COMPLIANT

HALOGEN

FREE



# Vishay General Semiconductor

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



**SMB (DO-214AA)** 

PRIMARY CHARACTERISTICS						
I <sub>F(AV)</sub>	4.0 A					
$V_{RRM}$	30 V, 40 V					
I <sub>FSM</sub>	100 A					
V <sub>F</sub>	0.38 V, 0.42 V					
T <sub>J</sub> max.	150 °C					
Package	SMB (DO-214AA)					
Diode variations	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 qualified available
  - Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

### TYPICAL APPLICATIONS

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

### **MECHANICAL DATA**

Case: SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/N-M3 - halogen-free, RoHS-compliant, commercial

grade

Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified Base P/NHM3\_X - halogen-free, 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, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SSB43L	SSB44	UNIT	
Device marking code		43L	S44		
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	
Max. average forward rectified current at T <sub>L</sub> (fig. 1)	I <sub>F(AV)</sub>	4.0		А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100		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	°C		



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SSB43L		SSB44		UNIT
FARAINETER				TYP.	MAX.	TYP.	MAX.	ONII
Maximum instantaneous forward voltage (1)	4.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.43	0.45	0.45	0.49	V
	4.0 A	T <sub>J</sub> = 125 °C		VF	0.33	0.38	0.37	0.42
Maximum reverse current at rated V <sub>B</sub> <sup>(2)</sup>		T <sub>J</sub> = 25 °C	_	- 0.6	ı	0.4	mA	
waxiinum reverse current at rated $v_R \leftarrow$	T <sub>J</sub> =	T <sub>J</sub> = 125 °C	I <sub>R</sub>	35	45	25	40	IIIA

### **Notes**

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SSB43L	SSB44	UNIT	
Typical thermal resistance (1)	$R_{\theta JA}$	70		°C/W	
Typical triefmai resistance (*)	$R_{\theta JL}$	2	3	C/VV	

#### Note

(1) Aluminum substrate mounted

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SSB43L-E3/52T	0.096	52T	750	7" diameter plastic tape and reel		
SSB43L-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel		
SSB43LHE3_A/H (1)	0.096	Н	750	7" diameter plastic tape and reel		
SSB43LHE3_A/I (1)	0.096	I	3200	13" diameter plastic tape and reel		
SSB43L-M3/52T	0.096	52T	750	7" diameter plastic tape and reel		
SSB43L-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel		
SSB43LHM3_A/H (1)	0.096	Н	750	7" diameter plastic tape and reel		
SSB43LHM3_A/I (1)	0.096	I	3200	13" diameter plastic tape and reel		

## Note

## RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

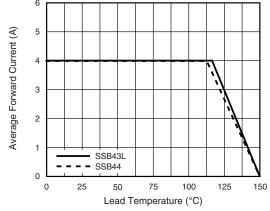


Fig. 1 - Forward Current Derating Curve

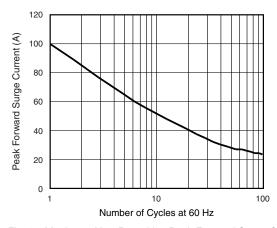


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

<sup>(1)</sup> AEC-Q101 qualified



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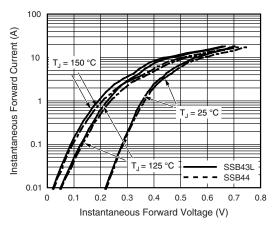


Fig. 3 - Typical Instantaneous Forward Characteristics

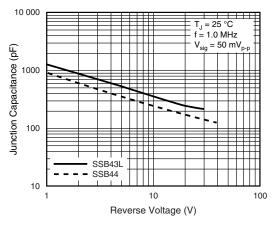


Fig. 5 - Typical Junction Capacitance

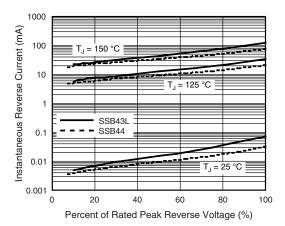
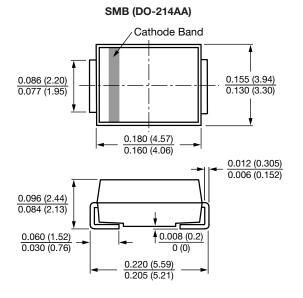
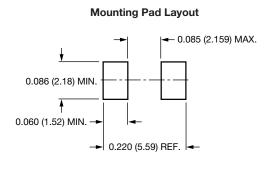


Fig. 4 - Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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