

Matched GaAs SPDT Switch

DC - 3 GHz with TTL/CMOS Control Input

SW-313

Features

- Integral Silicon Driver
- Ultra Low Power Consumption
- TTL and CMOS Input Compatible
- Fast Switching Speed: 7 ns Typical
- Surface Mount Package

Guaranteed Specifications¹ (From -55°C to +85°C)

Frequency Range		DC-3000 MHz
Insertion Loss	DC-3000 MHz	1.2 dB Max
	DC-2000 MHz	1.1 dB Max
	DC-1000 MHz	0.9 dB Max
	DC- 500 MHz	0.8 dB Max
VSWR	DC-3000 MHz	1.4:1 Max
	DC-2000 MHz	1.35:1 Max
	DC-1000 MHz	1.35:1 Max
	DC- 500 MHz	1.3:1 Max
Isolation	DC-3000 MHz	35 dB Min
	DC-2000 MHz	45 dB Min
	DC-1000 MHz	50 dB Min
	DC- 500 MHz	55 dB Min

Operating Characteristics

Impedance 50 Ohms Nominal

Switching Characteristics

Trise, Tfall (10% to 90%)	7 ns Typ
Ton, Toff (1.3 V CTL to 90%/10%)	18 ns Typ
Transients (in-Band)	25 mV Typ

Input Power for 1 dB Compression

0.05 GHz	+25 dBm Typ
0.5 GHz to 3 GHz	+30 dBm Typ

Intermodulation Intercept point (for two-tone input power up to +5 dBm)

Intercept Points	IP2	IP3	
0.05 GHz	+60	+40	dBm Typ
0.5 GHz to 3 GHz	+65	+46	dBm Typ

Supply Voltage Ranges

V _{CC}	+5.0 V ±10% @ 1 mA max.
V _{EE}	-5.0 V to -8.0 V @ 1 mA max.

Control Voltage Range

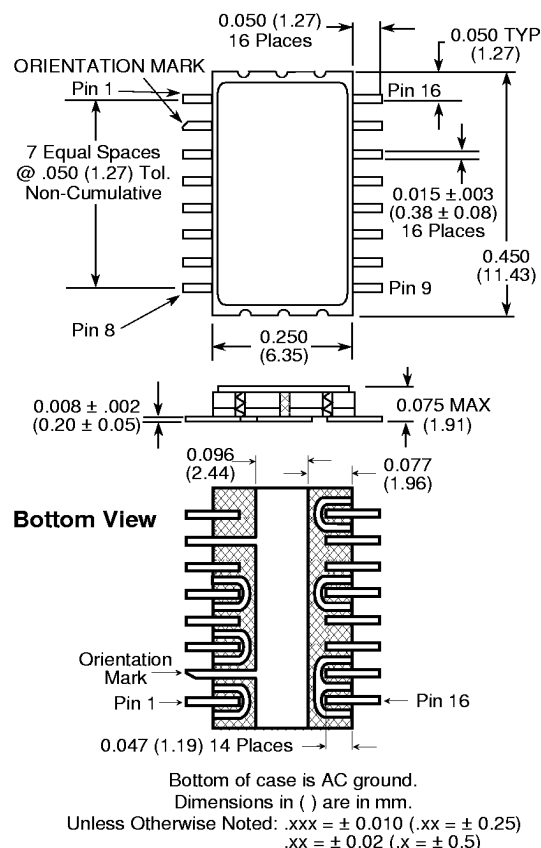
Vin Low	0 V to 0.8 V @ 1 µA Max
Vin Hi	2.0 V to 5.0 V @ 1 µA Max

Environmental

See Appendix for MIL-STD-883 screening option

1. All specifications apply when operated with a 50 ohm impedance at both RF ports.

CR-9



Ordering Information

Part Number	Package
SW-313 PIN	Ceramic

Absolute Maximum Ratings¹

Parameter	Absolute Maximum
Max. Input Power	
50 MHz	+27 dBm
500-2000 MHz	+34 dBm
Supply Voltages	
V _{CC}	+5.5V
V _{EE}	-8.5V
Control Voltage	-0.5 V, to V _{CC} +0.5 V
Operating Temperature	-55°C to 125°C
Storage Temperature	-65°C to 150°C

