# 3A, 50V - 1000V Surface Mount Rectifier

## FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- High current capability
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 3 | A |
| $V_{RRM}$ | 50 - 1000 | V |
| $I_{FSM}$ | 100 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | DO-214AB (SMC) | |
| Configuration | Single die | |

Pb-Free RoHS COMPLIANT HALOGEN FREE

## APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- General purpose

## MECHANICAL DATA

- Case: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.210g (approximately)

**DO-214AB (SMC)**


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

| PARAMETER | | SYMBOL | S3AH | S3BH | S3DH | S3GH | S3JH | S3KH | S3MH | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| Marking code on the device | | | S3A | S3B | S3D | S3G | S3J | S3K | S3M | |
| Repetitive peak reverse voltage | | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Reverse voltage, total rms value | | $V_{R(RMS)}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Forward current | | $I_F$ | 3 | | | | | | | A |
| Surge peak forward current single half sine-wave superimposed on rated load | t = 8.3ms | $I_{FSM}$ | 100 | | | | | | | A |
| | t = 1.0ms | | 230 | | | | | | | |
| Junction temperature | | $T_J$ | - 55 to +150 | | | | | | | °C |
| Storage temperature | | $T_{STG}$ | - 55 to +150 | | | | | | | °C |

## THERMAL PERFORMANCE

| PARAMETER | SYMBOL | TYP | UNIT |
|---|---|---|---|
| Junction-to-lead thermal resistance | $R_{\Theta JL}$ | 13 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 47 | °C/W |

## ELECTRICAL SPECIFICATIONS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|
| Forward voltage(1) | $I_F$ = 3A, $T_J$ = 25°C | $V_F$ | - | 1.15 | V |
| Reverse current @ rated $V_R$(2) | $T_J$ = 25°C | $I_R$ | - | 10 | μA |
| | $T_J$ = 125°C | | - | 250 | μA |
| Junction capacitance | 1MHz, $V_R$ = 4.0V | $C_J$ | 60 | - | pF |
| Reverse recovery time | $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | 1500 | - | ns |

**Notes:**

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

## ORDERING INFORMATION

| ORDERING CODE(1) | PACKAGE | PACKING |
|---|---|---|
| S3xH | DO-214AB (SMC) | 3,000 / Tape & Reel |

**Notes:**

1. “x” defines voltage from 50V(S3AH) to 1000V(S3MH)

