

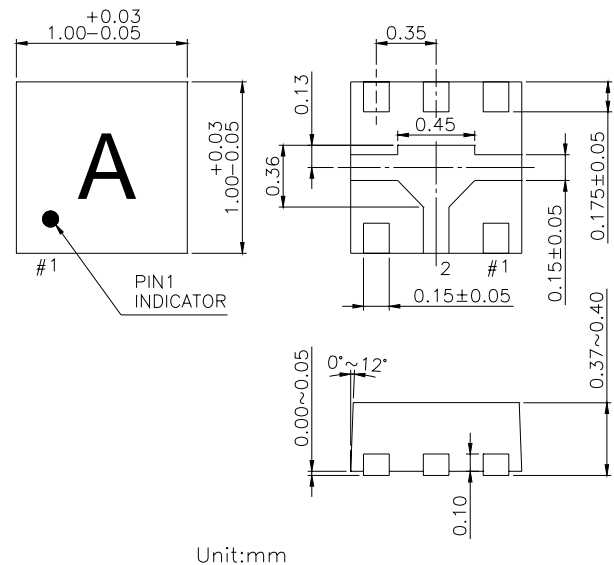
## Features

- **Low Insertion Loss:** 0.45 dB @ 2.5 GHz
- **Isolation:** 30 dB @ 2.5 GHz
- **Low DC Power Consumption**
- **Miniature LUSON6L (1x1x0.4 mm)**  
Using Lead (Pb) free materials with RoHS compliant
- **PHEMT process**

## Description

The HWS509 is a GaAs PHEMT MMIC SPDT switch operating at 0.5 -3.0 GHz in a low cost miniature LUSON6L (1.0 x 1.0 x 0.4 mm) plastic lead (Pb) free package. The HWS509 features low insertion loss and high isolation with very low DC power consumption. This switch can be used in Bluetooth or IEEE 802.11b/g/n WLAN applications as transmit/receive switch, antenna diversity switch, or band-selection switch.

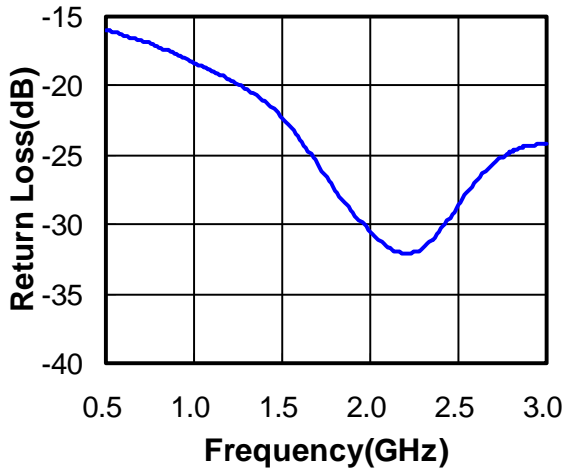
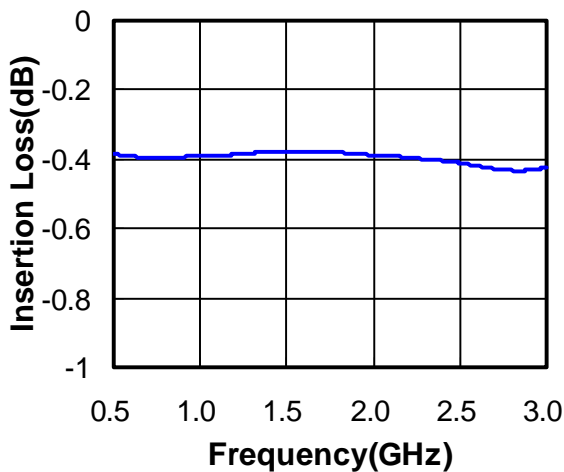
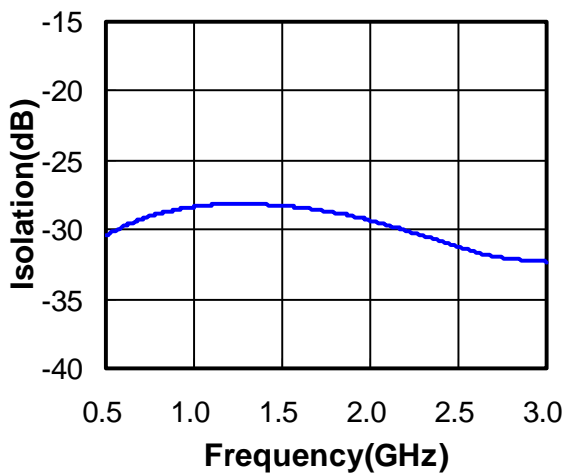
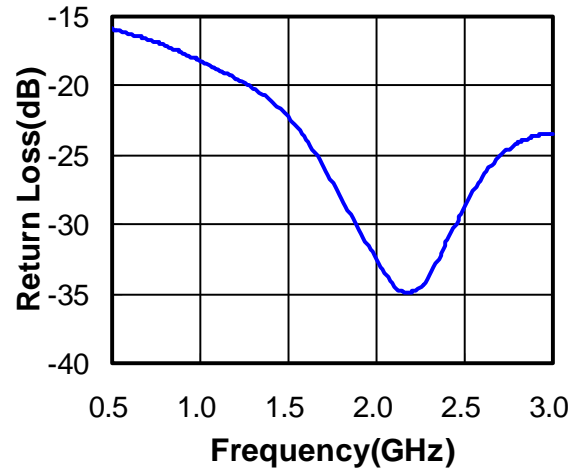
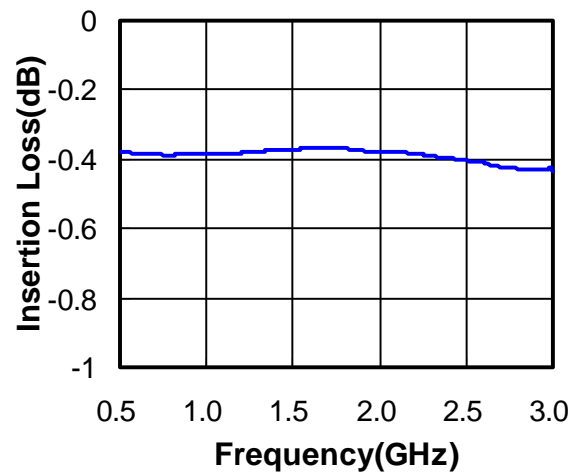
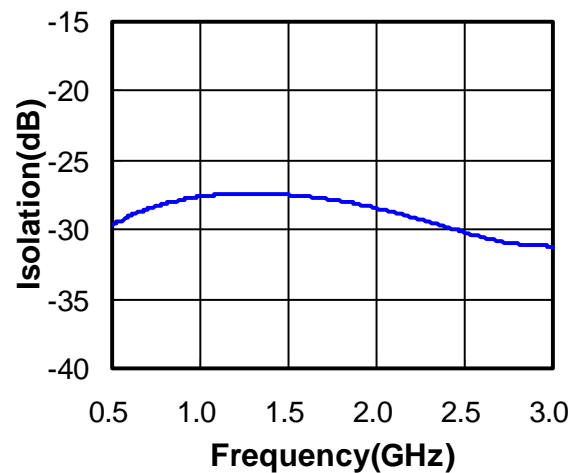
## LUSON6L (1.0X1.0X0.4 mm)



