HSMS-282Y
RF Schottky Barrier Diodes In Surface Mount SOD-523 Package

Avago
TECHNOLOGIES

Data Sheet

Description

The HSMS-282Y of Avago Technologies is a RF Schottky Barrier Diode, featuring low series resistance, low forward voltage at all current levels and good RF characteristics. The device 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.ApplicationsThe HSMS-282Y is specially designed for both analog and digital applications. The typical applications are mixing, detecting, switching, sampling, clamping and wave shaping.

Features

- Space saving SOD-523 package
- Low Turn-On Voltage
- Low Series Resistance
- Tape and Reel Options Available
- MSL 1 & Lead Free

Package Marking and Pin Connections

cathode   Anode

Y?

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

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

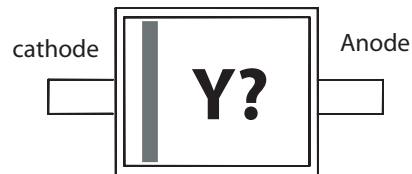| Symbol	Parameter	Unit	Max Rating
I_F	Forward Current (1 µs Pulse)	Amp	1
P_{IV}	Peak Inverse Voltage	V	15
T_J	Junction Temperature	°C	150
T_{STG}	Storage Temperature	°C	-65 to 150
θjb	Thermal Resistance[2]	°C/W	175

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 microscopy method.

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

	Minimum Breakdown Voltage V_{BR} (V)	Maximum Forward Voltage V_F (mV)	Maximum Forward Voltage V_F (V)	Maximum Reverse Leakage I_R (nA)	Maximum Capacitance C_T (pF)	Typical Dynamic Resistance R_D (Ohm)[2]
	15	340	0.5	100	1.0	12
Test Conditions	$V_R = V_{BR}$ Measure $I_R \leq 100\mu A$	$I_F = 1mA$	$I_F = 10mA$	$V_R = 1V$	$V_R = 0$ Vf = 1 MHz	$I_F = 5mA$

Notes :

1. Effective carrier lifetime(τ) for the diode is 100 ps maximum measured with Krakaver method at 5 mA

2. RD = Rs + 5.2 Ohm @ 25 °C and I_F = 5 mA

Typical Performance Curves at Tc = +25°C
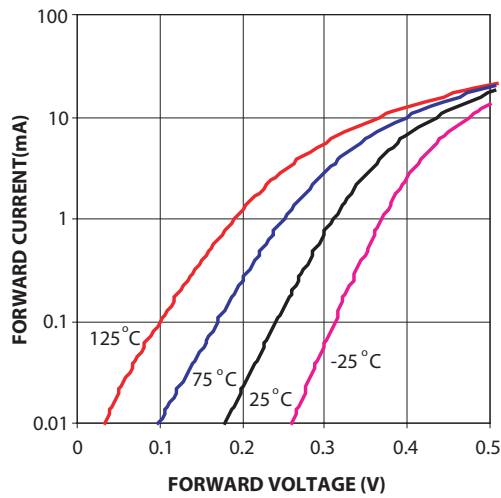
Figure 1. Forward Currect vs.Forward Voltage at temperature
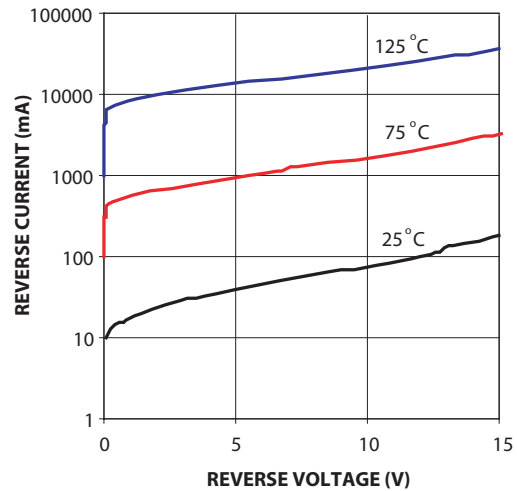
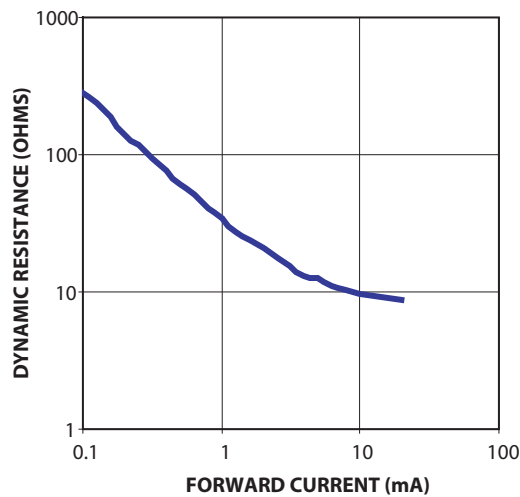Figure 2. Reverse Current vs. Reverse Voltage at temperature
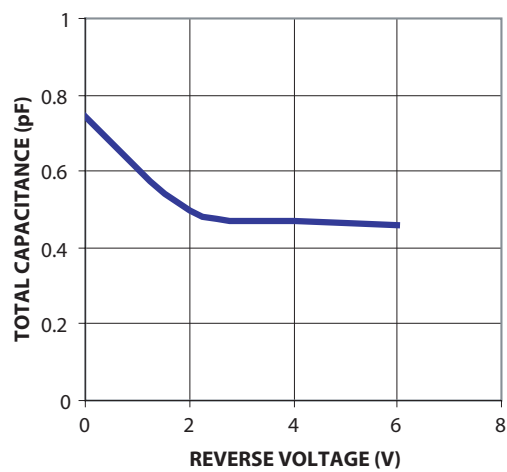

