HWS415



GaAs DC-6 GHz DPDT Switch

September 2006 V4

Features

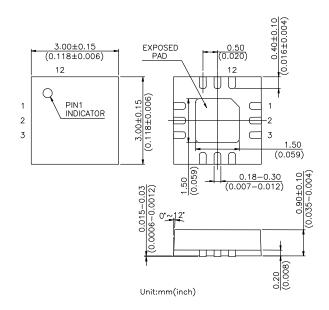
• Low Insertion Loss : 0.8 dB @ 2.5 GHz

1.0 dB @ 4.9 to 6.0 GHz

- High Isolation: 43 dB @ 2.5 GHz 36 dB @ 4.9 to 6.0 GHz
- Low DC Power Consumption
- Miniature QFN12L (3x3 mm) Plastic Lead (Pb) Free Package
- PHEMT process
- Lead Free and RoHS Compliant Version of HWS411

Description

The HWS415 is a GaAs PHEMT MMIC DPDT switch operating at DC-6 GHz in a low cost miniature QFN12L (3 x 3 mm) plastic lead (Pb) free package. The HWS415 features low insertion loss and high isolation up to 6 GHz 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 ℃ with 0, +3V Control Voltages

Parameter	Test Conditions	Min.	Тур.	Max.	Unit
Insertion Loss	0.1-6.0 GHz 2.4-2.5 GHz 4.9-6.0 GHz		1.0 0.8 1.0	1.3	dB dB dB
Isolation (on/off or off/on)	0.1-6.0 GHz 2.4-2.5 GHz 4.9-6.0 GHz	26	36 43 36		dB dB dB
Isolation (off/off)	2.4-2.5 GHz 4.9-6.0 GHz		10 17		dB dB
Return Loss	0.1-6.0 GHz 2.4-2.5 GHz 4.9-6.0 GHz		15 20 18		dB dB dB
Input Power for One dB Compression	2.0-6.0 GHz		30		dBm
Second Harmonic	Pin=20 dBm		-75		dBc
Third Harmonic	Pin=20 dBm		-75		dBc
Input Third Order Intermodulation Intercept Point	20 dBm Per Tone @ 5.85 GHz	45			dBm
Switching Time			50		ns
Control Current			5	100	uA

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

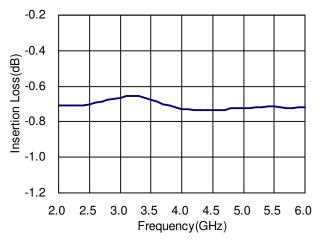
Hexawave Inc. 2 Prosperity Road II, Science-Based Industrial Park, Hsinchu, Taiwan. TEL 886-3-578-5100 FAX 886-3-577-0512
http://www.hw.com.tw
All specifications are subject to change without notice.

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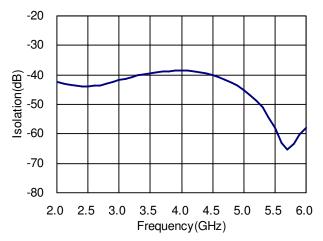


Typical Performance Data with 8pF Capacitors @ +25 ℃

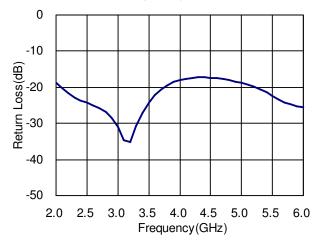
Insertion Loss vs Frequency



Isolation vs Frequency



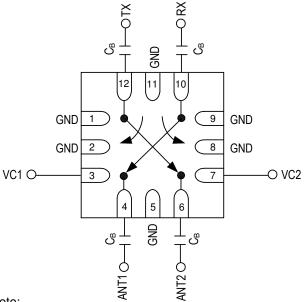
Return Loss vs Frequency



Absolute Maximum Ratings

Parameter	Absolute Maximum		
RF Input Power	+32 dBm @ +3V		
Control Voltage	+6V		
Operating Temperature	-40 ℃ to +85 ℃		
Storage Temperature	-65℃ to +150℃		

Pin Out (Top View)



Note:

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

Logic Table for Switch On-Path

VC1	VC2	ANT1-RX	ANT1-TX	ANT2-TX	ANT2-RX
1	0	On	Off	On	Off
0	1	Off	On	Off	On
1	1	Off	Off	Off	Off
0	0	Off	Off	Off	Off

1' = +3V to +5V

0' = 0V to +0.2V

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