

Surface-Mount Schottky Barrier Rectifier


SMA (DO-214AC)

Cathode  Anode

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


RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



3D Models

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMA (DO-214AC)

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

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	SMA (DO-214AC)
Circuit configuration	Single

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/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150			°C

ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 1$ A	$T_J = 25$ °C	V_F ⁽¹⁾	0.436	-	V
	$I_F = 2$ A			0.517	0.55	
Reverse current	Rated V_R	$T_J = 25$ °C	I_R ⁽²⁾	13	200	μ A
		$T_J = 100$ °C		1.65	8	mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	130	-	pF

Notes

⁽¹⁾ Pulse test: 300 μ s pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width $\leq$ 40 ms

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

PARAMETER	SYMBOL	SS22S	SS23S	SS24S	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾	75			°C/W
	R _{θJL} ⁽¹⁾	25			

Note

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

ORDERING INFORMATION (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

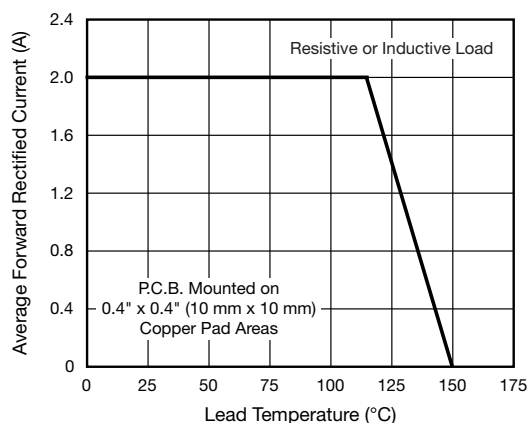
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

