## Surface Mount Glass Passivated Rectifier

**DO-214AC (SMA)**

### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated pellet 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

RoHS COMPLIANT

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 1.0 A |
| $V_{RRM}$ | 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$ | 30 A |
| $I_R$ | 5.0 µA |
| $V_F$ at $I_F$ = 1.0 A ($T_A$ = 125 °C) | 0.98 V |
| $T_J$ max. | 150 °C |
| Package | DO-214AC (SMA) |
| Diode variations | Single die |

### 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 2 whisker test

**Polarity:** Color band denotes cathode end

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

| PARAMETER | SYMBOL | CS1D | CS1G | CS1J | CS1K | CS1M | UNIT |
|---|---|---|---|---|---|---|---|
| Device marking code | | D | G | J | K | M | |
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 200 | 400 | 600 | 800 | 1000 | V |
| Average forward rectified current | $I_{F(AV)}$ (1) | 1.0 | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 30 | | | | | A |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -55 to +150 | | | | | °C |

**Note**

(1) Free air, mounted on recommended copper pad area



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| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **TYP.** | **MAX.** | **UNIT** |
| Maximum instantaneous forward voltage | $I_F$ = 0.5 A | $T_A$ = 25 °C | $V_F$ (1) | 0.93 | - | V |
| | $I_F$ = 1.0 A | | | 1.0 | 1.1 | |
| | $I_F$ = 0.5 A | $T_A$ = 125 °C | | 0.82 | - | |
| | $I_F$ = 1.0 A | | | 0.90 | 0.98 | |
| Maximum DC reverse current at rated DC blocking voltage | Rated $V_R$ | $T_A$ = 25 °C | $I_R$ (2) | - | 5.0 | µA |
| | | $T_A$ = 125 °C | | - | 300 | |
| Typical reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 1.5 | - | µs |
| Typical junction capacitance | 4.0 V, 1 MHz | | $C_J$ | 6 | - | pF |

**Notes**

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: pulse width ≤ 40 ms

| **THERMAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **CS1D** | **CS1G** | **CS1J** | **CS1K** | **CS1M** | **UNIT** |
| Typical thermal resistance | $R_{\theta JA}$ (1) | 105 | | | | | °C/W |
| | $R_{\theta JM}$ (2) | 16 | | | | | |

**Notes**

(1) Free air, mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

(2) Mounted on 5 mm x 5 mm copper pad areas, $R_{\theta JM}$ - junction to mount at the terminal

| **ORDERING INFORMATION** (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| CS1J-E3/I | 0.064 | I | 7500 | 13" diameter plastic tape and reel |


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## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

