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Vishay General Semiconductor

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



SMC (DO-214AB)

Cathode O Anode

## LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	5.0 A				
V <sub>RRM</sub>	30 V, 40 V				
I <sub>FSM</sub>	175 A				
V <sub>F</sub>	0.38 V, 0.42 V				
T <sub>J</sub> max.	150 °C				
Package	SMC (DO-214AB)				
Circuit configuration	Single				

## **FEATURES**

- Low profile package
- · Ideal for automated placement
- Guardring for overvoltage protection
- · 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 °C
- AEC-Q101 gualified available
- 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: SMC (DO-214AB)

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 the cathode end

<b>MAXIMUM RATINGS</b> ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	SSC53L	SSC54	UNIT	
Device marking code		53L	S54		
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	30	40	V	
Maximum RMS voltage	V <sub>RMS</sub>	21	28	V	
Maximum DC blocking voltage	V <sub>DC</sub>	30	40	V	
Maximum average forward rectified current at $T_L$ (fig. 1)	I <sub>F(AV)</sub>	5.0		А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	175		А	
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			



RoHS

COMPLIANT



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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SSC53L		SSC54		UNIT
FARAMETER				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage <sup>(1)</sup>	5.0 A	T <sub>J</sub> = 25 °C	VF	0.42	0.45	0.45	0.49	v
	3.0 A	T <sub>J</sub> = 125 °C	۷F	0.33	0.38	0.36	0.42	
Maximum reverse current at rated $V_{B}$ <sup>(2)</sup>		T <sub>J</sub> = 25 °C		-	0.7	-	0.5	mA
Maximum reverse current at rated v <sub>R</sub> V	TJ	T <sub>J</sub> = 125 °C	IR	45	65	40	60	ШA

#### Notes

<sup>(1)</sup> Pulse test: 300 µs pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq$  40 ms

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	SSC53L	SSC54	UNIT		
Typical thermal resistance (1)	$R_{\theta JA}$	60		°C/W		
	$R_{ ext{ heta}JL}$	20				

#### Note

<sup>(1)</sup> Aluminum substrate mounted

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SSC53L-E3/57T	0.235	57T	850	7" diameter plastic tape and reel		
SSC53L-E3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel		
SSC53LHE3_A/H <sup>(1)</sup>	0.235	Н	850	7" diameter plastic tape and reel		
SSC53LHE3_A/I <sup>(1)</sup>	0.235	I	3500	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)

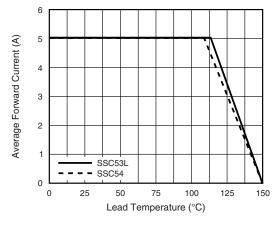


Fig. 1 - Forward Current Derating Curve

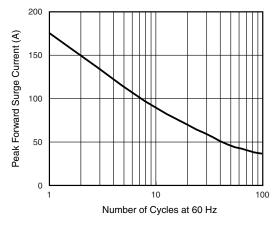


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

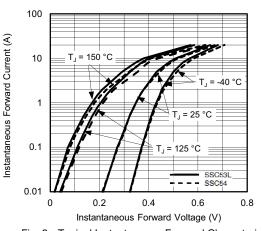
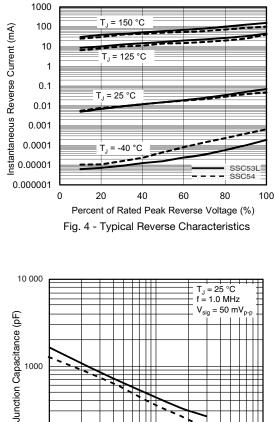
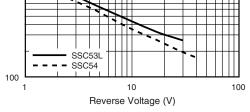


Fig. 3 - Typical Instantaneous Forward Characteristics







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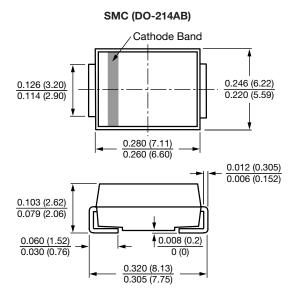
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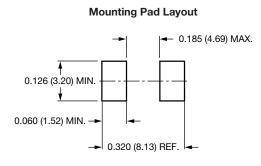
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## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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