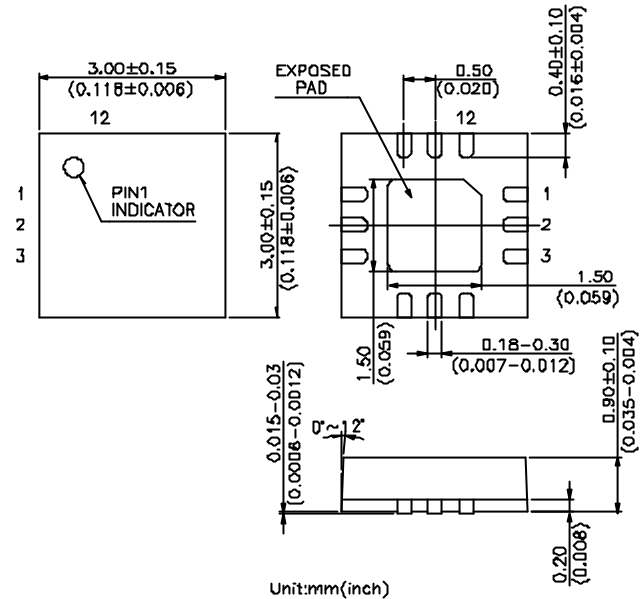


Features

- **Low Insertion Loss:** 0.9 dB @ 2.50 GHz
1.0 dB @ 3.5 GHz
- **Isolation:** 22 dB @ 2.50 GHz
20 dB @ 3.5GHz
- **Low DC Power Consumption**
- **Miniature QFN12L (3x3 mm) Using Lead (Pb) free materials with RoHS compliant**
- **PHEMT process**

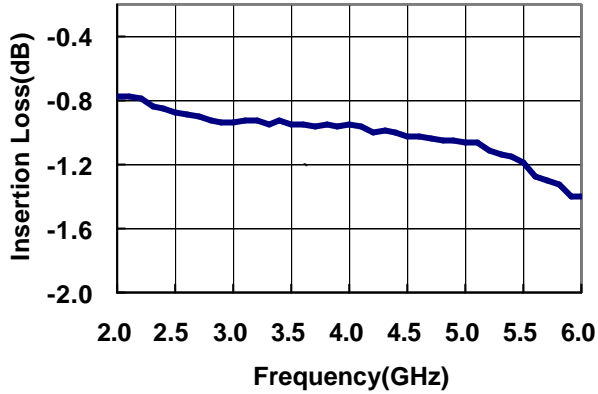
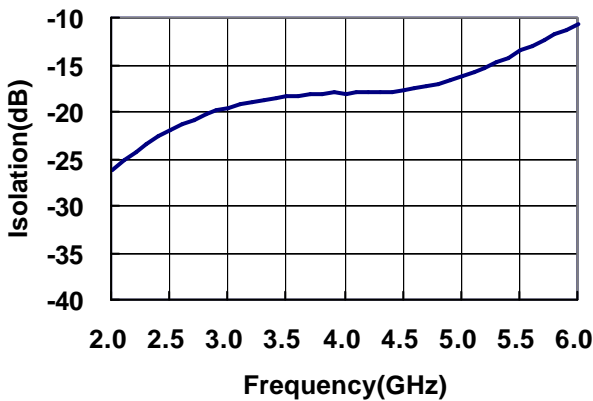
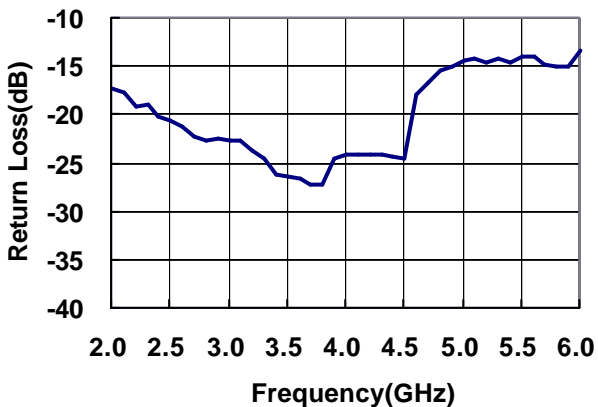
QFN12L (3 x 3 mm)

Description

The HWS499 is a GaAs PHEMT MMIC DPDT switch operating at DC-4 GHz in a low cost miniature QFN12L (3 x 3 mm) plastic lead (Pb) free package. The HWS499 features low insertion loss and high isolation with very low DC power consumption. This switch can be used in WiMAX or IEEE 802.11b/g WLAN systems for combination of transmit/receive and antenna diversity functions.

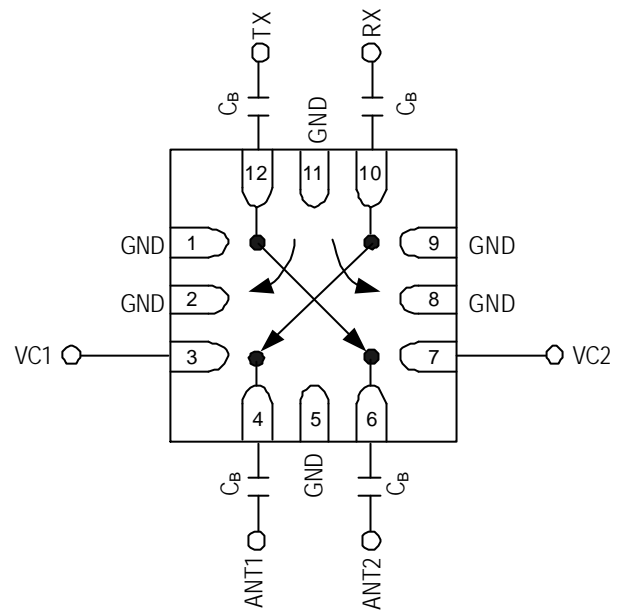
Electrical Specifications at 25° C with 0, +3V Control Voltages

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------------------------------|-----------------------|------|------|------|------|
| Insertion Loss | 2.30-2.70 GHz | | 0.9 | 1.1 | dB |
| | 3.30-3.90GHz | | 1.0 | 1.3 | dB |
| Isolation (on-off or off-on) | 2.30-2.70 GHz | 20.0 | 22 | | dB |
| | 3.30-3.90 GHz | 17.0 | 20 | | dB |
| Input Power for 1 dB Compression | 2.00-4.00 GHz @+3V | | 36 | | dBm |
| | @+5V | | 38 | | dBm |
| Control Current | | | 5 | 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 vs Frequency

Return Loss vs Frequency

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|-----------------------|------------------|
| RF Input Power | +36 dBm @ +3V |
| Control Voltage | +6V |
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -65°C to +150°C |

Pin Out (Top View)


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.

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