

## S2A - S2M General-Purpose Rectifiers (Glass Passivated)

### Features

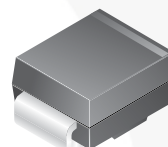
- High-Current Capability, 2 A Rated
- Fast Response:  $2 \mu\text{s}$   $T_{rr}$
- Low-Forward Voltage Drop, 1.15 V  $V_F$  Max at 2 A
- High-Surge Current Capability,  $50 \text{ A}^2\text{s}$   $I_{FSM}$
- Glass Passivated Junction
- RoHS Compliant

### Applications

- Power Supplies
- AC to DC Rectification
- Bypass Diodes

### Description

The S2 family of devices are general-purpose 2 A rated rectifiers with voltage ratings ranging from 50 to 1000 V. They are implemented in traditional SMB packages and are well known to the industry. For advanced or special requirements, please contact a Fairchild Semiconductor representative.



**SMB/DO-214AA**

COLOR BAND DENOTES CATHODE

### Ordering Information

| Part Number | Marking | Package        | Packing Method |
|-------------|---------|----------------|----------------|
| S2A         | S2A     | DO-214AA (SMB) | Tape and Reel  |
| S2B         | S2B     |                |                |
| S2D         | S2D     |                |                |
| S2G         | S2G     |                |                |
| S2J         | S2J     |                |                |
| S2K         | S2K     |                |                |
| S2M         | S2M     |                |                |

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol      | Parameter   | Value       |     |     |     |     |     |      | Unit             |
|-------------|---|-------------|-----|-----|-----|-----|-----|------|------------------|
|             |   | S2A         | S2B | S2D | S2G | S2J | S2K | S2M  |                  |
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage  | 50          | 100 | 200 | 400 | 600 | 800 | 1000 | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current at $T_A = 100^\circ\text{C}$            | 2.0         |     |     |     |     |     |      | A                |
| $I_{FSM}$   | Non-Repetitive Peak Forward Surge Current<br>8.3 ms Single Half-Sine Wave | 50          |     |     |     |     |     |      | A                |
| $T_{STG}$   | Storage Temperature Range   | -65 to +150 |     |     |     |     |     |      | $^\circ\text{C}$ |
| $T_J$       | Operating Junction Temperature  | -65 to +150 |     |     |     |     |     |      | $^\circ\text{C}$ |

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter  | Value | Unit               |
|-----------------|--|-------|--------------------|
| $P_D$           | Power Dissipation                                      | 2.35  | W                  |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient <sup>(1)</sup> | 53    | $^\circ\text{C/W}$ |

### Note:

1. Device mounted on FR-4 PCB 0.013 mm.

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                               | Conditions   | Value |     |     |     |     |     |     | Unit |
|-----------------|---|--|-------|-----|-----|-----|-----|-----|-----|------|
|                 |   |  | S2A   | S2B | S2D | S2G | S2J | S2K | S2M |      |
| V <sub>F</sub>  | Forward Voltage                         | I <sub>F</sub> = 2.0 A   | 1.15  |     |     |     |     |     |     | V    |
| t <sub>rr</sub> | Typical Reverse-RecoveryTime            | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A | 2.0   |     |     |     |     |     |     | μs   |
| I <sub>R</sub>  | Reverse Current at Rated V <sub>R</sub> | T <sub>A</sub> = 25°C  | 1.0   |     |     |     |     |     |     | μA   |
|                 |   | T <sub>A</sub> = 125°C   | 125   |     |     |     |     |     |     |      |
| C <sub>T</sub>  | Total Capacitance                       | V <sub>R</sub> = 4.0 V, f = 1.0 MHz                                      | 30    |     |     |     |     |     |     | pF   |

