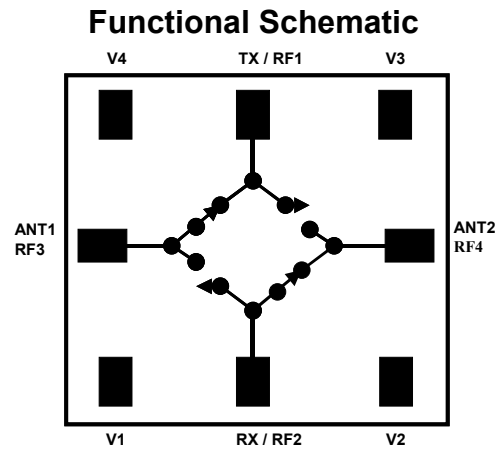


2.4GHz DPDT GaAs Single-Band WLAN Switch

Features:

- ◆ 3x3x0.9mm Packaged pHEMT Switch
- ◆ Suitable for Single-band WLAN 802.11b/g Applications
- ◆ Excellent low control voltage performance
- ◆ Very low Insertion loss typ. 0.6dB at 2.5GHz
- ◆ High isolation typ. 23dB at 2.5GHz
- ◆ Filtronic Advanced GaAs pHEMT Technology



Description and Applications:

The FMS2017QFN is a low loss, single band Gallium Arsenide antenna diversity switch designed for use in Wireless LAN applications. The die is fabricated using the Filtronic FL05 0.5 μ m switch process technology that offers leading edge performance, optimised for switch applications. The FMS2017QFN is designed for use in 802.11b/g WLAN modules.

Electrical Specifications: (T_{AMBIENT} = 25°C, V_{ctrl} = 0V/(2.4V,+3.3V), Z_{IN} = Z_{OUT} = 50 Ω)

| Parameter | Conditions | Min | Typ | Max | Units |
|----------------------------|-----------------------------------|-----|-----|-----|-------|
| Insertion Loss (All Paths) | 2.5GHz, Small Signal | | 0.6 | | dB |
| Isolation (All Paths) | 2.5GHz, Small Signal | | 23 | | dB |
| Return Loss | 2.5GHz, Small Signal | | 20 | | dB |
| P0.1dB | 2.5GHz Control Voltage 3.0V | | >33 | | dBm |
| 2nd Harmonic Level | 2.4GHz, Pin = 32dBm, Vctrl = 2.4V | | -65 | | dBc |
| 3rd Harmonic Level | 2.4GHz, Pin = 32dBm, Vctrl = 2.4V | | -65 | | dBc |
| Switching speed | Vctrl=2.4V, Pin=20dBm | | 20 | | nS |

Note: External DC blocking capacitors are required on all RF ports (typ: 47pF)
All unused ports terminated in 50 Ω .

Absolute Maximum Ratings:

| Parameter | Symbol | Absolute Maximum |
|-----------------------|--------|------------------|
| Max Input Power | Pin | +38dBm |
| Control Voltage | Vctrl | +5V |
| Operating Temperature | Toper | -40°C to +100°C |
| Storage Temperature | Tstor | -55°C to +150°C |

Note: Exceeding any one of these absolute maximum ratings may cause permanent damage to the device.

Truth Table:

