

Silicon Schottky Diode

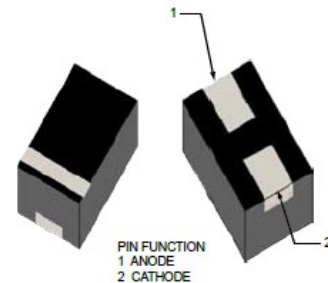
Rev. V1

Features

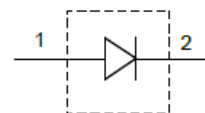
- Small Footprint, only 50 x 30 mils.
- Simplest Broadband Detector as no DC bias Required
- Very Low Barrier Height, Good Sensitivity, -54 dBm, also Low Flick Noise
- Very Low Parasitic Package Inductance and Low Package Capacitance
- RoHS* Compliant

Description

The SMS201 is a silicon Schottky diode in a molded plastic DFN package. It is designed for a broadband zero bias detector. It has a high cutoff frequency and can be used beyond 26.5 GHz for power detection up to 10 dBm.



Case 0503 - Molded Plastic DFN Package



Electrical Specifications: $T_A = +25^\circ\text{C}$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Breakdown Voltage (V_B)	$I_R = 100 \mu\text{A}$	V	1	—	—
Forward Voltage (V_F)	$I_F = 100 \mu\text{A}$	mV	60	80	120
Total Capacitance (C_T)	$V_R = 0 \text{ V}$, 6 - 8 GHz	pF	—	0.08	0.10
Video Resistance (R_V)	$I_F = 50 \text{ mA}$	Ω	2000	4000	8000
Tangential Signal Sensitivity (T_{SS})	NF -3 dB, 10 GHz	dBm	—	-54	—
Voltage Sensitivity (γ)	$P_{IN} = -30 \text{ dBm}$, Video BW = 500 KHz, 10 GHz	mV/mW	—	8000	—

Absolute Maximum Ratings

Parameter	Absolute Maximum
Reverse DC Voltage	1 V
Forward Current	20 mA
Dissipated Power	100 mW (de-rated to 0 @ $+175^\circ\text{C}$)
Junction Temperature	$+175^\circ\text{C}$
Storage Temperature	-65°C to $+150^\circ\text{C}$
Solder Temperature	$+260^\circ\text{C}$ per JEDEC J-STD-20C

Handling Procedures

Please observe the following precautions to avoid damage:

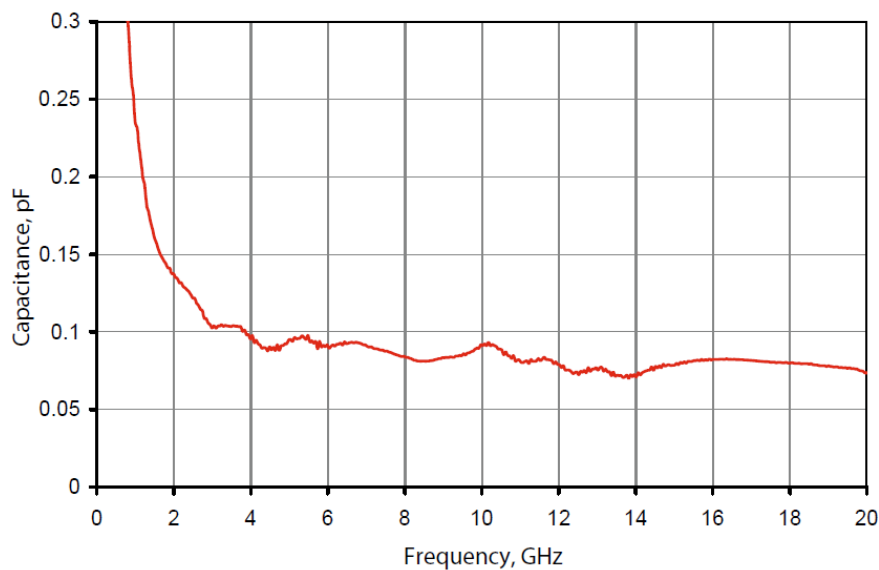
Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these (HBM) Class 0 devices.

