



# THE DATASHEET OF SL42-M3/9AT





# Surface-Mount Schottky Barrier Rectifier



SMC (DO-214AB)



### LINKS TO ADDITIONAL RESOURCES



### 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 [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, .....)  
**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	
$I_{F(AV)}$	4.0 A
$V_{RRM}$	20 V, 30 V, 40 V
$I_{FSM}$	150 A
$V_F$	0.31 V, 0.35 V
$T_J$ max.	125 °C
Package	SMC (DO-214AB)
Circuit configuration	Single

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	SL42	SL43	SL44	UNIT
Device marking code		SL2	SL3	SL4	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	40	V
Maximum RMS voltage	$V_{RMS}$	14	21	28	V
Maximum DC blocking voltage	$V_{DC}$	20	30	40	V
Maximum average forward rectified current <sup>(1)</sup> at $T_L$ (fig. 1)	$I_{F(AV)}$	4.0			A
		8.0			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	150			A
Operating junction temperature range	$T_J$	-55 to +125			°C
Storage temperature range	$T_{STG}$	-55 to +150			°C

**Note**  
<sup>(1)</sup> PCB mounted 0.55" x 0.55" (14 mm x 14 mm) copper pad areas,  $T_L = 90\text{ °C}$



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	SL42	SL43	SL44	UNIT
Maximum instantaneous forward voltage at <sup>(1)</sup>	I <sub>F</sub> = 4.0 A	T <sub>A</sub> = 125 °C	V <sub>F</sub>	0.31		0.35	V
		T <sub>A</sub> = 25 °C		0.42		0.44	
	I <sub>F</sub> = 8.0 A	T <sub>A</sub> = 125 °C		0.37		0.41	
		T <sub>A</sub> = 25 °C		0.47		0.50	
Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>			I <sub>R</sub>	0.5			mA
				35			

**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	SL42	SL43	SL44	UNIT
Typical thermal resistance <sup>(1)</sup>	R <sub>θJA</sub>	50			°C/W
	R <sub>θJL</sub>	14			

**Note**

<sup>(1)</sup> PCB mounted 0.55" x 0.55" (14 mm x 14 mm) copper pad areas, T<sub>L</sub> = 90 °C

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SL44-E3/57T	0.235	57T	850	7" diameter plastic tape and reel
SL44-E3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel
SL44HE3_B/H <sup>(1)</sup>	0.235	H	850	7" diameter plastic tape and reel
SL44HE3_B/I <sup>(1)</sup>	0.235	I	3500	13" diameter plastic tape and reel
SL44-M3/57T	0.235	57T	850	7" diameter plastic tape and reel
SL44-M3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel
SL44HM3_A/H <sup>(1)</sup>	0.235	H	850	7" diameter plastic tape and reel
SL44HM3_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)

