AUTOMOTIVE GRADE

RoHS

COMPLIANT



Vishay General Semiconductor

High Current Density Surface-Mount Schottky Rectifier



SMA (DO-214AC)



LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | | | | | | |
|-------------------------|----------------|--|--|--|--|--|
| I _{F(AV)} | 2.0 A | | | | | |
| V _{RRM} | 30 V, 40 V | | | | | |
| I _{FSM} | 60 A | | | | | |
| E _{AS} | 11.25 mJ | | | | | |
| V _F | 0.38 V, 0.42 V | | | | | |
| T _J max. | 150 °C | | | | | |
| Package | SMA (DO-214AC) | | | | | |
| Circuit configuration | Single | | | | | |

FEATURES

- Low profile package
- · Ideal for automated placement
- · Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- · High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,.....)

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

E3 suffix meets JESD 201 class 2 whisker test, HE3 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 | SSA23L | SSA24 | UNIT | |
| Device marking code | | 23L S24 | | V | |
| Maximum repetitive peak reverse voltage | V _{RRM} | 30 | 40 | V | |
| Maximum RMS voltage | V _{RMS} | 21 | 28 | V | |
| Maximum DC blocking voltage | V_{DC} | 30 | 40 | V | |
| Maximum average forward rectified current at T _L (fig. 1) | I _{F(AV)} | 2.0 | | Α | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I _{FSM} | 60 | | А | |
| Non-repetitive avalanche energy at T _A = 25 °C, I _{AS} = 1.5 A, L = 10 mH | E _{AS} | 11.25 | | mJ | |
| Voltage rate of change (rated V _R) | dV/dt | 10 000 | | V/µs | |
| Operating junction temperature range | TJ | -65 to +150 | | °C | |
| Storage temperature range | T _{STG} | -65 to +150 | | | |



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| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | |
|---|-----------------|-------------------------|----------------|----------------|------|-------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | SSA23L | | SSA24 | | UNIT |
| PARAMETER | | | | TYP. | MAX. | TYP. | MAX. | UNII |
| Maximum instantaneous forward voltage (1) | 2.0 A | T _J = 25 °C | V _F | 0.43 | 0.45 | 0.45 | 0.49 | V |
| | 2.0 A | T _J = 125 °C | C VF | V _F | 0.32 | 0.38 | 0.36 | 0.42 |
| Maximum rayaraa aurrant at rated V (2) | | T _J = 25 °C | | - | 0.5 | - | 0.2 | mA |
| Maximum reverse current at rated V _R ⁽²⁾ | | T _J = 125 °C | IR | 15 | 25 | 12 | 20 | IIIA |

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 $\,\%$ duty cycle

(2) Pulse test: Pulse width \leq 40 ms

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | |
|---|-----------------|--------|-------|------|--|
| PARAMETER | SYMBOL | SSA23L | SSA24 | UNIT | |
| Typical thermal resistance (1) | $R_{\theta JA}$ | 110 | | °C/W | |
| Typical thermal resistance (9 | $R_{\theta JL}$ | 28 | | | |

Note

(1) Aluminum substrate mounted

| ORDERING INFORMATION (Example) | | | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|--|--|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE | | |
| SSA23L-E3/61T | 0.064 | 61T | 1800 | 7" diameter plastic tape and reel | | |
| SSA23L-E3/5AT | 0.064 | 5AT | 7500 | 13" diameter plastic tape and reel | | |
| SSA23LHE3_A/H (1) | 0.064 | Н | 1800 | 7" diameter plastic tape and reel | | |
| SSA23LHE3_A/I (1) | 0.064 | I | 7500 | 13" diameter plastic tape and reel | | |

Note

(1) AEC-Q101 qualified



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

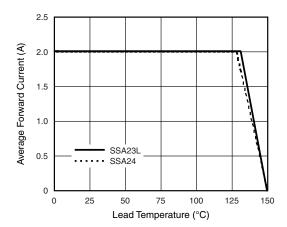


Fig. 1 - Forward Current Derating Curve

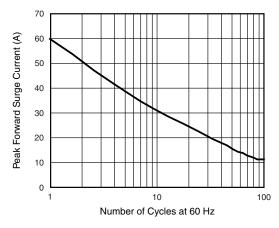


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

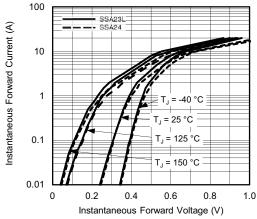


Fig. 3 - Typical Instantaneous Forward Characteristics

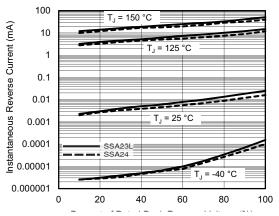


Fig. 4 - Typical Reverse Characteristics

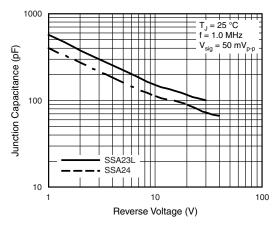


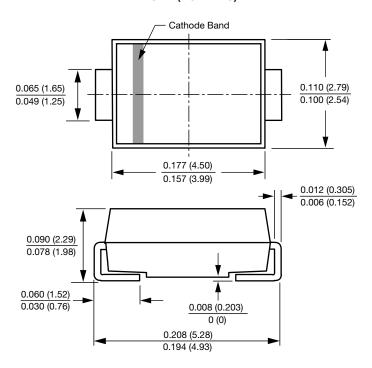
Fig. 5 - Typical Junction Capacitance

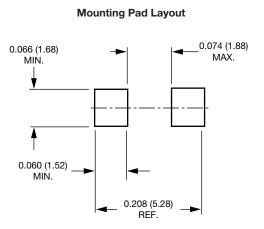


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)







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