

# Low $V_F$ Surface Mount Schottky Rectifier



DO-214AC (SMA)

## 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
- 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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.5 A
$V_{RRM}$	20 V, 30 V
$I_{FSM}$	50 A
$V_F$	0.34 V
$T_J \text{ max.}$	125 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SL12	SL13	UNIT
Device marking code		SL2	SL3	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	V
Maximum RMS voltage	$V_{RMS}$	14	21	V
Maximum DC blocking voltage	$V_{DC}$	20	30	V
Maximum average forward rectified current at $T_L = 105\text{ °C}$ (Fig. 1)	$I_{F(AV)}$	1.5		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	50		A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000		V/ $\mu$ s
Operating junction temperature range	$T_J$	- 55 to + 125		°C
Storage temperature range	$T_{STG}$	- 55 to + 150		°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SL12	SL13	UNIT
Maximum instantaneous forward voltage at <sup>(1)</sup>	I <sub>F</sub> = 0.1 A	T <sub>A</sub> = 125 °C	V <sub>F</sub>	0.230		V
	I <sub>F</sub> = 0.1 A	T <sub>A</sub> = 25 °C		0.360		
	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 125 °C		0.340		
	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 25 °C		0.445		
Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>		T <sub>A</sub> = 25 °C	I <sub>R</sub>	0.2		mA
		T <sub>A</sub> = 100 °C		6.0		

**Note:**(1) 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	SL12	SL13	UNIT
Maximum thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	88		$^{\circ}\text{C/W}$
	$R_{\theta JL}$	28		

**Note:**

(1) P.C.B. mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SL13-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SL13-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel
SL13HE3/61T <sup>(1)</sup>	0.064	61T	1800	7" diameter plastic tape and reel
SL13HE3/5AT <sup>(1)</sup>	0.064	5AT	7500	13" diameter plastic tape and reel

**Note:**

(1) Automotive grade AEC Q101 qualified

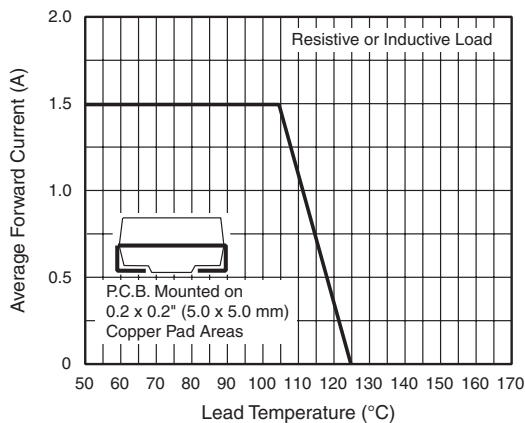
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Figure 1. Forward Current Derating Curve

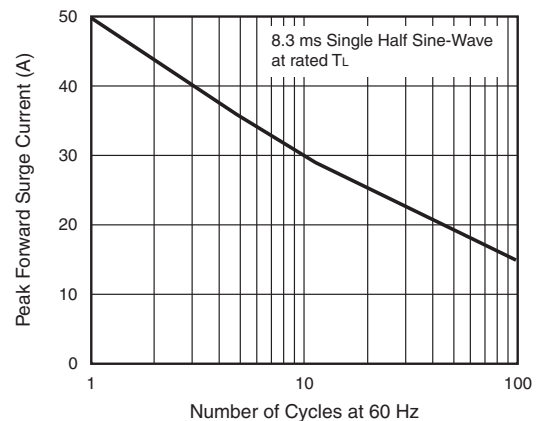


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

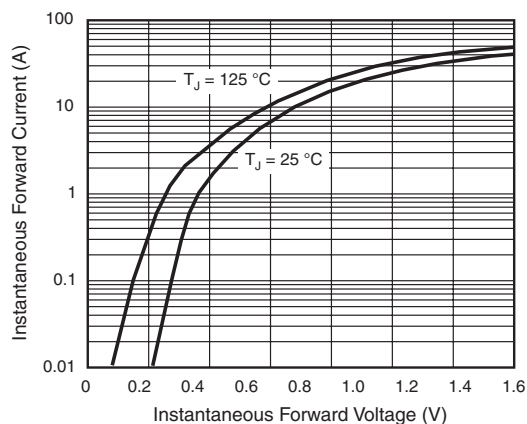


Figure 3. Typical Instantaneous Forward Characteristics

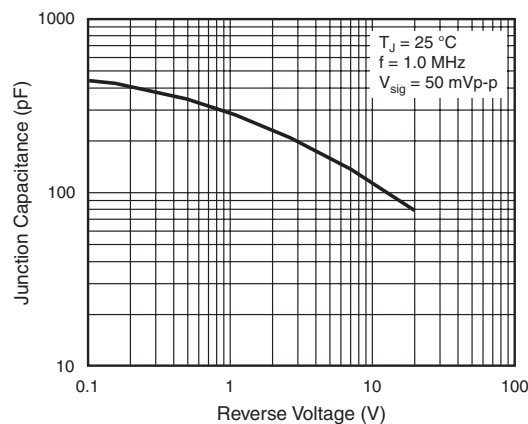


Figure 5. Typical Junction Capacitance

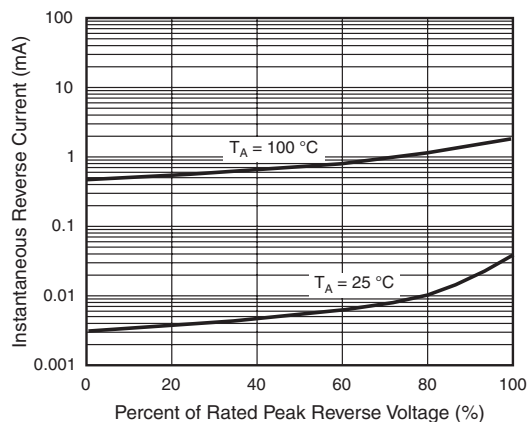
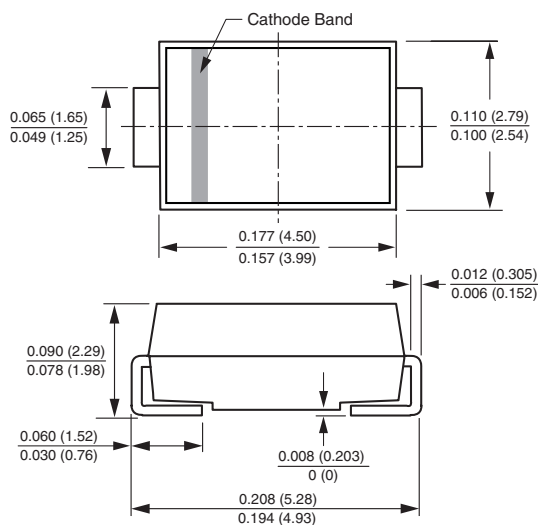


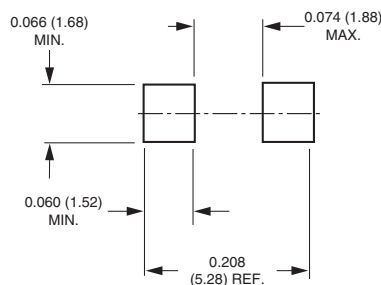
Figure 4. Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AC (SMA)



### Mounting Pad Layout





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