

NuWaves

RF Solutions

NuSwitch VU150MH01 VHF/UHF SPDT RF Switch

30 - 512 MHz
150 W Power Handling Capability
4 μ S Switching Speed

P/N: NW-SW-VU-150-MH01



The NuSwitch VU150MH01 is a new high speed, low loss SPDT Switch that delivers excellent power handling for a multitude of UHF/VHF applications.

With typical switch timing of 4 μ Sec and typical insertion loss better than 0.25 dB this switch is sure to be a great addition to any demanding system. The VU150MH01 operates from a +5 VDC supply with a typical current draw of 350mA for great power efficiency. The switch control operates from a single TTL input or with an optional 9-pin Micro-D, and operates from -40 to +85 °C with minimal change in performance. Power handling abilities at 150 W CW across the entire working range of 30 to 512 MHz, along with high isolation between ports, provide a great, stable switching solution.

Features

- 150 W RF Power Handling
- 4 μ S Switch Time
- 30-512 MHz Operational Range
- Single TTL Input
- Low Insertion Loss
- Low Power Consumption
- Miniature Form Factor (3.54" x 4.20" x 0.98")

Applications

- Military and Aerospace
- Satellite Communication
- RF Front End
- Half-Duplex RF Systems
- Test and Measurement Instrumentation

VHF/UHF High Speed RF Switch

Specifications

Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	5.25	V
Max Device Current	400	mA
Max RF Input Power, $Z_L = 50 \Omega$	150	W
Max Operating Temperature (baseplate)	85	°C
Max Storage Temperature	85	°C

Export Classification
EAR 99

Electrical Specifications @ 12 VDC, 25 °C, $Z_S=Z_L=50 \Omega$

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Frequency	BW	30		512	MHz	
RF Power Handling				150	W	
Switching Speed			4	5	μ S	
Insertion Loss - Tx	IL		0.11	0.50	dB	
Insertion Loss - Rx	IL		0.21	0.50	dB	
Isolation - Tx to Rx		30	45		dB	
Isolation - Rx to Tx		30	45		dB	
Operating Voltage	VDC		5		V	
Operating Current	I_{DD}		350		mA	
VSWR Tx			1.2:1	1.4:1		
VSWR Rx			1.25:1	1.6:1		

Mechanical Specifications

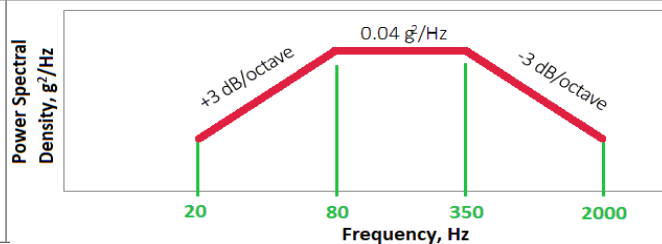
Parameter	Value	Unit	Limits
Dimensions	3.54 x 4.20 x 0.98	in	Max
Weight	1.3	oz	Max
RF Connector	SMA Female		
DC Power Connector/GND/TTL*	EMI Feed Through		

*Optional 9-pin Micro-D

Environmental Specifications

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature (baseplate)	T_C	-20		+70	°C
Storage Temperature	T_{STG}	-40		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude MIL-STD-810F - Method 500.4	ALT			30,000	ft

Vibration / Shock Profile
(Random profile in x,y, z axis, as per Figure for 15 minute duration in each axis)

