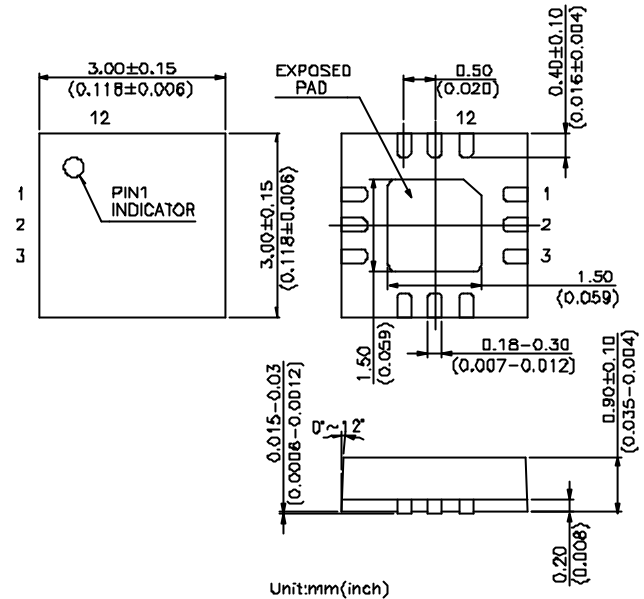


Features

- **Low Insertion Loss:** 0.95 dB @ 2.5 GHz
1.25 dB @ 5.8 GHz
- **Isolation:** 26 dB @ 2.5 GHz
18 dB @ 5.8 GHz
- **Low DC Power Consumption**
- **Miniature QFN12L (3x3 mm) Using Lead (Pb) free materials with RoHS compliant**
- **PHEMT process**

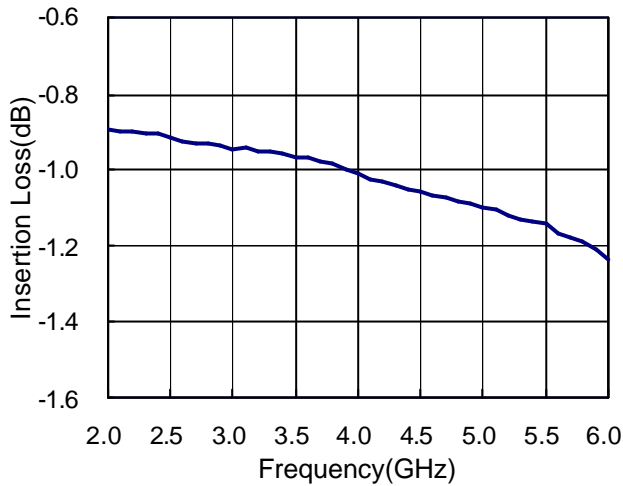
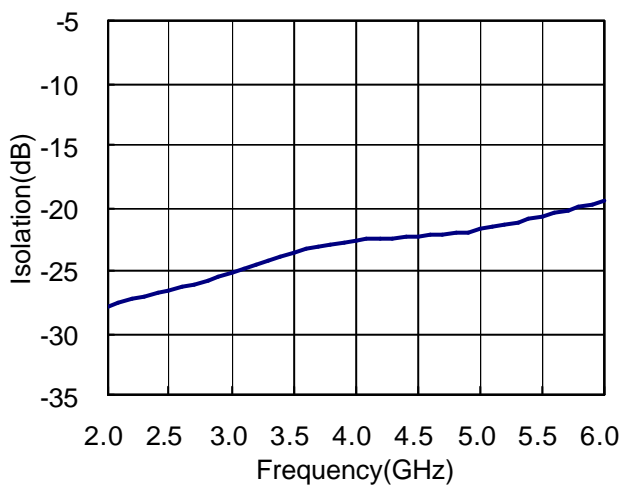
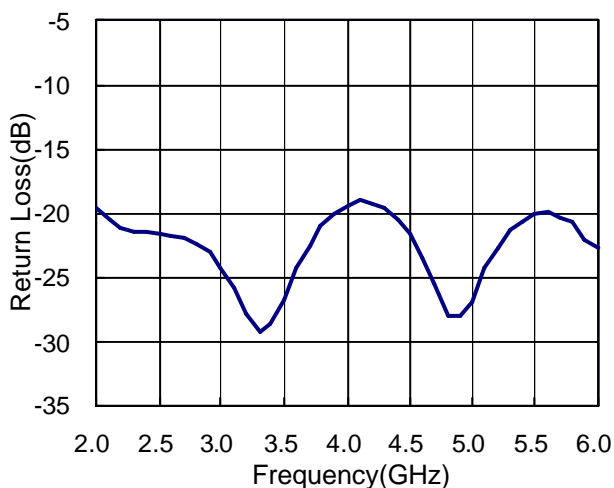
QFN12L (3 x 3 mm)

