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## Vishay General Semiconductor

AUTOMOTIVE GRADE

RoHS

COMPLIANT

HALOGEN

FREE

# **Surface-Mount Schottky Barrier Rectifier**



**SMC (DO-214AB)** 



### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS						
I <sub>F(AV)</sub>	3.0 A					
V <sub>RRM</sub>	20 V, 30 V, 40 V, 50 V, 60 V					
I <sub>FSM</sub>	100 A					
EAS	20 mJ					
V <sub>F</sub>	0.5 V, 0.75 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
- 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">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: SMC (DO-214AB)

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

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	SS32	SS33	SS34	SS35	SS36	UNIT
Device marking code		S2	S3	S4	S5	S6	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	V
Maximum RMS voltage	$V_{RMS}$	14	21	28	35	42	V
Maximum DC blocking voltage	$V_{DC}$	20	30	40	50	60	V
Maximum average forward rectified current at T <sub>L</sub> (fig. 1)	I <sub>F(AV)</sub>	3.0					Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100				А	
Non-repetitive avalanche energy at $T_A = 25$ °C, $I_{AS} = 2.0$ A, $L = 10$ mH	E <sub>AS</sub>	20				mJ	
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000				V/µs	
Operating junction temperature range	TJ	-55 to +150			°C		
Storage temperature range	T <sub>STG</sub>	-55 to +150			°C		



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST C	ONDITIONS	SYMBOL	SS32	SS33	SS34	SS35	SS36	UNIT
Maximum instantaneous forward voltage (1)	3.0 A		V <sub>F</sub>	0.5		0.	75	V	
Maximum DC reverse current		T <sub>A</sub> = 25 °C	I_	0.5			mA		
at rated DC blocking voltage (1)		T <sub>A</sub> = 100 °C	I <sub>R</sub>		20		1	0	IIIA

#### Note

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

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	SS32	SS33	SS34	SS35	SS36	UNIT
Typical thermal resistance (1)	$R_{\theta JA}$	55					°C/W
Typical trieffilal resistance (**)	$R_{\theta JL}$	17					C/ VV

#### Note

 $^{(1)}\,$  PCB mounted with 0.55" x 0.55" (14 mm x 14 mm) copper pad areas

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
SS36-E3/57T	0.235	57T	850	7" diameter plastic tape and reel				
SS36-E3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel				
SS36HE3_B/H (1)	0.235	Н	850	7" diameter plastic tape and reel				
SS36HE3_B/I (1)	0.235	I	3500	13" diameter plastic tape and reel				
SS36-M3/57T	0.235	57T	850	7" diameter plastic tape and reel				
SS36-M3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel				
SS36HM3_A/H (1)	0.235	Н	850	7" diameter plastic tape and reel				
SS36HM3_A/I (1)	0.235	I	3500	13" diameter plastic tape and reel				

#### Note

(1) AEC-Q101 qualified

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

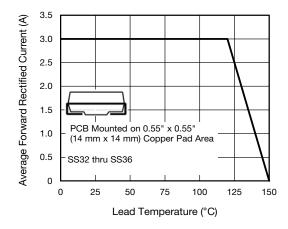


Fig. 1 - Forward Current Derating Curve

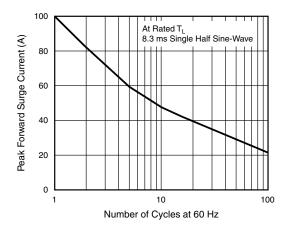


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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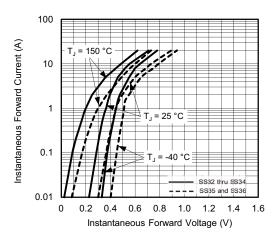


Fig. 3 - Typical Instantaneous Forward Characteristics

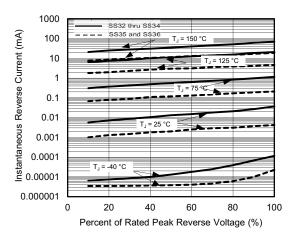


Fig. 4 - Typical Reverse Current Characteristics

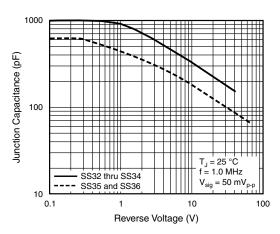


Fig. 5 - Typical Junction Capacitance

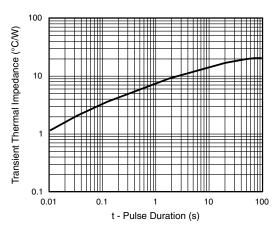
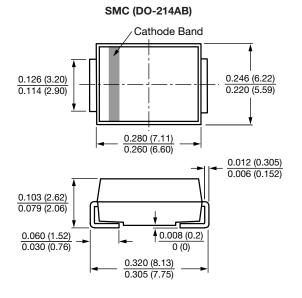
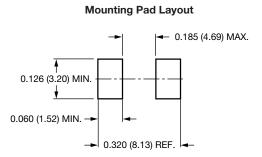


Fig. 6 - Typical Transient Thermal Impedance

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







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