



S2A/A - S2M/A

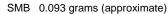
### 1.5A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

### **Features**

- Glass Passivated Die Construction
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 50A Peak
- Ideally Suited for Automated Assembly
- Lead Free Finish/RoHS Compliant (Note 1)
- Green Molding Compound (No Halogen and Antimony) (Note 2)

## **Mechanical Data**

- Case: SMA/SMB
- 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 63
- Polarity: Cathode Band or Cathode Notch
- Weight: SMA 0.064 grams (approximate)







Top View

Bottom View

### **Ordering Information (Note 3)**

| Part Number | Case | Packaging        |
|-------------|------|------------------|
| S2xA-13-F   | SMA  | 5000/Tape & Reel |
| S2x-13-F    | SMB  | 3000/Tape & Reel |

<sup>\*</sup>x = Device type, e.g. S2AA-13-F (SMA package); S2A-13-F (SMB package).

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.

2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.

3. For packaging details, go to our website at http://www.diodes.com.

## Marking Information



xxx = Product type marking code, ex: S2A (SMB package)
xxxx = Product type marking code, ex: S2AA (SMA package)
\[ \] = Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 2 for 2002)
WW = Week code (01 to 53)



## **Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitance load, derate current by 20%.

| Characteristic  | Symbol                      | S2<br>A/AA | S2<br>B/BA | S2<br>D/DA | S2<br>G/GA | S2<br>J/JA | S2<br>K/KA | S2<br>M/MA | Unit |
|---|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage              | $V_{RRM} \ V_{RWM} \ V_{R}$ | 50         | 100        | 200        | 400        | 600        | 800        | 1000       | ٧    |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub>         | 35         | 70         | 140        | 280        | 420        | 560        | 700        | V    |
| Average Rectified Output Current @ T <sub>T</sub> = 100°C   | I <sub>(AV)</sub>           |            |            |            | 1.5        |            |            |            | Α    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>            |            |            |            | 50         |            |            |            | Α    |

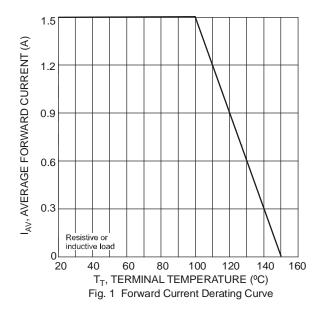
## **Thermal Characteristics**

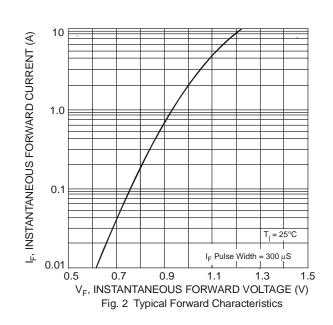
| Characteristic  | Symbol          | Value       | Unit |
|---|-----------------|-------------|------|
| Typical Thermal Resistance, Junction to Terminal (Note 4) | $R_{\theta JT}$ | 20          | °C/W |
| Operating and Storage Temperature Range                   | $T_{J,}T_{STG}$ | -65 to +150 | °C   |

# **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

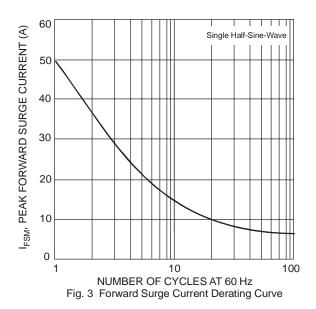
| Characteristic                     |                       | Symbol         | Value | Unit |
|------------------------------------|-----------------------|----------------|-------|------|
| Forward Voltage                    | $@ I_F = 1.5A$        | $V_{FM}$       | 1.15  | V    |
| Peak Reverse Current               | $@T_A = 25^{\circ}C$  | 1              | 5.0   |      |
| at Rated DC Blocking Voltage       | $@T_A = 125^{\circ}C$ | IRM            | 125   | μΑ   |
| Typical Total Capacitance (Note 5) |                       | C <sub>T</sub> | 20    | pF   |

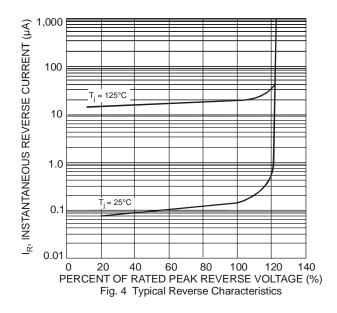
Notes: 4. Thermal Resistance Junction to Terminal, unit mounted on PC board with 5.0 mm<sup>2</sup> (0.013 mm thick) copper pads as heat sink. 5. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.



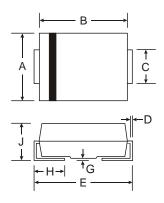








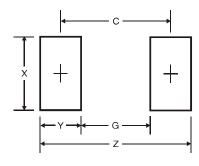
# **Package Outline Dimensions**



| SMA                  |      |      |  |  |  |
|----------------------|------|------|--|--|--|
| Dim                  | Min  | Max  |  |  |  |
| Α                    | 2.29 | 2.92 |  |  |  |
| В                    | 4.00 | 4.60 |  |  |  |
| С                    | 1.27 | 1.63 |  |  |  |
| D                    | 0.15 | 0.31 |  |  |  |
| Е                    | 4.80 | 5.59 |  |  |  |
| G                    | 0.05 | 0.20 |  |  |  |
| Η                    | 0.76 | 1.52 |  |  |  |
| J                    | 2.01 | 2.30 |  |  |  |
| All Dimensions in mm |      |      |  |  |  |

| SMB                  |      |      |  |  |  |
|----------------------|------|------|--|--|--|
| Dim                  | Min  | Max  |  |  |  |
| Α                    | 3.30 | 3.94 |  |  |  |
| В                    | 4.06 | 4.57 |  |  |  |
| C                    | 1.96 | 2.21 |  |  |  |
| D                    | 0.15 | 0.31 |  |  |  |
| Е                    | 5.00 | 5.59 |  |  |  |
| G                    | 0.05 | 0.20 |  |  |  |
| H                    | 0.76 | 1.52 |  |  |  |
| J                    | 2.00 | 2.50 |  |  |  |
| All Dimensions in mm |      |      |  |  |  |

# **Suggested Pad Layout**



| SMA<br>Dimensions | Value (in mm) |
|-------------------|---------------|
| Z                 | 6.5           |
| G                 | 1.5           |
| Х                 | 1.7           |
| Y                 | 2.5           |
| С                 | 4.0           |

| SMB<br>Dimensions | Value (in mm) |
|-------------------|---------------|
| Z                 | 6.7           |
| G                 | 1.8           |
| X                 | 2.3           |
| Y                 | 2.5           |
| С                 | 4.3           |



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