

High-Current Density Surface Mount Schottky Rectifier



DO-214AB (SMC)

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
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	5.0 A
V_{RRM}	30 V, 40 V
I_{FSM}	175 A
V_F	0.38 V, 0.42 V
$T_J \text{ max.}$	150 °C

MECHANICAL DATA

Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified
Base P/NHE3_X - 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 suffix meets JESD 201 class 1A whisker test, HE3 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	SSC53L	SSC54	UNIT
Device marking code		53L	S54	
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
Maximum average forward rectified current at T_L (fig. 1)	$I_{F(AV)}$	5.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	175		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	SSC53L		SSC54		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage ⁽¹⁾	5.0 A	$T_J = 25\text{ }^{\circ}\text{C}$	V_F	0.42	0.45	0.45	0.49	V
		$T_J = 125\text{ }^{\circ}\text{C}$		0.33	0.38	0.36	0.42	
Maximum reverse current at rated V_R ⁽²⁾		$T_J = 25\text{ }^{\circ}\text{C}$	I_R	-	0.7	-	0.5	mA
		$T_J = 125\text{ }^{\circ}\text{C}$		45	65	40	60	

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	SSC53L	SSC54	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA}	60		°C/W
	R _{θJL}	20		

Note

- (1) Aluminum substrate mounted

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SSC53L-E3/57T	0.235	57T	850	7" diameter plastic tape and reel
SSC53L-E3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel
SSC53LHE3/57T ⁽¹⁾	0.235	57T	850	7" diameter plastic tape and reel
SSC53LHE3/9AT ⁽¹⁾	0.235	9AT	3500	13" diameter plastic tape and reel
SSC53LHE3_A/H ⁽¹⁾	0.235	H	850	7" diameter plastic tape and reel
SSC53LHE3_A/I ⁽¹⁾	0.235	I	3500	13" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

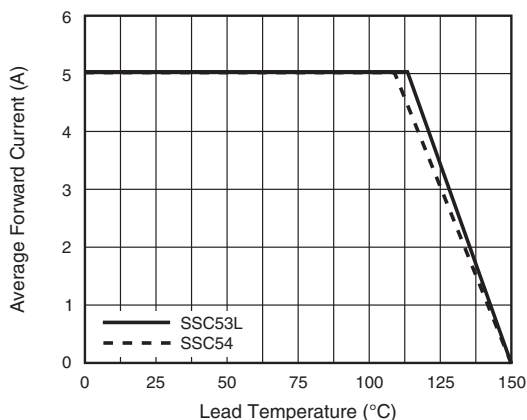


Fig. 1 - Forward Current Derating Curve

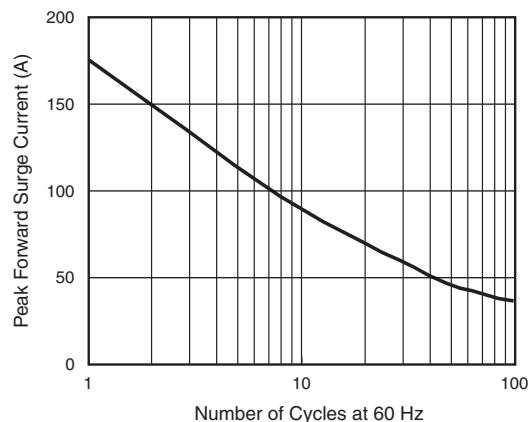


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

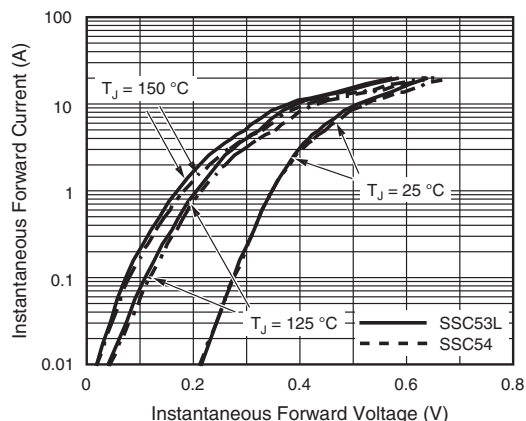


Fig. 3 - Typical Instantaneous Forward Characteristics

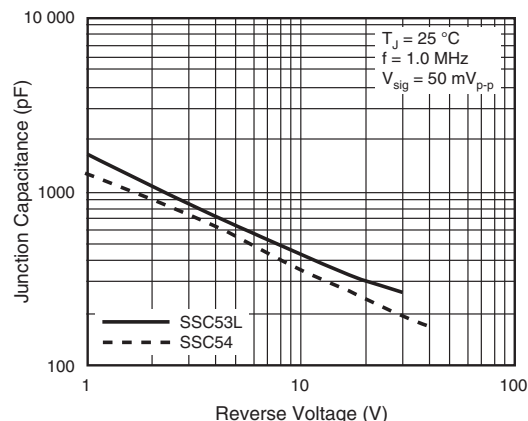


Fig. 5 - Typical Junction Capacitance

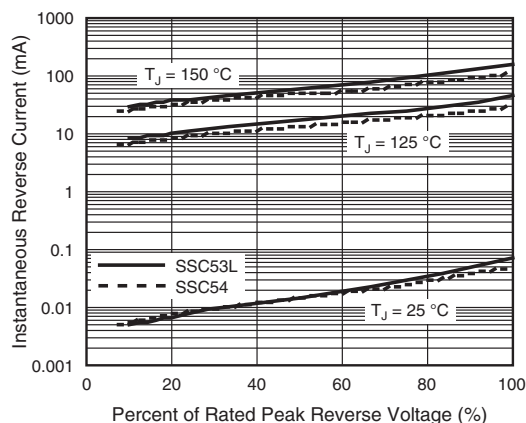
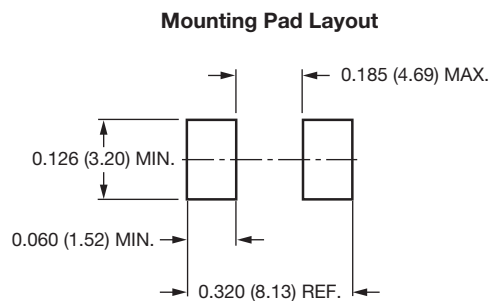
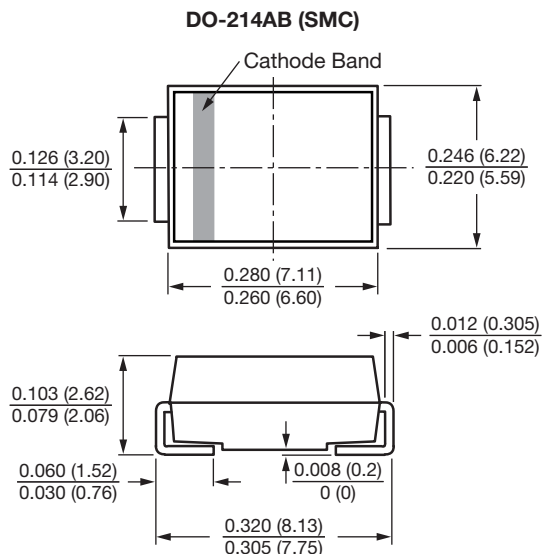


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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