

## 1A, 20V - 150V Surface Mount Schottky Barrier Rectifiers

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guardring for overvoltage 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 definition



DO-214AC (SMA)



### MECHANICAL DATA

**Case:** DO-214AC (SMA)

Molding compound, UL flammability classification rating 94V-0

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 JESD22-B102

Meet JESD 201 class 2 whisker test

**Polarity:** Indicated by cathode band

**Weight:** 0.066 g (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)                             |                    |              |          |          |              |              |            |           |              |      |
|--------------------------------------------------------------------------------------------------------------------------|--------------------|--------------|----------|----------|--------------|--------------|------------|-----------|--------------|------|
| PARAMETER                                                                                                                | SYMBOL             | SS<br>12     | SS<br>13 | SS<br>14 | SS<br>15     | SS<br>16     | SS<br>19   | SS<br>110 | SS<br>115    | UNIT |
| Maximum repetitive peak reverse voltage                                                                                  | V <sub>RRM</sub>   | 20           | 30       | 40       | 50           | 60           | 90         | 100       | 150          | V    |
| Maximum RMS voltage                                                                                                      | V <sub>RMS</sub>   | 14           | 21       | 28       | 35           | 42           | 63         | 70        | 105          | V    |
| Maximum DC blocking voltage                                                                                              | V <sub>DC</sub>    | 20           | 30       | 40       | 50           | 60           | 90         | 100       | 150          | V    |
| Maximum average forward rectified current                                                                                | I <sub>F(AV)</sub> | 1            |          |          |              |              |            |           |              | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load                                      | I <sub>FSM</sub>   | 40           |          |          |              |              |            |           |              | A    |
| Maximum instantaneous forward voltage (Note 1)<br>@ 1 A, T <sub>J</sub> =25°C<br>@ 1 A, T <sub>J</sub> =100°C            | V <sub>F</sub>     | 0.5<br>0.4   |          |          | 0.75<br>0.65 |              | 0.8<br>0.7 |           | 0.95<br>0.85 | V    |
| Maximum reverse current @ rated V <sub>R</sub><br>T <sub>J</sub> =25°C<br>T <sub>J</sub> =100°C<br>T <sub>J</sub> =125°C | I <sub>R</sub>     | 0.2          |          |          |              |              | 0.1        |           |              | mA   |
|                                                                                                                          |                    | 6            |          |          | 5            |              | -          |           |              |      |
|                                                                                                                          |                    | -            |          |          | -            |              | 2          |           |              |      |
| Voltage rate of change (Rated V <sub>R</sub> )                                                                           | dV/dt              | 10000        |          |          |              |              |            |           |              | V/μs |
| Typical thermal resistance                                                                                               | R <sub>θJL</sub>   | 28           |          |          |              |              |            |           |              | °C/W |
|                                                                                                                          | R <sub>θJA</sub>   | 88           |          |          |              |              |            |           |              |      |
| Operating junction temperature range                                                                                     | T <sub>J</sub>     | - 55 to +125 |          |          |              | - 55 to +150 |            |           |              | °C   |
| Storage temperature range                                                                                                | T <sub>STG</sub>   | - 55 to +150 |          |          |              |              |            |           |              | °C   |

Note 1: Pulse test with PW=300μs, 1% duty cycle

| ORDERING INFORMATION |                 |              |                     |            |                          |
|----------------------|-----------------|--------------|---------------------|------------|--------------------------|
| PART NO.             | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | PACKAGE    | PACKING                  |
| SS1xx<br>(Note 1)    | H               | R3           | G                   | SMA        | 1,800 / 7" Plastic reel  |
|                      |                 | R2           |                     | SMA        | 7,500 / 13" Paper reel   |
|                      |                 | M2           |                     | SMA        | 7,500 / 13" Plastic reel |
|                      |                 | F3           |                     | Folded SMA | 1,800 / 7" Plastic reel  |
|                      |                 | F2           |                     | Folded SMA | 7,500 / 13" Paper reel   |
|                      |                 | F4           |                     | Folded SMA | 7,500 / 13" Plastic reel |
|                      | N/A             | E3           |                     | Clip SMA   | 1,800 / 7" Plastic reel  |
|                      |                 | E2           |                     | Clip SMA   | 7,500 / 13" Plastic reel |

Note 1: "xx" defines voltage from 20V (SS12) to 150V (SS115)

| EXAMPLE            |          |                 |              |                     |                                      |
|--------------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| PREFERRED PART NO. | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
| SS16HR3G           | SS16     | H               | R3           | G                   | AEC-Q101 qualified<br>Green compound |

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub>=25°C unless otherwise noted)