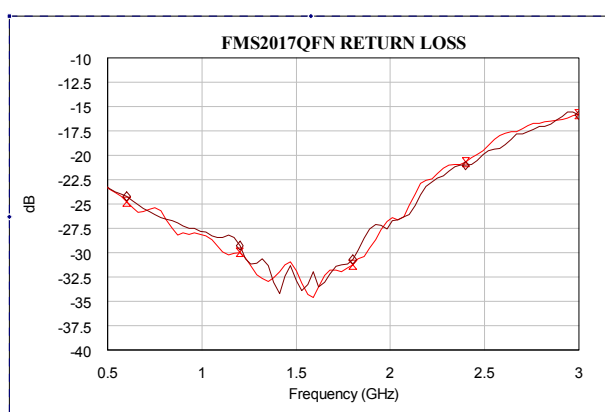
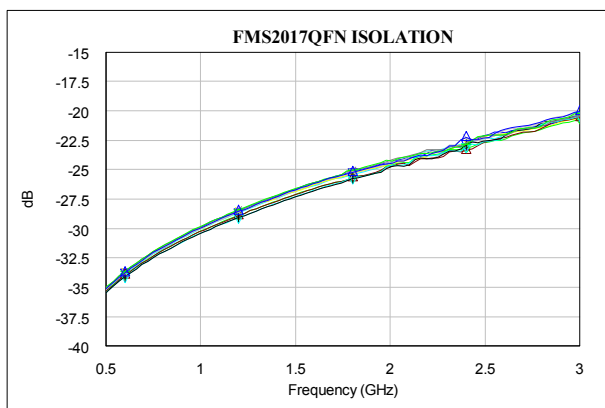
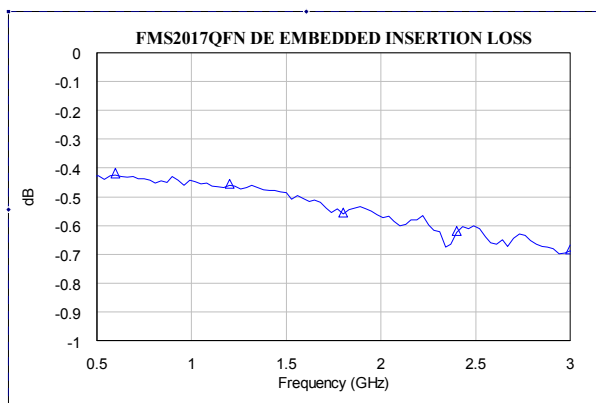
| Switch State | V1 | V2 | V3 | V4 | RX ANT1 | RX ANT2 | TX ANT2 | TX ANT1 |
|--------------|------|------|------|------|----------------|----------------|----------------|----------------|
| 1 | High | Low | Low | Low | Insertion Loss | Isolation | Isolation | Isolation |
| 2 | Low | High | Low | Low | Isolation | Insertion Loss | Isolation | Isolation |
| 3 | Low | Low | High | Low | Isolation | Isolation | Insertion Loss | Isolation |
| 4 | Low | Low | Low | High | Isolation | Isolation | Isolation | Insertion Loss |
| 5 | Low | High | Low | High | Isolation | Insertion Loss | Isolation | Insertion Loss |
| 6 | High | Low | High | Low | Insertion Loss | Isolation | Insertion Loss | Isolation |

General Test Conditions:

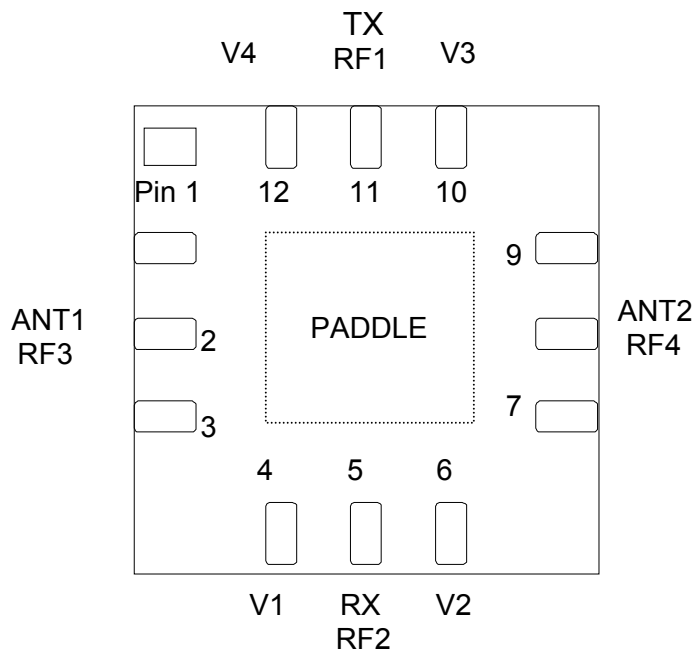
| | |
|---------------------|---|
| Bias Voltages | LOW = 0V to 0.2V HIGH +2.4V to +3.3V |
| Port Impedances | 50Ω |
| Off arm termination | 50Ω |

Typical Measured Performance on Evaluation Board (De-Embedded):

(Measurement Conditions $V_{CTRL}=3V$, $T_{AMBIENT} = 25^{\circ}C$ unless otherwise stated)



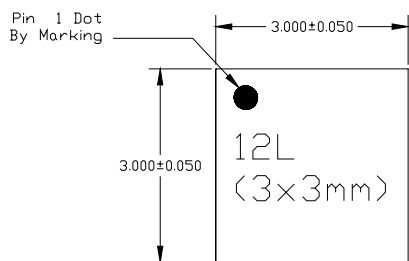
Pad Layout:



