

3A, 50V - 1000V Surface Mount Rectifier

FEATURES

- 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
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter

MECHANICAL DATA

- Case: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: As marked
- Weight: 0.25 g (approximately)

| KEY PARAMETERS | | |
|----------------|----------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 3 | A |
| V_{RRM} | 50 - 1000 | V |
| I_{FSM} | 100 | A |
| T_{JMAX} | 150 | °C |
| Package | DO-214AB (SMC) | |



DO-214AB (SMC)

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | | |
|---|--------------|--------------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER | SYMBOL | S3A-T | S3B-T | S3D-T | S3G-T | S3J-T | S3K-T | S3M-T | 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, 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 100 | | | | | | | A |
| 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 per diode | $R_{\theta JL}$ | 8 | $^{\circ}C/W$ |
| Junction-to-ambient thermal resistance per diode | $R_{\theta JA}$ | 56 | $^{\circ}C/W$ |
| Junction-to-case thermal resistance per diode | $R_{\theta JC}$ | 12 | $^{\circ}C/W$ |

Thermal Performance Note: Units mounted on PCB (16mm x 16mm Cu pad test board)

| ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}C$ unless otherwise noted) | | | | | |
|--|----------------------------------|---------------|-------------|-------------|-------------|
| PARAMETER | CONDITIONS | SYMBOL | TYP. | MAX. | UNIT |
| Forward voltage per diode ⁽¹⁾ | $I_F = 1.5A, T_J = 25^{\circ}C$ | V_F | 0.88 | - | V |
| | $I_F = 3.0A, T_J = 25^{\circ}C$ | | 0.93 | 1.15 | V |
| | $I_F = 1.5A, T_J = 125^{\circ}C$ | | 0.75 | - | V |
| | $I_F = 3.0A, T_J = 125^{\circ}C$ | | 0.81 | 0.92 | V |
| Reverse current @ rated V_R per diode ⁽²⁾ | $T_J = 25^{\circ}C$ | I_R | - | 10 | μA |
| | $T_J = 125^{\circ}C$ | | - | 250 | μA |
| Junction capacitance | 1 MHz, $V_R = 4.0V$ | C_J | 27 | - | pF |

Notes:

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

| ORDERING INFORMATION | | |
|-----------------------------|----------------|--------------------------|
| ORDERING CODE | PACKAGE | PACKING |
| S3A-T R7G | SMC | 850 / 7" Plastic reel |
| S3A-T M6G | SMC | 3,000 / 13" Plastic reel |
| S3B-T R7G | SMC | 850 / 7" Plastic reel |
| S3B-T M6G | SMC | 3,000 / 13" Plastic reel |
| S3D-T R7G | SMC | 850 / 7" Plastic reel |
| S3D-T M6G | SMC | 3,000 / 13" Plastic reel |
| S3G-T R7G | SMC | 850 / 7" Plastic reel |
| S3G-T M6G | SMC | 3,000 / 13" Plastic reel |
| S3J-T R7G | SMC | 850 / 7" Plastic reel |
| S3J-T M6G | SMC | 3,000 / 13" Plastic reel |
| S3K-T R7G | SMC | 850 / 7" Plastic reel |
| S3K-T M6G | SMC | 3,000 / 13" Plastic reel |
| S3M-T R7G | SMC | 850 / 7" Plastic reel |
| S3M-T M6G | SMC | 3,000 / 13" Plastic reel |

