

## Surface Mount Schottky Barrier Rectifier


**SMC (DO-214AB)**

**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**  
 Available

### 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)

### 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, .....) )

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**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

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)
Diode variations	Single

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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	SS32	SS33	SS34	SS35	SS36	UNIT	
Maximum instantaneous forward voltage <sup>(1)</sup>	3.0 A	$V_F$	0.5			0.75		V	
Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	0.5						mA
	$T_A = 100\text{ }^\circ\text{C}$		20			10			

**Note**
<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	SS32	SS33	SS34	SS35	SS36	UNIT	
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	55						$^\circ\text{C/W}$
	$R_{\theta JL}$	17						

**Note**
<sup>(1)</sup> PCB mounted with 0.55" x 0.55" (14 mm x 14 mm) copper pad areas

<b>ORDERING INFORMATION</b> (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_A/H <sup>(1)</sup>	0.235	H	850	7" diameter plastic tape and reel
SS36HE3_A/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

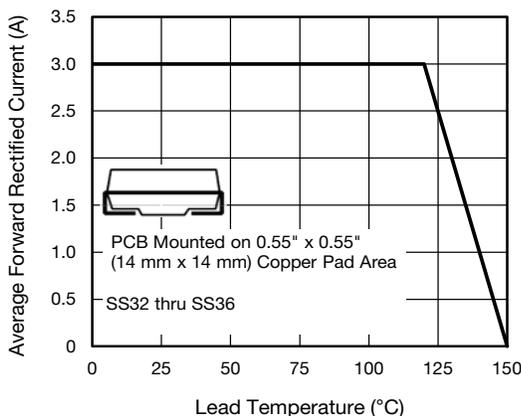
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

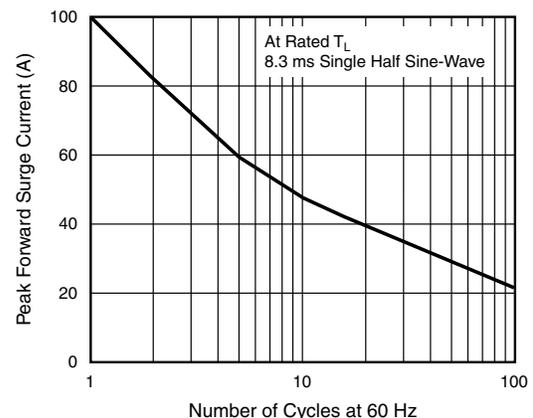


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

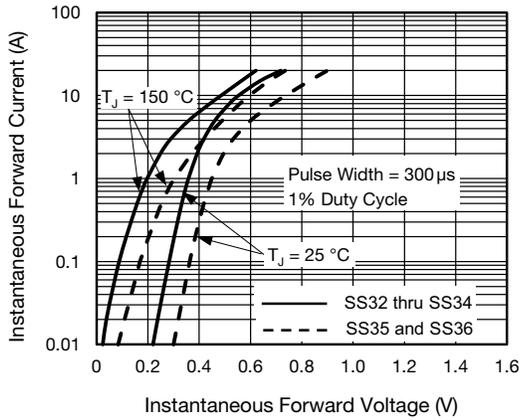


Fig. 3 - Typical Instantaneous Forward Characteristics

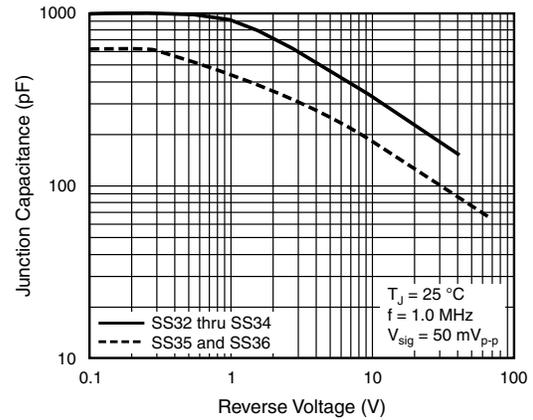


Fig. 5 - Typical Junction Capacitance

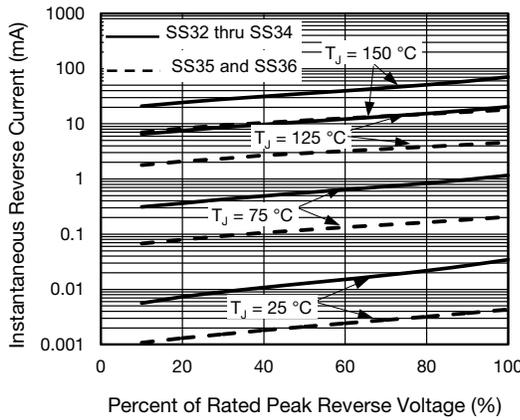


Fig. 4 - Typical Reverse Current Characteristics

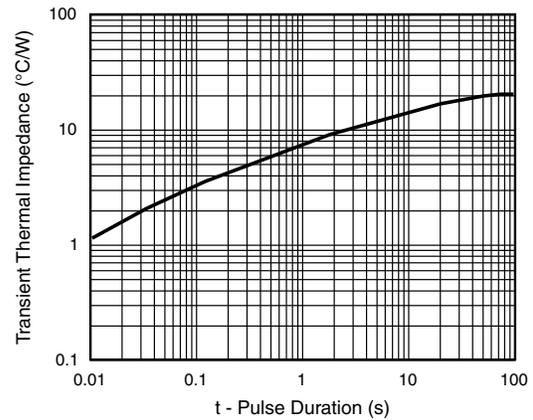
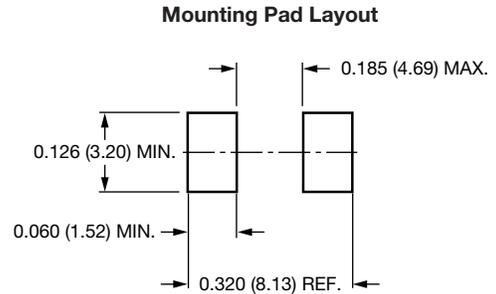
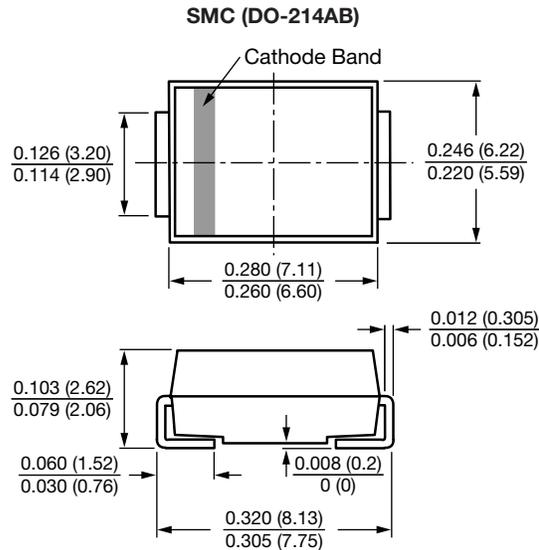


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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