

Surface-Mount Schottky Barrier Rectifier


SMA (DO-214AC)

Cathode  Anode

LINKS TO ADDITIONAL RESOURCES



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
- AEC-Q101 qualified available
- 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.

MECHANICAL DATA

Case: SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
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 2 whisker test, HE3 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 configurations	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** ($T_A = 25\text{ }^{\circ}\text{C}$ 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	μA
		$T_J = 100\text{ }^{\circ}\text{C}$		1.65	8	mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	130	-	pF

Notes(1) Pulse test: 300 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	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

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS24S-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SS24S-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel
SS24SHE3_B/H ⁽¹⁾	0.064	H	1800	7" diameter plastic tape and reel
SS24SHE3_B/I ⁽¹⁾	0.064	I	7500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

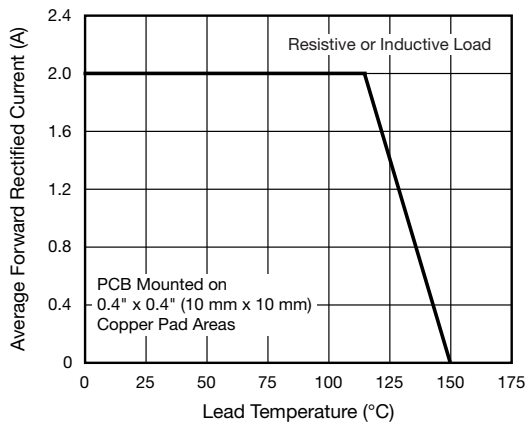
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

