AUTOMOTIVE GRADE

RoHS

COMPLIANT



## Vishay General Semiconductor

# **High Current Density Surface-Mount Schottky Rectifier**



**SMA (DO-214AC)** 



### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS						
I <sub>F(AV)</sub>	2.0 A					
V <sub>RRM</sub>	30 V, 40 V					
I <sub>FSM</sub>	60 A					
E <sub>AS</sub>	11.25 mJ					
V <sub>F</sub>	0.38 V, 0.42 V					
T <sub>J</sub> 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 <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### **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 <sub>A</sub> = 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 <sub>L</sub> (fig. 1)	I <sub>F(AV)</sub>	2.0		Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	60		А	
Non-repetitive avalanche energy at $T_A = 25$ °C, $I_{AS} = 1.5$ A, $L = 10$ mH	E <sub>AS</sub>	11.25		mJ	
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000		V/µs	
Operating junction temperature range	TJ	-65 to +150		°C	
Storage temperature range	T <sub>STG</sub>	-65 to +150		°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 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 <sub>J</sub> = 25 °C	V <sub>F</sub>	0.43	0.45	0.45	0.49	V
	2.0 A	T <sub>J</sub> = 125 °C	<sub>J</sub> = 125 °C	0.32	0.38	0.36	0.42	V
Maximum rayaraa aurrant at rated V (2)		T <sub>J</sub> = 25 °C	- I <sub>R</sub>	-	0.5	-	0.2	mA
Maximum reverse current at rated V <sub>R</sub> <sup>(2)</sup>		T <sub>J</sub> = 125 °C		15	25	12	20	IIIA

#### Notes

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

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

THERMAL CHARACTERISTICS (T <sub>A</sub> = 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<sub>A</sub> = 25 °C unless otherwise noted)

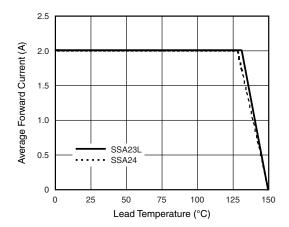


Fig. 1 - Forward Current Derating Curve

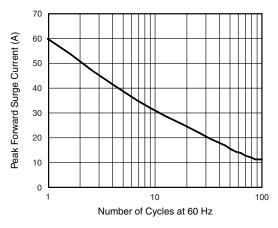


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

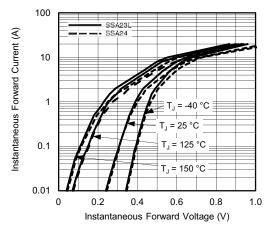


Fig. 3 - Typical Instantaneous Forward Characteristics

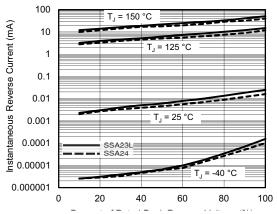


Fig. 4 - Typical Reverse Characteristics

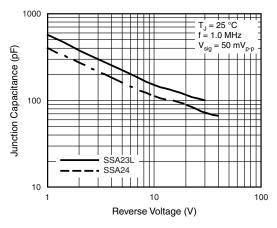


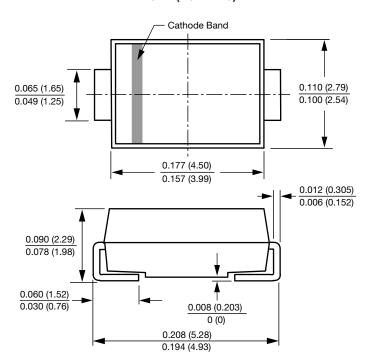
Fig. 5 - Typical Junction Capacitance

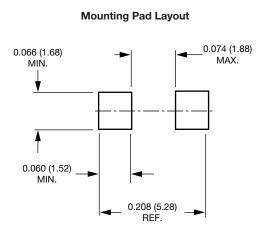


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### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

### SMA (DO-214AC)







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