



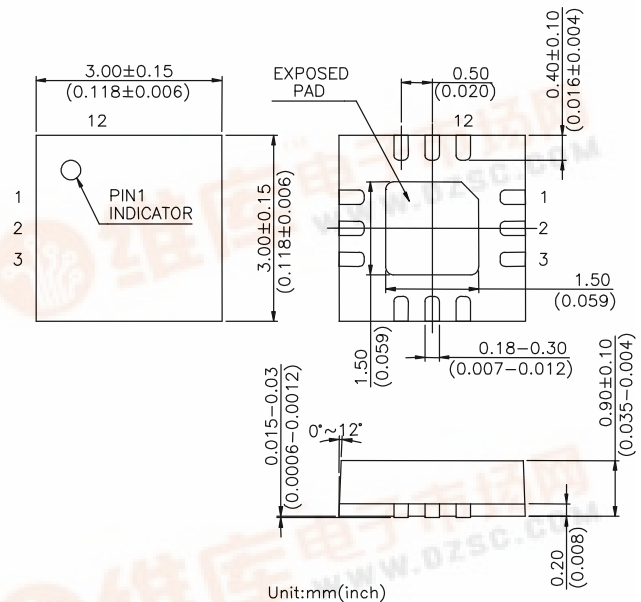
Features

- **Low Insertion Loss:** 0.7 dB @ 2.5 GHz
1.0 dB @ 4.9 to 6.0 GHz
- **Isolation:** 27 dB @ 2.5 GHz
20 dB @ 4.9 to 6.0 GHz
- **Low DC Power Consumption**
- **Miniature QFN12L (3x3 mm) Plastic Package, RoHS Compliant**
- **PHEMT process**
- **4 Control Lines version of HWS383**

Description

The HWS420 is a GaAs PHEMT MMIC DPDT switch operating at DC-6 GHz in a low cost miniature QFN12L (3 x 3 mm) plastic package. The HWS420 features low insertion loss and high isolation with very low DC power consumption. This switch can be used in IEEE 802.11a/b/g WLAN systems for combination of transmit/receive and antenna diversity functions.

QFN12L (3 x 3 mm)



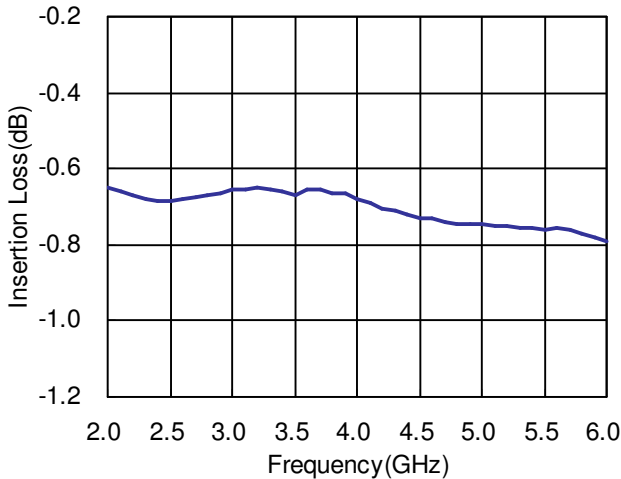
Electrical Specifications at 25 °C with 0, +3V Control Voltages

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	0.1-6.0 GHz		1.0		dB
	2.4-2.5 GHz		0.7		dB
	4.9-6.0 GHz		1.0	1.3	dB
Isolation (ANT1-ANT2, TX-RX)	0.1-6.0 GHz		15		dB
	2.4-2.5 GHz		23		dB
	4.9-6.0 GHz	13	15		dB
Isolation (ANT1-TX, ANT1-RX, ANT2-TX, ANT2-RX)	0.1-6.0 GHz		20		dB
	2.4-2.5 GHz		27		dB
	4.9-6.0 GHz	15	20		dB
Return Loss	0.1-6.0 GHz		15		dB
Input Power for One dB Compression	2.0-6.0 GHz		33		dBm
Control Current			20		uA

