# Surface Mount Glass Passivated Rectifier

**DO-214AB (SMC)**

## FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

## TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 3.0 A |
| $V_{RRM}$ | 50 V to 1000 V |
| $I_{FSM}$ | 100 A |
| $I_R$ | 10 µA |
| $V_F$ | 1.15 V |
| $T_J$ max. | 150 °C |

## MECHANICAL DATA

**Case:** DO-214AB (SMC)

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | SYMBOL | S3A | S3B | S3D | S3G | S3J | S3K | S3M | UNIT |
|---|---|---|---|---|---|---|---|---|---|
| Device marking code | | SA | SB | SD | SG | SJ | SK | SM | |
| Maximum recurrent peak reverse voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum average forward rectified current at $T_L$= 103 °C | $I_{F(AV)}$ | 3.0 | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 100 | | | | | | | A |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | - 55 to + 150 | | | | | | | °C |

| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **S3A** | **S3B** | **S3D** | **S3G** | **S3J** | **S3K** | **S3M** | **UNIT** |
| Maximum instantaneous forward voltage | 2.5 A | | $V_F$ | 1.15 | | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | | $T_A$= 25 °C<br>$T_A$= 125 °C | $I_R$ | 10<br>250 | | | | | | | µA |
| Typical reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 2.5 | | | | | | | µs |
| Typical junction capacitance | 4.0 V, 1 MHz | | $C_J$ | 60 | | | | | | | pF |

| **THERMAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **S3A** | **S3B** | **S3D** | **S3G** | **S3J** | **S3K** | **S3M** | **UNIT** |
| Typical thermal resistance (1) | $R_{\theta JA}$<br>$R_{\theta JL}$ | 47<br>13 | | | | | | | °C/W |

**Note:**

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3 x 0.3" (8.0 x 8.0 mm) copper pad area

| **ORDERING INFORMATION** (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **REFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| S3J-E3/57T | 0.211 | 57T | 850 | 7" diameter plastic tape and reel |
| S3J-E3/9AT | 0.211 | 9AT | 3500 | 13" diameter plastic tape and reel |
| S3JHE3/57T (1) | 0.211 | 57T | 850 | 7" diameter plastic tape and reel |
| S3JHE3/9AT (1) | 0.211 | 9AT | 3500 | 13" diameter plastic tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

($T_A$ = 25 °C unless otherwise noted)

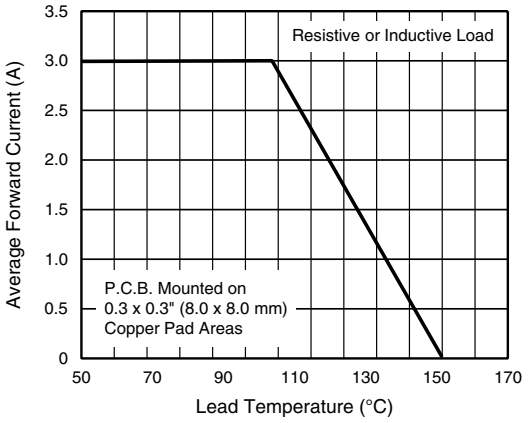


Figure 1. Forward Current Derating Curve

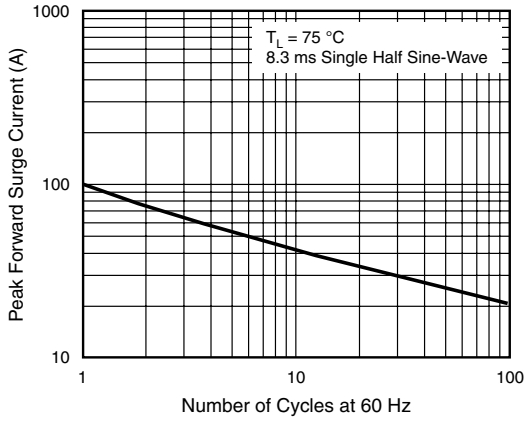


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current



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Document Number: 88713
Revision: 08-Apr-08

