

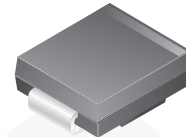


October 2014

# S3A - S3N General-Purpose Rectifiers

## Features

- Low-Profile Package
- Glass-Passivated Junction
- UL Flammability Classification: 94V-0



**SMC/DO-214AB**  
COLOR BAND DENOTES CATHODE



## Ordering Informations

| Part Number | Top Mark | Package        | Packing Method |
|-------------|----------|----------------|----------------|
| S3A         | S3A      | DO-214AB (SMC) | Tape and Reel  |
| S3B         | S3B      | DO-214AB (SMC) | Tape and Reel  |
| S3D         | S3D      | DO-214AB (SMC) | Tape and Reel  |
| S3G         | S3G      | DO-214AB (SMC) | Tape and Reel  |
| S3J         | S3J      | DO-214AB (SMC) | Tape and Reel  |
| S3K         | S3K      | DO-214AB (SMC) | Tape and Reel  |
| S3M         | S3M      | DO-214AB (SMC) | Tape and Reel  |
| S3N         | S3N      | DO-214AB (SMC) | Tape and Reel  |

## 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             |
|-------------|---|-------------|-----|-----|-----|-----|-----|------|------|------------------|
|             |   | S3A         | S3B | S3D | S3G | S3J | S3K | S3M  | S3N  |                  |
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage  | 50          | 100 | 200 | 400 | 600 | 800 | 1000 | 1200 | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current   $T_L = 105^\circ\text{C}$             | 3.0         |     |     |     |     |     |      |      | A                |
| $I_{FSM}$   | Non-Repetitive Peak Forward Surge Current<br>8.3 ms Single Half-Sine-Wave | 100         |     |     |     |     |     |      |      | A                |
| $T_{STG}$   | Storage Temperature Range   | -55 to +150 |     |     |     |     |     |      |      | $^\circ\text{C}$ |
| $T_J$       | Operating Junction Temperature Range                                      | -55 to +150 |     |     |     |     |     |      |      | $^\circ\text{C}$ |

**Thermal Characteristics<sup>(1)</sup>**

| Symbol          | Parameter                               | Value | Unit |
|-----------------|---|-------|------|
| $P_D$           | Power Dissipation                       | 2.6   | W    |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 100   | °C/W |
| $R_{\theta JL}$ | Thermal Resistance, Junction-to-Lead    | 13    | °C/W |

**Note:**

1. Device is mounted on FR-4 PCB 0.013 mm. Land pattern size: refer to the package drawing.  
Trace size: force line = 50 mil & sense line = 4 mil.

**Electrical Characteristics**

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

| Symbol   | Parameter                              | Conditions   | Value |     |     |     |     |     |     | Unit          |
|----------|--|--|-------|-----|-----|-----|-----|-----|-----|---------------|
|          |  |  | S3A   | S3B | S3D | S3G | S3J | S3K | S3M |               |
| $V_F$    | Maximum Forward Voltage                | $I_F = 3.0\text{ A}$   | 1.2   |     |     |     |     |     |     | V             |
| $t_{rr}$ | Maximum Reverse Recovery Time          | $I_F = 0.5\text{ A},$<br>$I_R = 1.0\text{ A},$<br>$I_{rr} = 0.25\text{ A}$ | 2.5   |     |     |     |     |     |     | $\mu\text{s}$ |
| $I_R$    | Maximum Reverse Current at rated $V_R$ | $T_A = 25^\circ\text{C}$   | 5     |     |     |     |     |     |     | $\mu\text{A}$ |
|          |  | $T_A = 125^\circ\text{C}$  | 250   |     |     |     |     |     |     |               |
| $C_T$    | Typical Total Capacitance              | $V_R = 4.0\text{ V},$<br>$f = 1.0\text{ MHz}$                              | 60    |     |     |     |     |     |     | pF            |