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

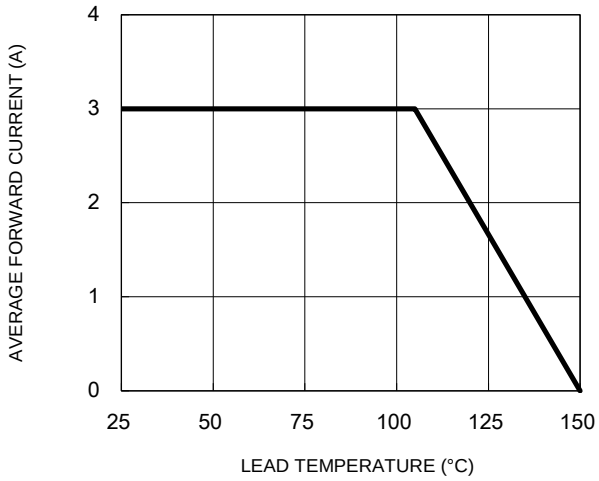



**Fig.2 Typical Junction Capacitance**

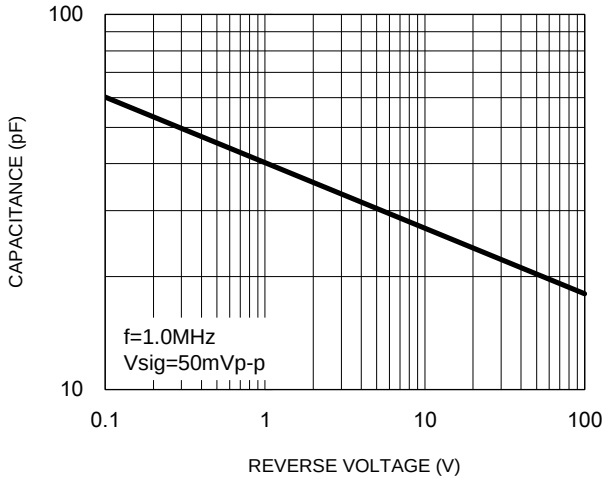



**Fig.3 Typical Reverse Characteristics**

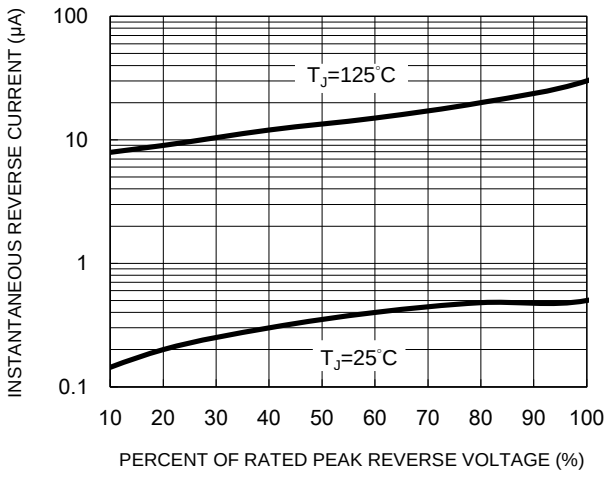



**Fig.4 Typical Forward Characteristics**

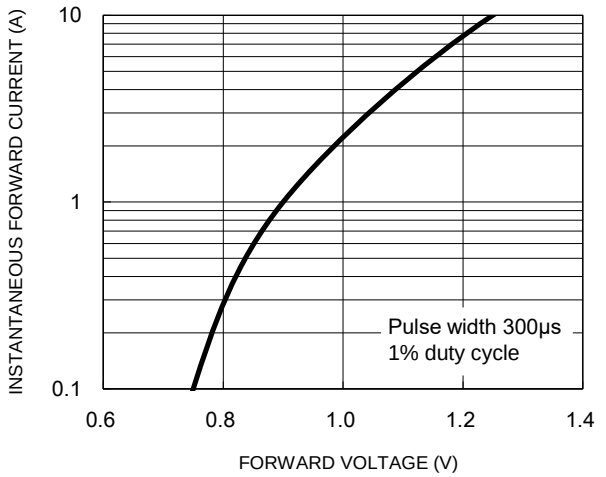
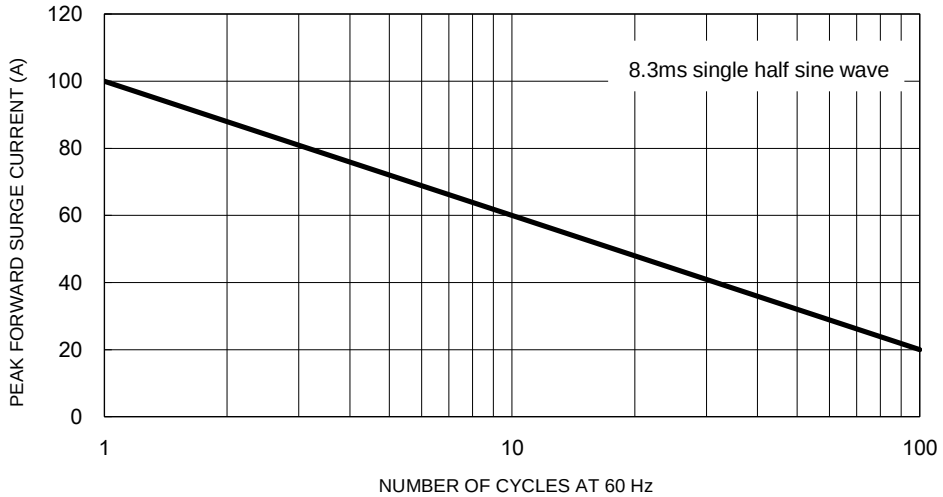


