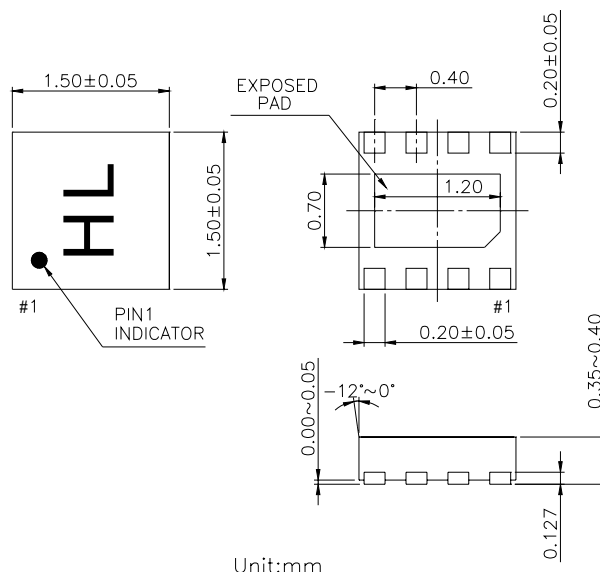


**Features**

- **Low Insertion Loss:** 0.55 dB @ 2.5 GHz  
0.90 dB @ 5.8 GHz
- **Isolation:** 25 dB @ 2.5 GHz  
25 dB @ 5.8 GHz
- **Low DC Power Consumption**
- **Miniature USON8L (1.5x1.5x0.4 mm)**  
Using Lead (Pb) free materials with RoHS compliant
- **PHEMT process**

**USON8L (1.5x1.5x0.4 mm)**

**Description**

The HWS520 is a GaAs SP3T switch operating at 0.5-6.0 GHz in a low cost miniature USON8L (1.5x 1.5x0.4 mm) plastic lead (Pb) free package. The HWS520 features low insertion loss with very low DC power consumption. This switch can be used in wireless applications for selection of Bluetooth and IEEE 802.11a/b/g/n transmit/receive functions.

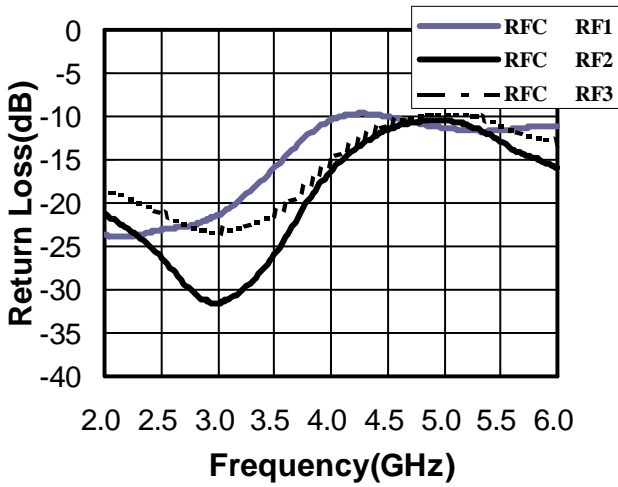
**Electrical Specifications at 25°C with 0, +1.9 5.0V Control Voltages**

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	0.5-2.0 GHz		0.50	0.60	dB
	2.0-4.0 GHz		0.60	0.80	dB
	4.0-6.0 GHz		0.90	1.10	dB
	2.4-2.5 GHz		0.55	0.65	dB
	4.8-5.9 GHz		0.90		dB
Isolation	0.5-2.0 GHz	22	25		dB
	2.0-4.0 GHz	22	25		dB
	4.0-6.0 GHz	22	25		dB
	2.4-2.5 GHz	22	25		dB
	4.8-5.9 GHz	22	25		dB
Return Loss	0.5-3.0 GHz		20		dB
	3.0-6.0 GHz		10		dB
Input Power for One dB Compression	0.5-3.0 GHz @0/+3V @0/+1.9V		30		dBm
			20		dBm
Switching Time	@0/+3V		75		nsec
Control Current			5	100	uA

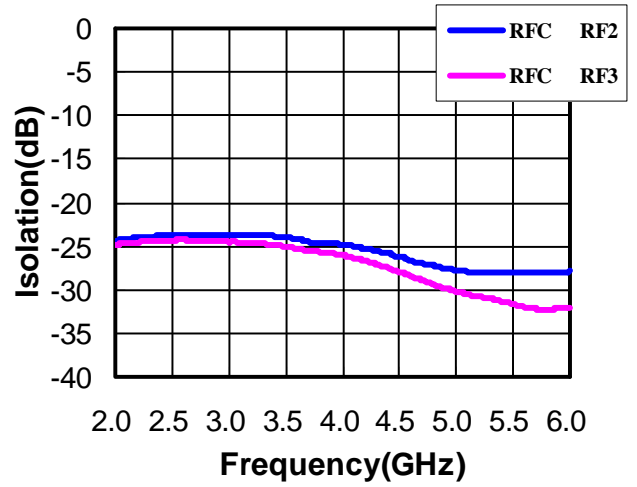
Note: All measurements made in a 50 ohm system with 0/+1.9 5.0V control voltages, unless otherwise specified.

