

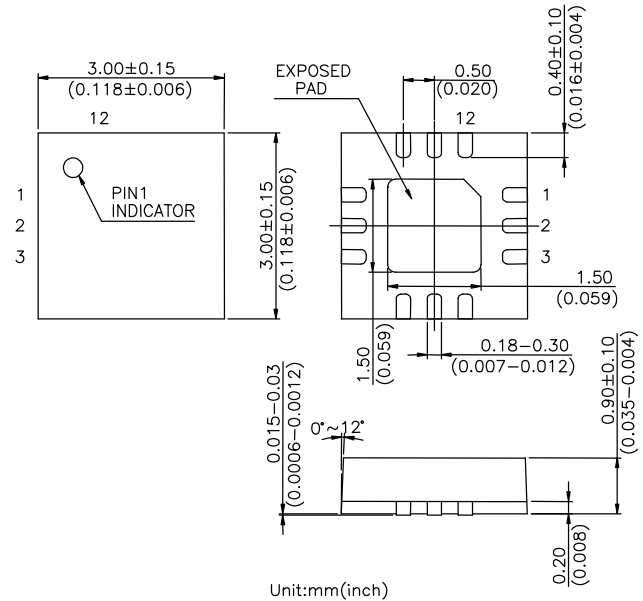
Features

- **Low Insertion Loss :** 0.7 dB @ 2.5 GHz
0.9 dB @ 4.9 to 6.0 GHz
- **Isolation:** 25 dB @ 2.5 GHz
30 dB @ 4.9 to 6.0 GHz
- **Low DC Power Consumption**
- **Miniature QFN12L (3x3 mm) Plastic Package**
- **PHEMT process**

Description

The HWS407 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 HWS407 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)

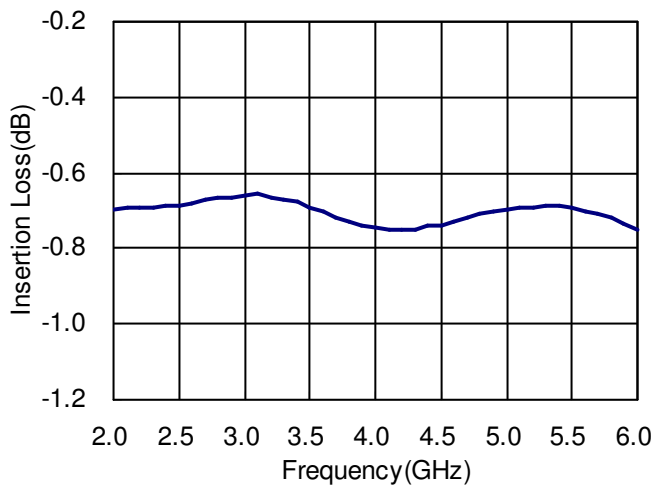
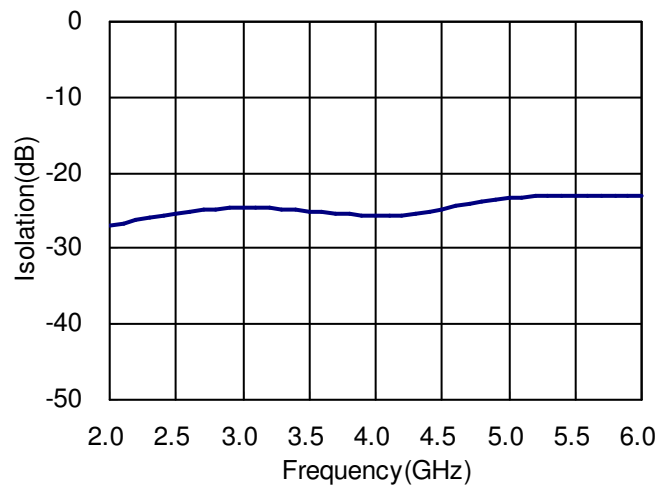
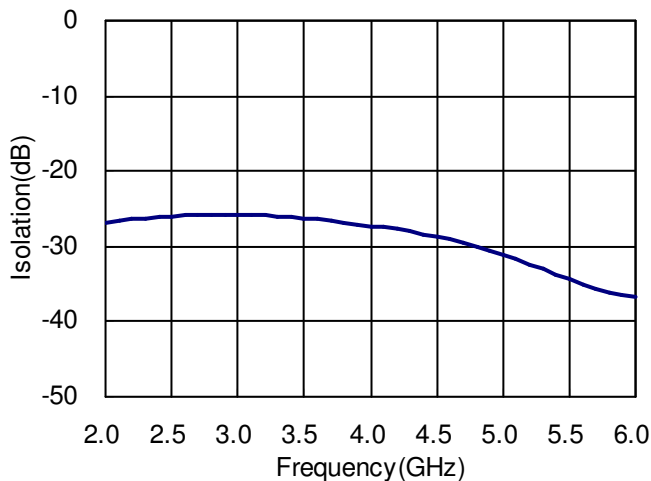
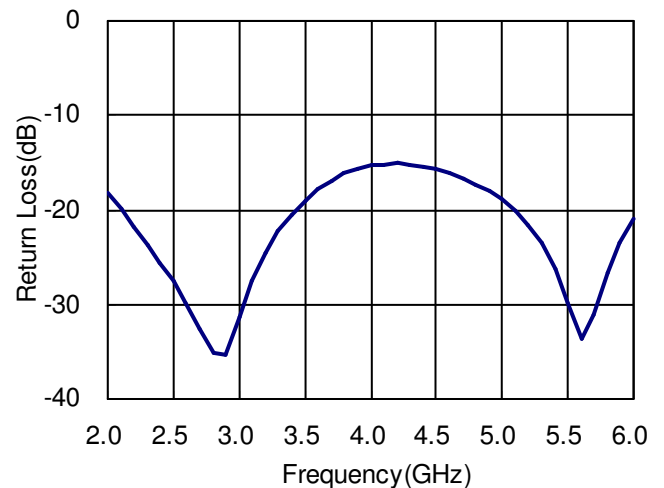
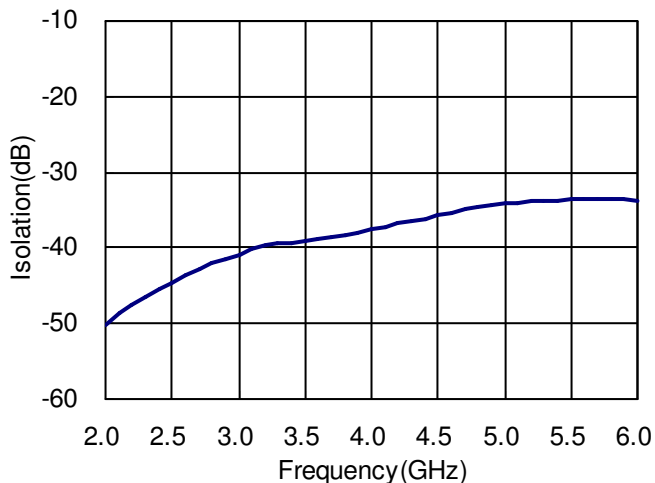