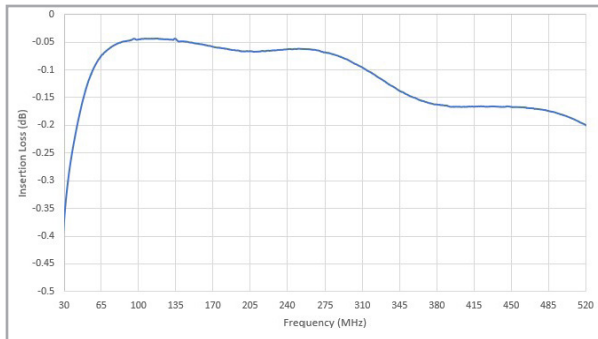


VHF/UHF High Speed RF Switch

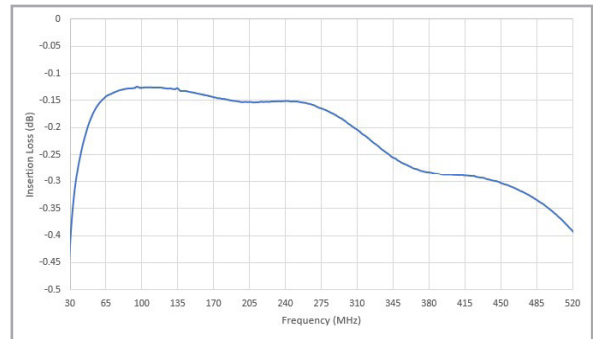
Performance Plots

Test Conditions: +28 VDC, +25 °C, $Z_s=Z_L=50 \Omega$

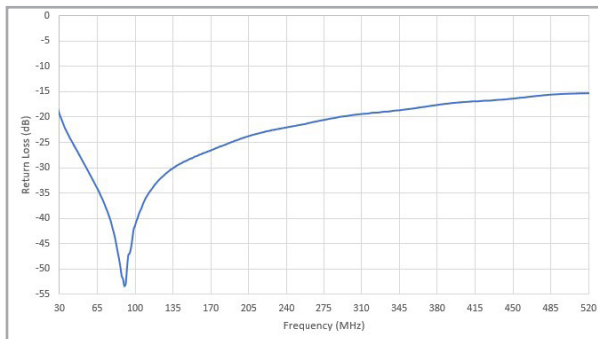
Antenna to Transmit Insertion Loss



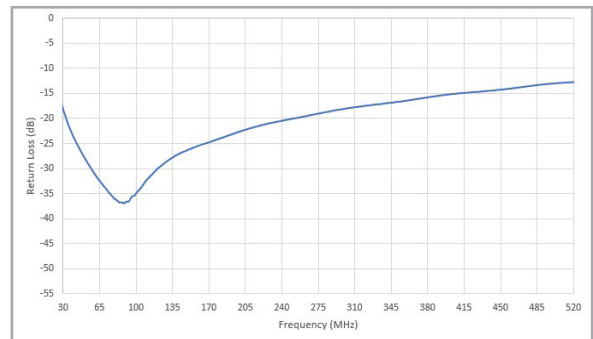
Antenna to Receive Insertion Loss



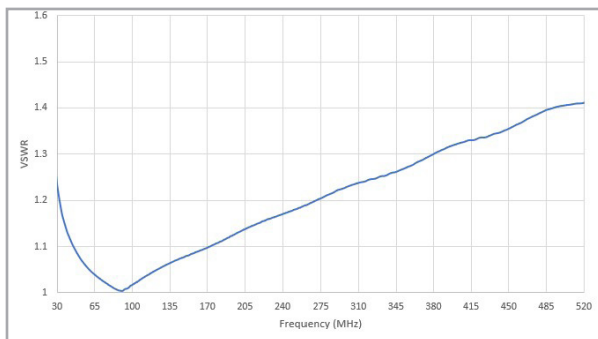
Antenna to Transmit Return Loss



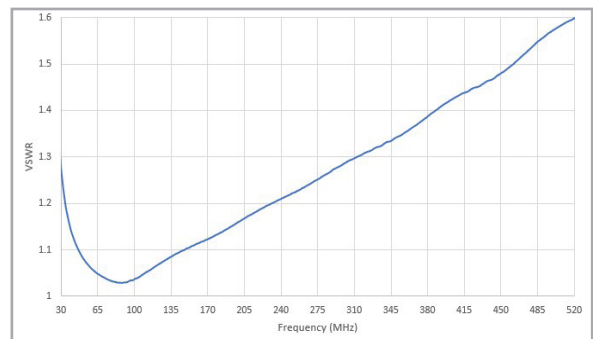
Antenna to Receive Return Loss



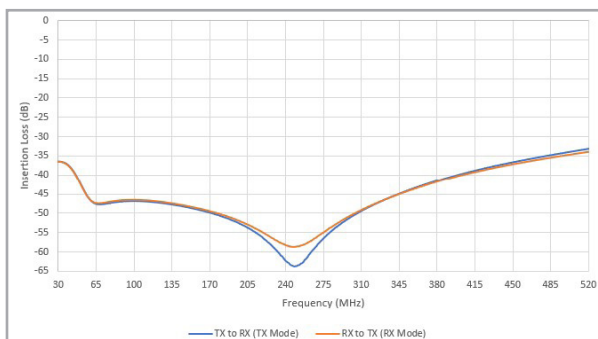
