

1.5A, 50V - 1000V Surface Mount Rectifier

FEATURES

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

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Lighting application
- Snubber
- General purpose

MECHANICAL DATA

- Case: DO-214AC (SMA)
- 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: 0.060g (approximately)

| KEY PARAMETERS | | |
|----------------|----------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 1.5 | A |
| V_{RRM} | 50 - 1000 | V |
| I_{FSM} | 50 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | DO-214AC (SMA) | |
| Configuration | Single die | |



DO-214AC (SMA)



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | | | |
|--|--------------|--------------|------|------|------|------|------|------|------|----|
| PARAMETER | SYMBOL | S2AA | S2BA | S2DA | S2GA | S2JA | S2KA | S2MA | UNIT | |
| Marking code on the device | | S2AA | S2BA | S2DA | S2GA | S2JA | S2KA | S2MA | | |
| 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 | 1.5 | | | | | | | | A |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 50 | | | | | | | | 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 | $R_{\theta JL}$ | 16 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 53 | °C/W |

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

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|--|---|----------|------|-----|---------------|
| Forward voltage ⁽¹⁾ | $I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$ | V_F | - | 1.1 | V |
| Reverse current @ rated V_R ⁽²⁾ | $T_J = 25^\circ\text{C}$ | I_R | - | 5 | μA |
| | $T_J = 125^\circ\text{C}$ | | - | 125 | μA |
| Junction capacitance | 1MHz, $V_R = 4.0\text{V}$ | C_J | 30 | - | pF |
| Reverse recovery time | $I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$ | 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 |
|------------------------------|----------------|---------------------|
| S2xA | DO-214AC (SMA) | 7,500 / Tape & Reel |

Notes:

1. "x" defines voltage from 50V(S2AA) to 1000V(S2MA)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

