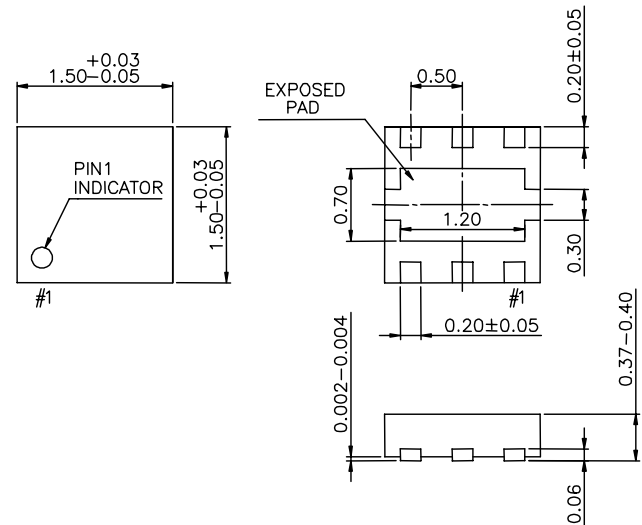


Features

- **Low Insertion Loss** : 0.6 dB @ 2.50 GHz
0.9 dB @ 5.85 GHz
- **Isolation**: 22.0 dB @ 2.50 GHz
17.0 dB @ 5.85 GHz
- **Low DC Power Consumption**
- **Miniature USON6L (1.5x1.5x0.4mm) Plastic Lead (Pb) Free and GP Compliant Package**
- **PHEMT process**

USON6L (1.5x1.5)



Unit:mm

Description

The HWS503 is a GaAs PHEMT MMIC DPDT switch operating at 0.5-6 GHz in a miniature USON6L (1.5 x 1.5 x 0.4mm) plastic lead (Pb) free package. The HWS503 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.

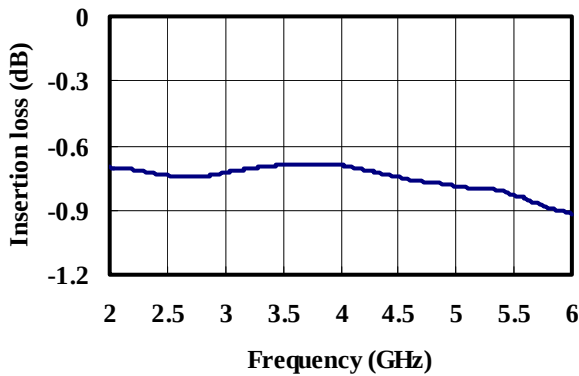
Electrical Specifications at 25°C with 0, +3V Control Voltages

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	0.50-6.00 GHz		1.0		dB
	2.40-2.50 GHz		0.6	0.8	dB
	5.15-5.85 GHz		0.9	1.1	dB
Isolation	0.50-6.00 GHz		15.0		dB
	2.40-2.50 GHz	20.0	22.0		dB
	5.15-5.85 GHz	14.0	17.0		dB
Return Loss	0.50-6.00 GHz		15		dB
	2.40-2.50 GHz		15		dB
	5.15-5.85 GHz		15		dB
Input Power for One dB Compression	0.50-6.00 GHz		35		dBm
Input Third Order Intermodulation Intercept Point	20 dBm Per Tone @ 2.50 GHz		58		dBm
Switching Time	0dBm @ 2.50 GHz		75		nsec
Control Current			5	20	uA

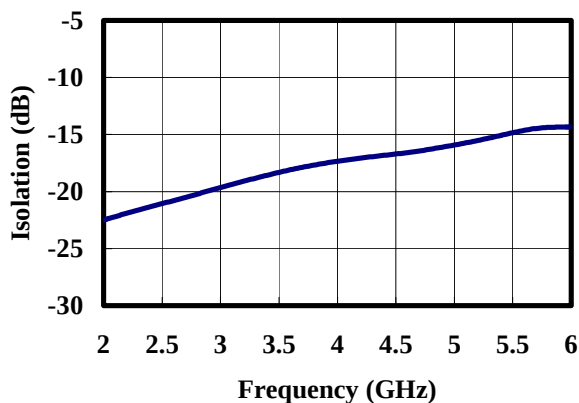
Note: All measurements made in a 50Ω system with 0/+3V control voltages, unless otherwise specified.

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

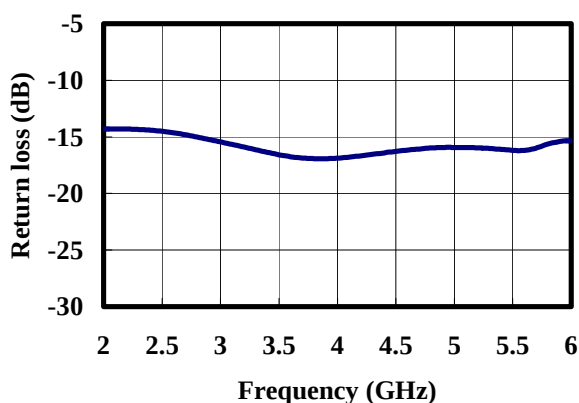
Insertion loss vs. Frequency



Isolation vs. Frequency



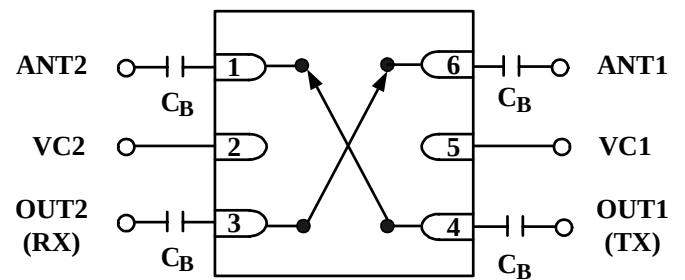
Input return loss vs. Frequency



Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+34dBm @ +3V
Control Voltage	+6V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Electrostatic Discharge Machine Model	Class M1

Pin Out



Note:

1. DC blocking capacitors $C_B=8\text{pF}$ 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.

Truth Table

State	VC1	VC2	ANT1	ANT2
1	0	1	TX	RX
2	1	0	RX	TX

'1' = +3V to +5V

'0' = 0V to +0.2V