Antenna to Transmit VSWR



Antenna to Receive VSWR

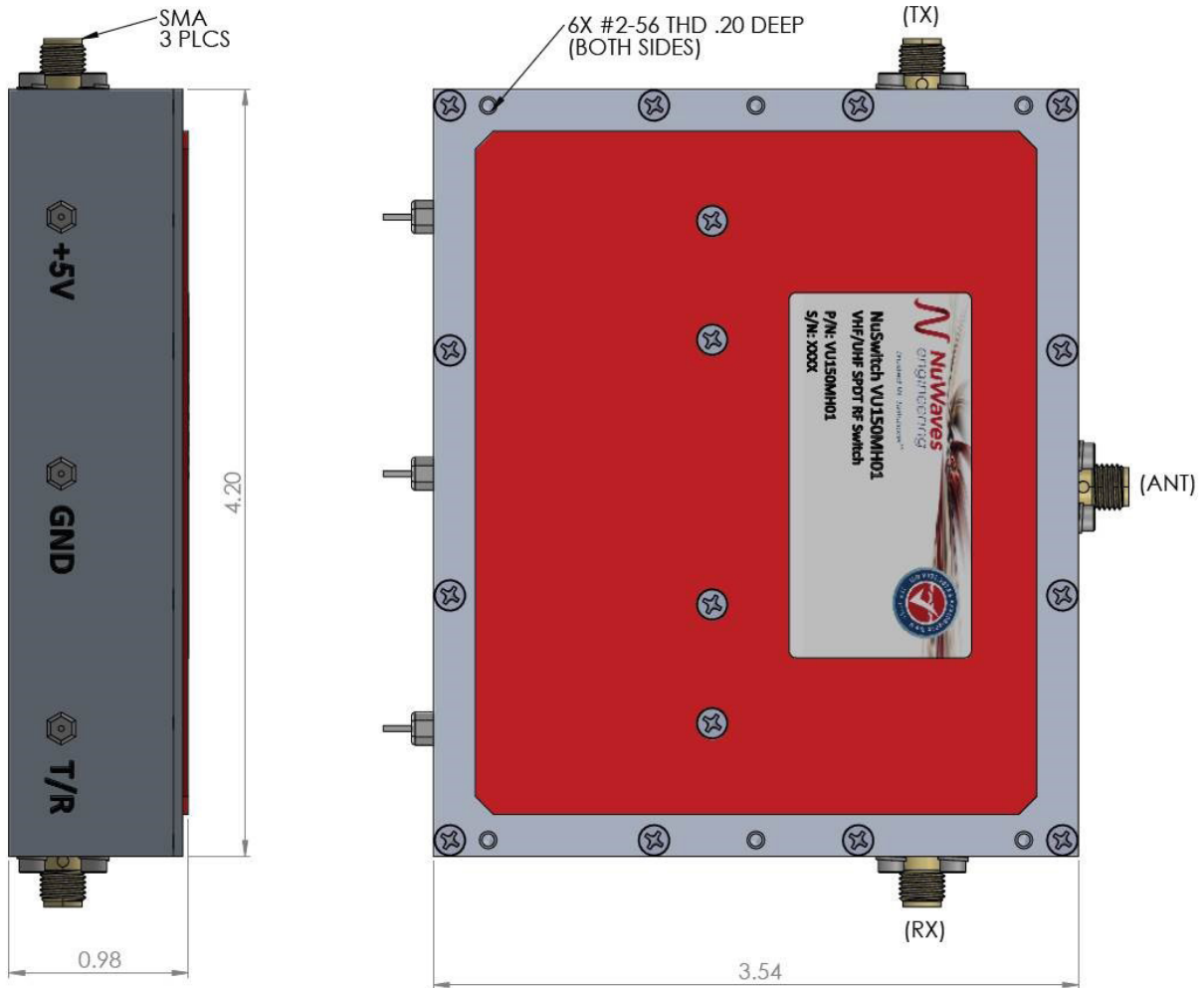


Isolation



VHF/UHF High Speed RF Switch

Mechanical Outline



VHF/UHF High Speed RF Switch

Truth Table

Truth Table for T/R pin	
Mode	Voltage
Transmit	GND (0 - 0.55 VDC)
Receive	+5 VDC (3.8 - 5.5 VDC)

For information on product disposal (end-of-life), please refer to this document:
<https://nuwaves.com/wp-content/uploads/Product-Disposal-End-of-Life.pdf>

Contact NuWaves



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