

# 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 <sup>[1]</sup> at Tc = +25°C**

Symbol	Parameter	Unit	Max Rating
I <sub>f</sub>	Forward Current (1 μs Pulse)	Amp	1
P <sub>IV</sub>	Peak Inverse Voltage	V	100
T <sub>j</sub>	Junction Temperature	°C	150
T <sub>stg</sub>	Storage Temperature	°C	-60 to 150
θ <sub>jb</sub>	Thermal Resistance <sup>[2]</sup>	°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.

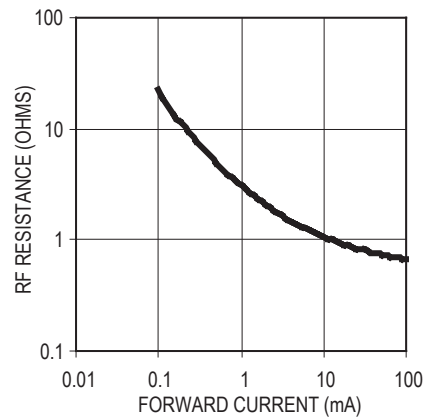
**Table 2. Electrical Specifications at Tc = +25°C**

	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 $I_R \leq 10\mu A$	$I_F = 5\text{ mA}$ $f = 100\text{ MHz}$	$V_R = 5\text{ V}$ $f = 1\text{ MHz}$

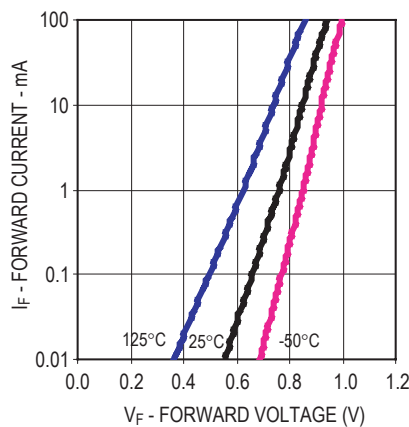
**Table 3. Typical Parameters at Tc = +25°C**

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

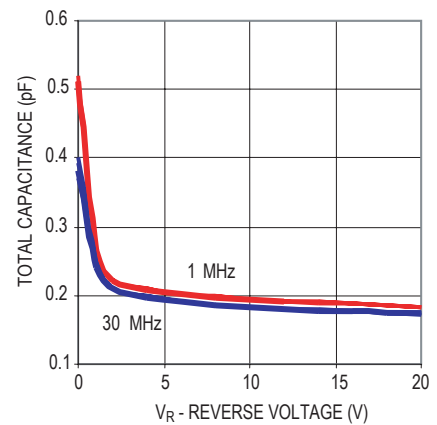
**Typical Performance Curves at Tc = +25°C**



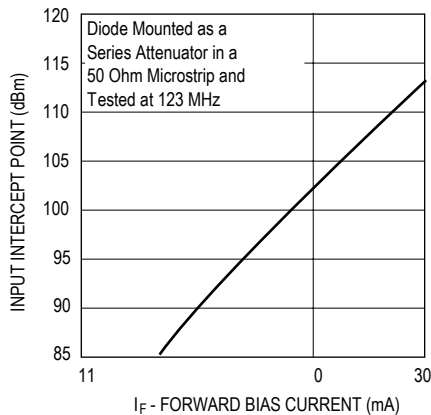
**Figure 1. RF Resistance vs. Forward Bias Current**



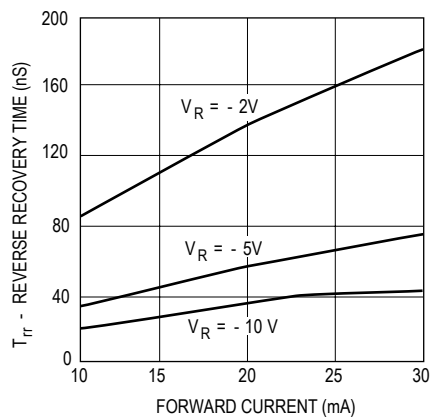
**Figure 2. Forward Current vs. Forward Voltage**



**Figure 3. RF Capacitance vs. Reverse Bias**

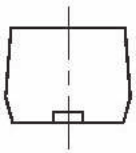
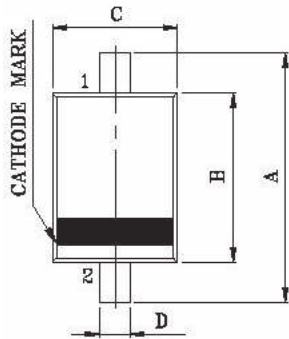


