ROHS

HALOGEN

FREE



# High Voltage Surface-Mount Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



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SMB (DO-214AA)

Cathode O Anode

## LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	2.0 A			
V <sub>RRM</sub>	90 V, 100 V			
I <sub>FSM</sub>	75 A			
V <sub>F</sub>	0.65 V			
I <sub>R</sub>	10 µA			
T <sub>J</sub> max.	175 °C			
Package	SMB (DO-214AA)			
Circuit configuration	Single			

### FEATURES

## Low profile package

- Guardring for overvoltage protection
- Ideal for automated placement
- Low power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260  $^\circ\mathrm{C}$
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHE3 or P/NHM3
- 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: 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 the cathode end

PARAMETER	SYMBOL	SS2H9	SS2H10	UNIT
Device marking code		MS9 MS10		
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	90 100		V
Working peak reverse voltage	V <sub>RWM</sub>	90 100		V
Maximum DC blocking voltage	V <sub>DC</sub>	90 100		V
Maximum average forward rectified current at: $T_L$ = 130 °C	I <sub>F(AV)</sub>	2.0		А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	75		A
Peak repetitive reverse surge current at $t_p = 2.0 \ \mu s$ , 1 kHz	I <sub>RRM</sub>	1.0		А
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000		V/µs
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175		°C

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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SS2H9	SS2H10	UNIT
Maximum instantaneous forward voltage (1)	I <sub>F</sub> = 2.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.79 0.65		v
		T <sub>J</sub> = 125 °C				
Maximum reverse current at rated $V_{B}$ <sup>(2)</sup>		T <sub>J</sub> = 25 °C	- I <sub>R</sub>	10		μA
Maximum reverse current at rated VR		T <sub>J</sub> = 125 °C		2	1	mA

Notes

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 $^{(1)}\,$  Pulse test: 300  $\mu s$  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	SS2H9	SS2H10	UNIT		
Maximum thermal resistance junction-to-lead $T_1 = 25 \text{ °C}^{(1)}$	R <sub>θJA</sub>	80		°C/W		
	$R_{ ext{ heta}JL}$	25				

#### Note

 $^{(1)}\,$  Units mounted on PCB with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SS2H10-E3/52T	0.096	52T	750	7" diameter plastic tape and reel	
SS2H10-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel	
SS2H10HE3_A/H (1)	0.096	Н	750	7" diameter plastic tape and reel	
SS2H10HE3_A/I (1)	0.096	I	3200	13" diameter plastic tape and reel	
SS2H10-M3/52T	0.096	52T	750	7" diameter plastic tape and reel	
SS2H10-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel	
SS2H10HM3_A/H (1)	0.096	Н	750	7" diameter plastic tape and reel	
SS2H10HM3_A/I (1)	0.096	I	3200	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)

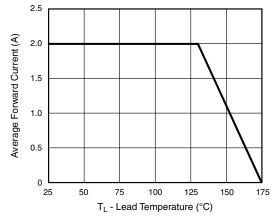


Fig. 1 - Forward Current Derating Curve

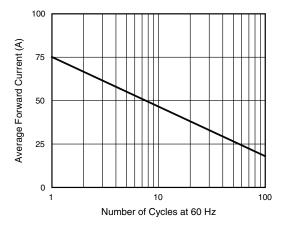


Fig. 2 - Max Non-Repetitive Peak Forward Surge Current

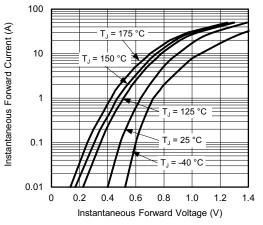


Fig. 3 - Typical Instanteous Forward Characteristics

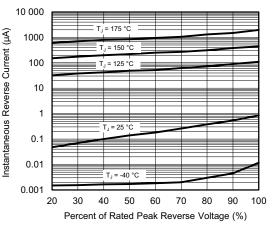


Fig. 4 - Typical Reverse Characteristics

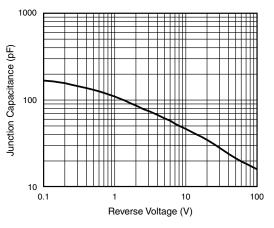


Fig. 5 - Typical Junction Capacitance

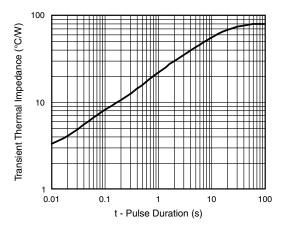


Fig. 6 - Typical Transient Thermal Impedance Per Leg

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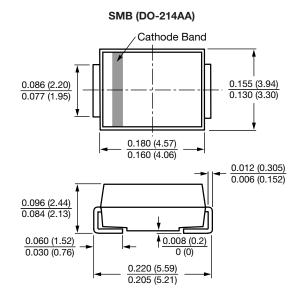
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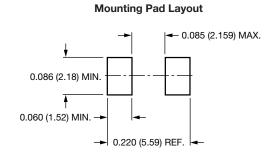
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## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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