## Low $\mathbf{V}_{\mathrm{F}}$ Surface Mount Schottky Rectifier



DO-214AC (SMA)

## FEATURES

- Low profile package


RoHS COMPLIANT HALOGEN FREE

- Low power losses, high efficiency
- Very low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of $260{ }^{\circ} \mathrm{C}$
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


## TYPICAL APPLICATIONS

For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

## MECHANICAL DATA

Case: DO-214AC (SMA)
Molding compound meets UL $94 \mathrm{~V}-0$ flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade
Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 2 whisker test
Polarity: Color band denotes the cathode end

- Ideal for automated placement
- Guardring for overvoltage protection FRE

Polarity: Color band denotes the cathode end

| PRIMARY CHARACTERISTICS |  |
| :---: | :---: |
| $\mathrm{I}_{\mathrm{F}(\mathrm{AV}}$ | 1.5 A |
| $\mathrm{~V}_{\mathrm{RRM}}$ | $20 \mathrm{~V}, 30 \mathrm{~V}$ |
| $\mathrm{I}_{\mathrm{FSM}}$ | 50 A |
| $\mathrm{~V}_{\mathrm{F}}$ | 0.34 V |
| $\mathrm{~T}_{J}$ max. | $125^{\circ} \mathrm{C}$ |
| Package | DO-214AC (SMA) |
| Diode variation | Single die |


| MAXIMUM RATINGS ( $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ unless otherwise noted) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| PARAMETER | SYMBOL | SL12 | SL13 | UNIT |
| Device marking code |  | SL2 | SL3 |  |
| Maximum repetitive peak reverse voltage | $\mathrm{V}_{\text {RRM }}$ | 20 | 30 | V |
| Maximum RMS voltage | $\mathrm{V}_{\text {RMS }}$ | 14 | 21 | V |
| Maximum DC blocking voltage | $V_{D C}$ | 20 | 30 | V |
| Maximum average forward rectified current at $\mathrm{T}_{\mathrm{L}}=105^{\circ} \mathrm{C}$ (fig. 1) | $\mathrm{IF}_{\text {F }}$ | 1.5 |  | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{\text {FSM }}$ | 50 |  | A |
| Voltage rate of change (rated $\mathrm{V}_{\mathrm{R}}$ ) | dV/dt | 10000 |  | V/us |
| Operating junction temperature range | $\mathrm{T}_{\mathrm{J}}$ | -55 to +125 |  | ${ }^{\circ} \mathrm{C}$ |
| Storage temperature range | $\mathrm{T}_{\text {STG }}$ | -55 to +150 |  | ${ }^{\circ} \mathrm{C}$ |


| PARAMETER | TEST CONDITIONS |  | SYMBOL | SL12 | SL13 | UNIT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Maximum instantaneous forward voltage | $\mathrm{I}_{\mathrm{F}}=0.1 \mathrm{~A}$ | $\mathrm{T}_{\mathrm{A}}=125^{\circ} \mathrm{C}$ | $V_{F}{ }^{(1)}$ |  |  | V |
|  | $\mathrm{I}_{\mathrm{F}}$ | $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ |  |  |  |  |
|  | $\mathrm{I}_{\mathrm{F}}=1.0 \mathrm{~A}$ | $\mathrm{T}_{\mathrm{A}}=125^{\circ} \mathrm{C}$ |  |  |  |  |
|  |  | $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ |  |  |  |  |
| Maximum DC reverse current at rated DC blocking voltage |  | $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ | $\mathrm{I}_{\mathrm{R}}{ }^{(1)}$ |  |  | mA |
|  |  | $\mathrm{T}_{\mathrm{A}}=100^{\circ} \mathrm{C}$ |  |  |  |  |

## Note

${ }^{(1)}$ Pulse test: $300 \mu \mathrm{~s}$ pulse width, $1 \%$ duty cycle

| THERMAL CHARACTERISTICS $\left(\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}\right.$ unless otherwise noted) |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| PARAMETER | SYMBOL | SL12 | SL13 | UNIT |
| Maximum thermal resistance | $\mathrm{R}_{\theta \mathrm{\theta A}}{ }^{(1)}$ | 88 | ${ }^{\circ} \mathrm{C} / \mathrm{W}$ |  |
|  | $\mathrm{R}_{\theta \mathrm{JL}}{ }^{(1)}$ | 28 |  |  |

## Note

${ }^{(1)}$ PCB mounted on $0.2^{\prime \prime} \times 0.2^{\prime \prime}(5.0 \mathrm{~mm} \times 5.0 \mathrm{~mm})$ copper pad areas

## ORDERING INFORMATION (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| :--- | :---: | :---: | :---: | :---: |
| SL13-M3/61T | 0.064 | $61 T$ | 1800 | 7 " diameter plastic tape and reel |
| SL13-M3/5AT | 0.064 | $5 A T$ | 7500 | $13^{\prime \prime}$ diameter plastic tape and reel |

RATINGS AND CHARACTERISTICS CURVES $\left(\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}\right.$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve


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

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Fig. 3 - Typical Instantaneous Forward Characteristics


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-214AC (SMA)


## Mounting Pad Layout



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