

GaAs SP2T Absorptive Switch with ASIC Driver



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.

Ordering Information

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

1. Check with factory for available quantities and reel size.

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

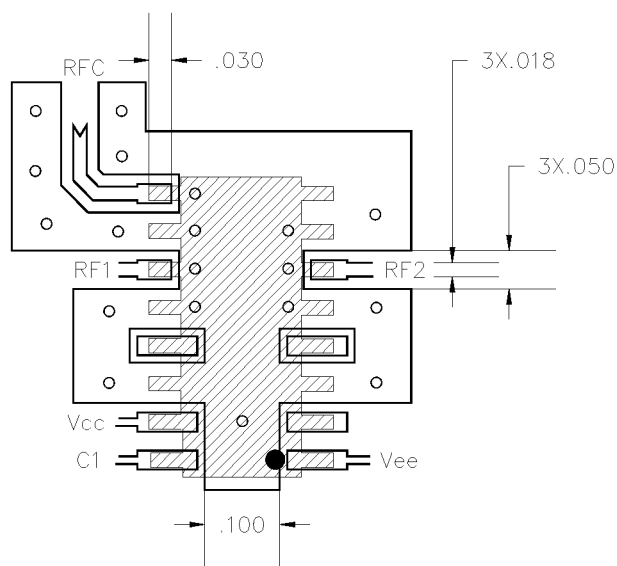
Parameter	Test Conditions	Units	Min	Typical	Max
Insertion Loss	DC - 1.0 GHz	dB	—	0.6	0.75
	DC - 2.0 GHz	dB	—	0.75	0.90
	DC - 3.0 GHz	dB	—	1.2	1.45
Isolation (All arms off)	DC - 1.0 GHz	dB	35	38	—
	DC - 2.0 GHz	dB	27	30	—
	DC - 3.0 GHz	dB	21	24	—
VSWR	DC - 1.0 GHz	—	—	1.2:1	1.3:1
	DC - 2.0 GHz	—	—	1.3:1	1.4:1
	DC - 3.0 GHz	—	—	1.7:1	1.9:1
T _{rise} T _{fall}	10%/90%, 90%/10% ²	nS	—	15	50
T _{on} T _{off}	50% TTL to 90%/10% RF	nS	—	50	150
Transients	In-band (peak to peak)	mV	—	50	150

V5 00

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

Parameter	Test Conditions	Units	Min	Typical	Max
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}	$V_{CC} = +5.0\text{V}$	mA	—	—	1
I_{EE}	$V_{EE} = -5.0\text{V}$	mA	—	—	-1
Logic "0"	$I_{in} = 20\mu\text{A max}$	V	0.0	—	0.8
Logic "1"	$I_{in} = 20\mu\text{A max}$	V	2.0	—	5.0

2. Decoupling capacitors (.01 μF) are required on the power supply lines.

Recommended PCB Layout

CIRCUIT MATERIAL
FR-4, .010 THICK
.014 DIA. PLATED
THROUGH HOLES
RFC, RF1, & RF2 50 OHMS

Pin Configuration ³

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

3. N/C = No Connection

Absolute Maximum Ratings ^{4,5}

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

Truth Table

C1	RF1	RF2
0	On	Off
1	Off	On

4. Operation of this device above any one of these parameters may cause permanent damage.
5. When the RF input is applied to the terminated port, the absolute maximum power is +30 dBm.

V5.00