**Figure 4. 2nd Harmonic Input Intercept Point vs. Forward Bias Current**



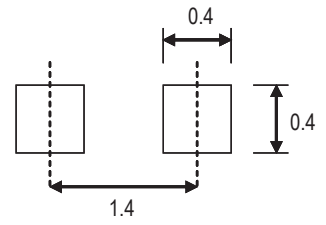
**Figure 5. Typical Reverse Recovery Time vs. Reverse Voltage**

### Package Outline and Dimension



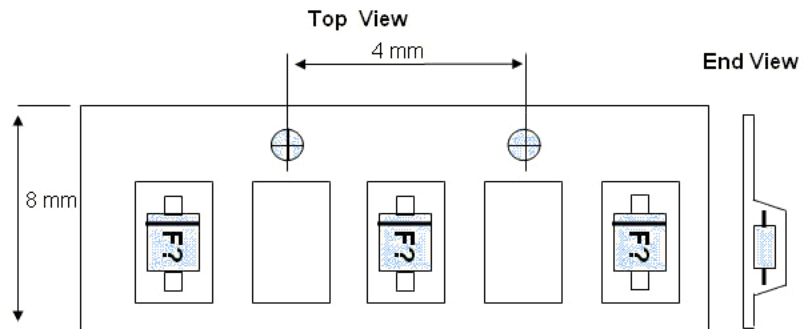
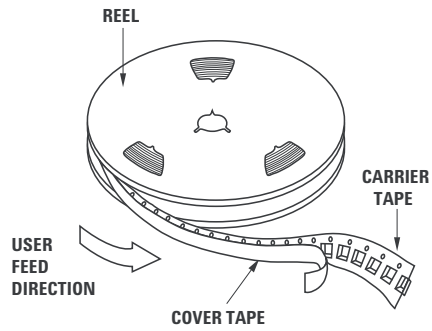
DIM	MILLIMETERS
A	1.60±0.10
B	1.20±0.10
C	0.80±0.10
D	0.30±0.05
E	0.60±0.10
F	0.13±0.05

### PCB Footprint

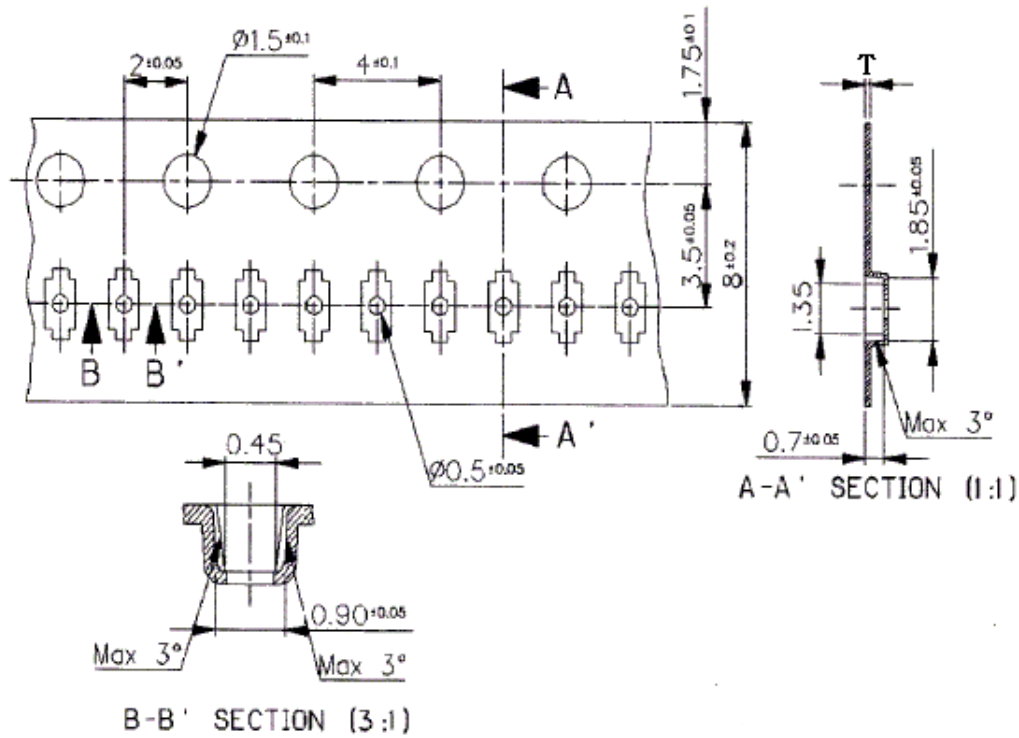


Unit : mm

### Device Orientation



## Tape Dimensions



### Specification < Unit : mm >

hole pitch : 50 Pitch Tolerance :  $200 \pm 0.3$

General Tolerance :  $\pm 0.1$

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](http://www.avagotech.com)

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