Description

The HWS451 is a GaAs PHEMT MMIC SP4T switch operating at DC-6 GHz in a low cost miniature QFN12L (3 x 3 mm) plastic lead (Pb) free package. The HWS451 features low insertion loss and high isolation with very low DC power consumption. This switch can be used in WiMAX or IEEE 802.11a/b/g WLAN PC card and access point applications.

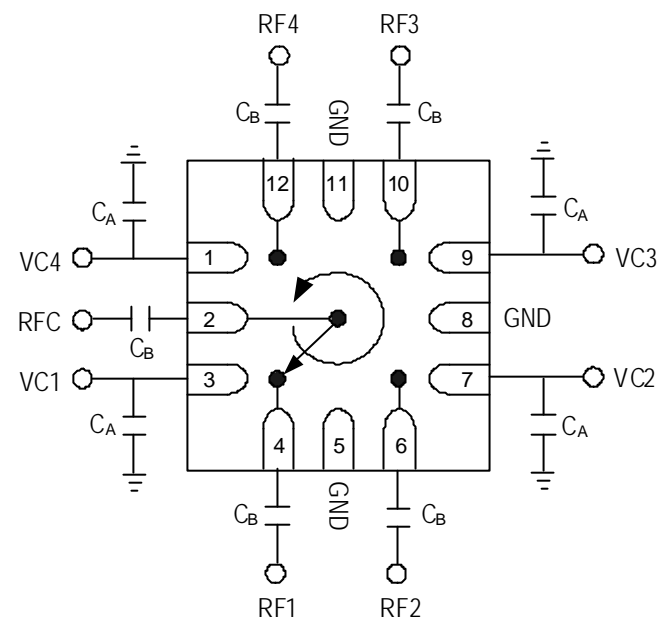
Electrical Specifications at 25° C with 0, +3V Control Voltages

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	0.10-6.00 GHz		1.30	1.20	dB
	2.40-2.50 GHz		0.95		dB
	3.30-3.90 GHz		1.00		dB
	4.90-5.85 GHz		1.25		dB
Isolation	0.10-6.00 GHz	21	18		dB
	2.40-2.50 GHz		26		dB
	3.30-3.90 GHz		22		dB
	4.90-5.85 GHz		18		dB
Return Loss	0.10-6.00 GHz		15		dB
	2.40-2.50 GHz		20		dB
	3.30-3.90 GHz		18		dB
	4.90-5.85 GHz		15		dB
Input Power for One dB Compression	2.00-6.00 GHz		36		dBm
Control Current			10	200	uA

Note: All measurements made in a 50 ohm system with 0/+3.0V control voltages, unless otherwise specified.

Typical Performance Data with 8pF Capacitors @ +25°C
Insertion Loss vs Frequency

Isolation vs Frequency

Return Loss vs Frequency

Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+36 dBm @ +3V
Control Voltage	+6V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

Pin Out (Top View)

Note:

1. DC blocking capacitors $C_B=8\text{pF}$ are required on all RF ports.
2. RF by-pass capacitors $C_A=8\text{pF}$.
3. Exposed pad in the bottom must be connected to ground by via holes.

Logic Table for Switch On-Path

VC1	VC2	VC3	VC4	RFC
1	0	0	0	RF1
0	1	0	0	RF2
0	0	1	0	RF3
0	0	0	1	RF4

'1' = +3V to +5V

'0' = 0V to +0.2V