FIG.1 FORWARD CURRENT DERATING CUURVE

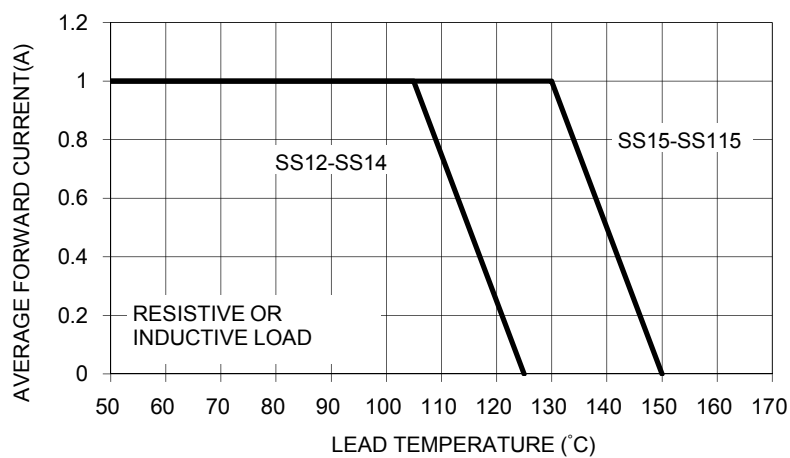


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

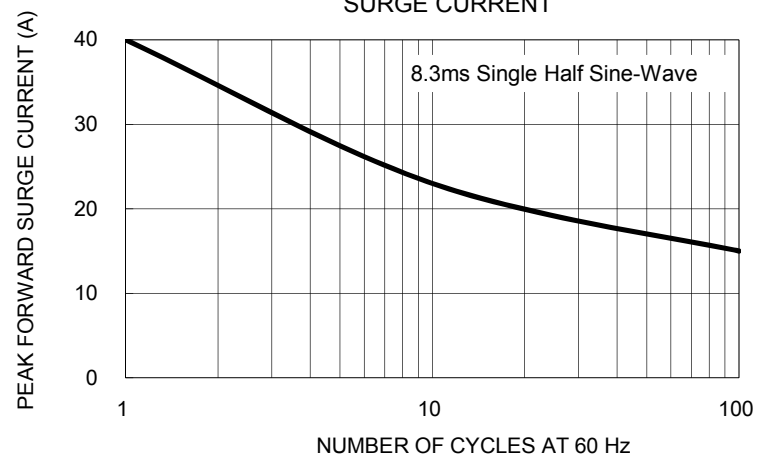


FIG. 3 TYPICAL FORWARD CHARACTERISTICS

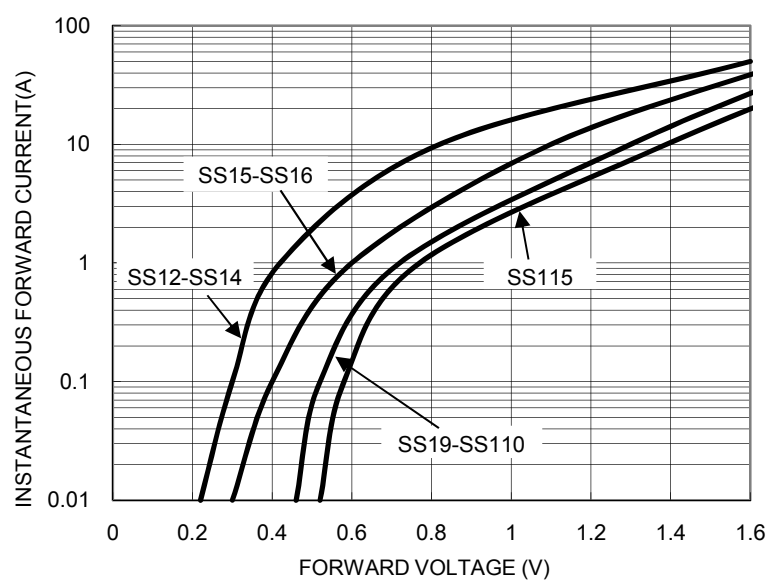


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

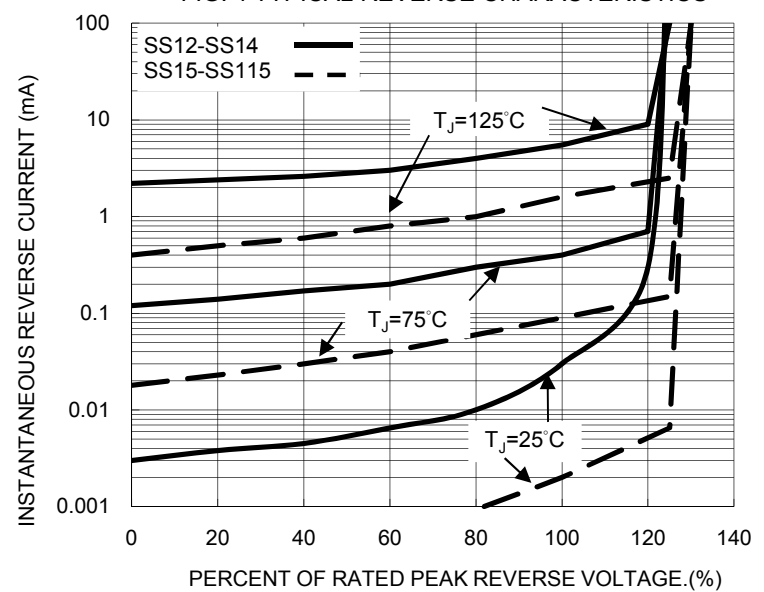


FIG. 5 TYPICAL JUNCTION CAPACITANCE

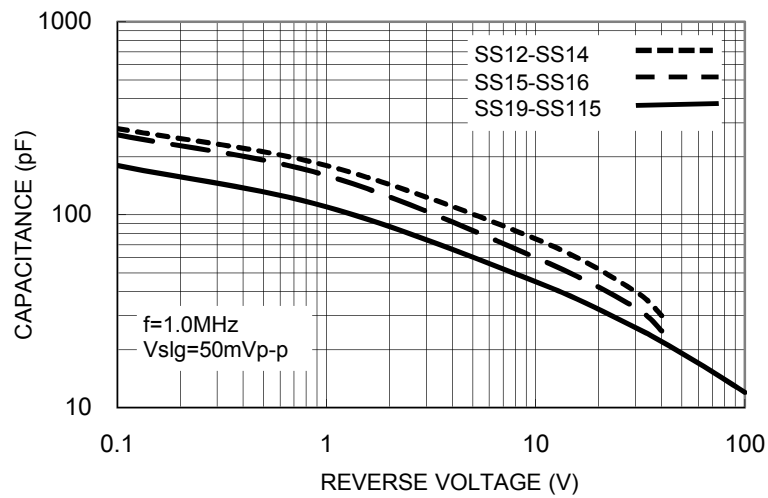
