



**THE DATASHEET OF  
SS33HE3/9AT**



## Surface-Mount Schottky Barrier Rectifier


**SMC (DO-214AB)**

Cathode Anode

### LINKS TO ADDITIONAL RESOURCES



Design Tools



Related Documents



3D Models



SPICE Models



Application Notes



Marking

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	20 V, 30 V, 40 V, 50 V, 60 V
$I_{FSM}$	100 A
EAS	20 mJ
$V_F$	0.5 V, 0.75 V
$T_J$ 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 [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS COMPLIANT**  
 HALOGEN FREE  
 Available

### 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 ( $T_A = 25\text{ °C}$ 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 $T_L$ (fig. 1)	$I_{F(AV)}$	3.0						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100						A
Non-repetitive avalanche energy at $T_A = 25\text{ °C}$ , $I_{AS} = 2.0\text{ A}$ , $L = 10\text{ mH}$	$E_{AS}$	20						mJ
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000						V/ $\mu$ s
Operating junction temperature range	$T_J$	-55 to +150						°C
Storage temperature range	$T_{STG}$	-55 to +150						°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS	SYMBOL	SS32	SS33	SS34	SS35	SS36	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	3.0 A	V <sub>F</sub>	0.5			0.75		V
Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>	T <sub>A</sub> = 25 °C	I <sub>R</sub>	0.5					mA
	T <sub>A</sub> = 100 °C		20		10			

**Note**

<sup>(1)</sup> Pulse test: 300 μs 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 <sup>(1)</sup>	R <sub>θJA</sub>	55					°C/W	
	R <sub>θJL</sub>	17						

**Note**

<sup>(1)</sup> 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 <sup>(1)</sup>	0.235	H	850	7" diameter plastic tape and reel
SS36HE3_B/I <sup>(1)</sup>	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 <sup>(1)</sup>	0.235	H	850	7" diameter plastic tape and reel
SS36HM3_A/I <sup>(1)</sup>	0.235	I	3500	13" diameter plastic tape and reel

**Note**

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

**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

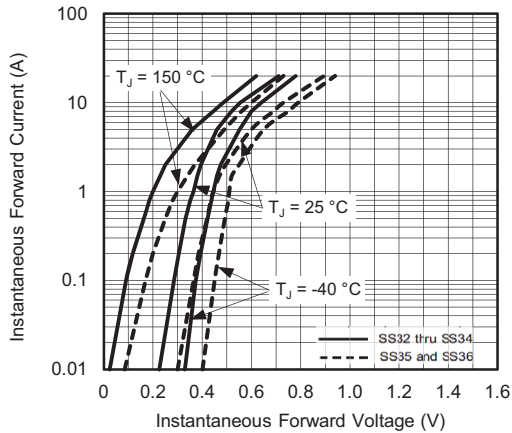


Fig. 3 - Typical Instantaneous Forward Characteristics



Fig. 5 - Typical Junction Capacitance

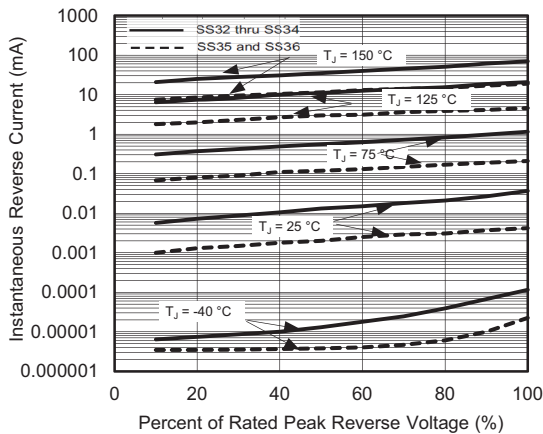
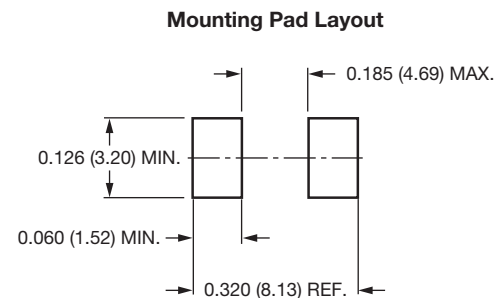
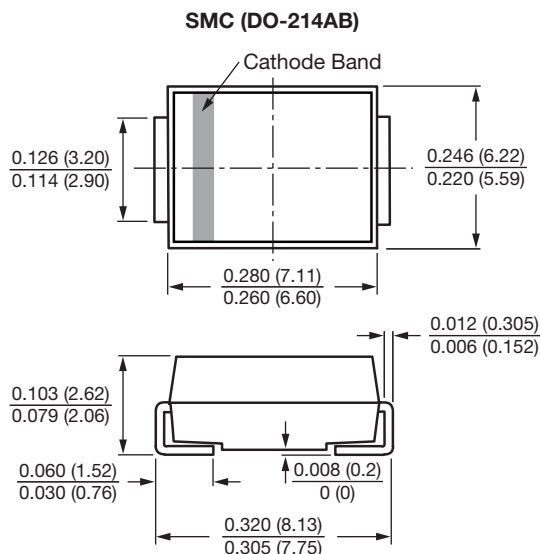


Fig. 4 - Typical Reverse Current Characteristics



Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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