Figure 3. Dynamic Resistance vs. Forward Current

Figure 4. Total Capacitance vs. Reverse Bias at 1MHz
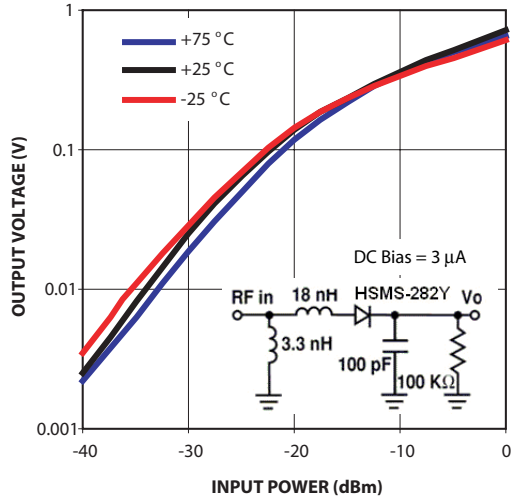
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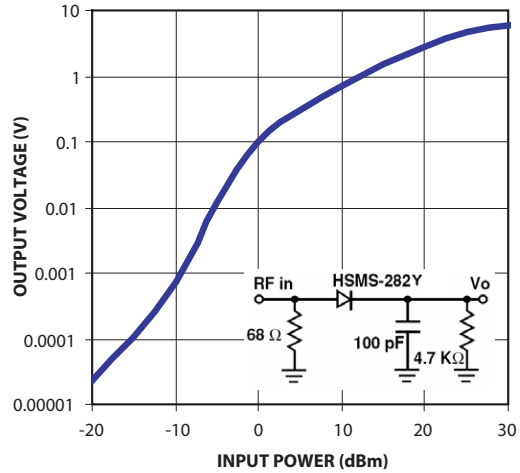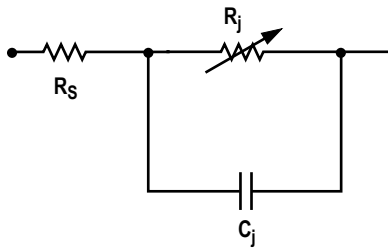Figure 5. Typical Output Voltage vs. Input Power, Small Signal Detector Operating at 850 MHz.

Figure 6. Typical Output Voltage vs. Input Power, Large Signal Detector Operating at 915 MHz.

Linear Equivalent Circuit Model Diode Chip

R_S = series resistance (see Table of SPICE parameters)

C_j = junction capacitance (see Table of SPICE parameters)

$$R_j = \frac{8.33 \times 10^{-5} \, nT}{I_b + I_s}$$

where

I_b = externally applied bias current in amps

I_s = saturation current (see table of SPICE parameters)

T = temperature, K

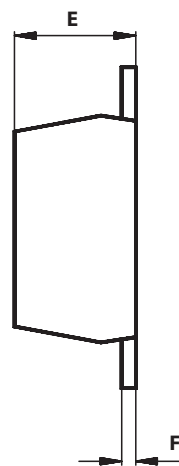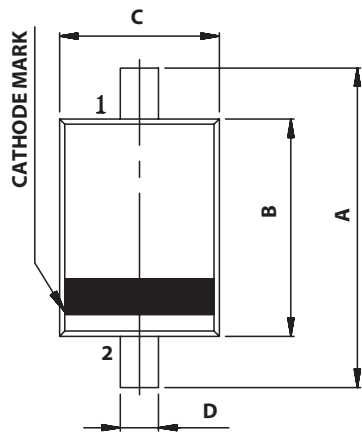n = ideality factor (see table of SPICE parameters)

Note:
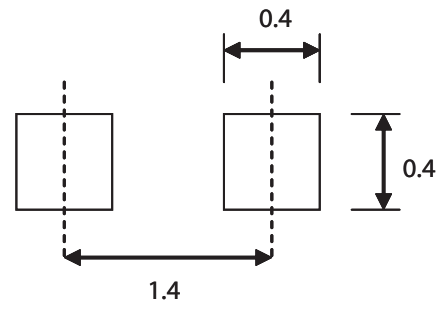To effectively model the packaged HSMS-282x product, please refer to Application Note AN1124.

