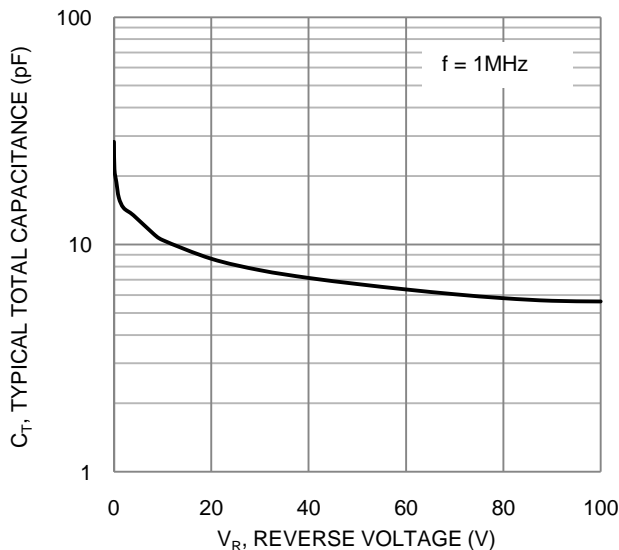
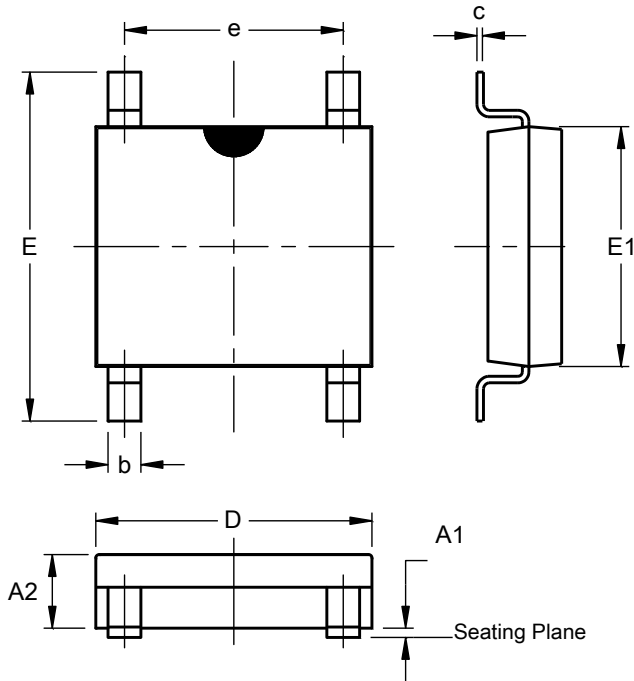


Figure 5. Typical Total Capacitance

**Package Outline Dimensions**

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

**SOPA-4**

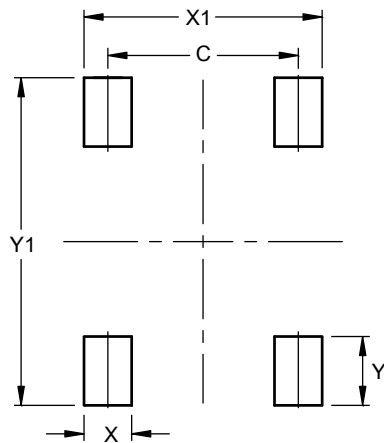


| SOPA-4               |      |      |     |
|----------------------|------|------|-----|
| Dim                  | Min  | Max  | Typ |
| A1                   | --   | 0.20 | --  |
| A2                   | 1.20 | 1.50 | --  |
| b                    | 0.50 | 0.70 | --  |
| c                    | 0.15 | 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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