

High-Current Density Surface Mount Schottky Rectifier



DO-214AC (SMA)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	30 V, 40 V
I_{FSM}	60 A
E_{AS}	11.25 mJ
V_F	0.38 V, 0.42 V
$T_J \text{ max.}$	150 °C

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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

MECHANICAL DATA

Case: DO-214AC (SMA)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), 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	SSA23L	SSA24	UNIT
Device marking code		23L	S24	V
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)	$I_{F(AV)}$	2.0		A
Peak forward surge current 8.3 ms single halfsine-wave superimposed on rated load	I_{FSM}	60		A
Non-repetitive avalanche energy at $T_A = 25\text{ °C}$, $I_{AS} = 1.5\text{ A}$, $L = 10\text{ mH}$	E_{AS}	11.25		mJ
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 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SSA23L		SSA24		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage ⁽¹⁾	2.0 A	T _J = 25 °C T _J = 125 °C	V _F	0.43 0.32	0.45 0.38	0.45 0.36	0.49 0.42	V
Maximum reverse current at rated V _R ⁽²⁾		T _J = 25 °C T _J = 125 °C	I _R	- 15	0.5 25	- 12	0.2 20	mA

Notes:

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SSA23L	SSA24	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA} R _{θJL}		110 28	°C/W

Note:

- (1) Aluminum substrate mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SSA23L-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SSA23L-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel
SSA23LHE3/61T ⁽¹⁾	0.064	61T	1800	7" diameter plastic tape and reel
SSA23LHE3/5AT ⁽¹⁾	0.064	5AT	7500	13" diameter plastic tape and reel

Note:

- (1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

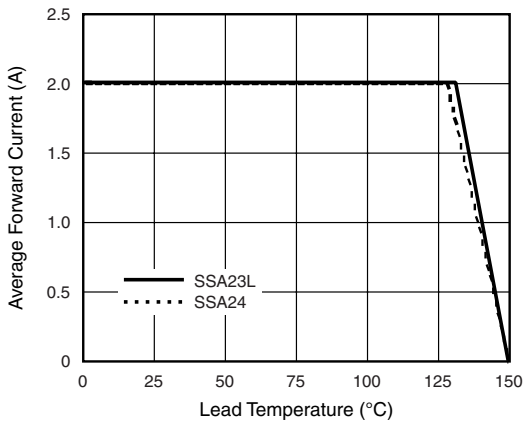


Figure 1. Forward Current Derating Curve

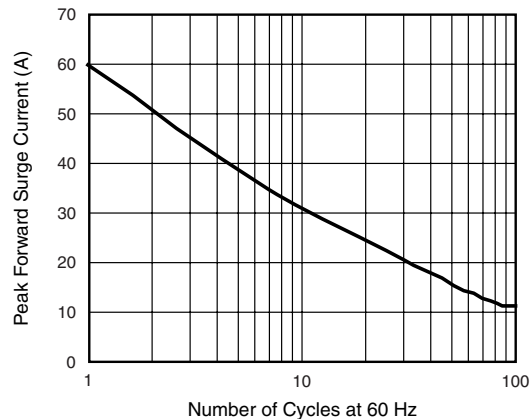


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

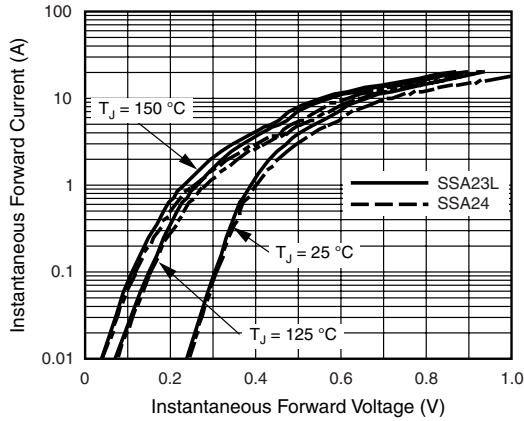


Figure 3. Typical Instantaneous Forward Characteristics

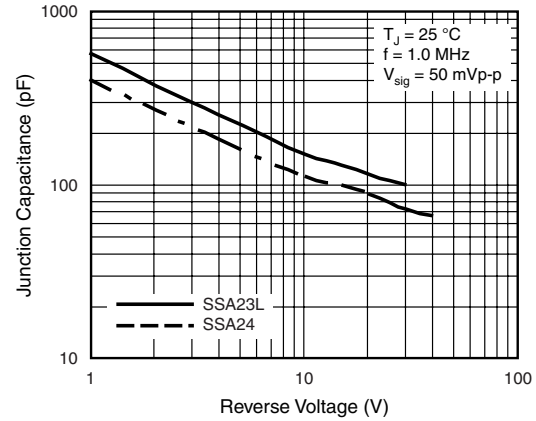


Figure 5. Typical Junction Capacitance

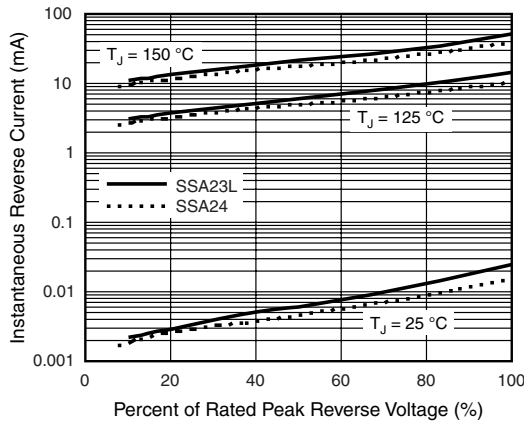
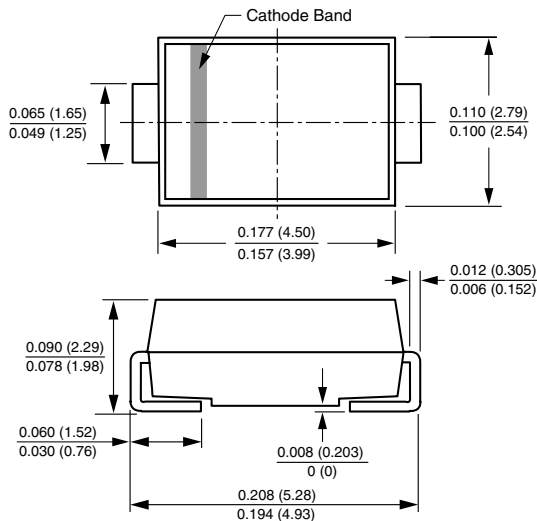


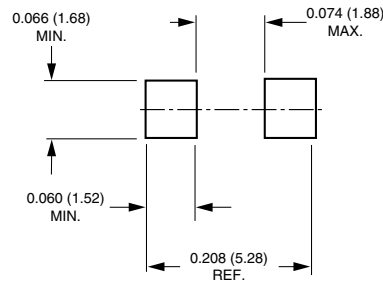
Figure 4. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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