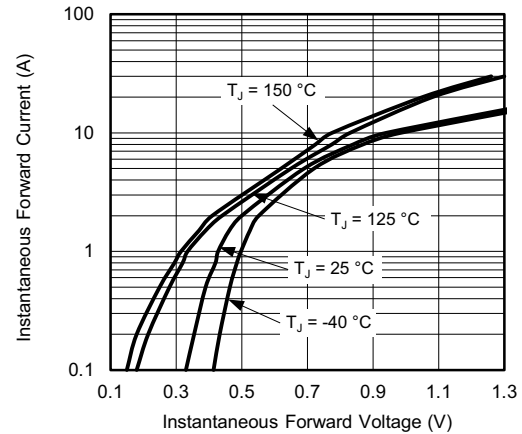


Fig. 4 - Typical Instantaneous Forward Characteristics

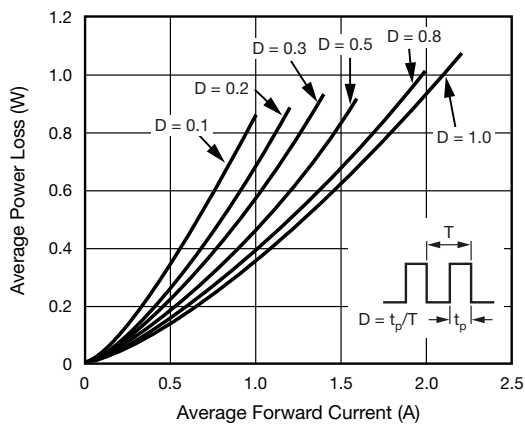


Fig. 2 - Forward Power Loss Characteristics

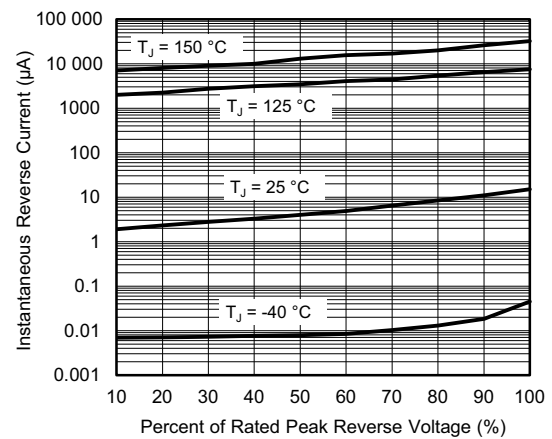


Fig. 5 - Typical Reverse Leakage Characteristics

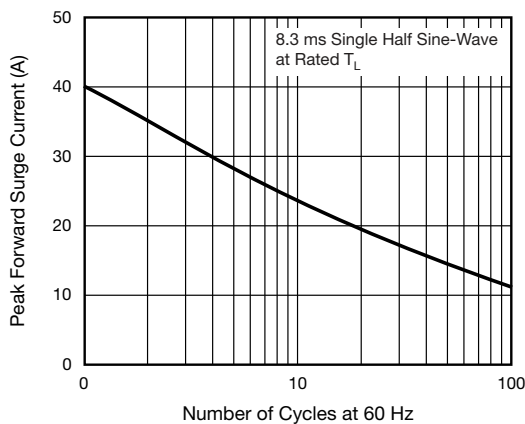


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

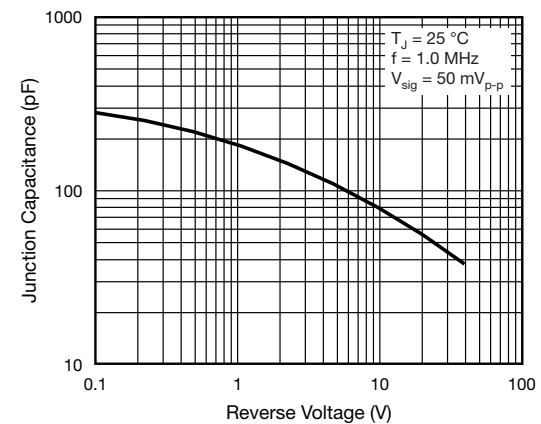
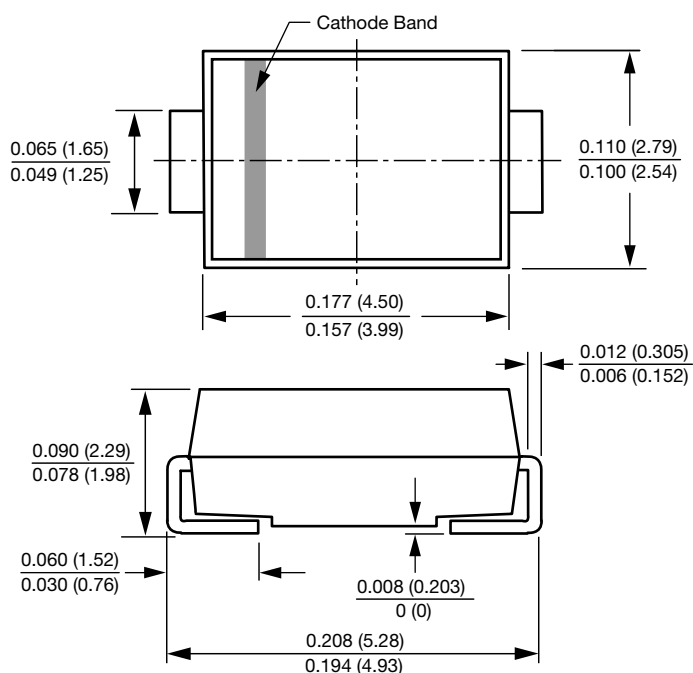


Fig. 6 - Typical Junction Capacitance

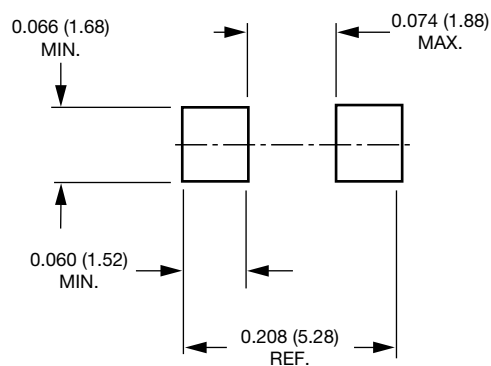


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)



Mounting Pad Layout





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