

Features

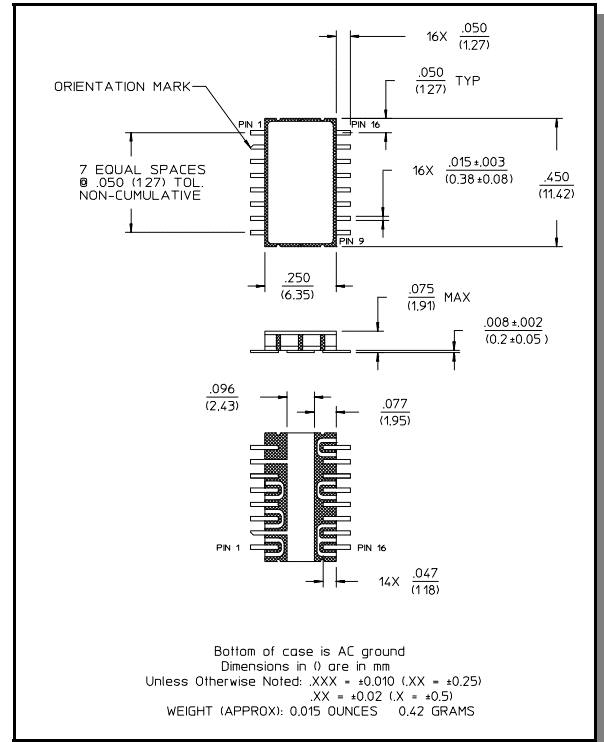
- Integral TTL Driver
- Ultra Low Power Consumption
- Fast Switching Speed: 7 ns Typical
- Surface Mount Package
- 50 Ohm Nominal Impedance
- MIL-STD-883 Screening Available

Description

M/A-COM's SW-312 is a GaAs FET SPDT reflective switch with integral silicon ASIC driver. Packaged in a 16-lead ceramic surface mount package, this device offers excellent performance and repeatability from DC to 3 GHz while maintaining low power consumption. The SW-312 is ideally suited for use where fast speed, low power consumption and broadband applications are required. MIL-STD-883 screening available.

Electrical Specifications^{1,2} (From -55°C to +85°C)

CR-9



| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
|------------------|-----------------------------------|------------------|-------|-----|-----|-------|
| Insertion Loss | — | DC - 3000 MHz | dB | — | — | 1.2 |
| | | DC - 2000 MHz | dB | — | — | 1.1 |
| | | DC - 1000 MHz | dB | — | — | 0.9 |
| | | DC - 500 MHz | dB | — | — | 0.8 |
| VSWR | — | DC - 3000 MHz | Ratio | — | — | 1.5:1 |
| | | DC - 2000 MHz | Ratio | — | — | 1.4:1 |
| | | DC - 1000 MHz | Ratio | — | — | 1.4:1 |
| | | DC - 500 MHz | Ratio | — | — | 1.3:1 |
| Isolation | — | DC - 3000 MHz | dB | 30 | — | — |
| | | DC - 2000 MHz | dB | 35 | — | — |
| | | DC - 1000 MHz | dB | 40 | — | — |
| | | DC - 500 MHz | dB | 45 | — | — |
| Trise, Tfall | 10% to 90% | — | ns | — | 7 | — |
| Ton, Toff | 1.3V CTL to 90% / 10% | — | ns | — | 18 | — |
| Transients | In-Band | — | mV | — | 25 | — |
| 1 dB Compression | Input Power | 0.05 GHz | dBm | — | +25 | — |
| | | 0.5 GHz to 3 GHz | dBm | — | +30 | — |
| IP2 | Two-Tone Input Power up to +5 dBm | 0.05 GHz | dBm | — | +60 | — |
| | | 0.5 GHz to 3 GHz | dBm | — | +65 | — |
| IP3 | Two-Tone Input Power up to +5 dBm | 0.05 GHz | dBm | — | +40 | — |
| | | 0.5 GHz to 3 GHz | dBm | — | +46 | — |
| Vin Low | 0V to 0.8V | — | µA | — | — | 1 |
| Vin High | 2.0V to 5.0V | — | µA | — | — | 1 |

1. All specifications apply when operated with bias voltages of +5V for Vcc and -5V for Vee.
 2. When DC blocks are used, a 10K ohm return to GND is required on the RFC port.

