



GaAs SP2T Absorptive Switch with ASIC Driver, DC - 3.0 GHz

V 8.00

SW65-0313

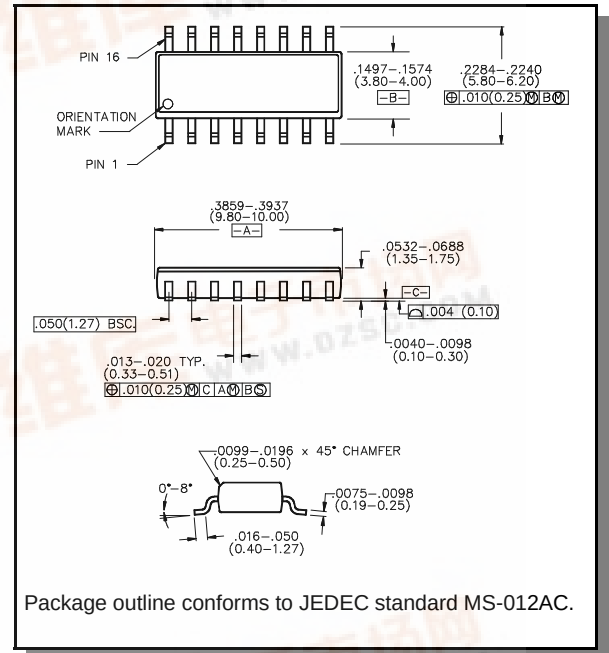
Features

- Typical Isolation: 30 dB (2,000 MHz)
- Typical Insertion Loss: .75 dB (2,000 MHz)
- ASIC TTL/CMOS Driver
- Plastic, 50 mil Pitch, SOIC-16
- Low DC Power Consumption
- 50 Ohm Nominal Impedance
- Tape and Reel Packaging Available
- Test Boards Available

Description

M/A-COM's SW65-0313 is a GaAs MMIC absorptive SP2T switch with an integral silicon ASIC driver. This device is in a 16-lead plastic package. This switch offers excellent broadband performance and repeatability from DC to 3 GHz, while maintaining low DC power dissipation. The SW65-0313 is ideally suited for wireless infrastructure applications. Also available in a ceramic package with improved performance.

SO-16



Electrical Specifications: $T_A = 25^\circ\text{C}$

Parameter	Test Conditions	Units	Min	Typical	Max
Insertion Loss	DC - 1.0 GHz	dB	—	0.6	0.75
	DC - 2.0 GHz	dB	—	0.75	0.90
	DC - 3.0 GHz	dB	—	1.2	1.45
Isolation (All arms off)	DC - 1.0 GHz	dB	35	38	—
	DC - 2.0 GHz	dB	27	30	—
	DC - 3.0 GHz	dB	21	24	—
VSWR	DC - 1.0 GHz	—	—	1.2:1	1.3:1
	DC - 2.0 GHz	—	—	1.3:1	1.4:1
	DC - 3.0 GHz	—	—	1.7:1	1.9:1
T_{rise} T_{fall} T_{on} T_{off} Transients	10%/90%, 90%/10% ¹	nS	—	15	50
	50% TTL to 90%/10% RF	nS	—	50	150
	In-band (peak to peak)	mV	—	50	150
1 dB Compression	.05 GHz	dBm	—	+25	—
	.5 - 3.0 GHz	dBm	—	+30	—
Input IP ₃	Two tone inputs 0.05 GHz	dBm	—	+40	—
	Up to +5 dBm 0.5 - 3.0 GHz	dBm	—	+46	—
V _{CC}	—	V	+4.5	+5.0	5.5
V _{EE}	—	V	-8.0	-5.0	-4.75
I _{CC}	V _{CC} = +5.0V	mA	—	0.2	6
I _{EE}	V _{EE} = -5.0V	mA	—	-0.2	-1
Logic "0"	I _{in} = 20 μ A max	V	0.0	—	0.8
Logic "1"	I _{in} = 20 μ A max	V	2.0	—	5.0

1. Decoupling capacitors (.01 μ F) are required on the power supply lines.



Pin Configuration ²

Pin #	Function	Pin #	Function
1	V _{EE}	9	RFC
2	N/C	10	GND
3	GND	11	RF1
4	N/C	12	GND
5	GND	13	N/C
6	RF2	14	GND
7	GND	15	V _{CC}
8	GND	16	C1