## Typical Performance Characteristics

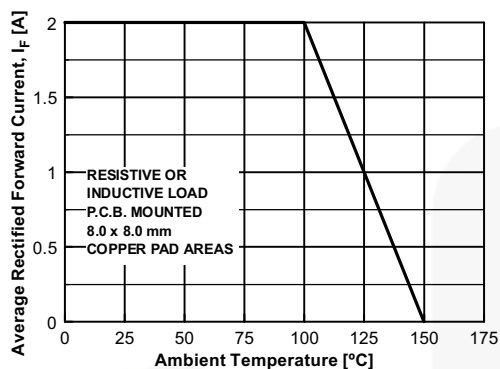


Figure 1. Forward Current Derating Curve

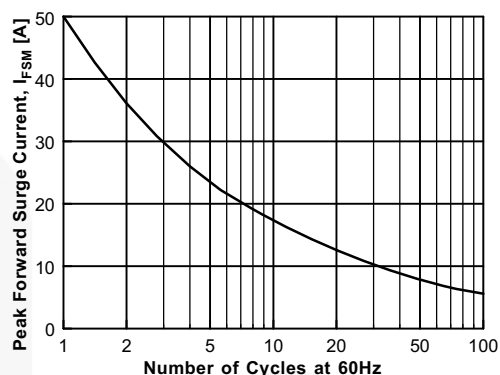


Figure 2. Non-Repetitive Surge Current

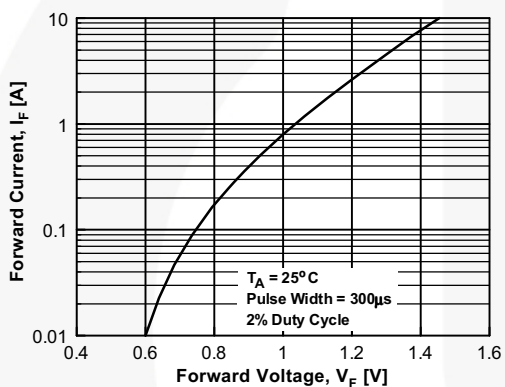


Figure 3. Forward Voltage Characteristics

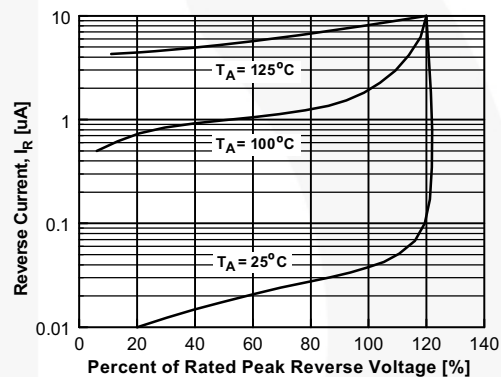


Figure 4. Reverse Current vs. Reverse Voltage

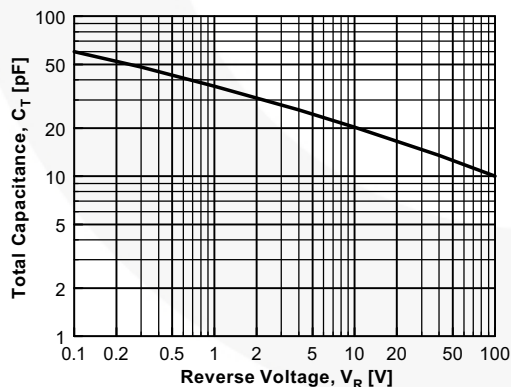
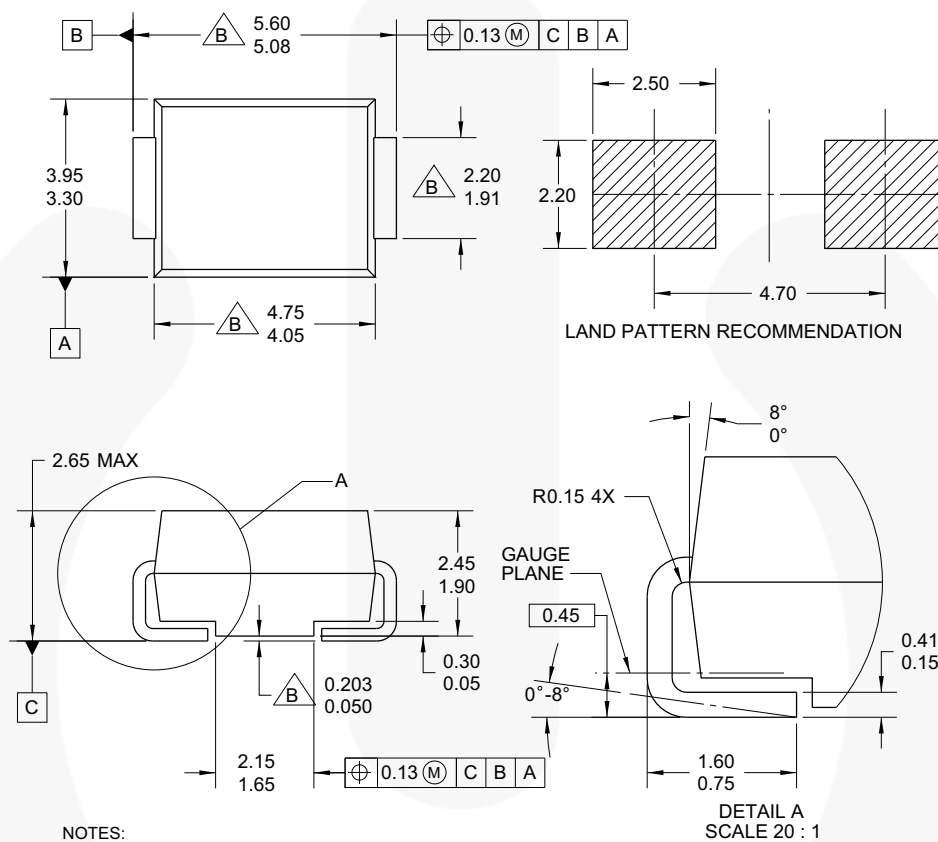


Figure 5. Total Capacitance

## Physical Dimension

## DO-214AA (SMB)



## NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO214 VARIATION AA.  
 B. DOES NOT COMPLY JEDEC STD. VALUE.  
 C. ALL DIMENSIONS ARE IN MILLIMETERS.  
 D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.  
 E. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.  
 F. LAND PATTERN STD. DIOM5336X240M.  
 G. DRAWING FILE NAME: DO214AAREV1

Figure 6. 2-LEAD, SMB, JEDEC DO-214, VARIATION AA (ACTIVE)

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<http://www.fairchildsemi.com/dwg/DO/DO214AA.pdf>

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| Build it Now™   | GreenBridge™                                   | QFET®   | TinyBuck®   |
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| FACT®   | mWSaver®                                       | SupreMOS®   | VCX™  |
| FAST®   | OptoHiT™                                       | SyncFET™  | VisualMax™  |
| FastvCore™  | OPTOLOGIC®                                     |   | VoltagePlus™  |
| FETBench™   | OPTOPLANAR®                                    |   | XS™   |
| FPS™  |  |   |   |

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