1 * Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

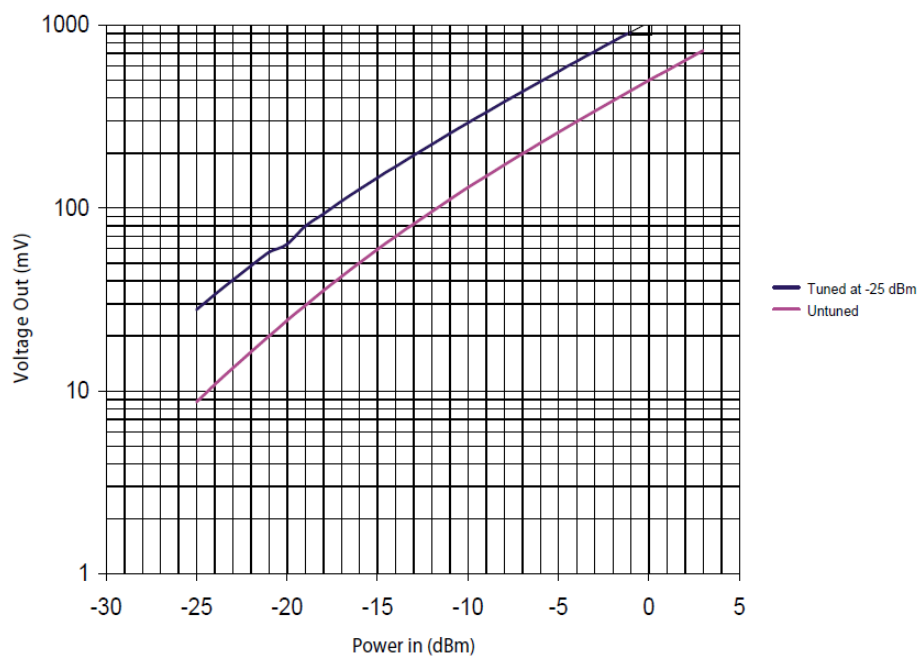
Typical RF Performance: $T_A = +25^\circ\text{C}$, $Z_O = 50 \Omega$

Small Signal Capacitance vs. Frequency

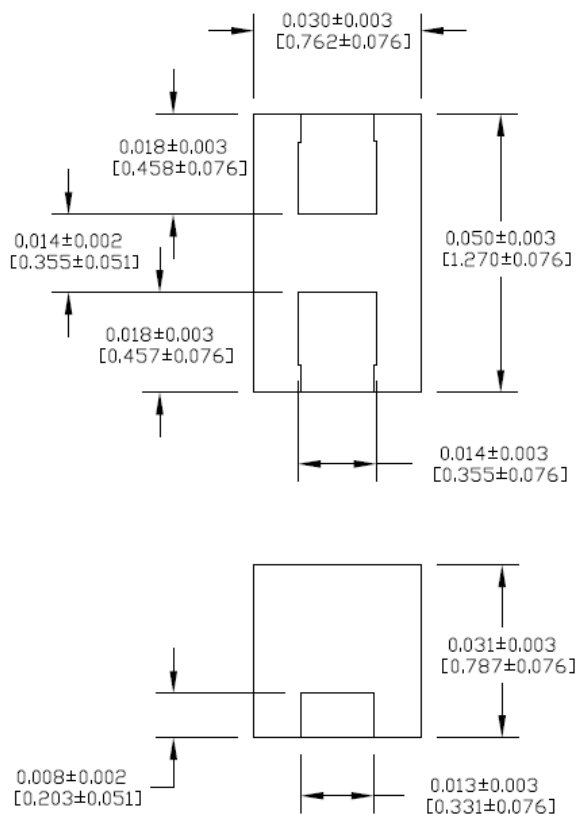


Typical Dynamic Transfer Characteristics: $R_L = 10 \text{ m}\Omega$, $F_O = 10 \text{ GHz}$

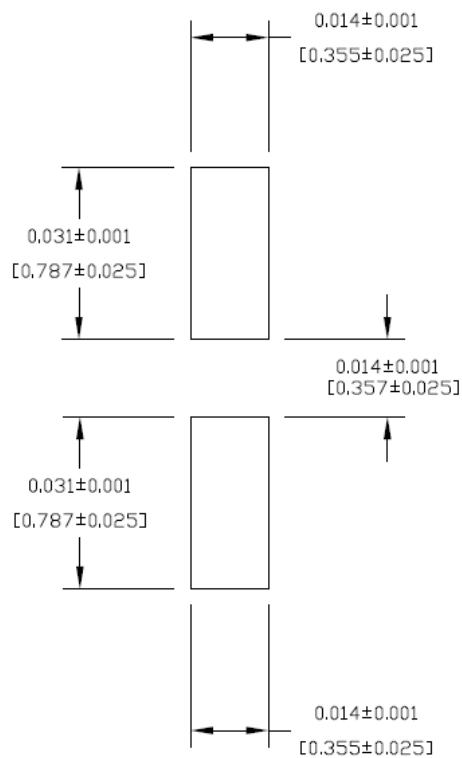
Output Voltage vs. Input Power



Lead-Free 0503 Plastic DFN Package



Soldering Footprint



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