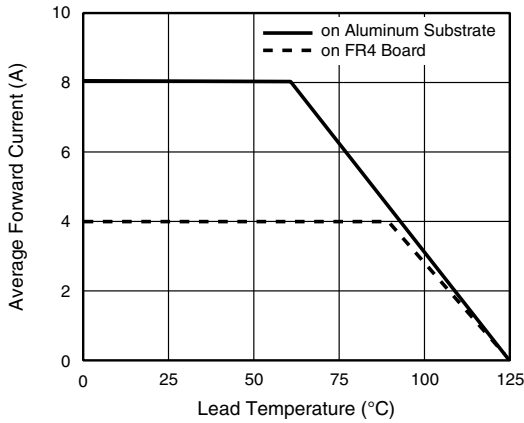


Fig. 1 - Forward Current Derating Curve

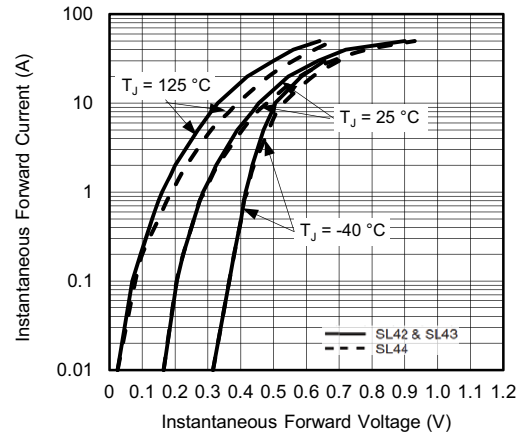


Fig. 3 - Typical Instantaneous Forward Characteristics

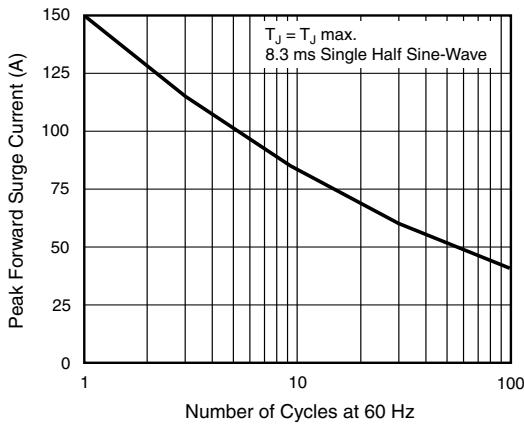


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

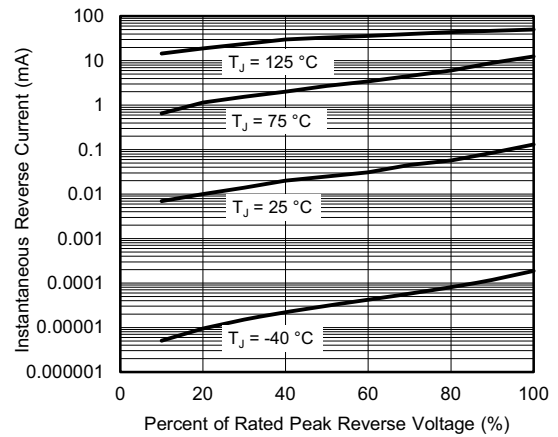


Fig. 4 - Typical Reverse Characteristics

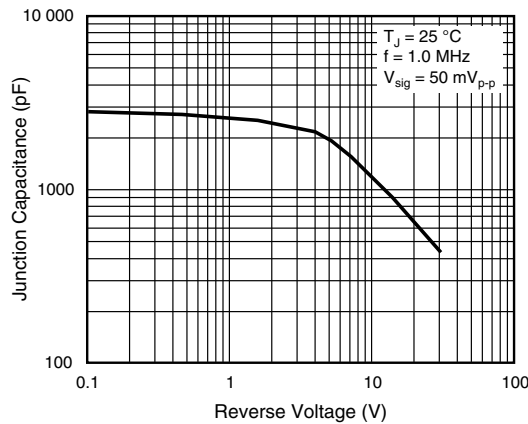
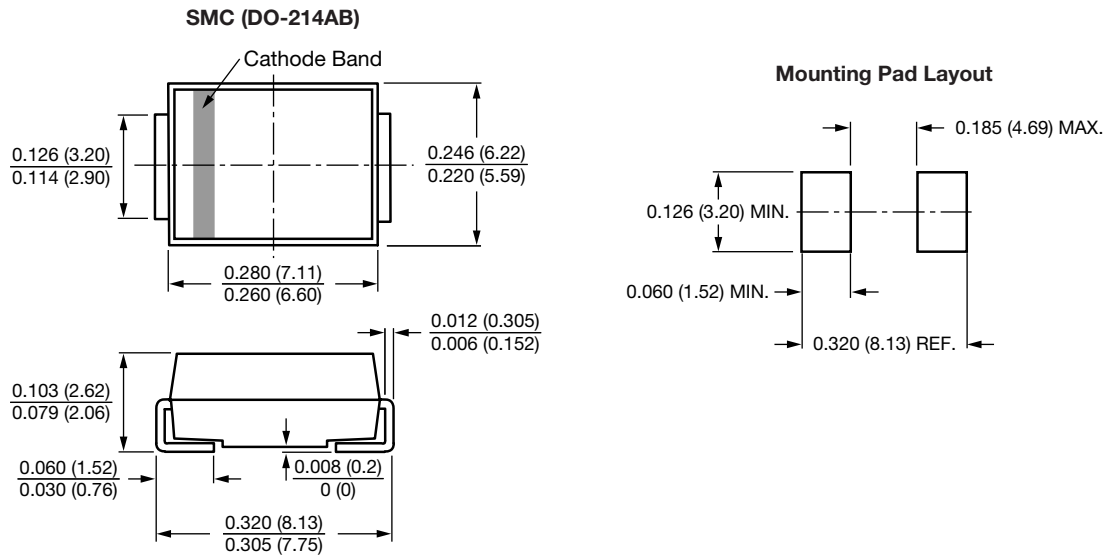


Fig. 5 - Typical Junction Capacitance



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





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