## Electrical Specifications at 25°C with 0, +1.8 5V Control Voltages

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	0.5-2.5 GHz		0.40	0.50	dB
	2.5-3.0 GHz		0.45	0.60	dB
Isolation	0.5-2.5 GHz	25	28		dB
	2.5-3.0 GHz	27	30		dB
Return Loss	0.5-3.0 GHz		18		dB
Input Power for One dB Compression	0.5-3.0 GHz @0/+1.8V @0/+3V	27	25 30		dBm dBm
Switching Time			100		ns
Control Current			5	20	uA

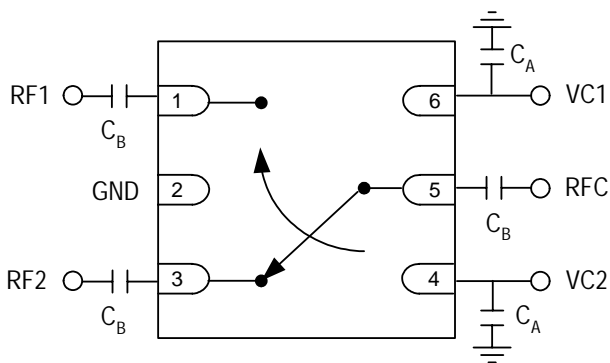
Note: All measurements made in a 50 Ohm system with 0/+1.8 5V control voltages, unless otherwise specified.

**Typical Performance Data @ +25°C  
with 0, +3.0V Control Voltages**
**Return Loss vs. Frequency**

**Insertion Loss vs. Frequency**

**Isolation vs. Frequency**

**Typical Performance Data @ +25°C  
with 0, +1.8V Control Voltages**
**Return Loss vs. Frequency**

**Insertion Loss vs. Frequency**

**Isolation vs. Frequency**


## Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power 0.5-2.5 GHz	+33 dBm
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 (Top View)



Note:

DC blocking capacitors  $C_B$  are required on all RF ports.  
 $C_B=C_A=47\text{pF}$  for operating frequency > 500MHz.

## Logic Table for Switch On-Path

VC1	VC2	RFC-RF1	RFC-RF2
1	0	On	Off
0	1	Off	On

'1' = +1.8V to +5.0V

'0' = 0V to +0.2V