SPICE Parameters

Parameter	Units	HSMS-282Y
B_V	V	15
C_{J0}	pF	0.7
E_G	eV	0.69
I_{BV}	A	1E-4
I_S	A	2.2E-8
N		1.08
R_S	Ω	6.0
P_B	V	0.65
P_T		2
M		0.5

Package Outline and Dimension

PCB Footprint

0.4

1.4

0.4
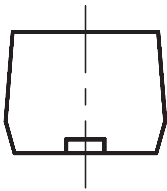
Unit : mm

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

Device Orientation

REEL

CARRIER TAPE

USER FEED DIRECTION

COVER TAPE

Top View

4 mm

End View

8 mm

4
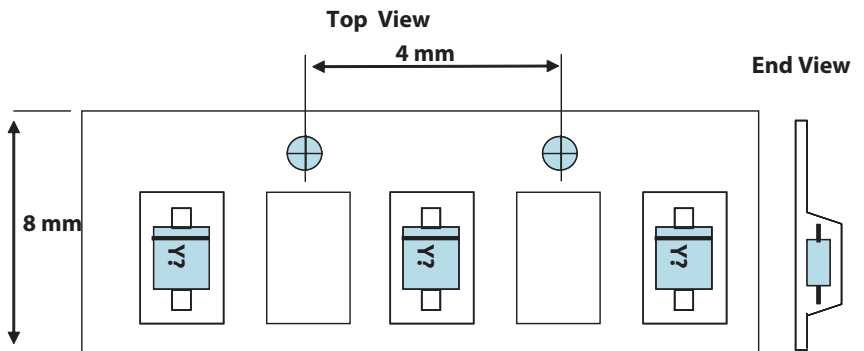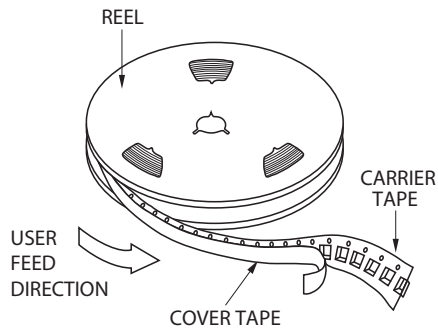
Tape Dimension
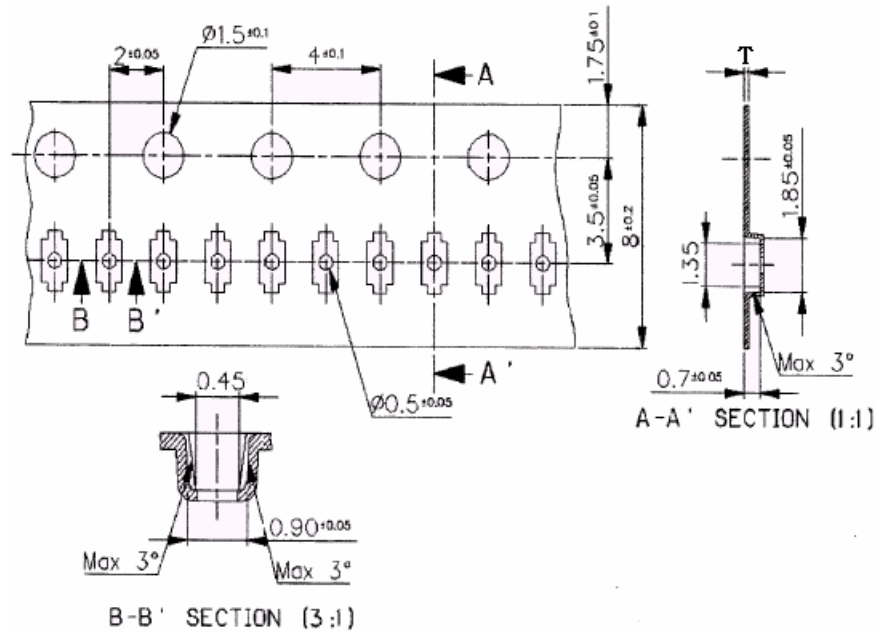
Specification < Unit : mm >
hole pitch : 50 Pitch Tolerance : 200 ± 0.3
General Tolerance : ± 0.1
Surface resistance : 104 ~ 108 W/cm3

Part Number Ordering Information

Part number	No. of Units	Container
HSMS-282Y-BLKG	100	Anti-static bag
HSMS-282Y-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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