

HSMP-389Y

RF Switching PIN Diodes In Surface Mount SOD-523 Package



Data Sheet

Description/Applications

The HSMP-389Y of Avago Technologies is a PIN Diode that optimized for switching applications where low resistance at low current and low capacitance are required. It is housed in a miniature low cost surface mount SOD-523 package. This miniature package is particularly useful in the application where board space is the major concern.

A SPICE model is not available for PIN diodes as SPICE does not provide for a key PIN diode characteristic — carrier lifetime.

Features

- Space saving SOD-523 package
- Switching
 - Low Capacitance
 - Low Resistance at Low Current
- Tape and Reel Options Available
- MSL 1 & Lead Free

Package Marking and Pin Connections



Note: Package marking provides orientation and identification
"F" = Device Code
"?" = Month code indicates the month of manufacture

Table 1. Absolute Maximum Ratings ^[1] at Tc = +25°C

Symbol	Parameter	Unit	Max Rating
I _f	Forward Current (1 μs Pulse)	Amp	1
P _{IV}	Peak Inverse Voltage	V	100
T _j	Junction Temperature	°C	150
T _{stg}	Storage Temperature	°C	-60 to 150
θ _{jb}	Thermal Resistance ^[2]	°C/W	150

Notes:

1. Operation in excess of any one of these conditions may result in permanent damage to the device.
2. Thermal Resistance is measured from junction to board using IR method.

Table 2. Electrical Specifications at Tc = +25°C

	Minimum Breakdown Voltage V_{BR} (V)	Maximum Total Resistance R_s (Ohm)	Maximum Total Capacitance C_T (pF)
	100	2.5	0.30
Test Conditions	$V_R = V_{BR}$ Measure $I_R \leq 10\mu A$	$I_F = 5\text{ mA}$ $f = 100\text{ MHz}$	$V_R = 5\text{ V}$ $f = 1\text{ MHz}$

Table 3. Typical Parameters at Tc = +25°C

	Series Resistance R_s (Ohm)	Carrier Lifetime (ns)	Total Capacitance C_T (pF)
	3.8	200	0.20
Test Conditions	$I_F = 1\text{ mA}$ $f = 100\text{ MHz}$	$I_F = 10\text{ mA}$ $I_R = 6\text{ mA}$	$V_R = 5\text{ V}$ $f = 1\text{ MHz}$

Typical Performance Curves at Tc = +25°C

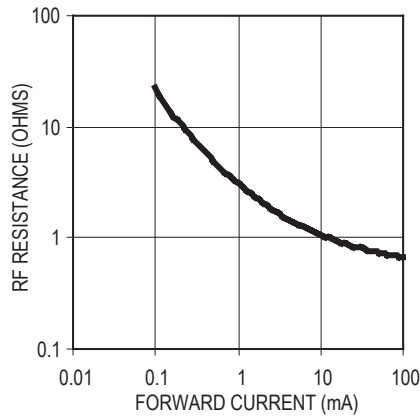


Figure 1. RF Resistance vs. Forward Bias Current

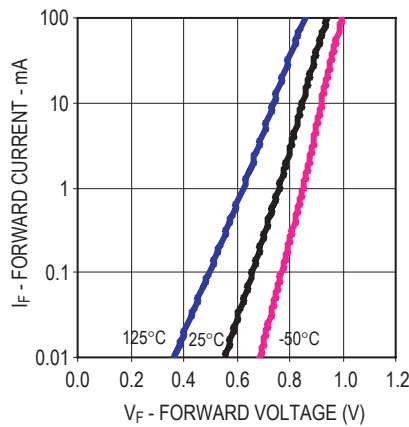


Figure 2. Forward Current vs. Forward Voltage

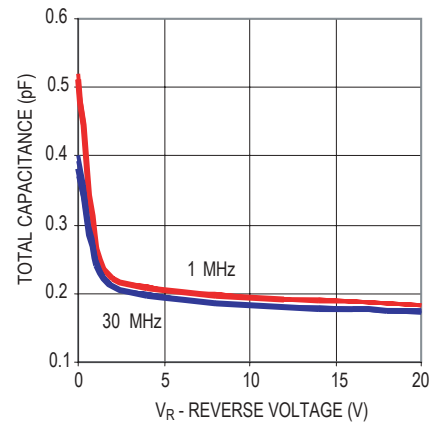


Figure 3. RF Capacitance vs. Reverse Bias

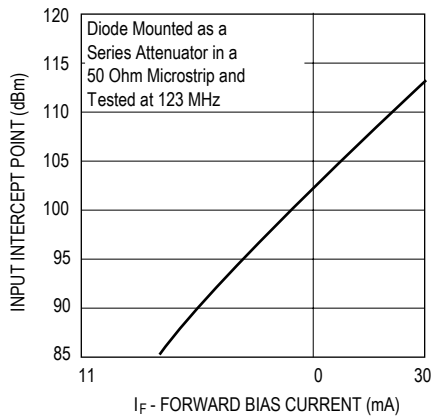


Figure 4. 2nd Harmonic Input Intercept Point vs. Forward Bias Current

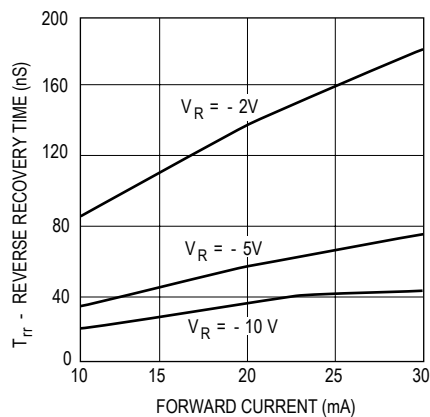
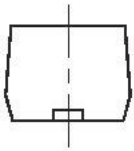
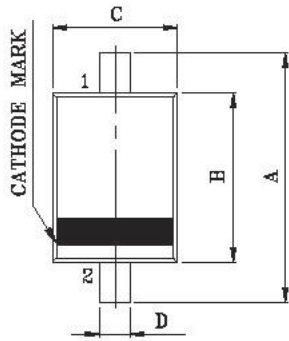