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

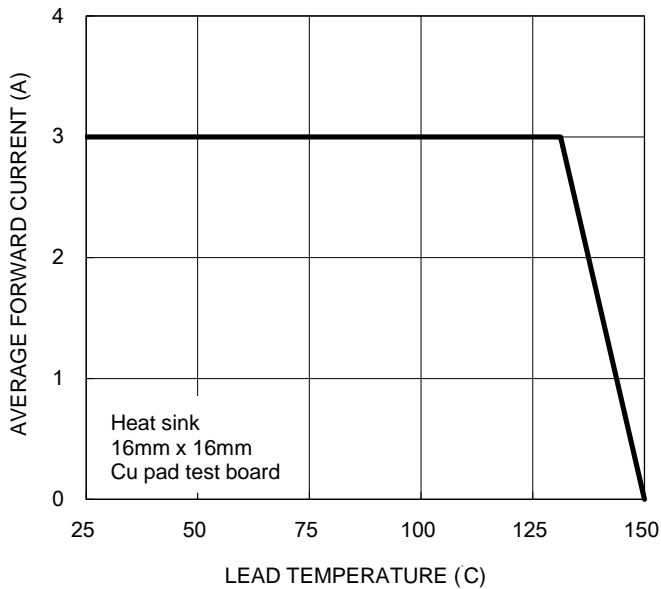


Fig.2 Typical Junction Capacitance

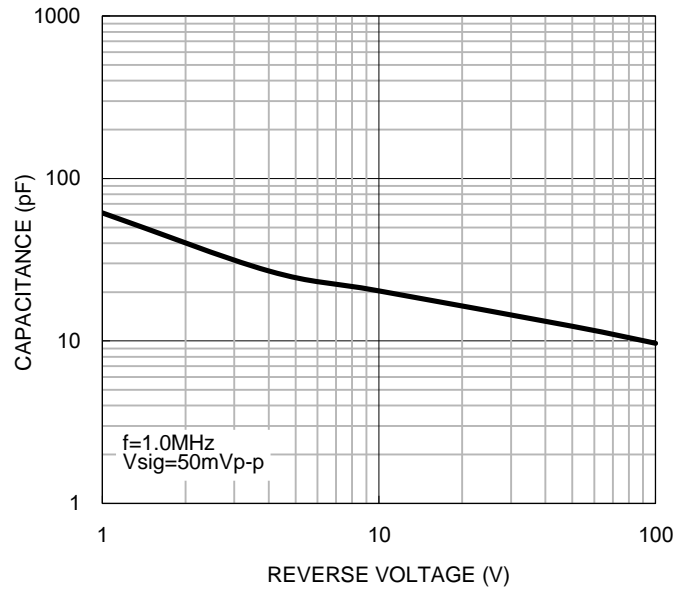


Fig.3 Typical Reverse Characteristics

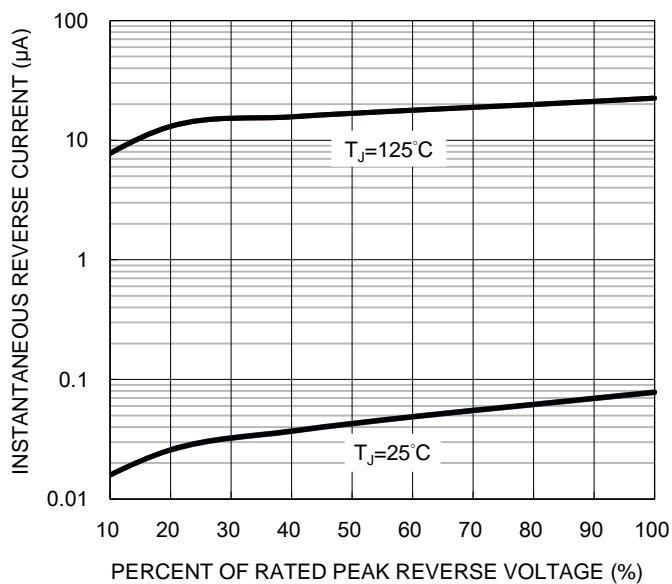
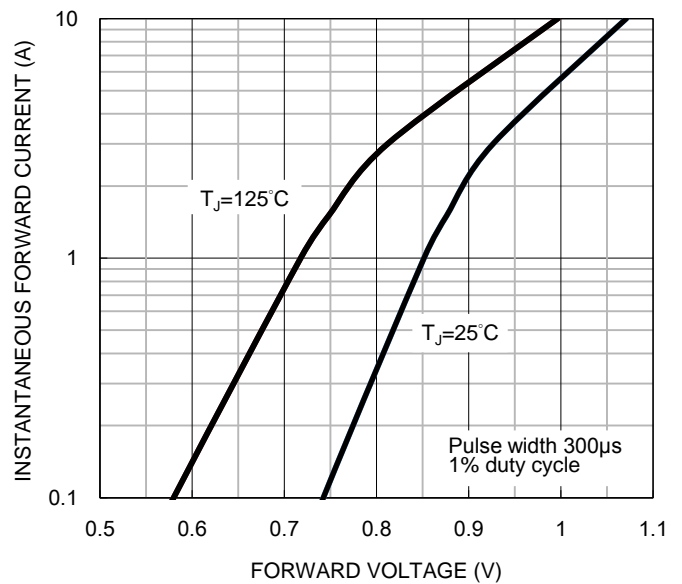
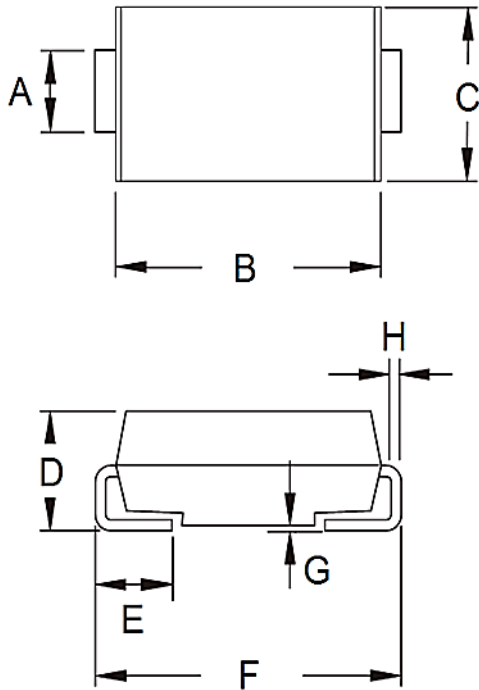


Fig.4 Typical Forward Characteristics



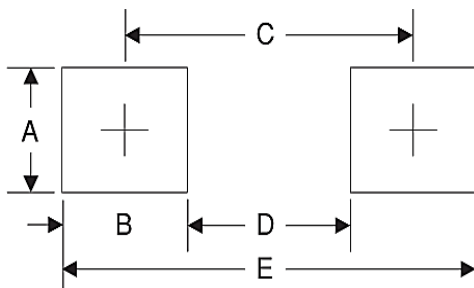
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| A | 2.90 | 3.20 | 0.114 | 0.126 |
| B | 6.60 | 7.11 | 0.260 | 0.280 |
| C | 5.59 | 6.22 | 0.220 | 0.245 |
| D | 2.00 | 2.62 | 0.079 | 0.103 |
| E | 1.00 | 1.60 | 0.039 | 0.063 |
| F | 7.75 | 8.13 | 0.305 | 0.320 |
| G | 0.10 | 0.20 | 0.004 | 0.008 |
| H | 0.15 | 0.31 | 0.006 | 0.012 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 3.30 | 0.130 |
| B | 2.50 | 0.098 |
| C | 6.80 | 0.268 |
| D | 4.40 | 0.173 |
| E | 9.40 | 0.370 |

MARKING DIAGRAM



- P/N = Marking Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

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