## Typical Performance Characteristics

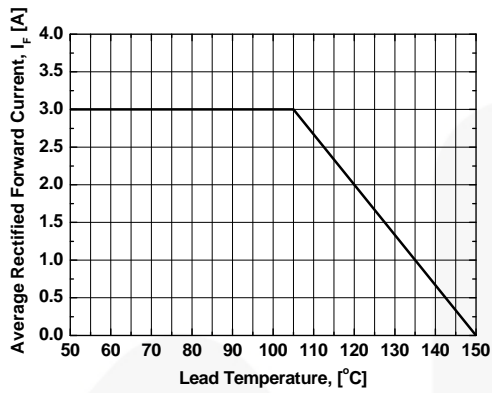


Figure 1. Forward Current Derating Curve

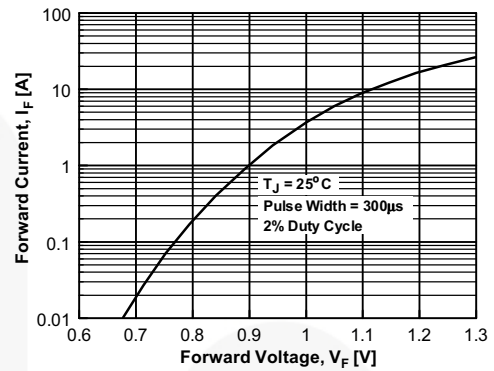


Figure 2. Forward Voltage Characteristics

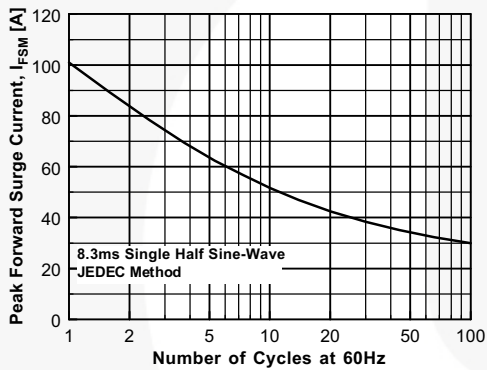


Figure 3. Non-Repetitive Surge Current

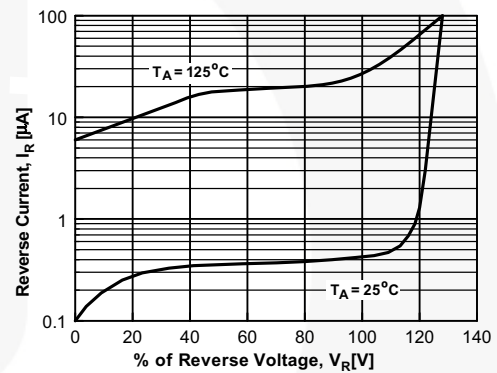


Figure 4. Reverse Current vs. Reverse Voltage

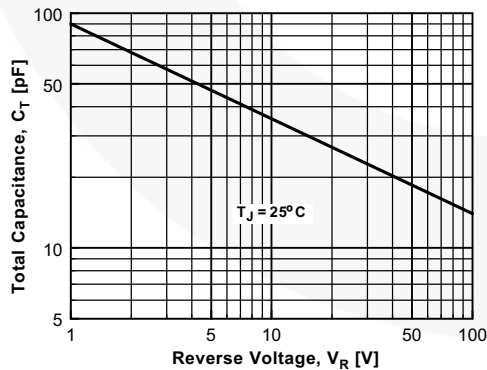
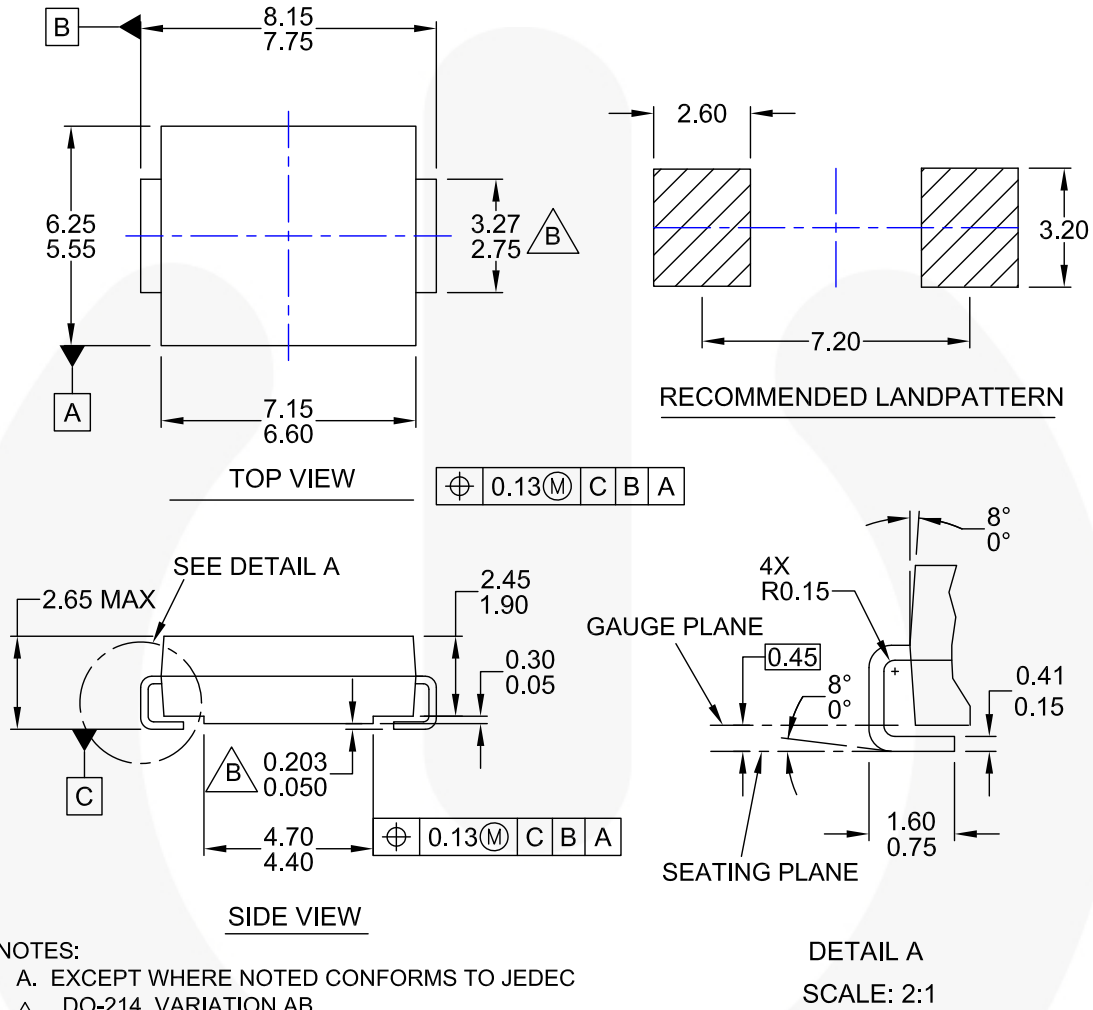


Figure 5. Total Capacitance

Physical Dimensions



NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO-214, VARIATION AB.
- B. DOES NOT COMPLY TO JEDEC STD. VALUE.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.
- D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR PROTRUSIONS.
- E. DIMENSIONS AND TOLERANCING AS PER ASME Y14.5M-1994
- F. LAND PATTERN STANDARD: DIOM7957X241M
- G. DRAWING FILE NAME: DO214ABREV1

Figure 6. 2-Lead, SMC, JEDEC DO-214, Variation AB





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