1. Operation of this device above any one of these parameters may cause permanent damage.

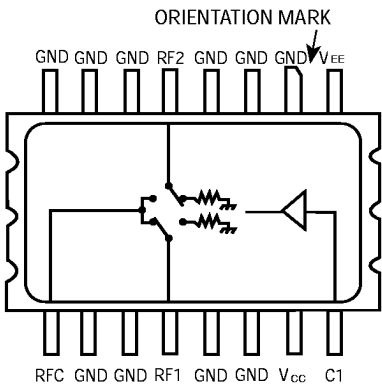
Pin Configuration

Pin No.	Description	Pin No.	Description
1	V _{EE}	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	V _{CC}
8	GND	16	C1

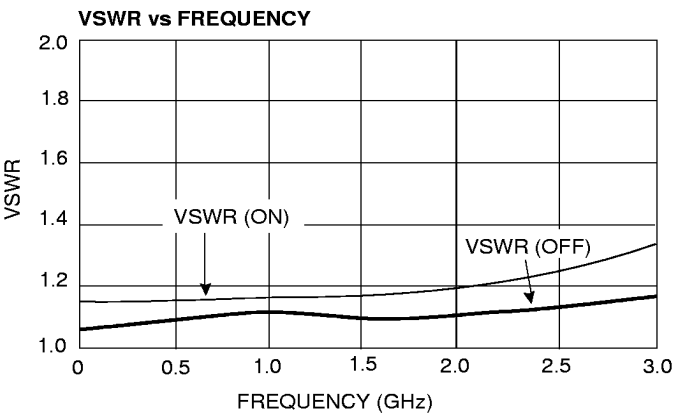
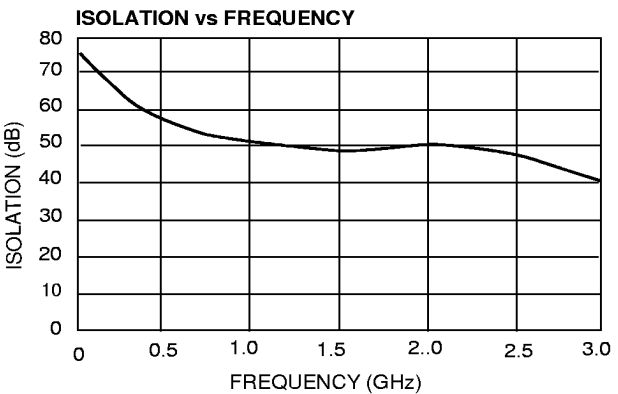
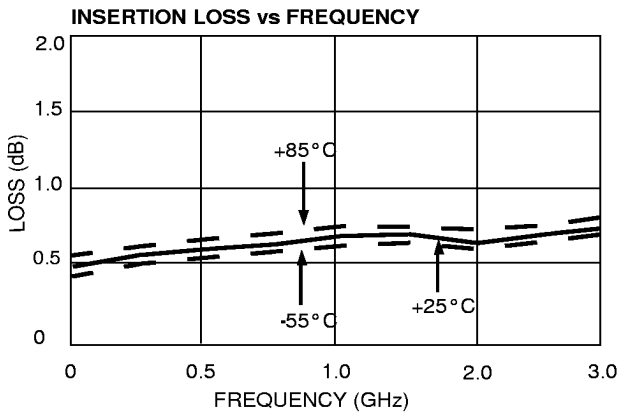
Truth Table

Control Input	Condition of Switch	
	RF Common to Each RF Port	
C1	RF1	RF2
LO	ON	OFF
HIGH	OFF	ON

Pin Configuration (Top View)



Typical Performance



Specifications Subject to Change Without Notice.

V2.0

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