

AND9467/D

Diode Mixer Circuit for 24 GHz Radar Using the NSVR201MX



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Overview

This application note explains about ON Semiconductor's NSVR201MX which is used as a Diode Mixer for 24 GHz sub millimeter wave radar.

The NSVR201MX is a silicon RF schottky barrier diode best suited for high-frequency applications which is assembled in the 2-pin surface mount package.

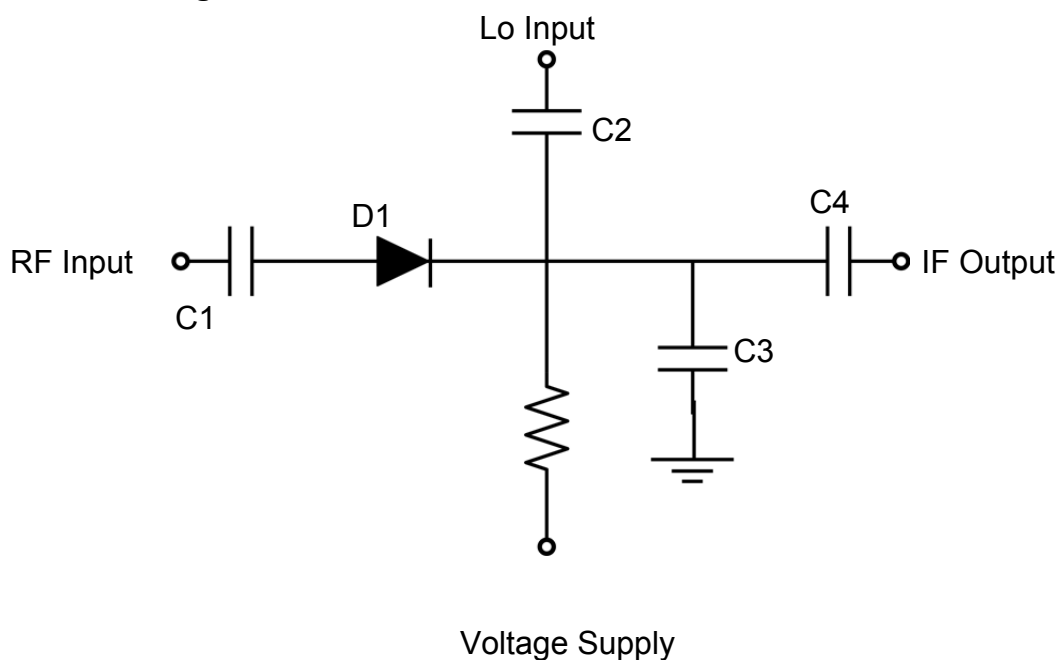
For information about the performance, please refer to the datasheet of this product.

The evaluation board is adjusted to provide 10.3 dB conversion loss when frequency is down converted from 24 GHz to 2 kHz.

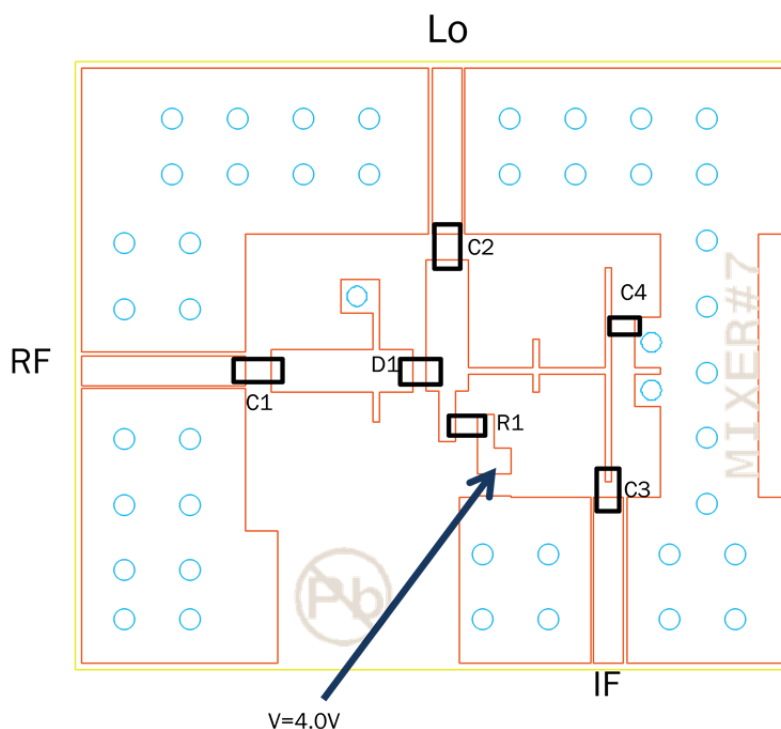
A standard material NPC-F260 is used for the printed circuit board (PCB).

APPLICATION NOTE

■ Circuit Design



■ Evaluation Board Layout



■ Bill of Materials

Item	Symbol	Value	Manufacture	Package
SBD	D1	NSVR201MX	ON Semiconductor	X2DFN2
Capacitor	C1	1000 pF	Various	1608
	C2	1000 pF	Various	1608
	C3	67000 pF	Various	1005
	C4	470 pF	Various	1005
Resistor	R1	3300 Ω	Various	1005
Material		NPC-F260	Nippon Pillar Packing	14.4 x 21.8 x 0.5 mm

■ Board Information

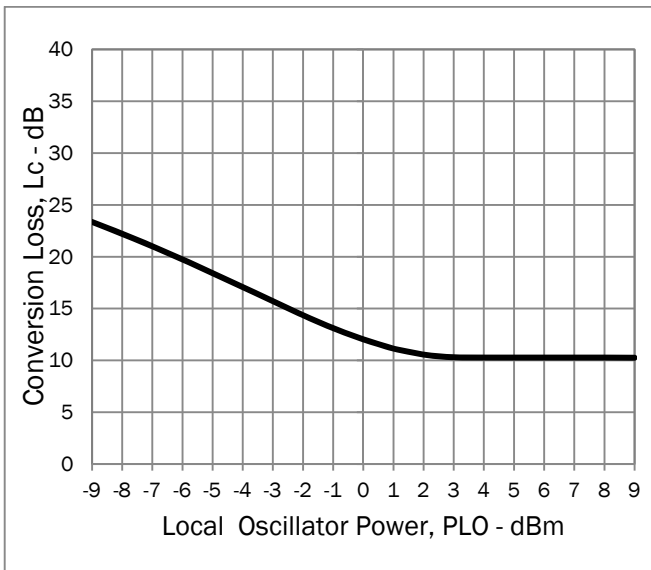
Parameter	Symbol		Unit
Thickness	H	500	μm
Conductor		Au	
Conductor thickness	T	18	μm
Dielectric constant	εr	2.58	
Relative permeability	Mur	1	
Dielectric loss tangent	TanD	0.0015	

■ **Measurement Condition**

IF Frequency; 200 kHz
Voltage; 4V

	Frequency	Power
RF	24.0002 GHz	-30 dBm
Lo	24.0000 GHz	-9 to +9 dBm

■ **Measurement Results**



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