

MACOM SPDT Switch with Integral CMOS Driver 800 - 2000 MHz

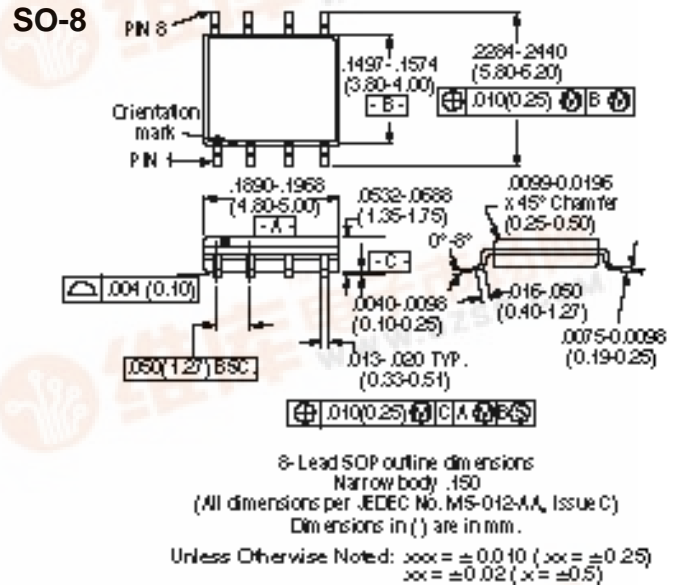
Features

- Low Cost Plastic SOIC-8 Package¹
- Integral TTL/CMOS Compatible Driver
- Matched Input and Output
- Low Distortion: > 40 dBm IP₃ @ 900 MHz
and > 62 dBm IP₂ @ 900 MHz
- Low DC Current: < 1.5 mA Typical Per Supply

Description

The SW-335 is a GaAs MMIC matched SPDT with an on-chip TTL/CMOS driver in a low-cost, SOIC 8-lead plastic package. The SW-335 is ideally suited for use in TTL/CMOS environment applications where low power consumption and small size are required. Typical applications include switch matrices, filter banks and general switching applications, in systems such as cellular, PCN/PCS, GPS and 900 MHz ISM band applications.

The SW-335 is fabricated with a monolithic GaAs MMIC using a mature 1-micron process. The process features full passivation for increased performance and reliability.



Ordering Information

| Part Number | Package |
|-------------|----------------------|
| SW-335 PIN | SOIC 8-Lead Plastic |
| SW-335TR | Forward Tape & Reel* |
| SW-335RTR | Reverse Tape & Reel* |

* If specific reel size is required, consult factory for part number assignment.

Electrical Specifications, T_A = +25°C, V_{DD} = 5.0 V_{GG} = -5.0 V

| Parameter | Test Conditions | Units | Min. | Typ. | Max. |
|-----------------------|--|---------|------|-------|-------|
| Insertion Loss | 800-2000 MHz | dB | | 0.9 | 1.1 |
| Isolation | 800-1000 MHz | dB | 35 | 45 | |
| | 1000-1500 MHz | dB | 35 | 38 | |
| | 1500-2000 MHz | dB | 30 | 32 | |
| VSWR | 800-1000 MHz | | | 1.2:1 | 1.3:1 |
| | 1000-2000 MHz | | | 1.2:1 | 1.3:1 |
| Trise, Tfall | 10%-90% RF, 90% - 10% RF | nS | | 75 | |
| Ton, Toff | 50% Control to 90% RF, 50% Control to 10% RF | nS | | 200 | |
| Transient | In-Band | mV | | 20 | |
| 1 dB Compression | 900 MHz | dBm | | 29 | |
| Input IP ₃ | 2-Tone, 10 dBm (13 dBm total) | 900 MHz | 40 | 45 | |
| Input IP ₂ | 2-Tone, 10 dBm (13 dBm total) | 900 MHz | 62 | 70 | |
| Current | V _{DD} @ 5.0 V | mA | | 1.1 | 1.5 |
| | V _{GG} @ -5.0 V | mA | | -0.8 | -1.5 |
| | V _{CTL} @ 0 V | µA | | -5 | -10 |
| | V _{CTL} @ 5 V | µA | | 10 | 20 |

1. Available in tape and reel packaging.
2. All measurements are in a 50 Ω system.
Specifications subject to change without notice.