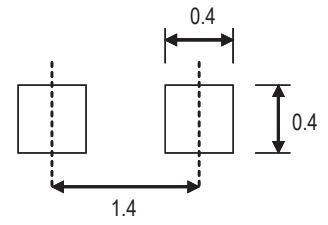
Figure 5. Typical Reverse Recovery Time vs. Reverse Voltage

Package Outline and Dimension



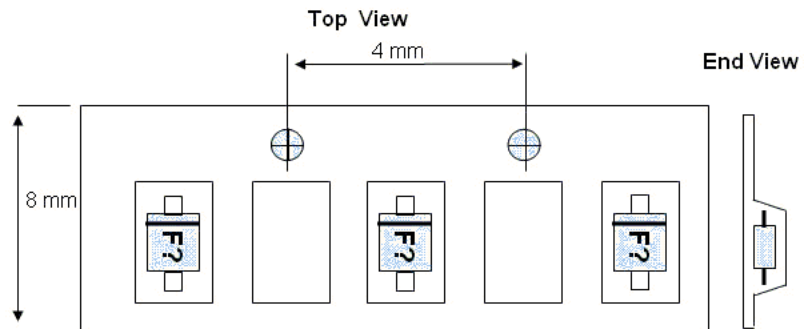
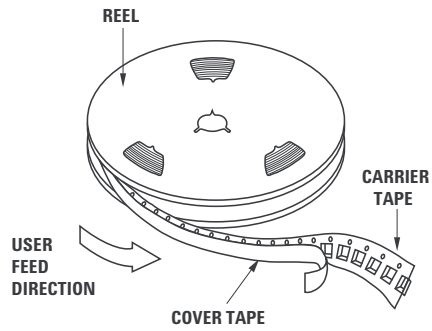
DIM	MILLIMETERS
A	1.60±0.10
B	1.20±0.10
C	0.80±0.10
D	0.30±0.05
E	0.60±0.10
F	0.13±0.05

PCB Footprint

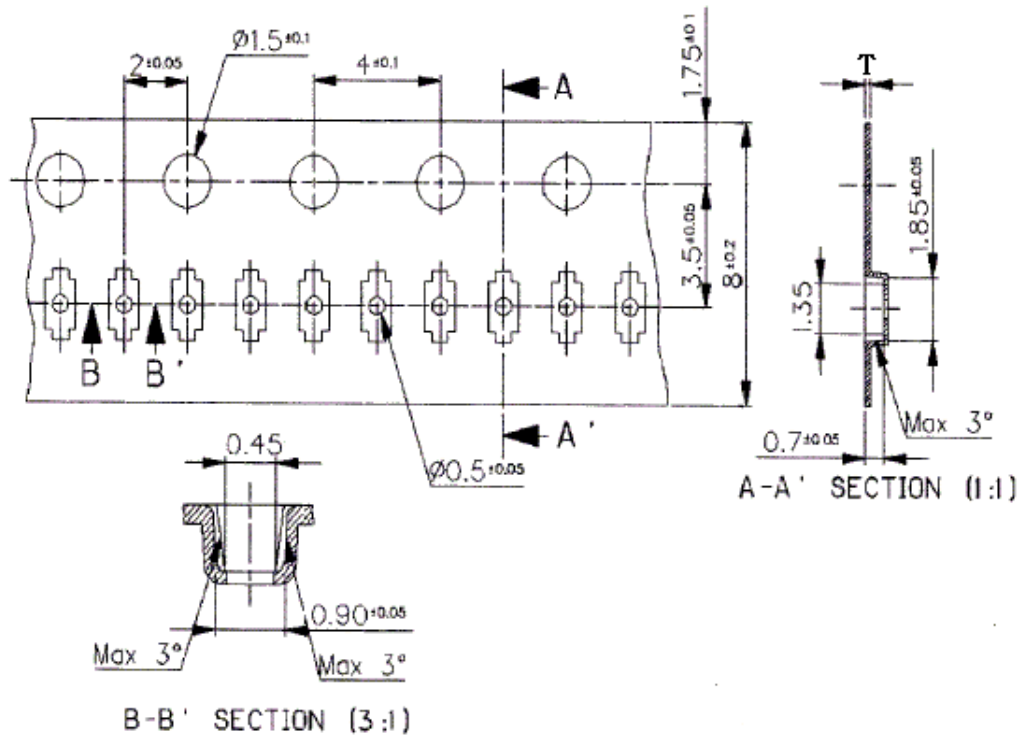


Unit : mm

Device Orientation



Tape Dimensions



Specification < Unit : mm >

hole pitch : 50 Pitch Tolerance : 200 ± 0.3

General Tolerance : ± 0.1

Surface resistance : $10^4 \sim 10^8 \Omega$

Part Number Ordering Information

Part number	No. of Units	Container
HSMP-389Y-BLKG	100	Anti-static bag
HSMP-389Y-TR1G	3000	7" reel

For product information and a complete list of distributors, please go to our web site: www.avagotech.com

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