

## 1A, 50V - 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 definition



### 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:** 0.06 g (approximately)

**DO-214AC (SMA)**

| <b>MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS</b> ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)    |                                    |              |     |     |     |     |     |      |                      |
|-------------------------------------------------------------------------------------------------------------|------------------------------------|--------------|-----|-----|-----|-----|-----|------|----------------------|
| PARAMETER                                                                                                   | SYMBOL                             | S1A          | S1B | S1D | S1G | S1J | S1K | S1M  | UNIT                 |
| Maximum repetitive peak reverse voltage                                                                     | $V_{RRM}$                          | 50           | 100 | 200 | 400 | 600 | 800 | 1000 | V                    |
| Maximum RMS voltage                                                                                         | $V_{RMS}$                          | 35           | 70  | 140 | 280 | 420 | 560 | 700  | V                    |
| Maximum DC blocking voltage                                                                                 | $V_{DC}$                           | 50           | 100 | 200 | 400 | 600 | 800 | 1000 | V                    |
| Maximum average forward rectified current                                                                   | $I_{F(AV)}$                        | 1            |     |     |     |     |     |      | A                    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load                         | $I_{FSM}$                          | 40           |     |     |     |     |     |      | A                    |
| Maximum instantaneous forward voltage (Note 1)<br>@ 1 A                                                     | $V_F$                              | 1.1          |     |     |     |     |     |      | V                    |
| Maximum reverse current @ rated $V_R$<br>$T_J=25^{\circ}\text{C}$<br>$T_J=125^{\circ}\text{C}$              | $I_R$                              | 1<br>50      |     |     |     |     |     |      | $\mu\text{A}$        |
| Typical reverse recovery time (Note 2)                                                                      | $t_{rr}$                           | 1.5          |     |     |     |     |     |      | $\mu\text{s}$        |
| Typical junction capacitance (Note 3)                                                                       | $C_J$                              | 12           |     |     |     |     |     |      | pF                   |
| Non-repetitive peak reverse avalanche energy at $25^{\circ}\text{C}$ , $I_{AS}=1\text{A}$ , $L=10\text{mH}$ | $E_{RSM}$                          | 5            |     |     |     |     |     |      | mJ                   |
| Typical thermal resistance                                                                                  | $R_{\theta JL}$<br>$R_{\theta JA}$ | 27<br>75     |     |     |     |     |     |      | $^{\circ}\text{C/W}$ |
| Operating junction temperature range                                                                        | $T_J$                              | - 55 to +175 |     |     |     |     |     |      | $^{\circ}\text{C}$   |
| Storage temperature range                                                                                   | $T_{STG}$                          | - 55 to +175 |     |     |     |     |     |      | $^{\circ}\text{C}$   |

Note 1: Pulse test with  $PW=300\mu\text{s}$ , 1% duty cycle

Note 2: Reverse Recovery Test Conditions:  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{RR}=0.25\text{A}$

Note 3: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C.

| ORDERING INFORMATION |                 |              |                     |            |                          |
|----------------------|-----------------|--------------|---------------------|------------|--------------------------|
| PART NO.             | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | PACKAGE    | PACKING                  |
| S1x<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 |
|                      |                 | E3           |                     | Clip SMA   | 1,800 / 7" Plastic reel  |
|                      |                 | E2           |                     | Clip SMA   | 7,500 / 13" Plastic reel |

Note 1: "x" defines voltage from 50V (S1A) to 1000V (S1M)

| EXAMPLE            |          |                 |              |                     |                                      |
|--------------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| PREFERRED PART NO. | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
| S1MHR3G            | S1M      | H               | R3           | G                   | AEC-Q101 qualified<br>Green compound |

