

High Current Density Surface Mount Schottky Rectifier



SMB (DO-214AA)



RoHS
COMPLIANT
HALOGEN
FREE
Available

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

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 cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	4.0 A
V_{RRM}	30 V, 40 V
I_{FSM}	100 A
V_F	0.38 V, 0.42 V
$T_J \text{ max.}$	150 °C
Package	SMB (DO-214AA)
Diode variations	Single

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SSB43L	SSB44	UNIT
Device marking code		43L	S44	
Maximum repetitive peak reverse voltage	V_{RRM}	30	40	V
Maximum RMS voltage	V_{RMS}	21	28	V
Maximum DC blocking voltage	V_{DC}	30	40	V
Max. average forward rectified current at T_L (fig. 1)	$I_{F(AV)}$	4.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	100		A
Voltage rate of change (rated V_R)	dV/dt	10 000		V/ μ s
Operating junction temperature range	T_J	-65 to +150		°C
Storage temperature range	T_{STG}	-65 to +150		°C

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

PARAMETER	TEST CONDITIONS		SYMBOL	SSB43L		SSB44		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage ⁽¹⁾	4.0 A	T _J = 25 °C	V _F	0.43	0.45	0.45	0.49	V
		T _J = 125 °C		0.33	0.38	0.37	0.42	
Maximum reverse current at rated V _R ⁽²⁾		T _J = 25 °C	I _R	-	0.6	-	0.4	mA
		T _J = 125 °C		35	45	25	40	

Notes⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle⁽²⁾ Pulse test: Pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	SSB43L	SSB44	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA}	70		°C/W
	R _{θJL}	23		

Note⁽¹⁾ Aluminum substrate mounted**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SSB43L-E3/52T	0.096	52T	750	7" diameter plastic tape and reel
SSB43L-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel
SSB43LHE3_A/H ⁽¹⁾	0.096	H	750	7" diameter plastic tape and reel
SSB43LHE3_A/I ⁽¹⁾	0.096	I	3200	13" diameter plastic tape and reel
SSB43L-M3/52T	0.096	52T	750	7" diameter plastic tape and reel
SSB43L-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel
SSB43LHM3_A/H ⁽¹⁾	0.096	H	750	7" diameter plastic tape and reel
SSB43LHM3_A/I ⁽¹⁾	0.096	I	3200	13" diameter plastic tape and reel

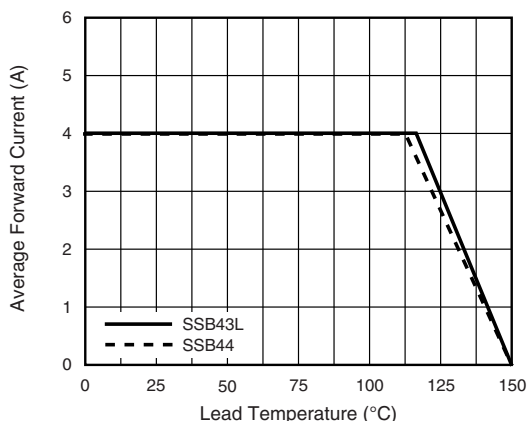
Note⁽¹⁾ AEC-Q101 qualified**RATINGS AND CHARACTERISTICS CURVES** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