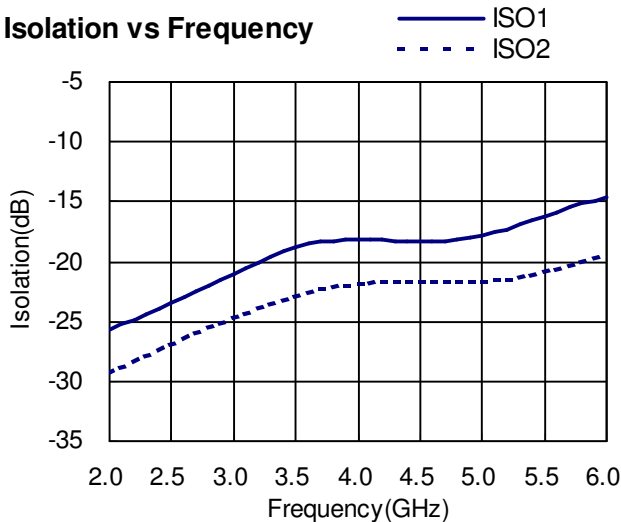
Note: All measurements made in a 50 ohm system with 0/+3.0V control voltages, unless otherwise specified.

Typical Performance Data with 8pF Capacitors @ +25°C

Insertion Loss vs Frequency

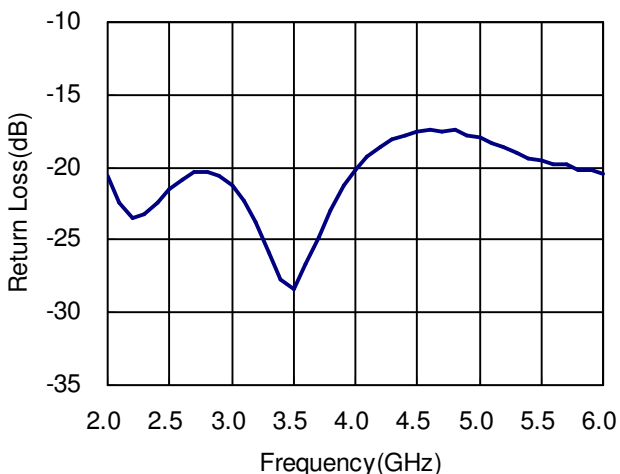


Isolation vs Frequency



Note: ISO1 for ANT1-ANT2 and TX-RX
ISO2 for ANT1-TX, ANT1-RX, ANT2-TX, and ANT2-RX

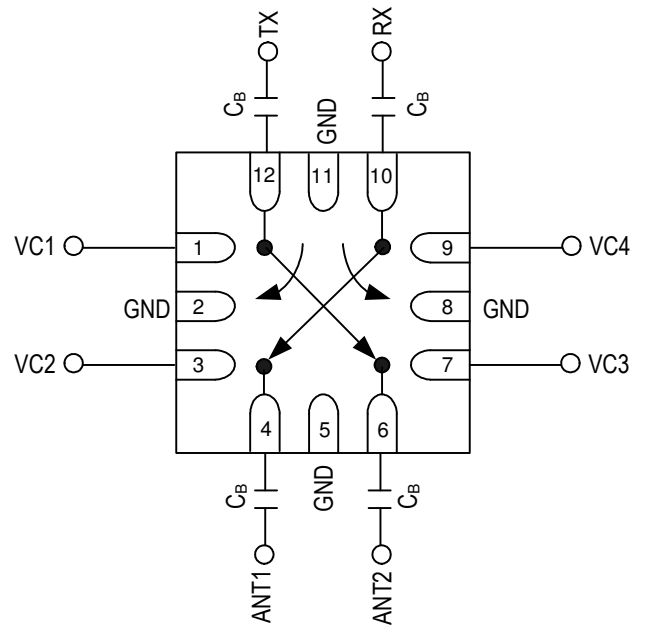
Return Loss vs Frequency



Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+34 dBm @ +3V
Control Voltage	+6V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

Pin Out (Top View)



Note:

- DC blocking capacitors $C_B=8\text{pF}$ are required on all RF ports.
- Exposed pad in the bottom must be connected to ground by via holes.
- TX and RX ports can be used interchangeably.

Logic Table for Switch On-Path

VC1	VC2	VC3	VC4	On-Path
1	0	0	0	ANT2-RX
0	1	0	0	ANT1-TX
0	0	1	0	ANT1-RX
0	0	0	1	ANT2-TX

'1' = +3V to +5V

'0' = 0V to +0.2V