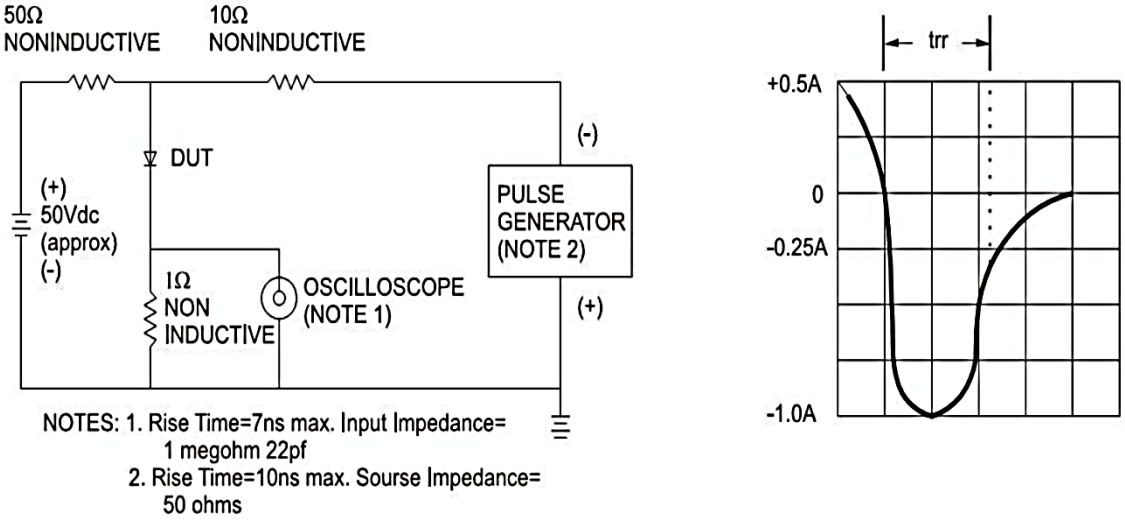

**Fig.5 Maximum Non-Repetitive Forward Surge Current**



## CHARACTERISTICS CURVES

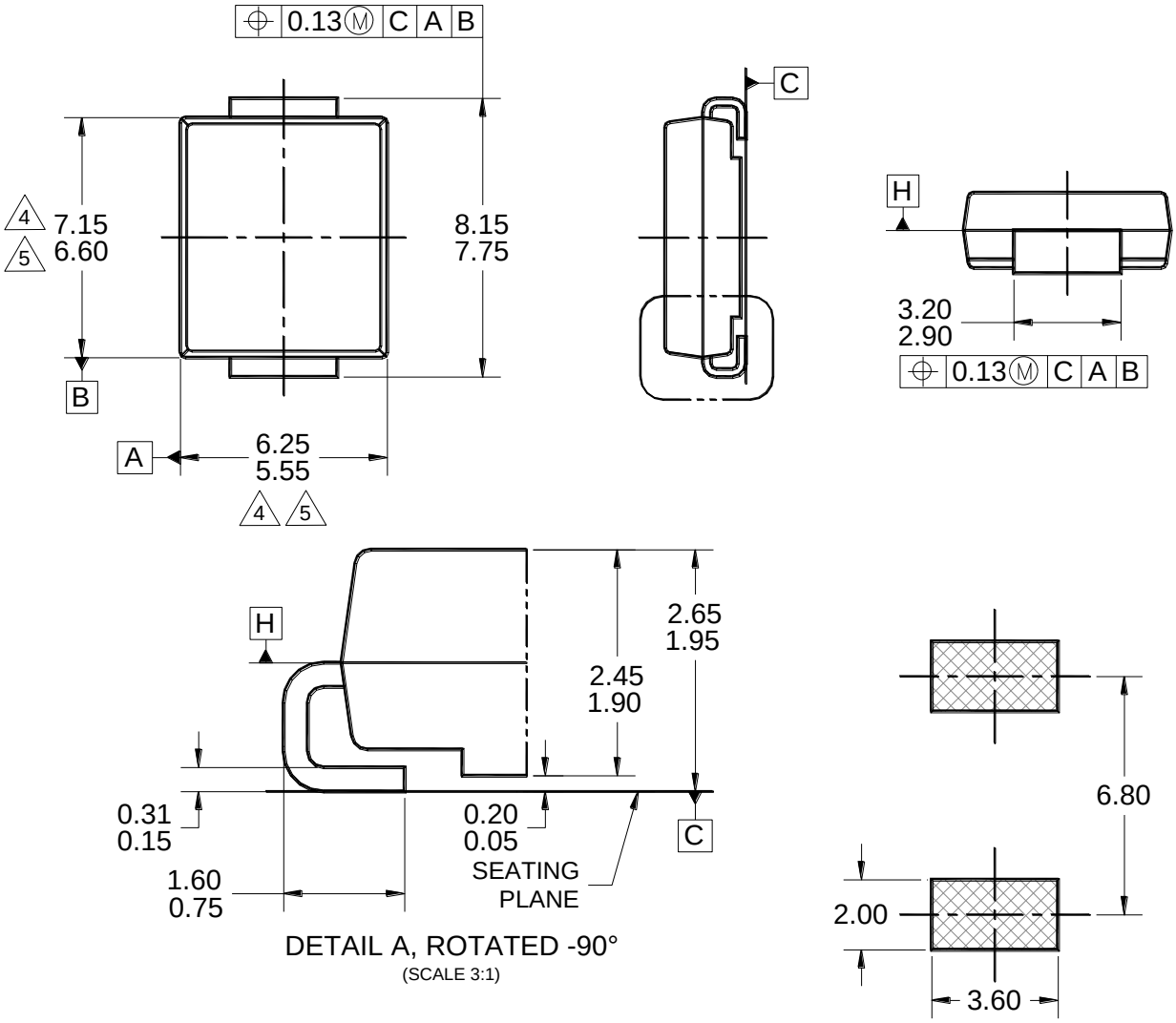
($T_A$ = 25°C unless otherwise noted)

**Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram**



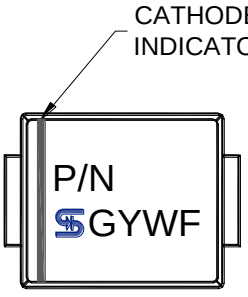
## PACKAGE OUTLINE DIMENSIONS

**DO-214AB (SMC)**




DETAIL A, ROTATED -90°
(SCALE 3:1)

SUGGESTED PAD LAYOUT




MARKING DIAGRAM

P/N = MARKING CODE
G = GREEN COMPOUND
YW = DATE CODE
F = FACTORY CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AB, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-DO214SMC-036 REV A.

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