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

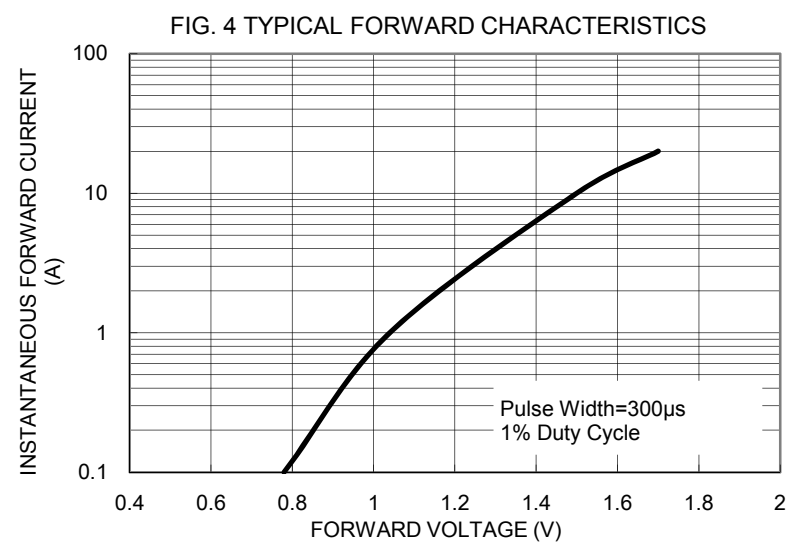
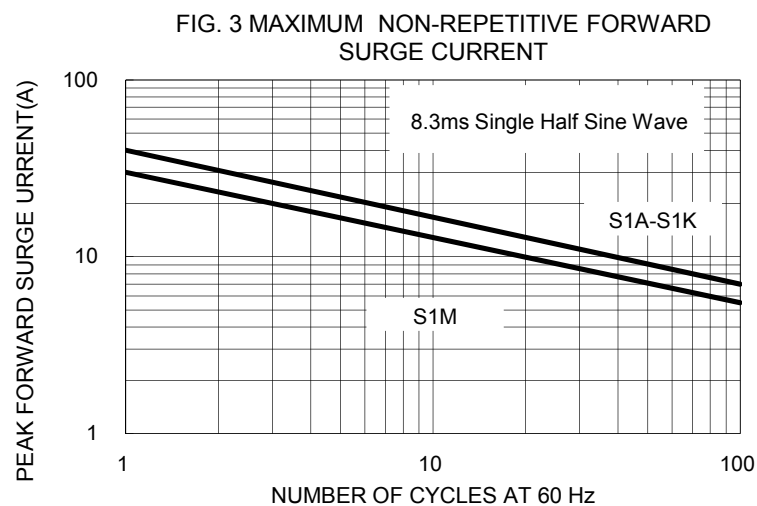
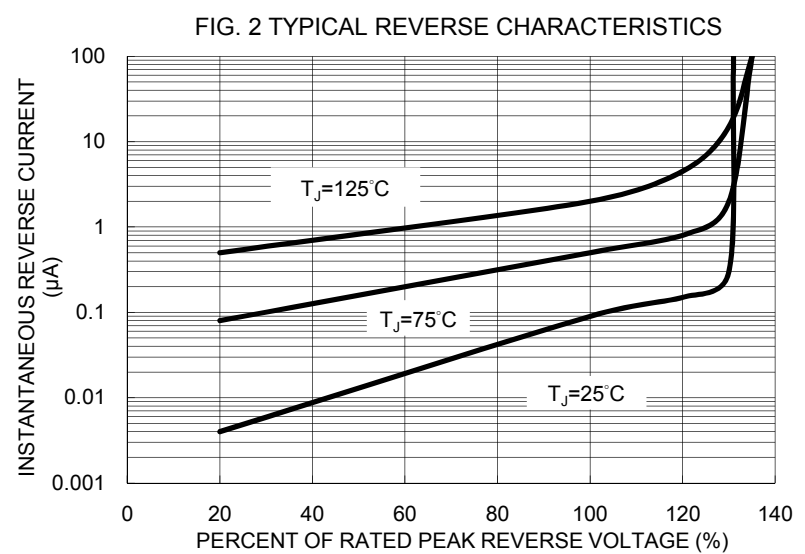
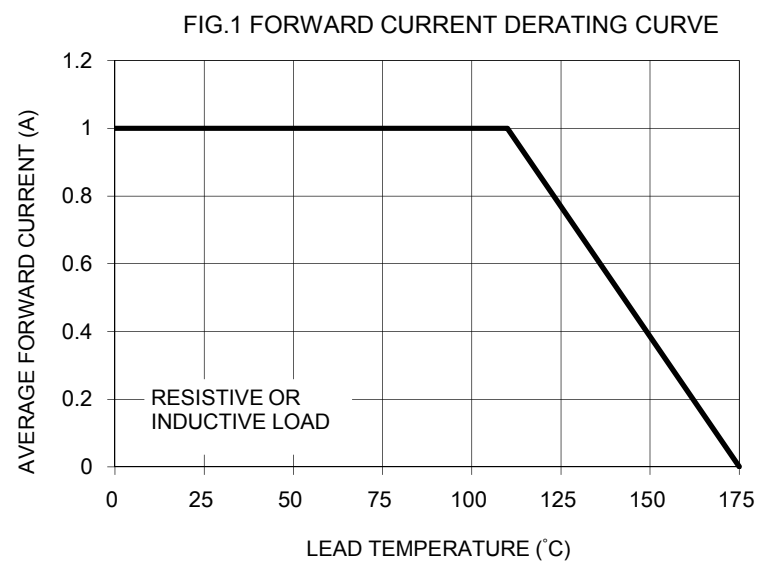