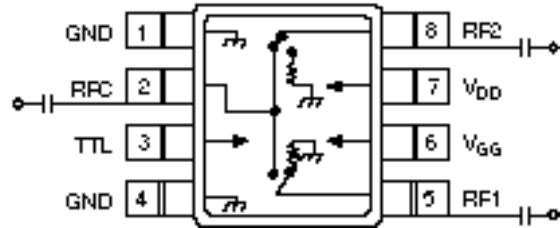
3. Replaces SW-329.
4. DC blocks required on RF ports.

Absolute Maximum Ratings¹

| Parameter | Absolute Maximum |
|--------------------------|------------------|
| RF Input Power | +31 dBm |
| Max. Control Voltages | |
| V _{DD} | +6 VDC |
| V _{GG} | -6 VDC |
| V _{CTL} Maximum | +6 VDC |
| V _{CTL} Minimum | -1 VDC |
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -65°C to +150°C |

1.Operation of this device outside these limits may cause permanent damage.

Functional Schematic

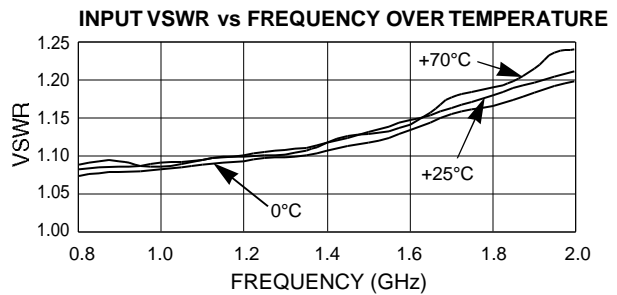
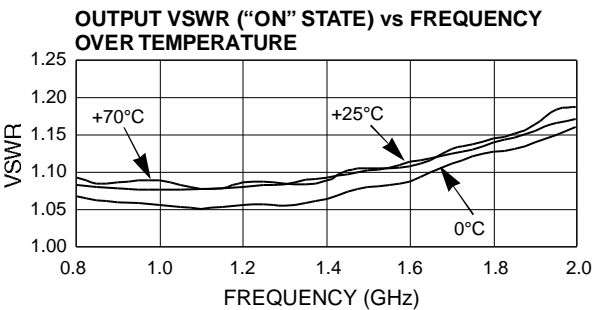
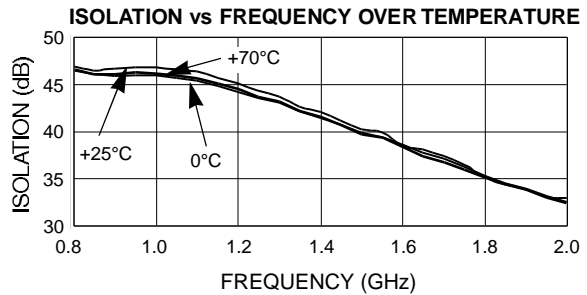
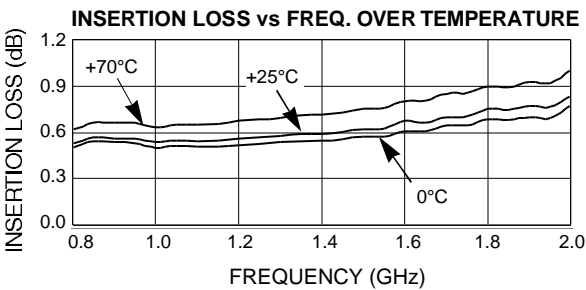


Truth Table

| Control Input | | |
|---------------|---------|---------|
| TTL/CMOS | RFC-RF1 | RFC-RF2 |
| 1 | OFF | ON |
| 0 | ON | OFF |

Logic 0 = 0 to 1 V V_{DD} = 5 ±0.5 V @ < 1.5 mA typ.
 Logic 1 = 3.5 to 5 V, 10 µA typ. V_{GG} = -5 ±0.25 V @ < 1.5 mA

Typical Performance



OUTPUT VSWR ("OFF" STATE) vs FREQUENCY OVER TEMPERATURE

Specifications subject to change without notice.