

### FEATURES

- AEC-Q101 qualified
- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for overvoltage protection
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

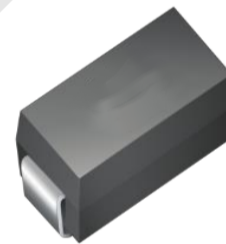
- Low voltage, high freq. inverter
- DC/DC converter
- Freewheeling diodes
- Reverse battery protection
- Car lighting

### 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: 0.066g (approximately)

| KEY PARAMETERS |                |      |
|----------------|----------------|------|
| PARAMETER      | VALUE          | UNIT |
| $I_F$          | 1              | A    |
| $V_{RRM}$      | 200            | V    |
| $I_{FSM}$      | 40             | A    |
| $T_{J\ MAX}$   | 150            | °C   |
| Package        | DO-214AC (SMA) |      |
| Configuration  | Single die     |      |

Cathode ————|<———— Anode



DO-214AC (SMA)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |              |             |                  |
|---------------------------------------------------------------------------------------------------|--------------|-------------|------------------|
| PARAMETER                                                                                         | SYMBOL       | SS120A      | UNIT             |
| Repetitive peak reverse voltage                                                                   | $V_{RRM}$    | 200         | V                |
| Reverse voltage, total rms value                                                                  | $V_{R(RMS)}$ | 140         | V                |
| Forward current                                                                                   | $I_F$        | 1           | A                |
| Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load                | $I_{FSM}$    | 40          | A                |
| Critical rate of rise of off-state voltage                                                        | $dV/dt$      | 10,000      | V/ $\mu\text{s}$ |
| 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    | $R_{\theta JL}$ | 28  | $^{\circ}C/W$ |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 88  | $^{\circ}C/W$ |
| Junction-to-case thermal resistance    | $R_{\theta JC}$ | 30  | $^{\circ}C/W$ |

**Thermal Performance Note:** Units mounted on PCB (5mm x 5mm Cu pad test board)

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

| PARAMETER                                    | CONDITIONS                     | SYMBOL | TYP  | MAX  | UNIT |
|----------------------------------------------|--------------------------------|--------|------|------|------|
| Forward voltage <sup>(1)</sup>               | $I_F = 1A, T_J = 25^{\circ}C$  | $V_F$  | 0.82 | 0.95 | V    |
|                                              | $I_F = 1A, T_J = 125^{\circ}C$ |        | 0.65 | 0.85 | V    |
| Reverse current @ rated $V_R$ <sup>(2)</sup> | $T_J = 25^{\circ}C$            | $I_R$  | -    | 0.1  | mA   |
|                                              | $T_J = 125^{\circ}C$           |        | -    | 2.0  | mA   |
| Junction capacitance                         | 1MHz, $V_R = 4.0V$             | $C_J$  | 31   | -    | pF   |

