



**THE DATASHEET OF  
SS23S-M3/5AT**



## Surface Mount Schottky Barrier Rectifier


**DO-214AC (SMA)**

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
$V_{RRM}$	20 V, 30 V, 40 V
$I_{FSM}$	40 A
$V_F$ at $I_F = 2.0$ A	0.517 V
$T_J$ max.	150 °C
Package	DO-214AC (SMA)
Diode variation	Single die

### FEATURES

- Low profile package
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes the cathode end

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	SS22S	SS23S	SS24S	UNIT
Device marking code		22S	23S	24S	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	40	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	2.0			A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	40			A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000			V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150			°C

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 1\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.436	-	V
	$I_F = 2\text{ A}$			0.517	0.55	
Reverse current	Rated $V_R$	$T_J = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	13	200	$\mu\text{A}$
		$T_J = 100\text{ }^\circ\text{C}$		1.65	8	mA
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	130	-	pF

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle  
 (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	SS22S	SS23S	SS24S	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	75			$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$	25			

**Note**

- (1) PCB mounted with 0.4" x 0.4" (10 mm x 10 mm) copper pad areas

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS24S-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SS24S-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel

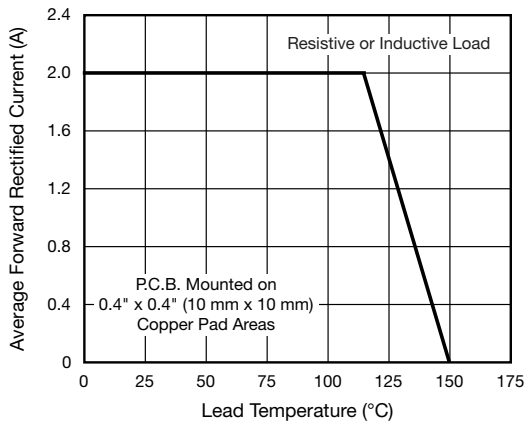
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

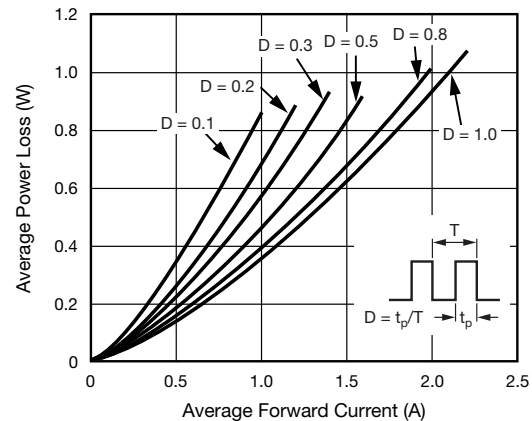


Fig. 2 - Forward Power Loss Characteristics

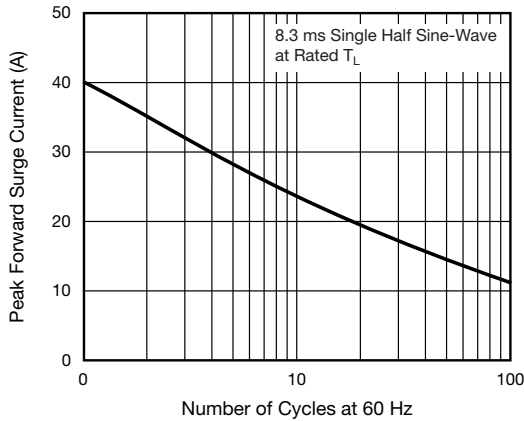


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

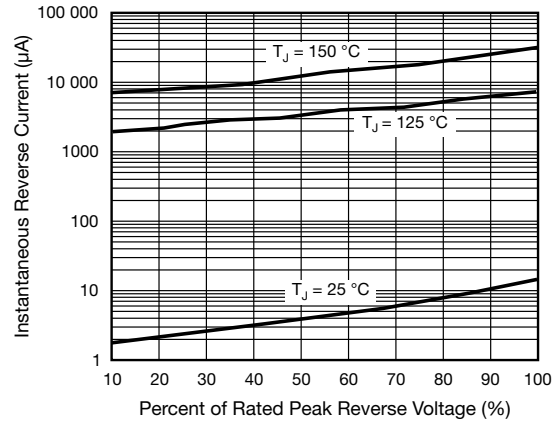


Fig. 5 - Typical Reverse Leakage Characteristics

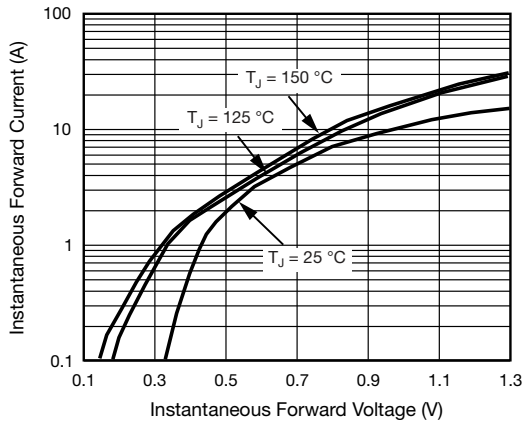


Fig. 4 - Typical Instantaneous Forward Characteristics

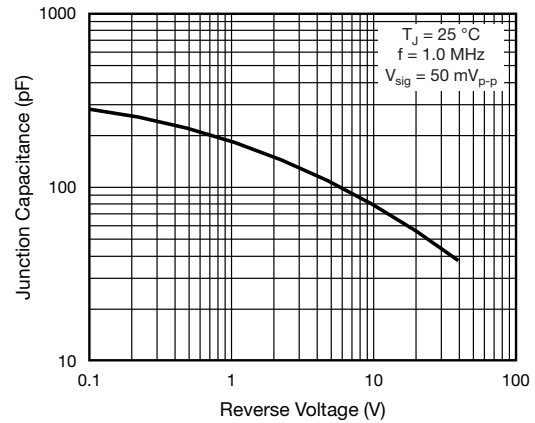
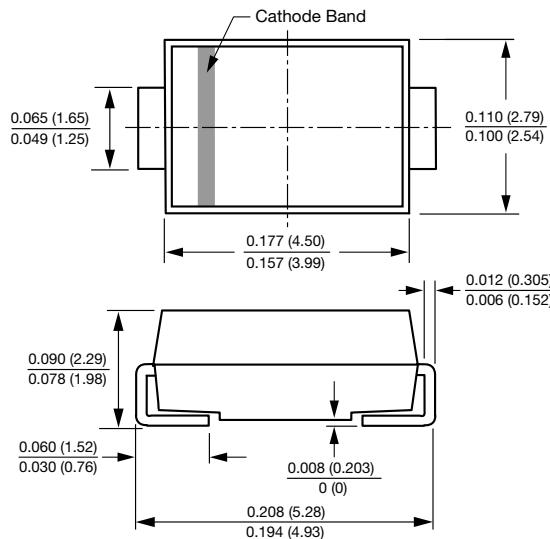


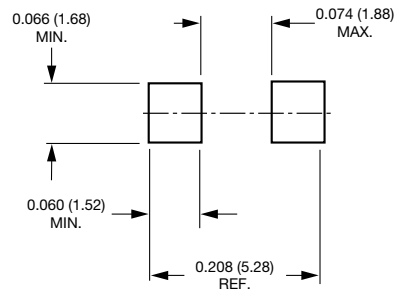
Fig. 6 - Typical Junction Capacitance

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

**DO-214AC (SMA)**



**Mounting Pad Layout**





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