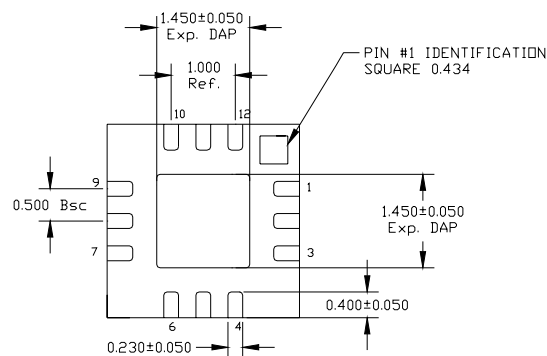
| Pin Number | Description |
|------------|-------------|
| 1 | N/C |
| 2 | ANT1 / RF3 |
| 3 | N/C |
| 4 | V1 |
| 5 | RX / RF2 |
| 6 | V2 |
| 7 | N/C |
| 8 | ANT2 / RF4 |
| 9 | N/C |
| 10 | V3 |
| 11 | Tx / RF1 |
| 12 | V4 |
| PADDLE | GND |

*View from the top of the package

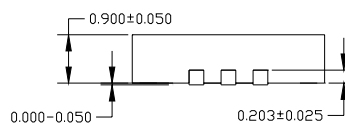
QFN 12 Lead 3*3 Package Outline:



TOP VIEW

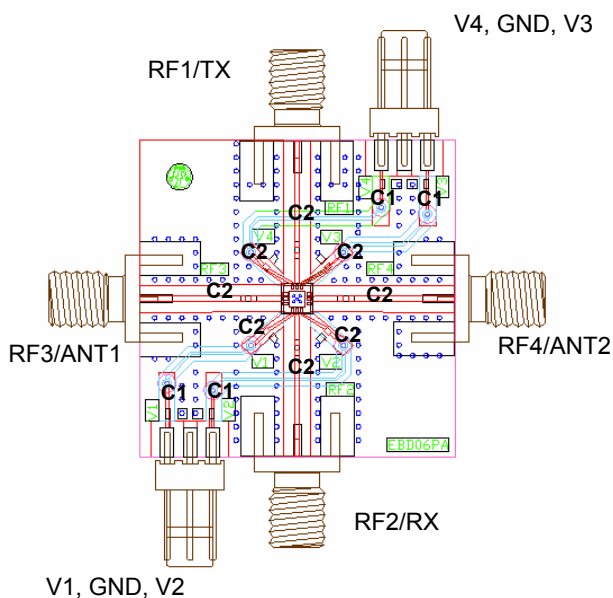


BOTTOM VIEW



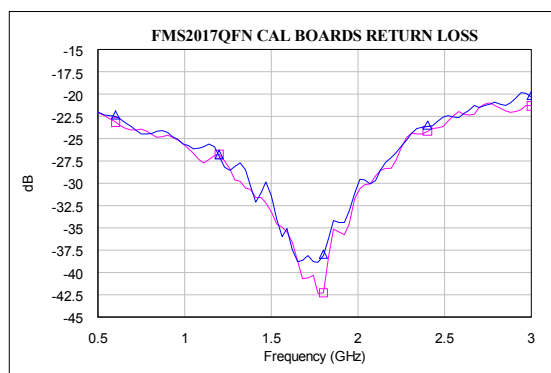
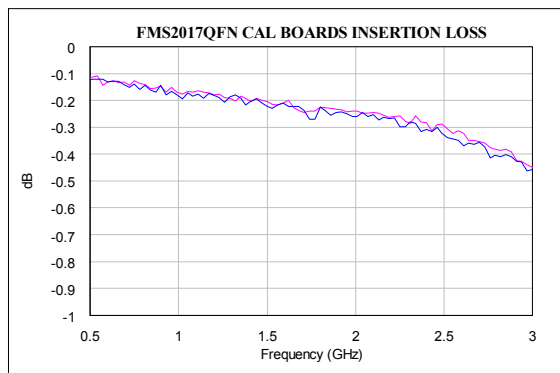
SIDE VIEW

Evaluation Board:



| BOM | |
|-------|--|
| Label | Component |
| C1 | Capacitor, 100pF, 0603 |
| C2 | Capacitor, 47pF, 0402 |
| BOARD | Preferred evaluation board material is 0.25 mm thick ROGERS RT4350. All RF tracks should be 50 ohm characteristic impedance. Absolute placement of surface mount de-coupling capacitors is not critical. |

Evaluation Board De-Embedding Data (Measured):



Ordering Information:

| Part Number | Description |
|----------------|--|
| FMS2017-001 | Packaged Die |
| FMS2017-001-EB | Packaged die mounted on evaluation board |

Handling Precautions:

To avoid damage to the devices care should be exercised during handling. Proper Electrostatic Discharge (ESD) precautions should be observed at all stages of storage, handling, assembly, and testing. These devices should be treated as Class 1A (0-500V). Further information on ESD control measures can be found in MIL-STD-1686 and MIL-HDBK-263.

Preferred Assembly Instructions:

Please refer to FCSL applications note: FAN 003 (handling and assembly of Filtronic QFN devices)

Disclaimers:

This product is not designed for use in any space based or life sustaining/supporting equipment.