

## 1A, 200V - 1000V Surface Mount Rectifiers

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- 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



### MECHANICAL DATA

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

Molding compound: UL flammability classification rating 94V-0

Packing code with suffix "G" means green compound (halogen-free)

Moisture sensitivity level: level 1, per J-STD-020

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 1A whisker test

**Polarity:** Indicated by cathode band

**Weight:** 0.06 g (approximately)

**DO-214AC (SMA)**

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted) |                                      |                       |           |           |           |           |      |      |
|--|--------------------------------------|-----------------------|-----------|-----------|-----------|-----------|------|------|
| PARAMETER  | SYMBOL                               | S1D<br>-T             | S1G<br>-T | S1J<br>-T | S1K<br>-T | S1M<br>-T | UNIT |      |
| Marking code   |                                      | S1D                   | S1G       | S1J       | S1K       | S1M       |      |      |
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>                     | 200                   | 400       | 600       | 800       | 1000      | V    |      |
| Maximum RMS voltage  | V <sub>RMS</sub>                     | 140                   | 280       | 420       | 560       | 700       | V    |      |
| Maximum DC blocking voltage  | V <sub>DC</sub>                      | 200                   | 400       | 600       | 800       | 1000      | 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                    |           |           |           | 30        |      | A    |
| Maximum instantaneous forward voltage (Note 1) @ 1 A   | V <sub>F</sub>                       | 1.1                   |           |           |           |           |      | V    |
| Maximum reverse current @ rated V <sub>R</sub>   | I <sub>R</sub>                       | T <sub>J</sub> =25°C  |           | 1         |           |           | μA   |      |
|  |                                      | T <sub>J</sub> =125°C |           | 50        |           |           |      |      |
| Typical reverse recovery time (Note 2)   | t <sub>rr</sub>                      | 1.5                   |           |           |           |           |      | μs   |
| Typical junction capacitance (Note 3)  | C <sub>J</sub>                       | 12                    |           |           |           |           |      | pF   |
| Typical thermal resistance   | R <sub>θJL</sub><br>R <sub>θJA</sub> | 30<br>85              |           |           |           |           |      | °C/W |
| Operating junction temperature range   | T <sub>J</sub>                       | - 55 to +175          |           |           |           |           |      | °C   |
| Storage temperature range  | T <sub>STG</sub>                     | - 55 to +175          |           |           |           |           |      | °C   |

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

Note 2: Test conditions: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A

Note 3: Measured at 1 MHz and applied reverse voltage of 4.0V DC.

**ORDERING INFORMATION**

| PART NO.             | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING                 |
|----------------------|--------------|---------------------|---------|-------------------------|
| S1x-T<br>(Note 1, 2) | R3           | G                   | SMA     | 1,800 / 7" Plastic reel |
|                      | R2           |                     | SMA     | 7,500 / 13" Paper reel  |

Note 1: "x" defines voltage from 200V (S1D-T) to 1000V (S1M-T)

Note 2: Whole series with green compound

**EXAMPLE**

| EXAMPLE PART NO. | PART NO. | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|------------------|----------|--------------|---------------------|----------------|
| S1M-T R3G        | S1M-T    | R3           | G                   | Green compound |

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub>=25°C unless otherwise noted)**