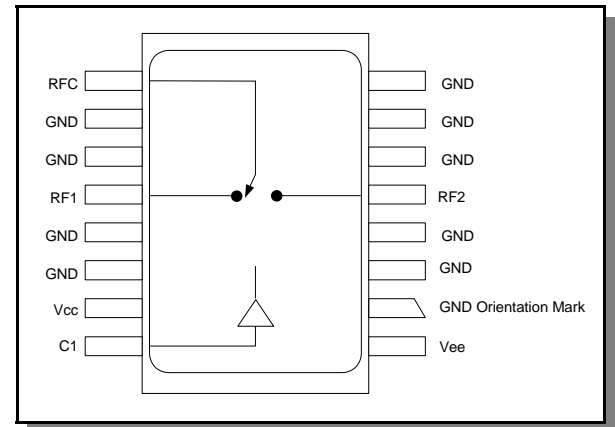
Electrical Specifications (From -55°C to $+85^{\circ}\text{C}$)

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
|-----------|-----------------|-----------|-------|-----|-----|-----|
| Vcc | +5.0V \pm 10% | — | mA | — | — | 1 |
| Vee | -5.0V to -8.0V | — | mA | — | — | 1 |

Pin Configuration

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1 | Vee | 9 | RFC |
| 2 | GND | 10 | GND |
| 3 | GND | 11 | GND |
| 4 | GND | 12 | RF1 |
| 5 | RF2 | 13 | GND |
| 6 | GND | 14 | GND |
| 7 | GND | 15 | Vcc |
| 8 | GND | 16 | C1 |

Pin Configuration (Top View)

Absolute Maximum Ratings ³

| Parameter | Absolute Maximum |
|---|---|
| Max Input Power 50 MHz 500 - 2000 MHz | +27 dBm +34 dBm |
| Supply Voltages Vcc Vee | +5.5V -8.5V |
| Control Voltage ⁴ | -0.5V, to Vcc +0.5V |
| Operating Temperature | -55°C to $+125^{\circ}\text{C}$ |
| Storage Temperature | -65°C to $+150^{\circ}\text{C}$ |

- Operation of this device above any one of these parameters may cause permanent damage.
- Standard CMOS TTL interface, latch-up will occur if logic signal is applied prior to power supply.

Truth Table

| Control Input | Condition of Switch | |
|---------------|---------------------------|-----|
| | RF Common to Each RF Port | |
| | RF1 | RF2 |
| LO | On | Off |
| HIGH | Off | On |

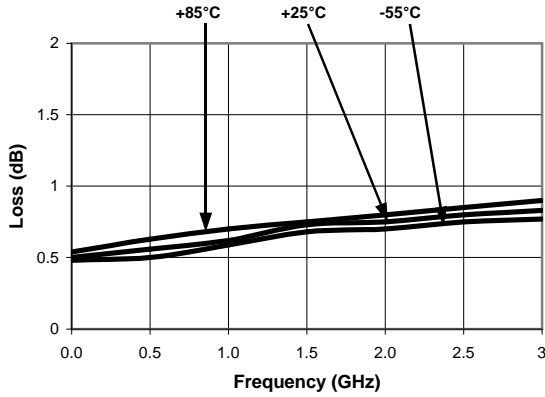
Specifications subject to change without notice.

- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

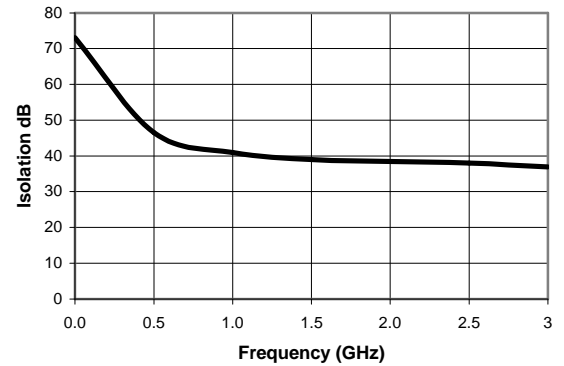
Visit www.macom.com for additional data sheets and product information.

Typical Performance Curves

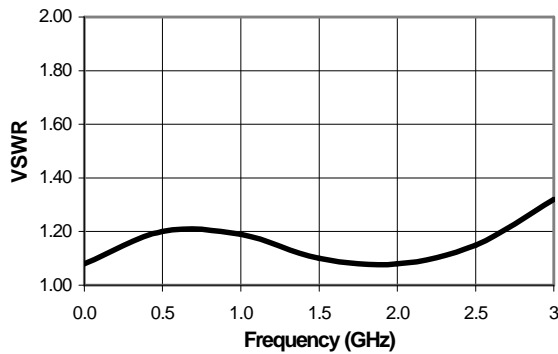
Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency



Ordering Information

| Part Number | Package |
|-------------|---------|
| SW-312 | CR-9 |

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