Electrical Specifications at 25°C with 0, +3V Control Voltages

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|-----------------|------|------|------|------|
| Insertion Loss | 0.1-6.0 GHz | | 0.9 | | dB |
| | 0.1-1.0 GHz | | 0.6 | | dB |
| | 2.4-2.5 GHz | | 0.7 | | dB |
| | 4.9-6.0 GHz | | 0.9 | 1.2 | dB |
| Isolation (on port to off port) | 0.1-6.0 GHz | | 25 | | dB |
| | 2.4-2.5 GHz | | 25 | | dB |
| | 4.9-6.0 GHz | 27 | 30 | | dB |
| Isolation (off port to off port) | 0.1-6.0 GHz | | 33 | | dB |
| | 2.4-2.5 GHz | | 43 | | dB |
| | 4.9-6.0 GHz | | 33 | | dB |
| Isolation (TX to RX or ANT1 to ANT2) | 0.1-6.0 GHz | | 22 | | dB |
| | 2.4-2.5 GHz | | 25 | | dB |
| | 4.9-6.0 GHz | | 22 | | dB |
| Return Loss | 0.1-6.0 GHz | | 15 | | dB |
| Input Power for One dB Compression | 2.0-6.0 GHz | | 30 | | dBm |
| Control Current | | | 20 | 200 | 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(TX port to RX port) vs Frequency

Isolation(on port to off port) vs Frequency

Return Loss vs Frequency

Isolation(off port to off port) vs Frequency


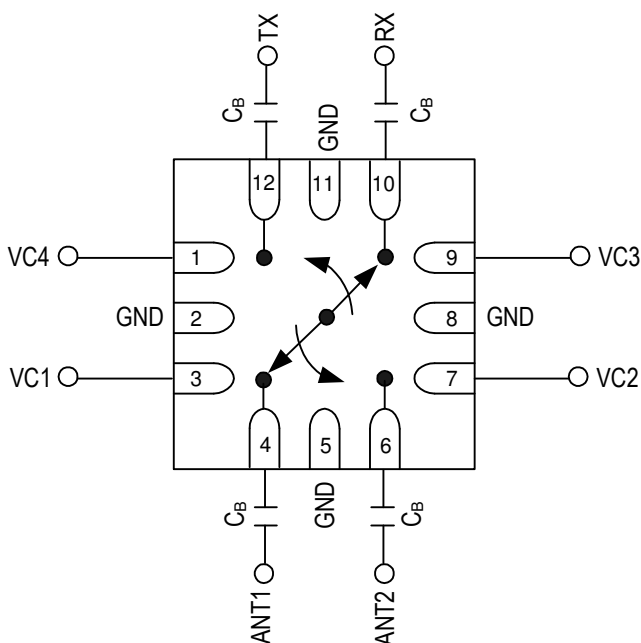
Absolute Maximum Ratings

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

Logic Table for Switch On-Path

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

Pin Out (Top View)



Note:

- '1' = +3V to +5V, '0' = 0V to +0.2V
- VC1 and VC2 are used for antenna selection, while VC3 and VC4 are used for TX/RX selection.

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.