FIG.1 FORWARD CURRENT DERATING CURVE

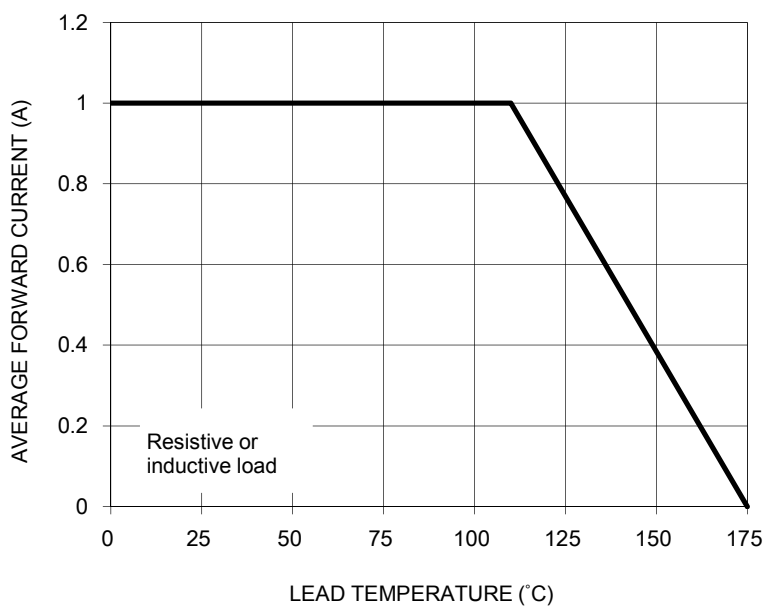


FIG. 2 TYPICAL REVERSE CHARACTERISTICS

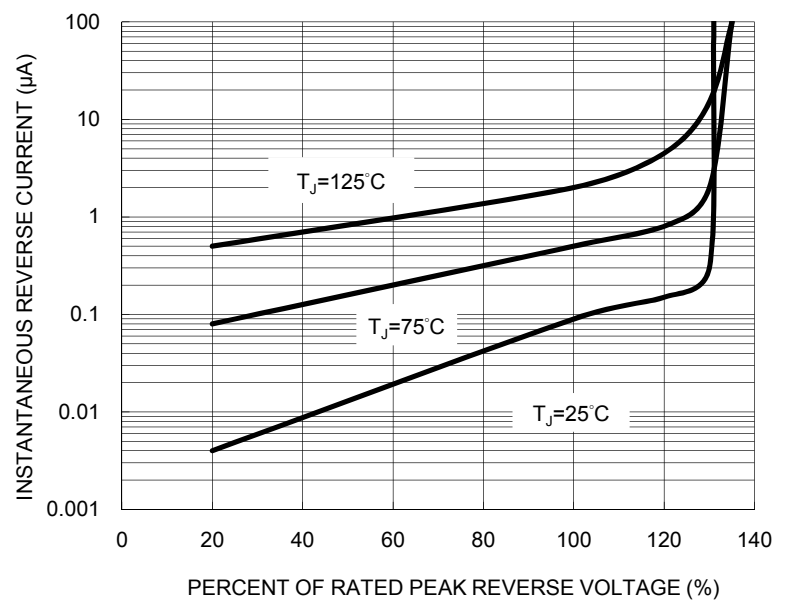


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

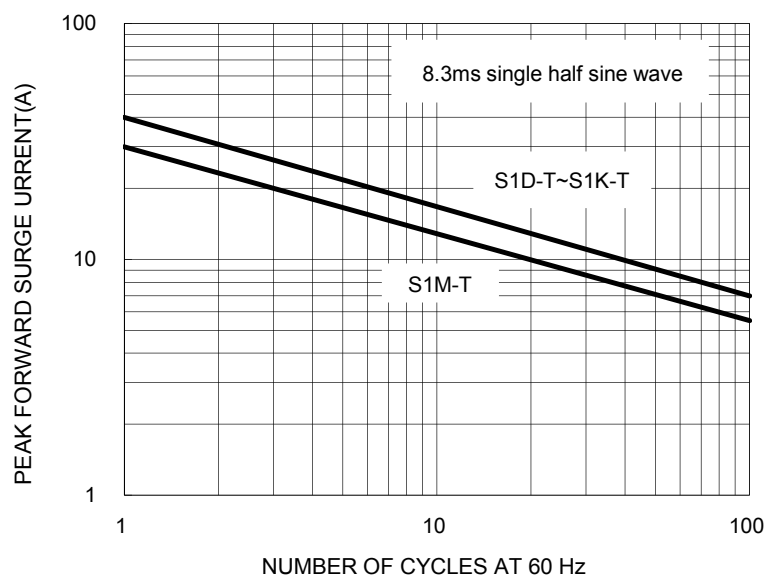


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

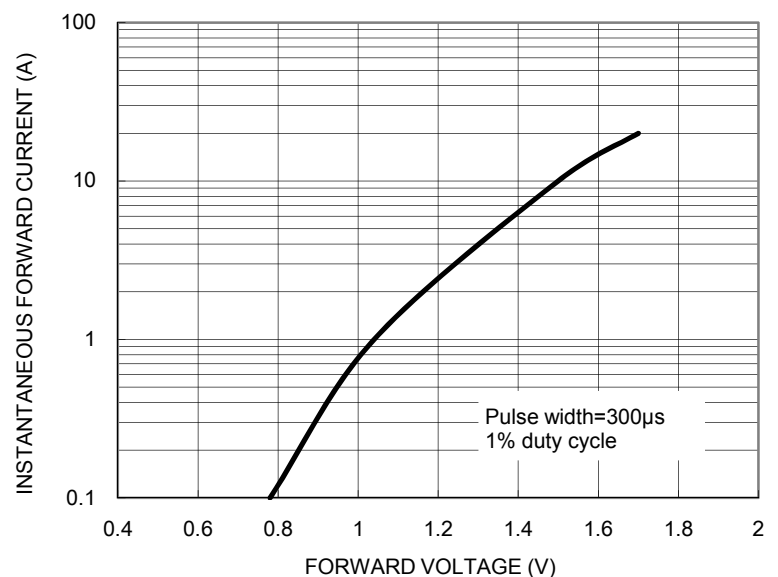


FIG. 5 TYPICAL JUNCTION CAPACITANCE

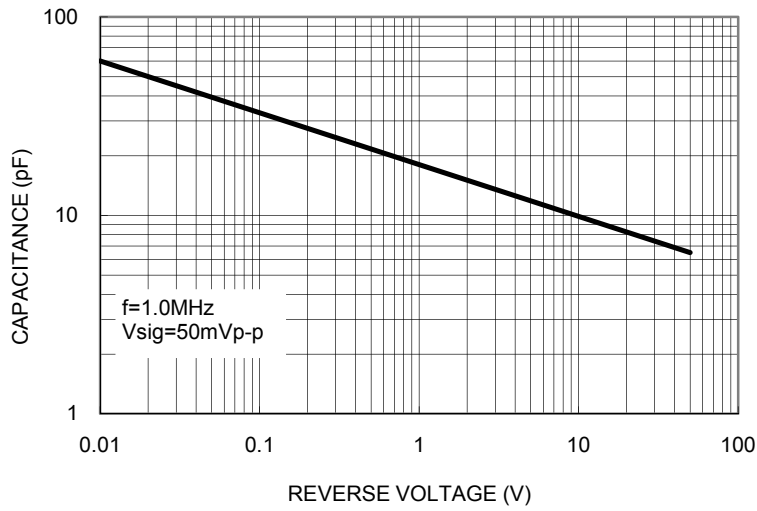
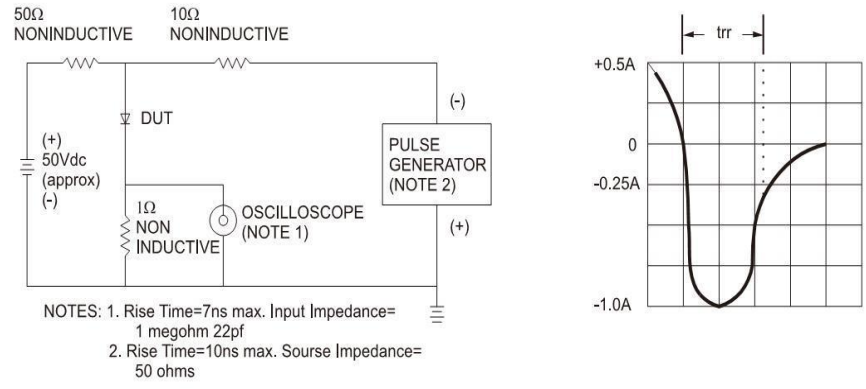
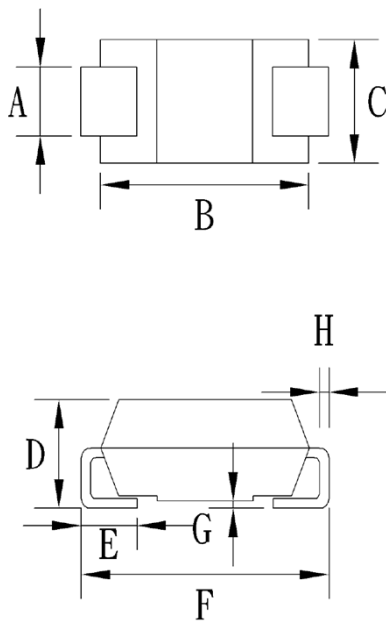


FIG.6 REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

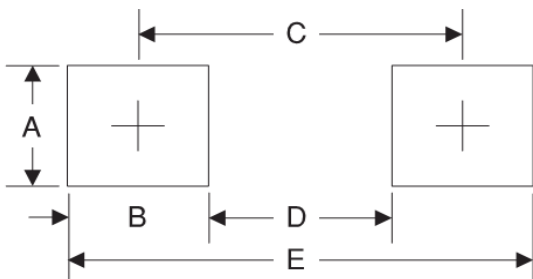


PACKAGE OUTLINE DIMENSIONS  
**DO-214AC (SMA)**



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 1.27      | 1.63 | 0.050       | 0.064 |
| B    | 4.00      | 4.60 | 0.157       | 0.181 |
| C    | 2.29      | 2.83 | 0.090       | 0.111 |
| D    | 1.90      | 2.25 | 0.075       | 0.089 |
| E    | 0.80      | 1.50 | 0.031       | 0.059 |
| F    | 4.80      | 5.20 | 0.189       | 0.205 |
| G    | 0.05      | 0.20 | 0.002       | 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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