

## 1A, 200V Surface Mount Schottky Barrier Rectifier

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guarding for over-voltage protection
- High surge current capability
- 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-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.066 g (approximately)

| KEY PARAMETERS |               |      |
|----------------|---------------|------|
| PARAMETER      | VALUE         | UNIT |
| $I_{F(AV)}$    | 1             | A    |
| $V_{RRM}$      | 200           | V    |
| $I_{FSM}$      | 40            | A    |
| $T_{JMAX}$     | 150           | °C   |
| Package        | DO-214AC(SMA) |      |
| Configuration  | Single Die    |      |



**DO-214AC (SMA)**

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |              |             |                  |
|---|--------------|-------------|------------------|
| PARAMETER   | SYMBOL       | SS120       | UNIT             |
| Marking code on the device  |              | SS120       |                  |
| Repetitive peak reverse voltage   | $V_{RRM}$    | 200         | V                |
| Reverse voltage, total rms value  | $V_{R(RMS)}$ | 140         | V                |
| Forward current   | $I_{F(AV)}$  | 1           | A                |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode     | $I_{FSM}$    | 40          | A                |
| Critical rate of rise of off-state voltage  | dV/dt        | 10000       | V/ $\mu\text{s}$ |
| Junction temperature  | $T_J$        | -55 to +150 | °C               |
| Storage temperature   | $T_{STG}$    | -55 to +150 | °C               |

| <b>THERMAL PERFORMANCE</b>             |                 |              |             |
|--|-----------------|--------------|-------------|
| <b>PARAMETER</b>                       | <b>SYMBOL</b>   | <b>LIMIT</b> | <b>UNIT</b> |
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 28           | °C/W        |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 88           | °C/W        |
| Junction-to-case thermal resistance    | $R_{\theta JC}$ | 30           | °C/W        |

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

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

**Notes:**

1. Pulse test with  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

| <b>ORDERING INFORMATION</b> |                        |                     |                                |                |                          |
|-----------------------------|------------------------|---------------------|--------------------------------|----------------|--------------------------|
| <b>PART NO.</b>             | <b>PART NO. SUFFIX</b> | <b>PACKING CODE</b> | <b>PACKING CODE SUFFIX (*)</b> | <b>PACKAGE</b> | <b>PACKING</b>           |
| SS120                       | H                      | R3                  | G                              | SMA            | 1,800 / 7" Plastic reel  |
|                             |                        | R2                  |                                |                | 7,500 / 13" Paper reel   |
|                             |                        | M2                  |                                |                | 7,500 / 13" Plastic reel |

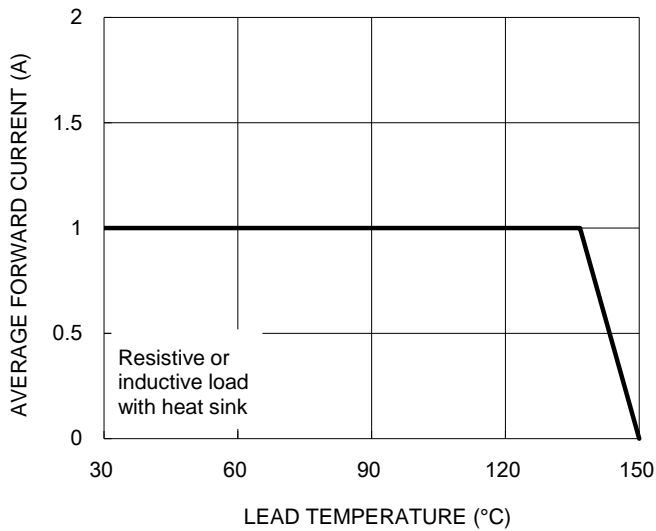
\*: Optional available

| <b>EXAMPLE</b>     |                 |                        |                     |                            |                                      |
|--------------------|-----------------|------------------------|---------------------|----------------------------|--------------------------------------|
| <b>EXAMPLE P/N</b> | <b>PART NO.</b> | <b>PART NO. SUFFIX</b> | <b>PACKING CODE</b> | <b>PACKING CODE SUFFIX</b> | <b>DESCRIPTION</b>                   |
| SS120HR3G          | SS120           | H                      | R3                  | G                          | AEC-Q101 qualified<br>Green compound |