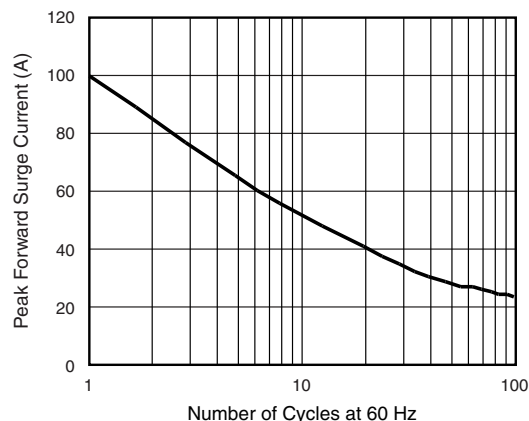


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

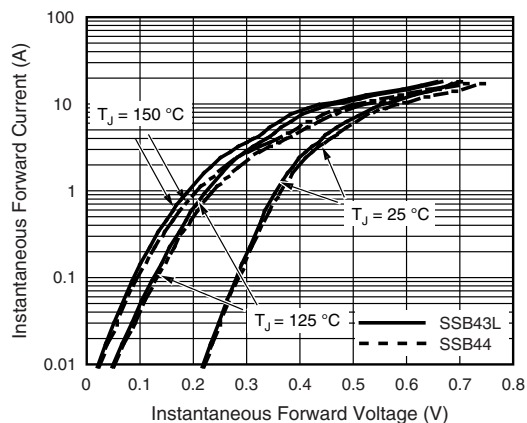


Fig. 3 - Typical Instantaneous Forward Characteristics

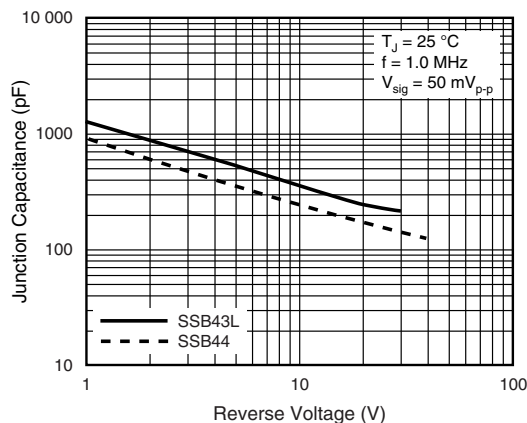


Fig. 5 - Typical Junction Capacitance

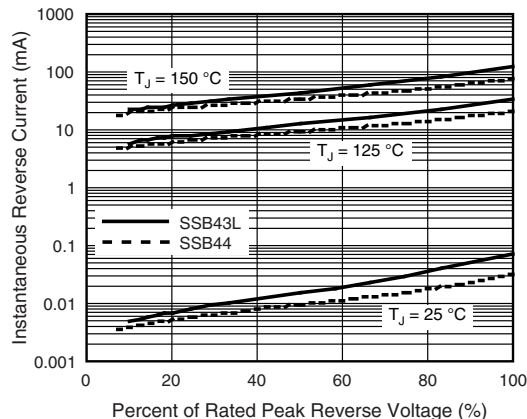
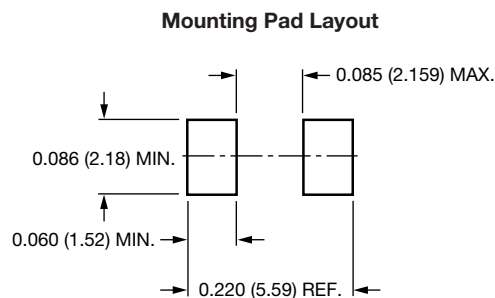
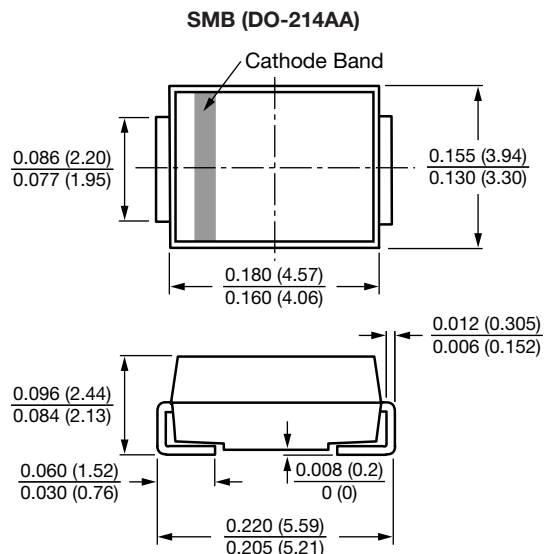


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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