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

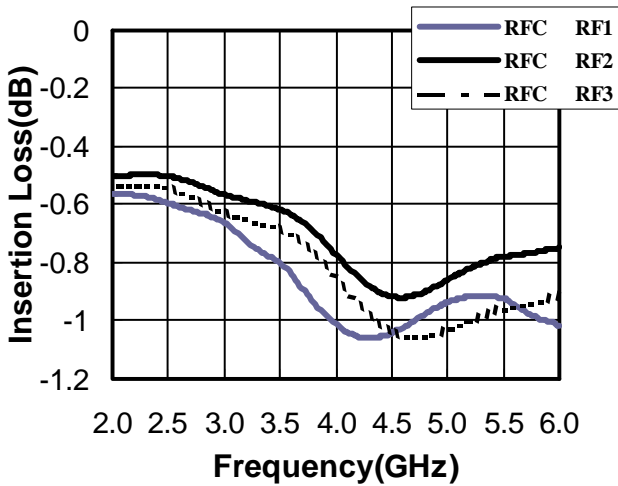
Return Loss vs. Frequency



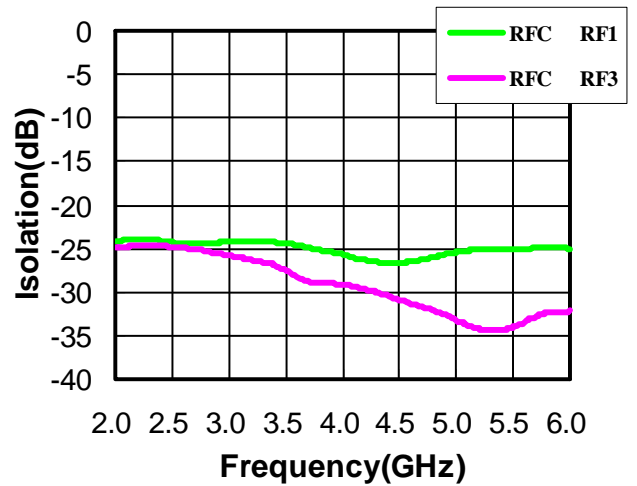
Isolation vs. Frequency (RFC to RF1 Insertion Loss State)



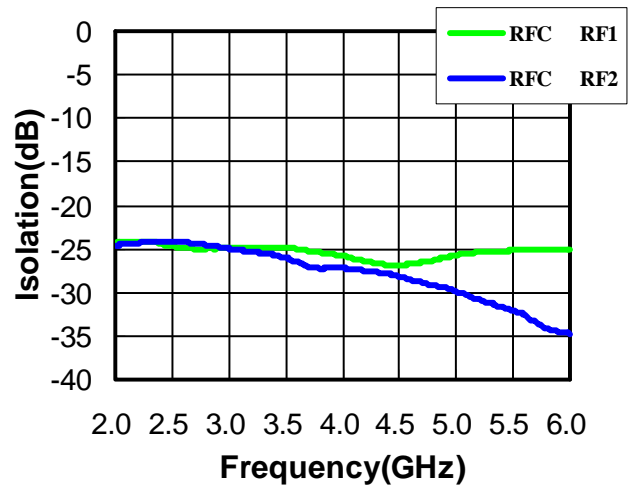
Insertion Loss vs. Frequency



Isolation vs. Frequency (RFC to RF2 Insertion Loss State)



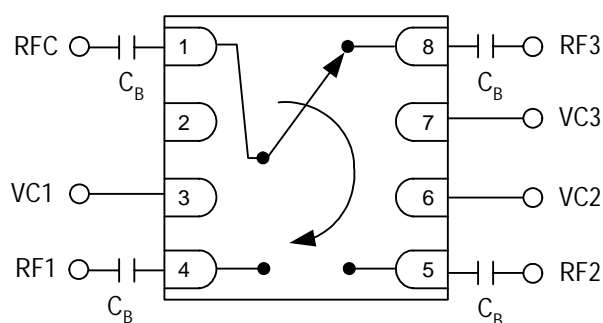
Isolation vs. Frequency (RFC to RF3 Insertion Loss State)



### Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+33 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 for operating frequency  $> 2\text{GHz}$ .
2.  $C_B=47\text{pF}$  for operating frequency  $< 2\text{GHz}$ .
3. Exposed pad in the bottom must be connected to ground by via holes.

### Logic Table for Switch On-Path

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

'1' = +1.9V to +5V

'0' = 0V to +0.2V