FIG. 5 TYPICAL JUNCTION CAPACITANCE

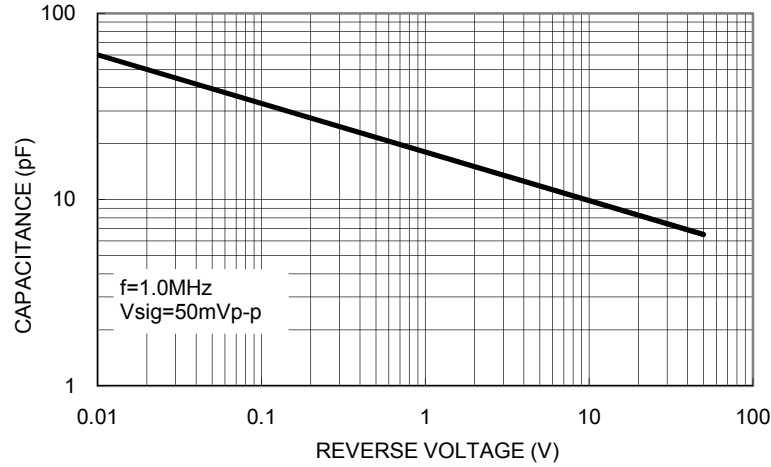
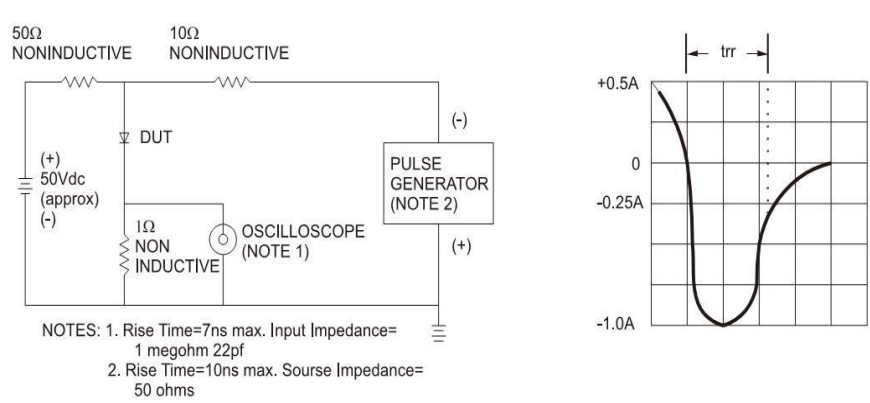
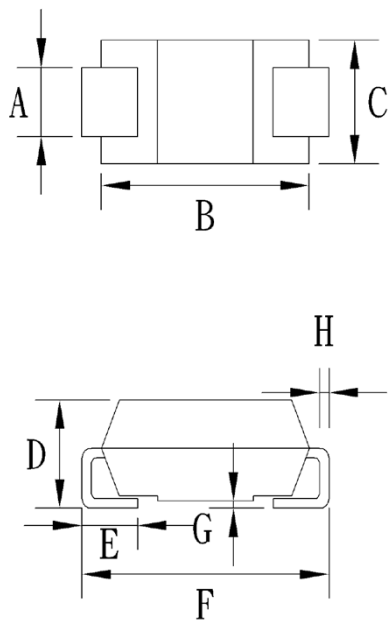


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

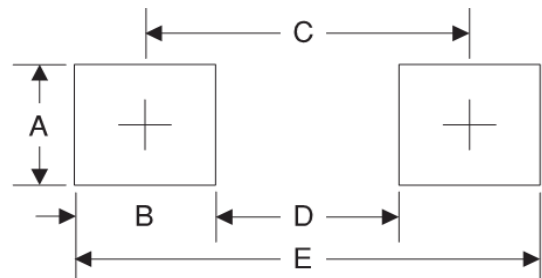


**PACKAGE OUTLINE DIMENSIONS**  
**DO-214AC (SMA)**



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 1.27      | 1.58 | 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

### **Notice**

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9