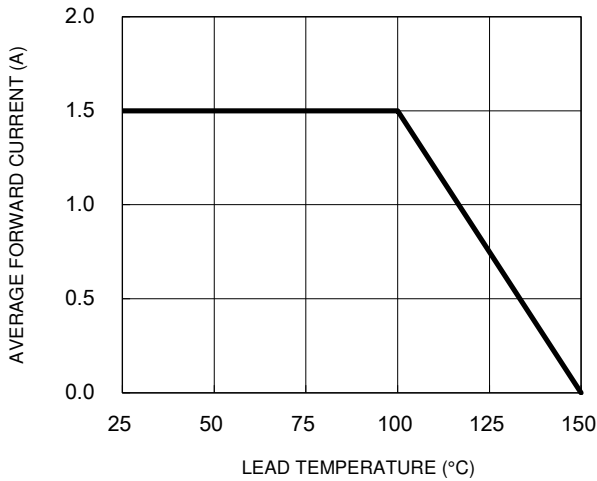


Fig.2 Typical Junction Capacitance

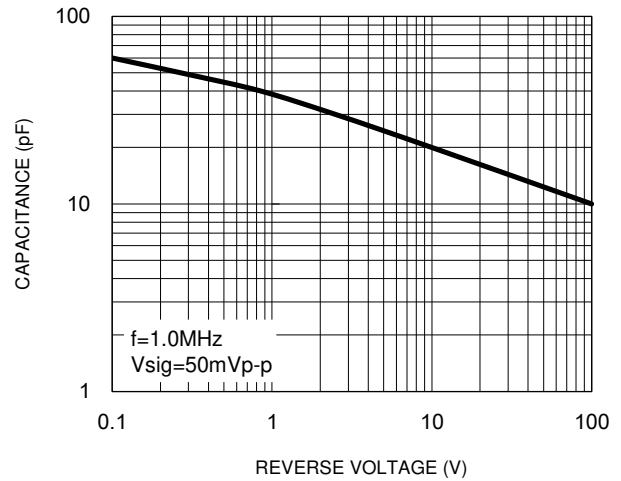


Fig.3 Typical Reverse Characteristics

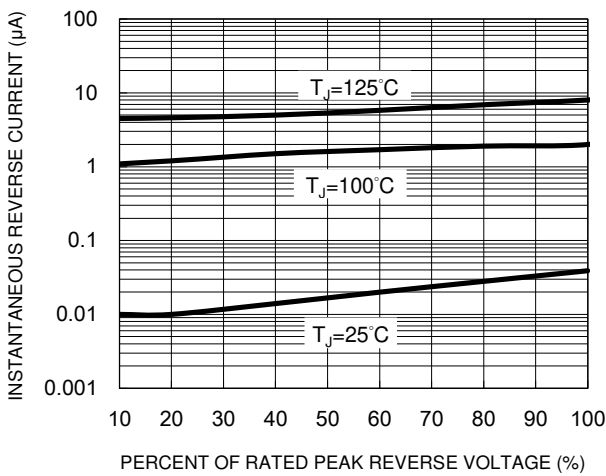


Fig.4 Typical Forward Characteristics

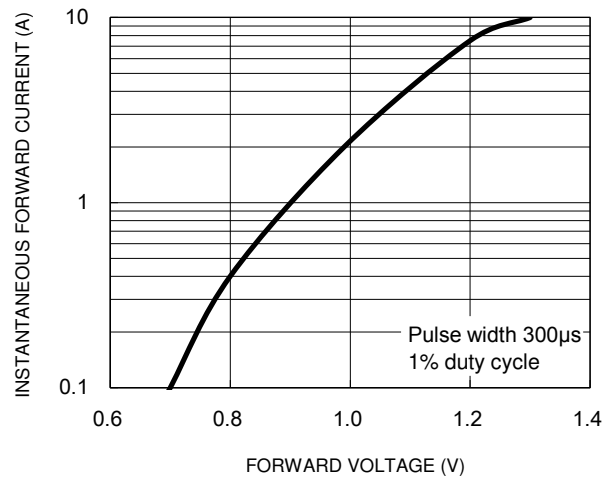
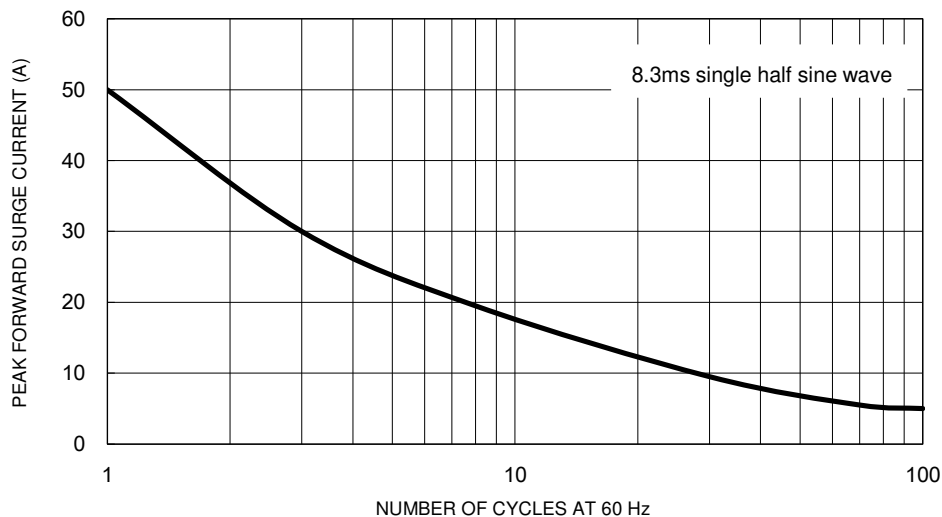


Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

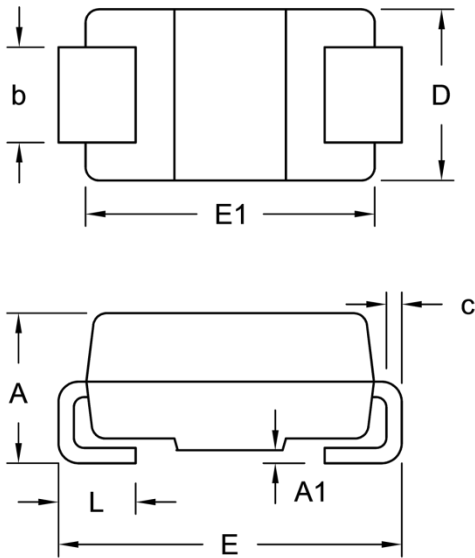
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS

DO-214AC (SMA)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.99 | 2.50 | 0.078 | 0.098 |
| A1 | 0.10 | 0.20 | 0.004 | 0.008 |
| b | 1.27 | 1.58 | 0.050 | 0.062 |
| c | 0.15 | 0.31 | 0.006 | 0.012 |
| D | 2.29 | 2.83 | 0.090 | 0.111 |
| E | 4.95 | 5.33 | 0.195 | 0.210 |
| E1 | 4.06 | 4.60 | 0.160 | 0.181 |
| L | 0.90 | 1.41 | 0.035 | 0.056 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 1.68 | 0.066 |
| B | 1.52 | 0.060 |
| C | 3.93 | 0.155 |
| D | 2.41 | 0.095 |
| E | 5.45 | 0.215 |

MARKING DIAGRAM



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

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