HSMP-389Z

RF Switching PIN Diodes In Surface Mount SOD-323 Package

Data Sheet

Description/Applications

Avago Technologies's HSMP-389Z is optimized for switching applications where low resistance at low current and low capacitance are required. It is housed in a low cost, industrial standard surface mount package - SOD-323. This package offers customers who already use them in SOT-23 and SOT-323 packages, a logical transition to a smaller package outline to accommodate end product design with limited board space.

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

Package Marking and Pin Connections



Note:
Package marking provides orientation and identification

"E" = Device Code

"?" = Month code indicates the month of manufacture

Features

- 2 Leads Surface Mount Package
- Switching
  - Low Capacitance
  - Low Resistance at Low Current
- Tape and Reel Options Available
- Low Failure in Time (FIT) Rate
- MSL 1 & Lead Free

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	^{0}C	150
T_{stg}	Storage Temperature	^{0}C	-60 to 150
θ_{jb}	Thermal Resistance[2]	^{0}C/W	135

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 $I_R \leq 10$uA	I_F = 5mA f = 100 MHz	V_R = 5V f = 1MHz

Note : Rs parameter is tested under AQL 1.0

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

	Series Resistance R_S (Ohm)	Carrier Lifetime τ (ns)	Total Capacitance C_T (pF)
	3.8	200	0.20
Test Conditions	I_F = 1 mA f = 100 MHz	I_F = 10mA I_R = 6mA	V_R = 5V f = 1MHz