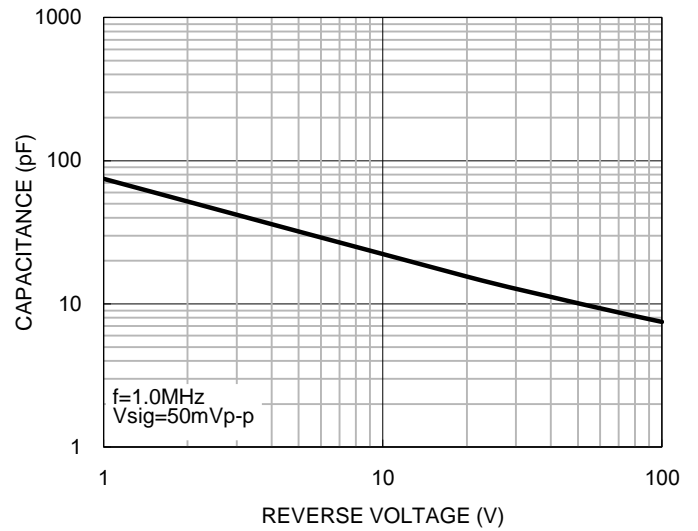
**CHARACTERISTICS CURVES**

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

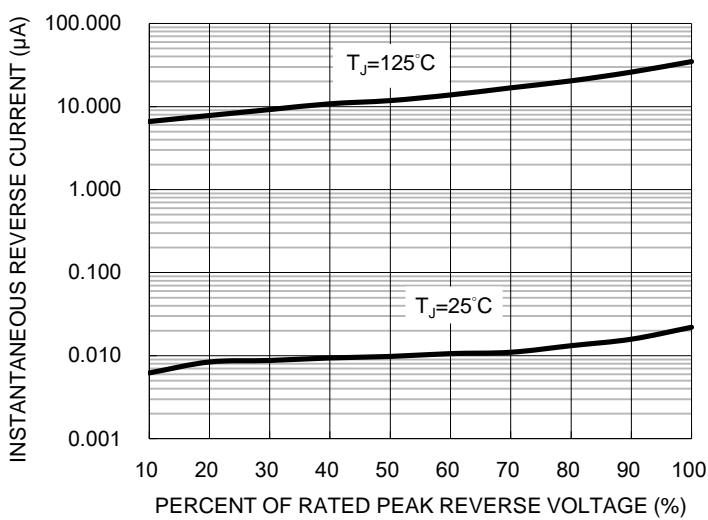
**Fig1. Forward Current Derating Curve**



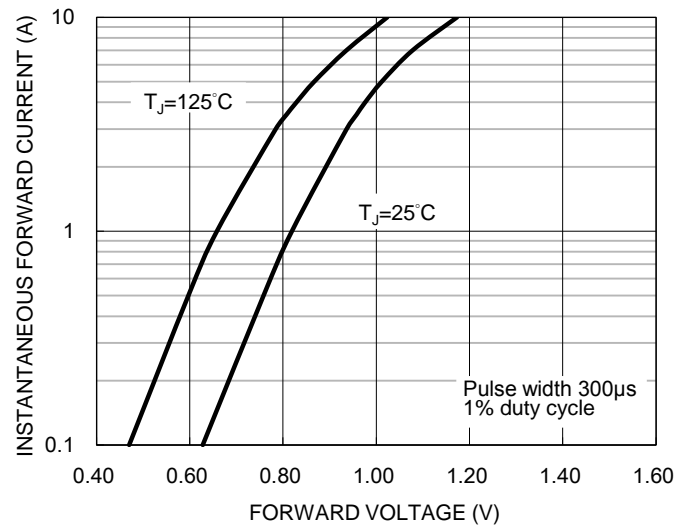
**Fig2. Typical Junction Capacitance**



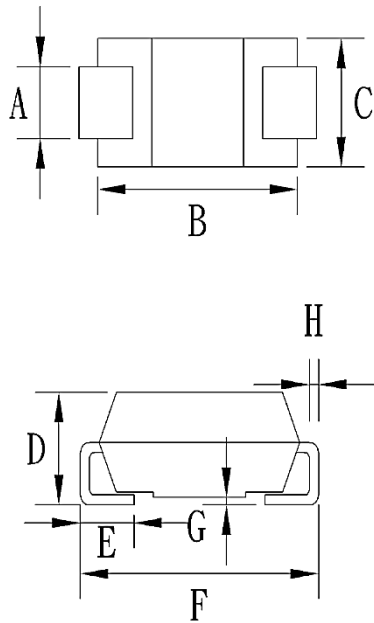
**Fig3. Typical Reverse Characteristics**



**Fig4. Typical Forward Characteristics**

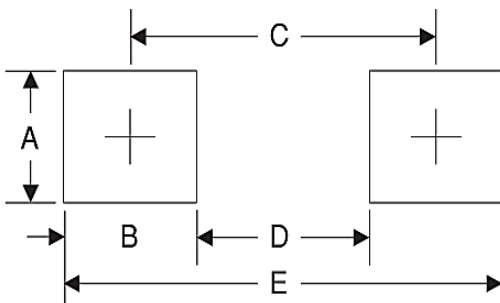


**PACKAGE OUTLINE DIMENSIONS**



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 1.27      | 1.58 | 0.050       | 0.062 |
| B    | 4.06      | 4.60 | 0.160       | 0.181 |
| C    | 2.29      | 2.83 | 0.090       | 0.111 |
| D    | 1.99      | 2.50 | 0.078       | 0.098 |
| E    | 0.90      | 1.41 | 0.035       | 0.056 |
| F    | 4.95      | 5.33 | 0.195       | 0.210 |
| 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      | 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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