

## 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](http://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 $\mu$ A                        |
| $V_F$ 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                                                  | $I_{F(AV)}$ <sup>(1)</sup> | 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

<sup>(1)</sup> Free air, mounted on recommended copper pad area



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                          |                         |                               |      |      |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-------------------------------|------|------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                          |                         | SYMBOL                        | TYP. | MAX. | UNIT |
| Maximum instantaneous forward voltage                                      | I <sub>F</sub> = 0.5 A                                                   | T <sub>A</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.93 | -    | V    |
|                                                                            | I <sub>F</sub> = 1.0 A                                                   |                         |                               | 1.0  | 1.1  |      |
|                                                                            | I <sub>F</sub> = 0.5 A                                                   | T <sub>A</sub> = 125 °C |                               | 0.82 | -    |      |
|                                                                            | I <sub>F</sub> = 1.0 A                                                   |                         |                               | 0.90 | 0.98 |      |
| Maximum DC reverse current at rated DC blocking voltage                    | Rated V <sub>R</sub>                                                     | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | -    | 5.0  | μA   |
|                                                                            |                                                                          | T <sub>A</sub> = 125 °C |                               | -    | 300  |      |
| Typical reverse recovery time                                              | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A |                         | t <sub>rr</sub>               | 1.5  | -    | μs   |
| Typical junction capacitance                                               | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>                | 6    | -    | pF   |

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: pulse width  $\leq 40\text{ ms}$ 

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |      |      |      |      |      |      |
|-------------------------------------------------------------------------|---------------------------------|------|------|------|------|------|------|
| PARAMETER                                                               | SYMBOL                          | CS1D | CS1G | CS1J | CS1K | CS1M | UNIT |
| Typical thermal resistance                                              | R <sub>θJA</sub> <sup>(1)</sup> | 105  |      |      |      |      | °C/W |
|                                                                         | R <sub>θJM</sub> <sup>(2)</sup> | 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

| <b>ORDERING INFORMATION</b> (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 |



## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

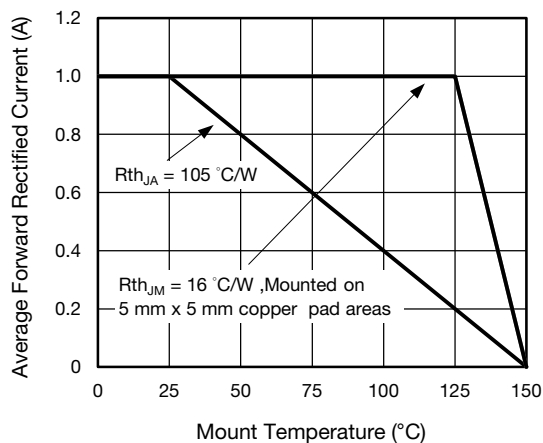


Fig. 1 - Maximum Forward Current Derating Curve

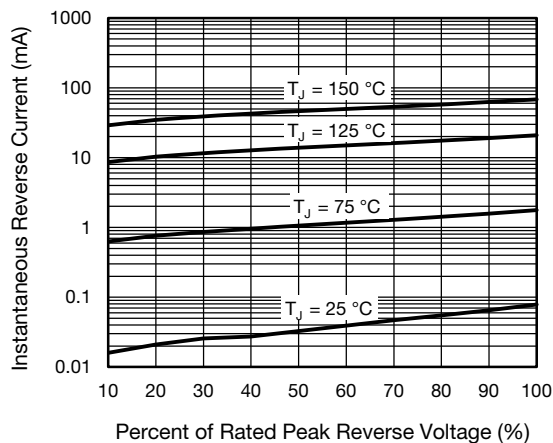


Fig. 4 - Typical Reverse Leakage Characteristics

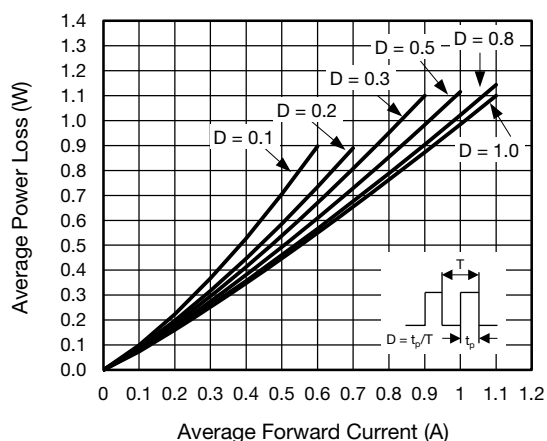


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

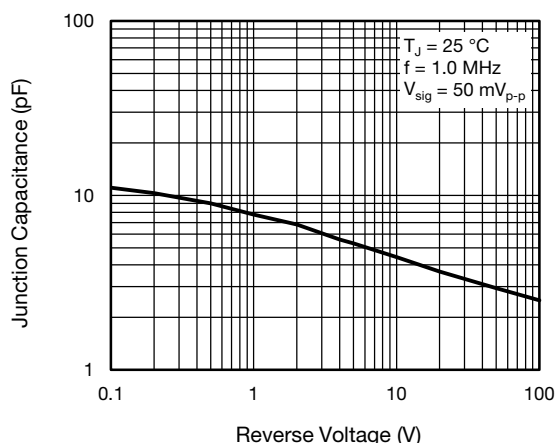


Fig. 5 - Typical Junction Capacitance

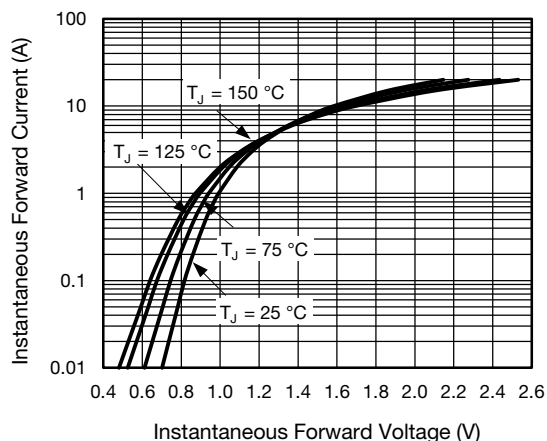


Fig. 3 - Typical Instantaneous Forward Characteristics

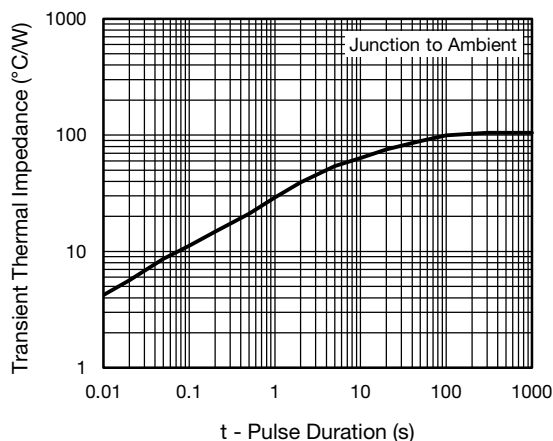
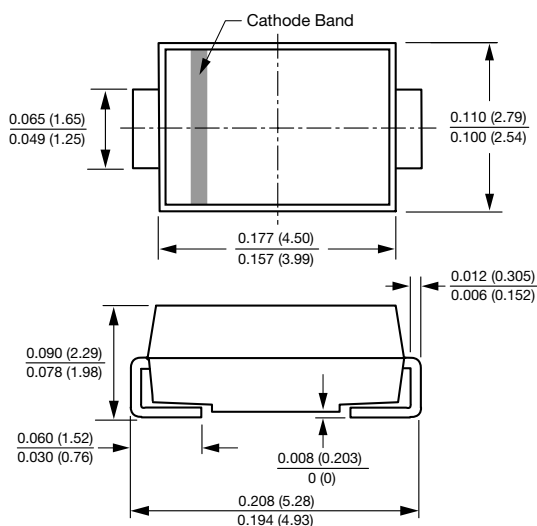


Fig. 6 - Typical Transient Thermal Impedance

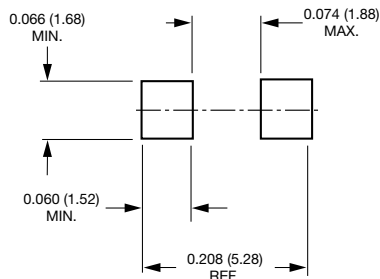


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AC (SMA)



### Mounting Pad Layout





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