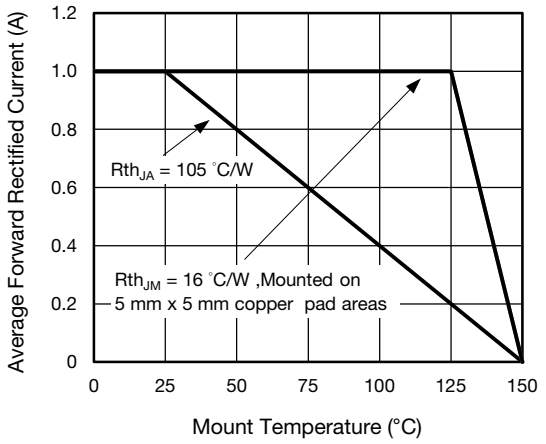


Fig. 1 - Maximum Forward Current Derating Curve

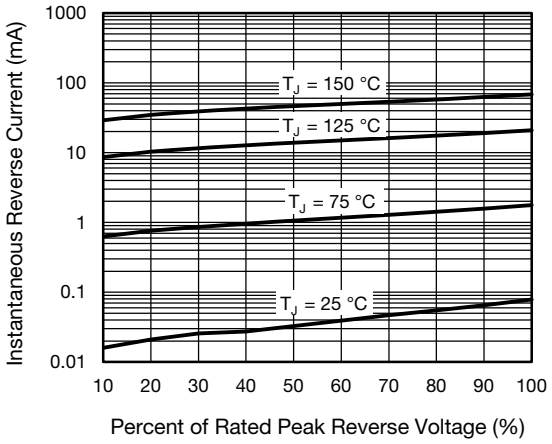


Fig. 4 - Typical Reverse Leakage Characteristics

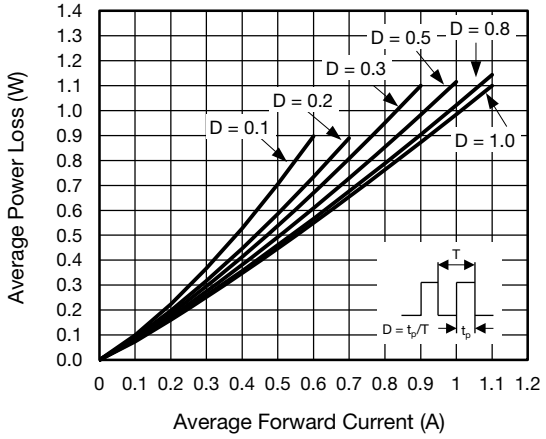


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

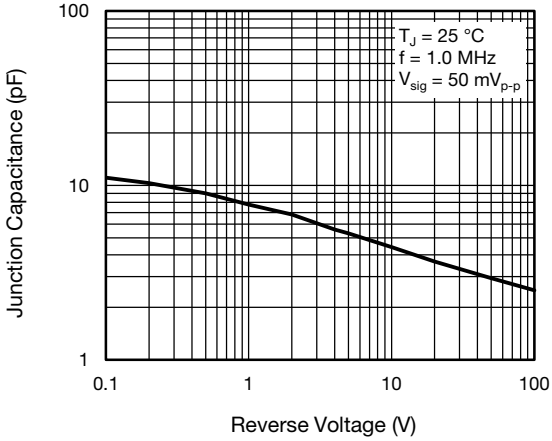


Fig. 5 - Typical Junction Capacitance

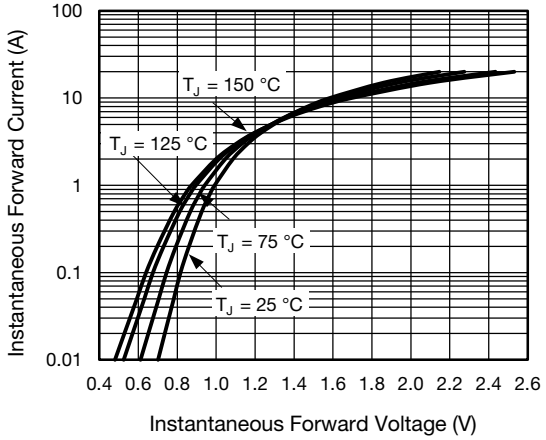


Fig. 3 - Typical Instantaneous Forward Characteristics

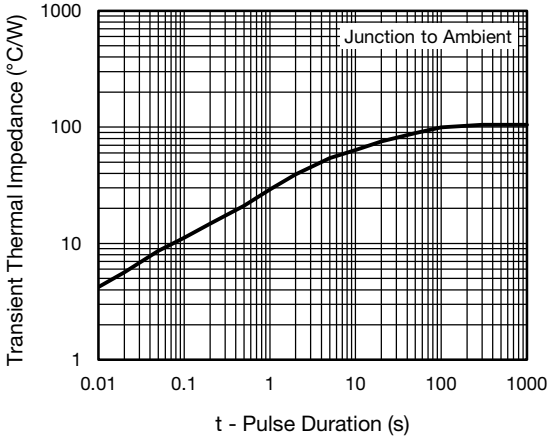


Fig. 6 - Typical Transient Thermal Impedance


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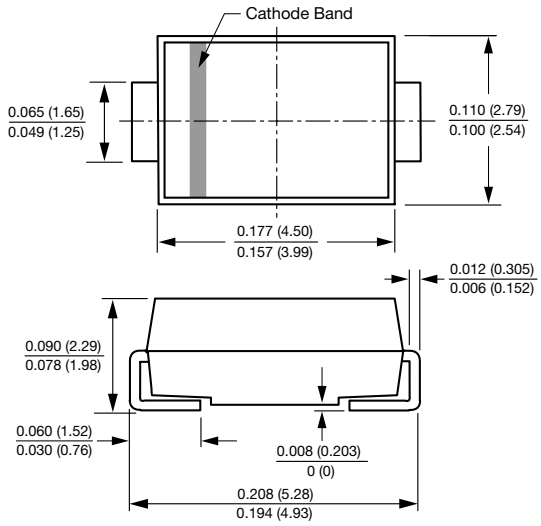
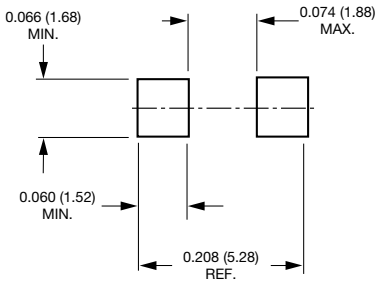
**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-214AC (SMA)**




**Mounting Pad Layout**





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Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А