Typical Performance Curves at Tc = +25°C

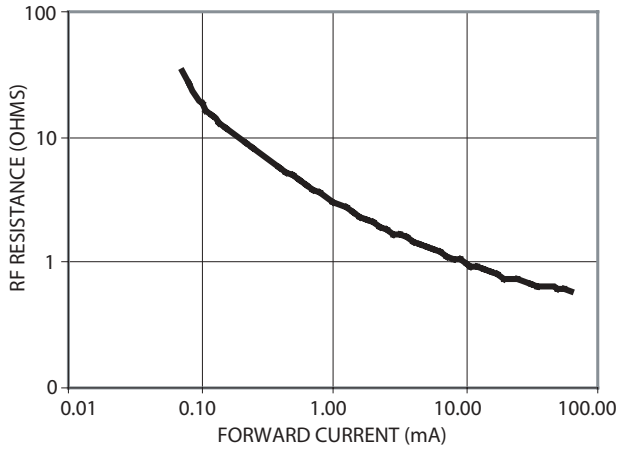


Figure 1. RF Resistance vs. Forward Bias Current

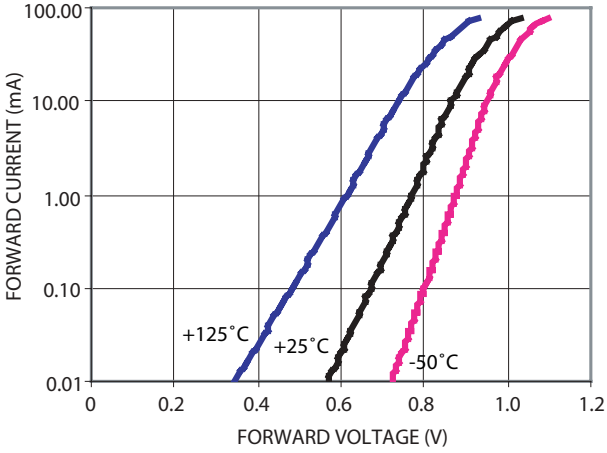


Figure 2. Forward Current vs. Forward Voltage

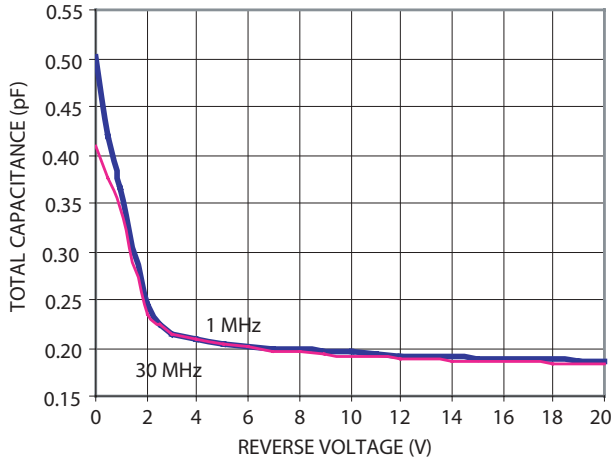


Figure 3. RF Capacitance vs. Reverse Bias

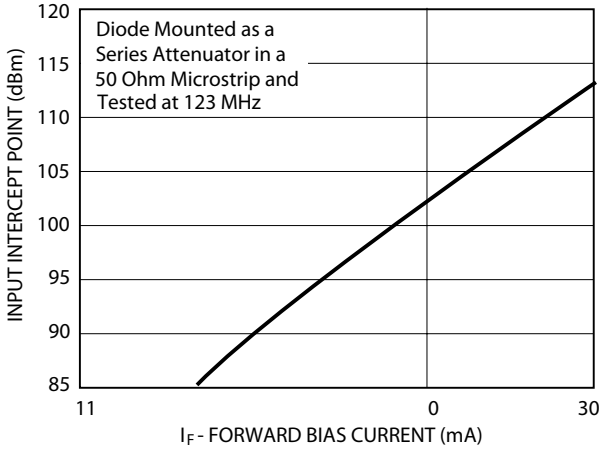


Figure 4. 2nd Harmonic Input Intercept Point vs. Diode RF Resistance

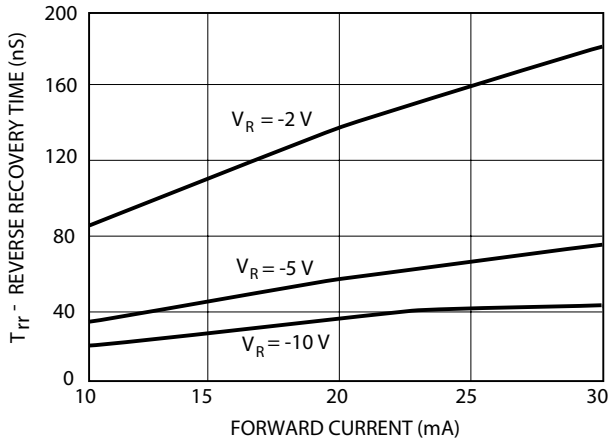
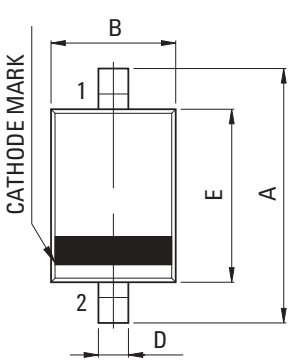
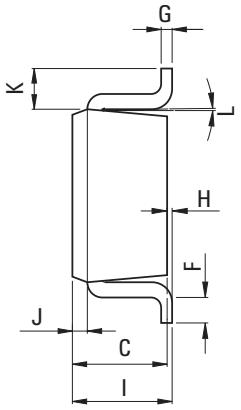
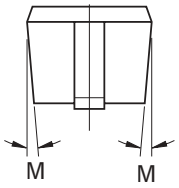


