

# Surface Mount Glass Passivated Rectifier



DO-214AC (SMA)

## FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

## TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer and telecommunication.

## MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes the cathode end

## PRIMARY CHARACTERISTICS

|                        |                 |
|------------------------|-----------------|
| $I_{F(AV)}$            | 2.0 A           |
| $V_{RRM}$              | 100 V to 1000 V |
| $I_{FSM}$              | 55 A            |
| $I_R$                  | 3.0 $\mu$ A     |
| $V_F$ at $I_F = 2.0$ A | 0.854 V         |
| $T_J$ max.             | 150 °C          |

## MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                         | SYMBOL         | SA2B          | SA2D | SA2G | SA2J | SA2K | SA2M | UNIT |
|-----------------------------------------------------------------------------------|----------------|---------------|------|------|------|------|------|------|
| Device marking code                                                               |                | 2B            | 2D   | 2G   | 2J   | 2K   | 2M   |      |
| Maximum repetitive peak reverse voltage                                           | $V_{RRM}$      | 100           | 200  | 400  | 600  | 800  | 1000 | V    |
| Average forward current                                                           | $I_{F(AV)}$    | 2.0           |      |      |      |      |      | A    |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 55            |      |      |      |      |      | A    |
| Operating junction and storage temperature range                                  | $T_J, T_{STG}$ | - 55 to + 150 |      |      |      |      |      | °C   |

## ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                     | TEST CONDITIONS                                    | SYMBOL               | TYP.  | MAX. | UNIT    |
|-------------------------------|----------------------------------------------------|----------------------|-------|------|---------|
| Instantaneous forward voltage | $I_F = 1.0$ A                                      | $V_F$ <sup>(1)</sup> | 0.911 | -    | V       |
|                               | $I_F = 2.0$ A                                      |                      | 0.954 | 1.1  |         |
|                               | $I_F = 1.0$ A                                      |                      | 0.805 | -    |         |
|                               | $I_F = 2.0$ A                                      |                      | 0.854 | 0.95 |         |
| Reverse current               | Rated $V_R$                                        | $I_R$ <sup>(2)</sup> | 0.19  | 3    | $\mu$ A |
|                               |                                                    |                      | 28    | 90   |         |
| Typical reverse recovery time | $I_F = 0.5$ A, $I_R = 1.0$ A,<br>$t_{rr} = 0.25$ A | $t_{rr}$             | 1.5   | -    | $\mu$ s |
| Typical junction capacitance  | 4.0 V, 1 MHz                                       | $C_J$                | 11    | -    | pF      |

### Notes

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq$  40 ms

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

| PARAMETER                  | SYMBOL                          | SA2B | SA2D | SA2G | SA2J | SA2K | SA2M | UNIT |
|----------------------------|---------------------------------|------|------|------|------|------|------|------|
| Typical thermal resistance | R <sub>θJA</sub> <sup>(1)</sup> | 80   |      |      |      |      |      | °C/W |
|                            | R <sub>θJL</sub> <sup>(1)</sup> | 12   |      |      |      |      |      |      |

**Note**

(1) Thermal resistance from junction to ambient and from junction to lead, P.C.B. mounted on 0.79" x 0.79" (20 mm x 20 mm) copper pad areas

**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|---------------|-----------------|------------------------|---------------|------------------------------------|
| SA2J-E3/61T   | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SA2J-E3/5AT   | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |

**RATINGS AND CHARACTERISTICS CURVES**

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

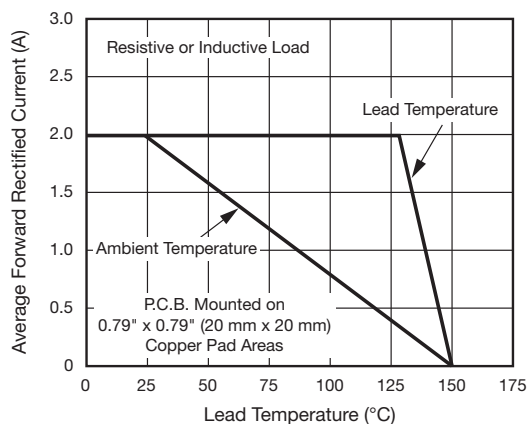


Fig. 1 - Maximum Forward Current Derating Curve

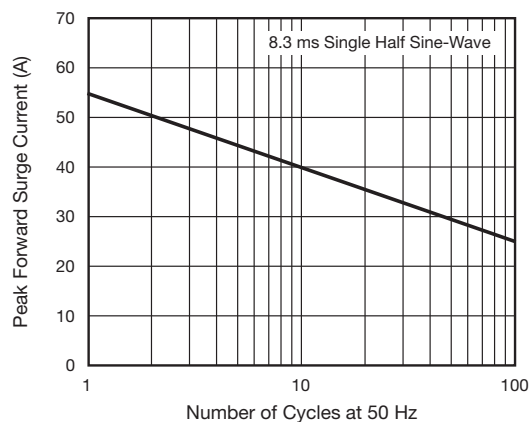


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

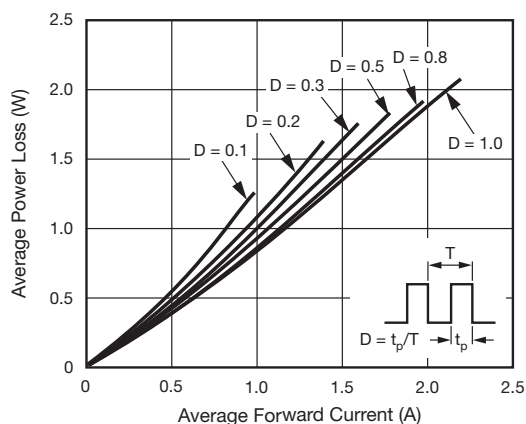


Fig. 2 - Forward Power Loss Characteristics

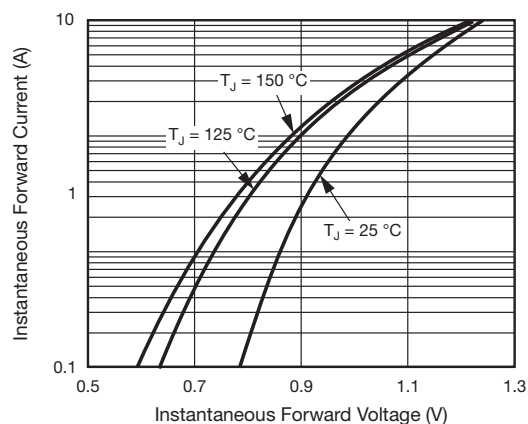


Fig. 4 - Typical Instantaneous Forward Characteristics

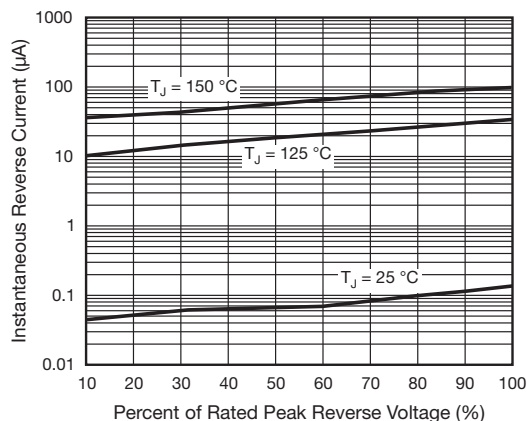


Fig. 5 - Typical Reverse Leakage Characteristics

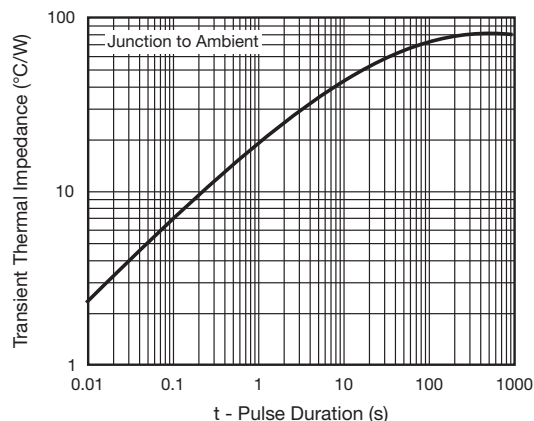


Fig. 7 - Typical Transient Thermal Impedance

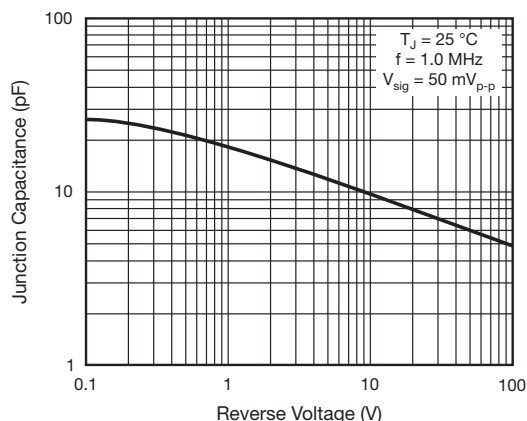
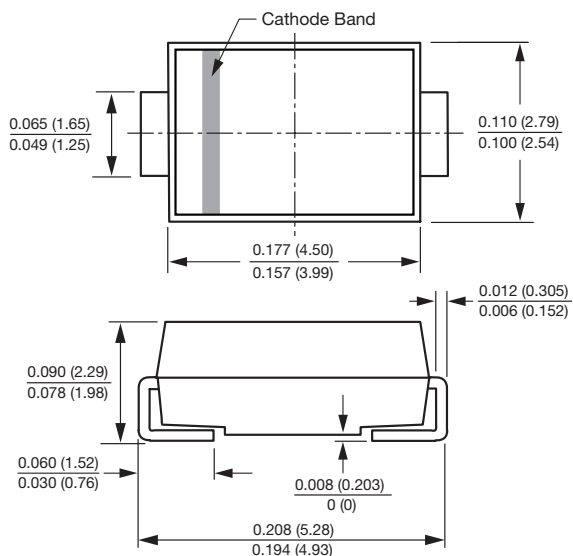
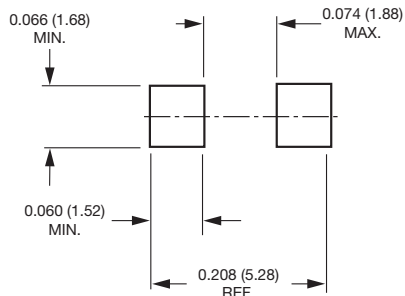


Fig. 6 - Typical Junction Capacitance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-214AC (SMA)**

**Mounting Pad Layout**




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**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331