**Notes:**

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

### CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

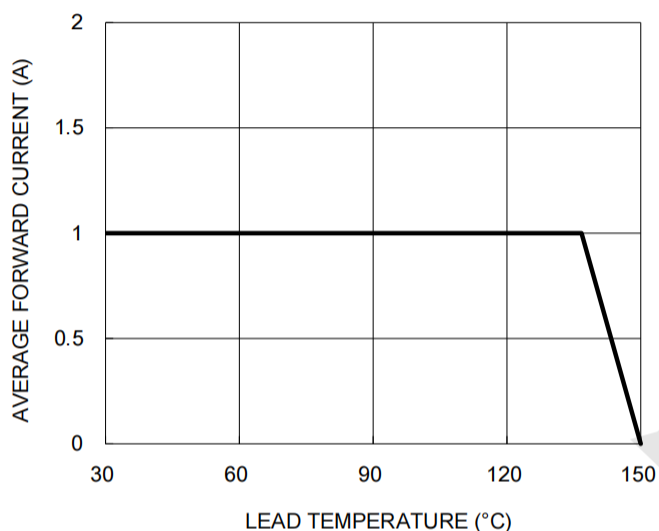


Fig.2 Typical Junction Capacitance

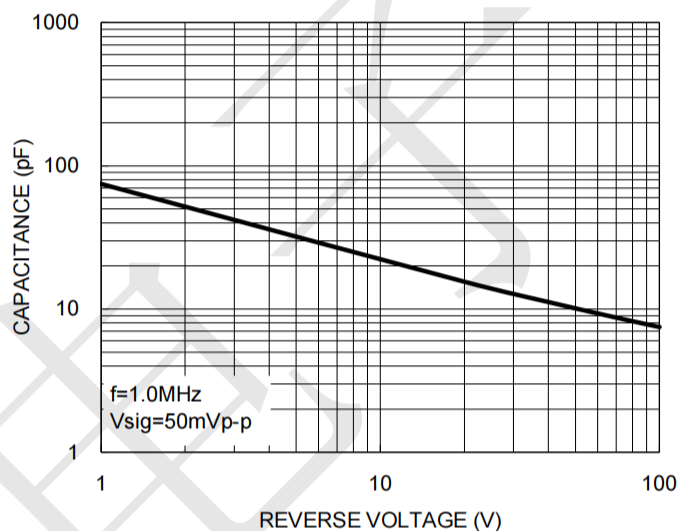


Fig.3 Typical Reverse Characteristics

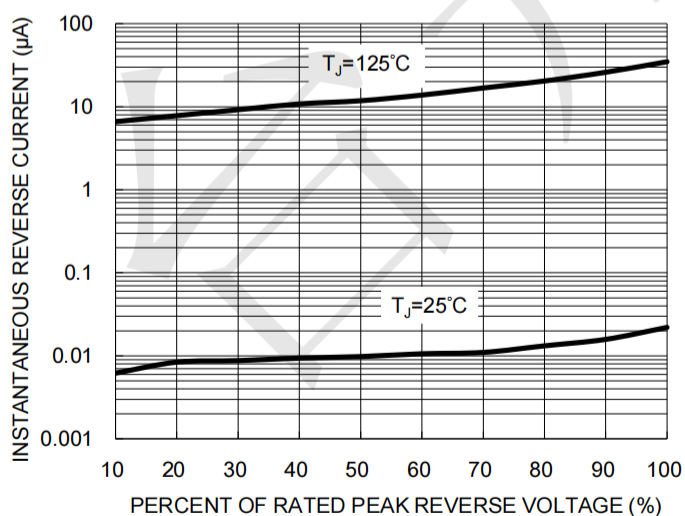
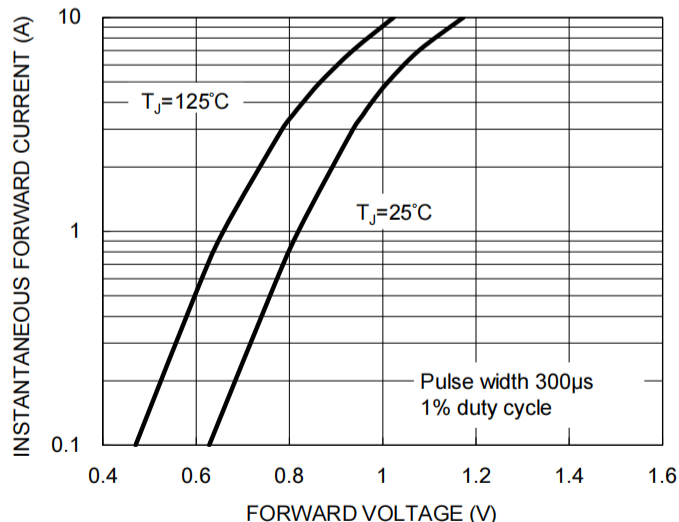
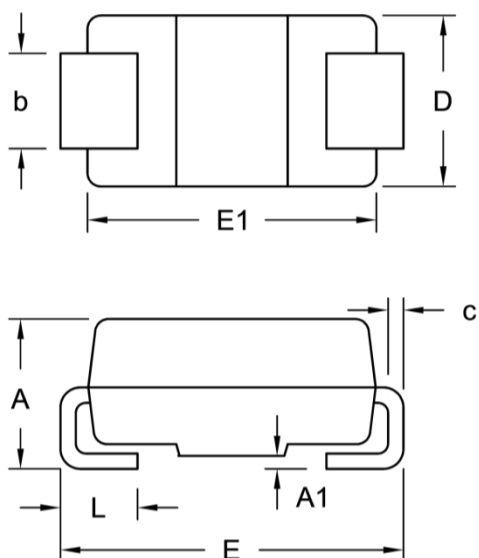


Fig.4 Typical Forward Characteristics



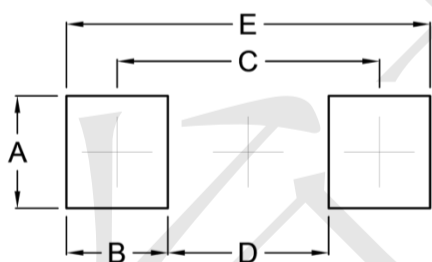
**PACKAGE OUTLINE DIMENSIONS**

DO-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       |