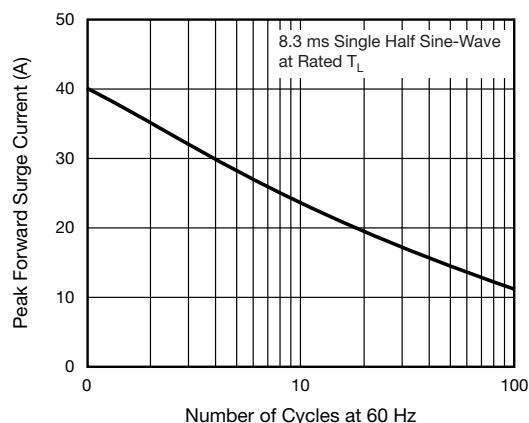


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

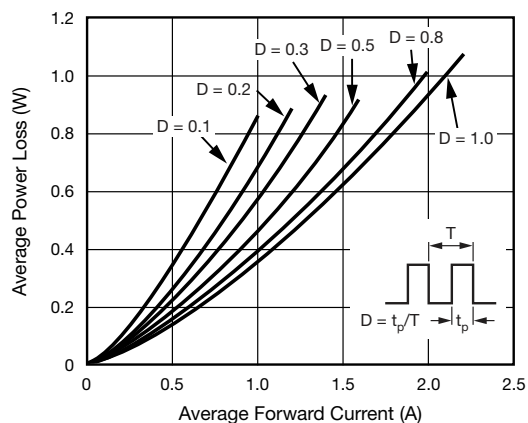


Fig. 2 - Forward Power Loss Characteristics

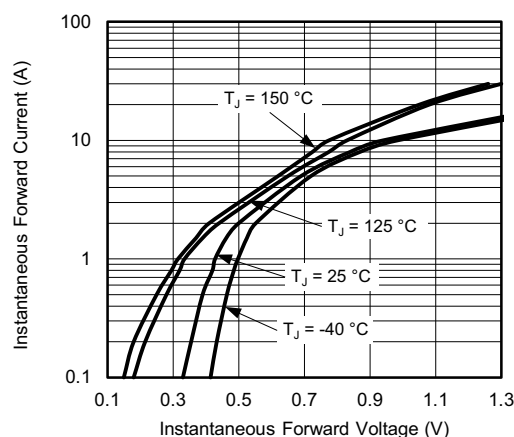


Fig. 4 - Typical Instantaneous Forward Characteristics

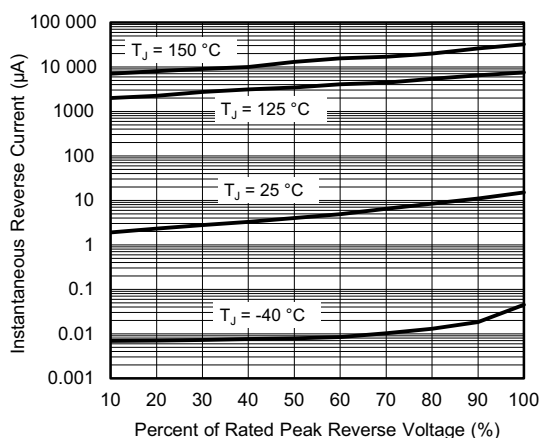


Fig. 5 - Typical Reverse Leakage Characteristics

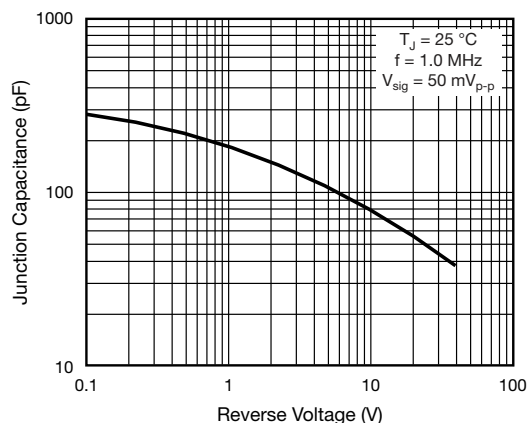
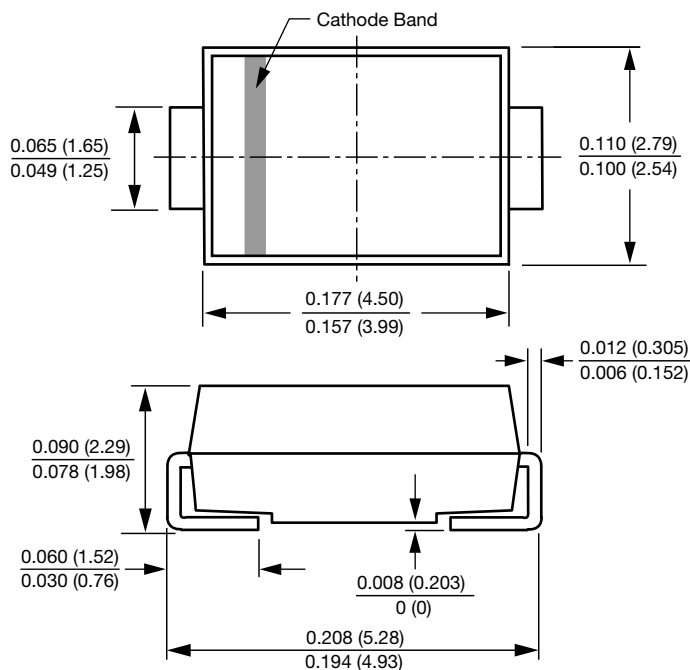
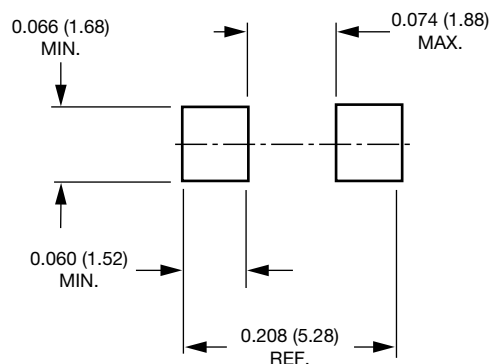


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)

Mounting Pad Layout




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