Figure 5. Typical Reverse Recovery Time vs. Reverse Voltage

Package Outline and Dimension

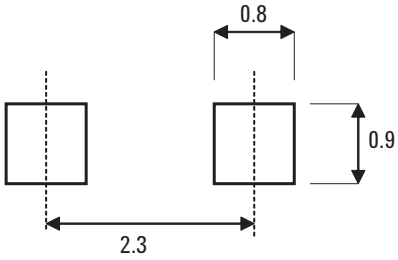






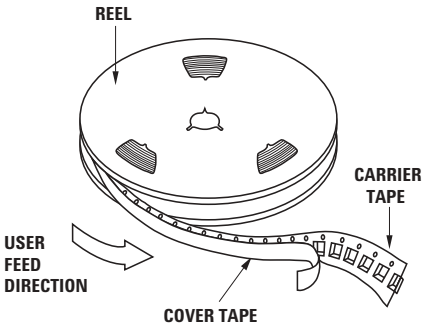
DIM	MILLIMETERS
A	2.50 ±0.2
B	1.25 ±0.05
C	0.90 ±0.05
D	0.30+0.06/-0.04
E	1.70 ±0.05
F	MIN 0.17
G	0.126 ±0.03
H	0~0.1
I	1.0 MAX
J	0.15 ±0.05
K	0.4
L	2°+4/-2
M4	~6°

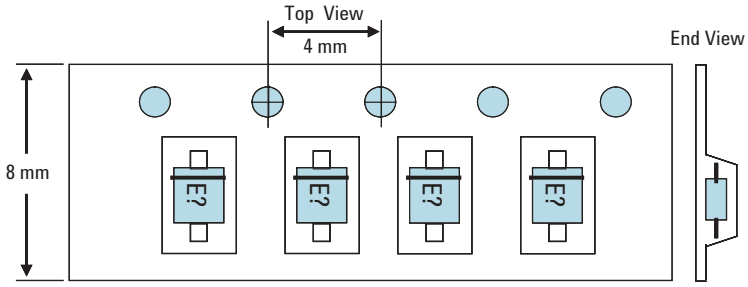
PCB Footprint



Dimension in mm

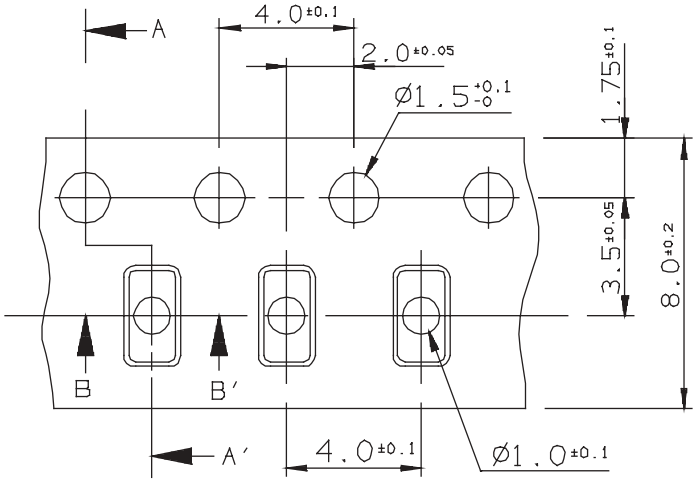
Device Orientation

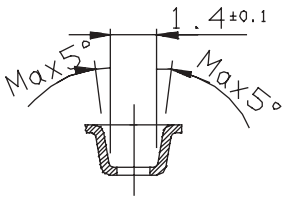




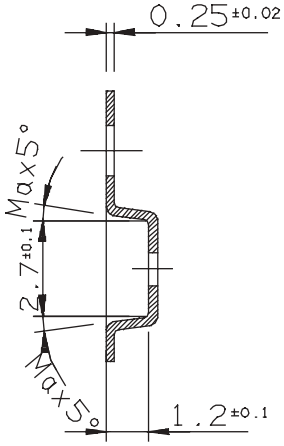
Note: "E " represents package marking code
"? " represents date code

Tape Dimensions





B - B′ SECTION



A - A′ SECTION

Specification < Unit: mm >

A. hole pitch : 50 Pitch Tolerance : 200 ± 0.3

Part Number Ordering Information

Part number	No. of Units	Container
HSMP-389Z-BLKG	100	Anti-static bag
HSMP-389Z-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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AV01-0183EN - May 18, 2006