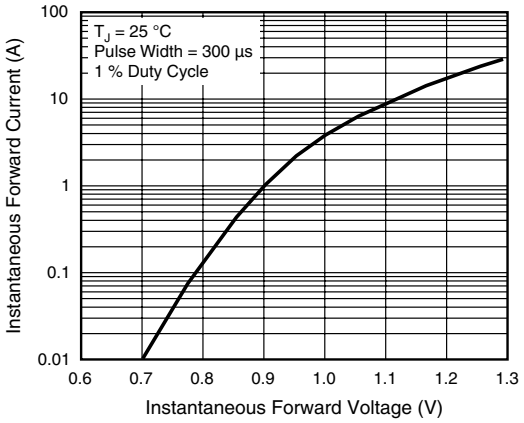



Figure 3. Typical Instantaneous Forward Characteristics

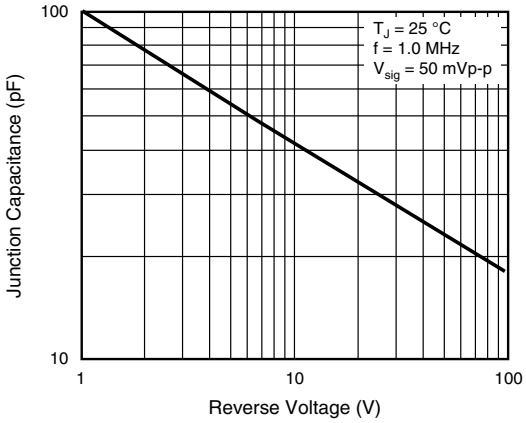



Figure 5. Typical Junction Capacitance

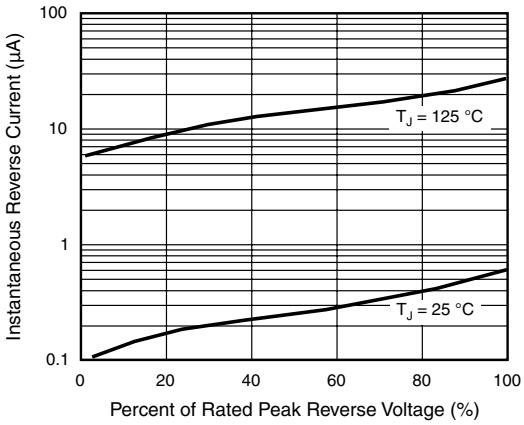



Figure 4. Typical Reverse Characteristics

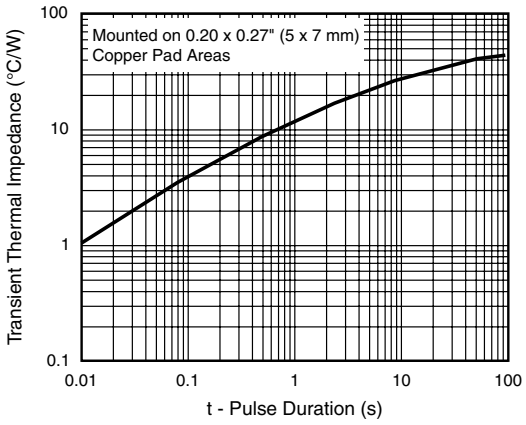
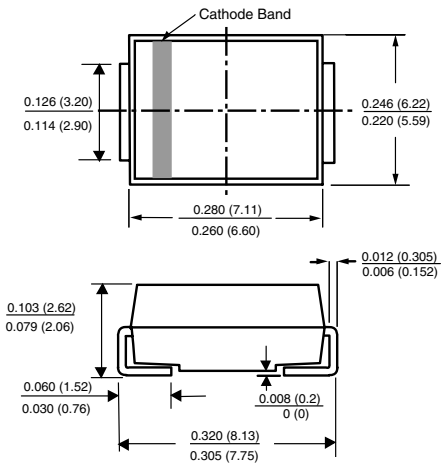


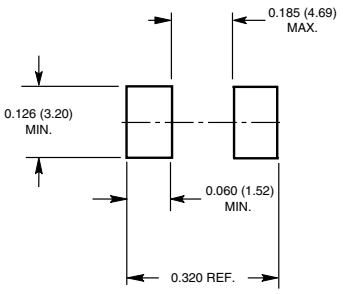

Figure 6. Typical Transient Thermal Impedance

## **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-214AB (SMC)**




**Mounting Pad Layout**



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