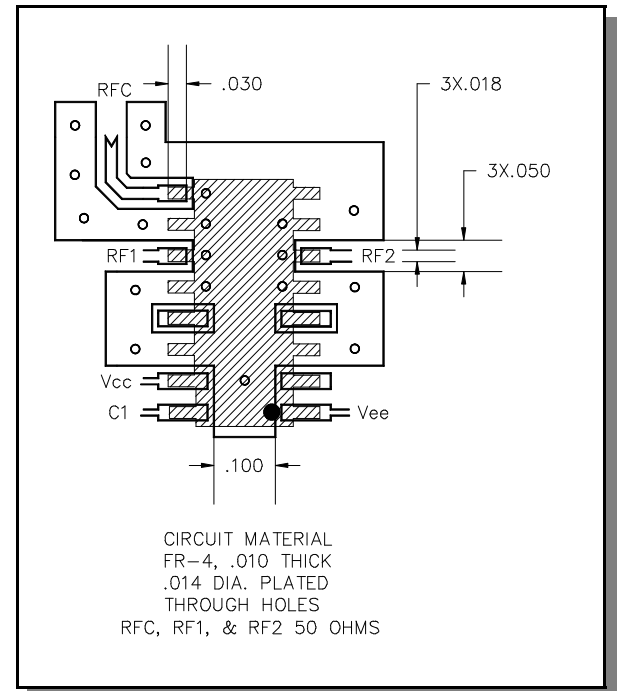
2. N/C = No Connection

Absolute Maximum Ratings ^{3,4}

Parameter	Absolute Maximum
Max. Input Power 0.05 GHz 0.5 - 3.0 GHz	+27 dBm +34 dBm
Bias Voltages V _{EE} V _{CC} Control Voltage ⁵	-8.5V +5.5V -0.5V to V _{CC} +0.5V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +125°C

- Operation of this device above any one of these parameters may cause permanent damage.
- When the RF input is applied to the terminated port, the absolute maximum power is +30 dBm.
- Standard CMOS TTL interface, latch-up will occur if logic signal is applied prior to power supply.

Recommended PCB Layout

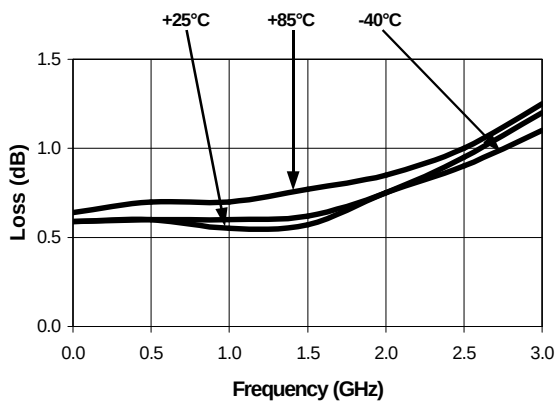


Truth Table

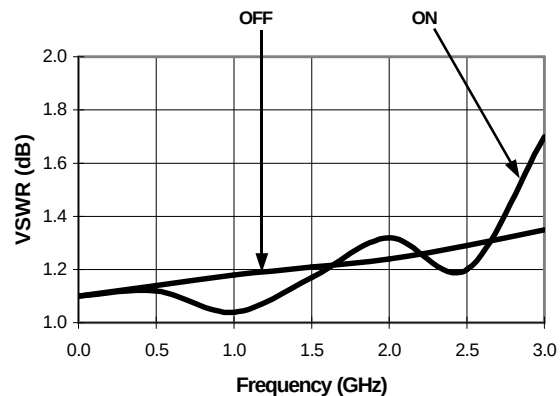
C1	RF1	RF2
0	On	Off
1	Off	On

Typical Performance Curves

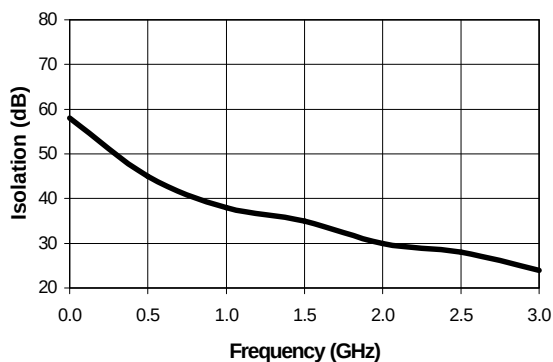
Typical Insertion Loss (dB)



Typical VSWR



Typical Isolation (dB)



Ordering Information

Part Number	Package
SW65-0313	Bulk Packaging
SW65-0313TR	Tape and Reel (1K Reel)
SW65-0313-TB	Units Mounted on Test Board

Specifications subject to change without notice.

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