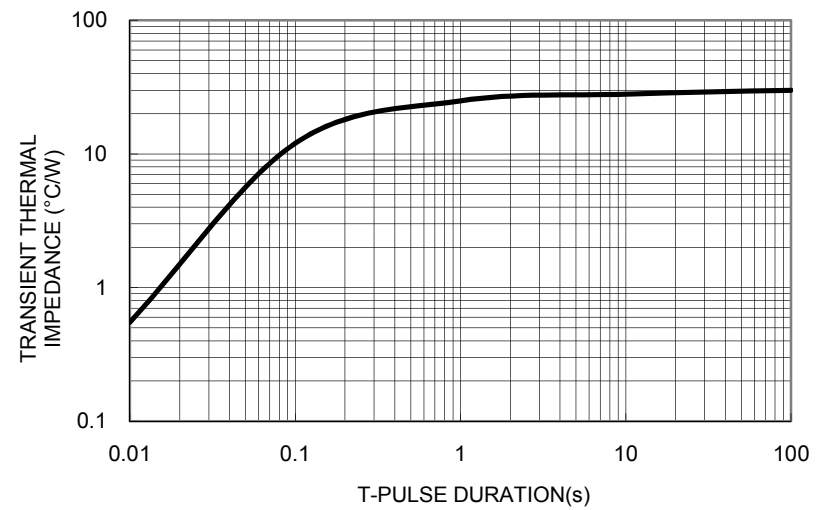
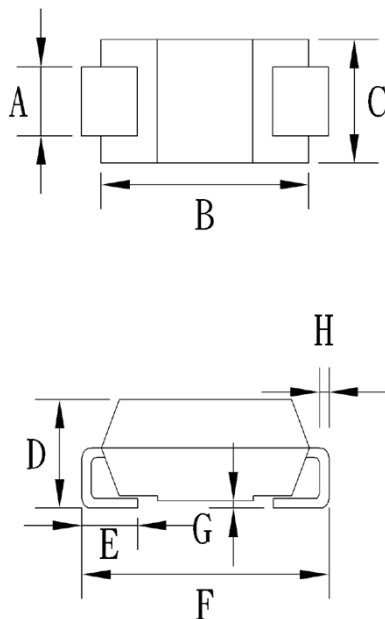


FIG. 6 TYPICAL TRANSIENT THERMAL IMPEDANCE

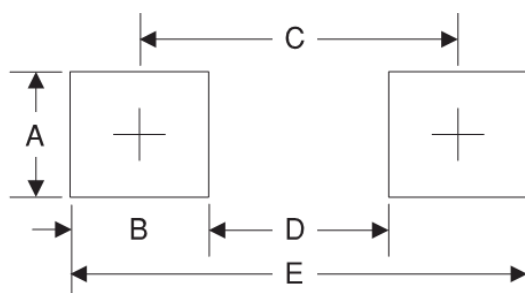


**PACKAGE OUTLINE DIMENSIONS**  
**DO-214AC (SMA)**



| 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 = Specific Device Code  
G = Green Compound  
YW = Date Code  
F = Factory Code

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