



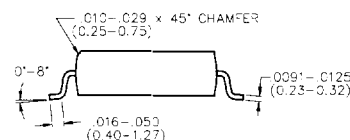
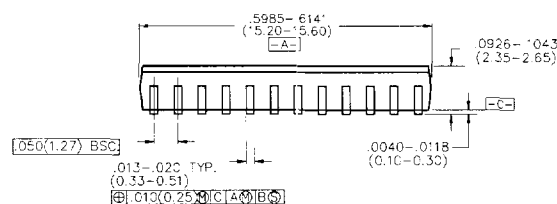
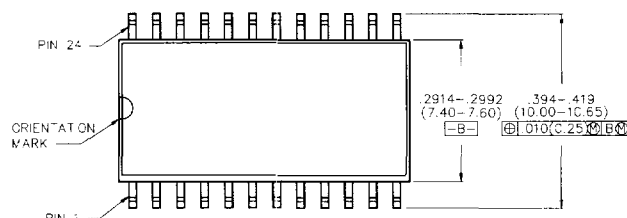
GaAs SPST Absorptive Switch with ASIC Driver DC - 3.0 GHz



Features

- Typical Isolation: 45 dB (2,000 MHz)
- Typical Insertion Loss: 1.5 dB (2,000 MHz)
- Integral ASIC TTL/CMOS Driver
- Plastic, 50 mil Pitch, SOW-24 Lead, Wide Body
- Low DC Power Consumption
- 50 Ohm Nominal Impedance
- Tape and Reel Packaging Available
- Test Boards Available

SOW-24



Package outline conforms to JEDEC standard MS-013AD.

Description

M/A-COM's SW65-0014 is a GaAs MMIC absorptive SPST switch with an integral silicon ASIC driver. This device is in a 24-lead plastic package. This switch offers excellent broadband performance and repeatability from DC to 3 GHz, while maintaining low DC power dissipation. The SW65-0014 is ideally suited for wireless infrastructure applications. Also available in ceramic package with improved performance.

Ordering Information

Part Number	Package
SW65-0014	Bulk Packaging
SW65-0014-TR	Tape and Reel ¹
SW65-0014-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	—	1.4	1.6
	DC - 2.0 GHz	dB	—	1.5	1.7
	DC - 3.0 GHz	dB	—	1.7	1.9
Isolation (All arms off)	DC - 1.0 GHz	dB	50	55	—
	DC - 2.0 GHz	dB	40	45	—
	DC - 3.0 GHz	dB	35	38	—
VSWR	DC - 1.0 GHz	—	—	On 1.3:1 Off 1.3:1	1.5:1
	DC - 2.0 GHz	—	—	1.5:1 1.6:1	2.0:1
	DC - 3.0 GHz	—	—	1.6:1 2.0:1	2.1:1
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

V2.00

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

Parameter	Test Conditions	Units	Min	Typical	Max
1 dB Compression	.05 GHz	dBm	—	+20	—
	.5 - 3.0 GHz	dBm	—	+27	—
Input IP_3	Two tone inputs 0.05 GHz	dBm	—	+35	—
	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	—	—	4
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

Absolute Maximum Ratings^{3,4}

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

TTL Control Input	RF Common To:
C1	RF1
1	On
0	Off

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

Pin Configuration

Pin #	Function	Pin #	Function
1	RFc	13	C1
2	GND	14	GND
3	GND	15	GND
4	GND	16	GND
5	GND	17	GND
6	GND	18	GND
7	GND	19	RF1
8	V_{EE}	20	GND
9	GND	21	GND
10	V_{CC}	22	GND
11	GND	23	GND
12	GND	24	GND