

Matched GaAs SP4T Switch, 0.02 - 2 GHz

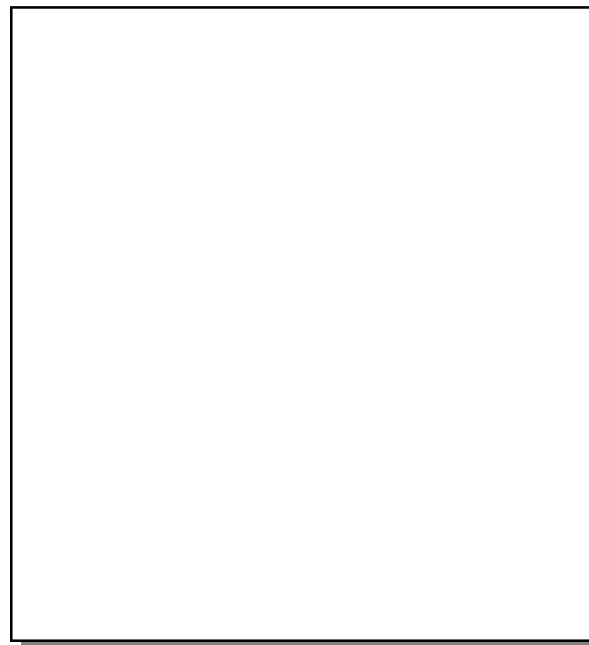
**SW-369-PIN
V3**

Features

- Internal CMOS Decoder/Driver
- Low Power Consumption
- Fast Switching Speed, 60 ns Typical
- Very High Intercept Points
- 50 Ohm Nominal Impedance

Description

Functional Block Diagram



Ordering Information

Part Number	Package
SW-369-PIN	FP-26

Note: Reference Application Note M513 for reel size information.

Note: Die quantity varies.

Absolute Maximum Ratings ³

Parameter	Absolute Maximum
Max Input Power 0.05 GHz 0.5 - 2.0 GHz	+27 dBm +34 dBm
Bias Voltages	-0.5V to +7V
Control Voltage	-0.5V to Vcc +0.5V
Operating Temperature	-55°C to +125°C
Storage Temperature	-65°C to +150°C

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

4. When the RF input power is applied to the terminated port, the absolute maximum is +32 dBm.

Truth Table

Control Inputs		Condition of Switch			
"1" = Logic High (CMOS)		RF Common to Each RF Port			
CMOS 1	CMOS 2	RF1	RF2	RF3	RF4
0	0	ON	OFF	OFF	OFF
1	0	OFF	ON	OFF	OFF
0	1	OFF	OFF	ON	OFF
1	1	OFF	OFF	OFF	ON

* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

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Electrical Specifications: $T_A = -55^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ ¹

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Insertion Loss	—	0.02 - 2.0 GHz	dB	2.8	—	—
		0.02 - 1.0 GHz	dB	2.4	—	—
		0.02 - 0.5 GHz	dB	1.8	—	—
VSWR	Common, RF1 - RF4 On	0.2 - 2.0 GHz	Ratio	—	—	2.0:1
		0.2 - 1.0 GHz	Ratio	—	—	1.6:1
		0.2 - 0.5 GHz	Ratio	—	—	1.5:1
		0.1 - 0.2 GHz	Ratio	—	—	1.5:1
		0.02 - 0.1 GHz	Ratio	—	—	1.4:1
VSWR	RF1 - RF4 Off	0.2 - 2.0 GHz	Ratio	—	—	2.0:1
		0.2 - 1.0 GHz	Ratio	—	—	1.6:1
		0.2 - 0.5 GHz	Ratio	—	—	1.5:1
		0.1 - 0.2 GHz	Ratio	—	—	1.7:1
		0.02 - 0.1 GHz	Ratio	—	—	Not Specified
Isolation	—	0.02 - 2.0 GHz	dB	40	—	—
		0.02 - 1.0 GHz	dB	45	—	—
		0.02 - 0.5 GHz	dB	50	—	—
Trise, Tfall Ton, Toff Transients	10% to 90% RF 50% CTL to 90/10% RF In-band	—	nS	—	3.0	—
		—	nS	—	180	—
		—	mV	—	150	—
1 dB Compression	Input Power	0.5 - 2.0 GHz	dBm	—	+23	—
		0.05 GHz	dBm	—	+17	—

1. All specifications apply when operated with bias voltages of 0 and +5 VDC and 50 ohm impedance at all RF Ports.
2. Contact the factory for standard or customer screening requirements.

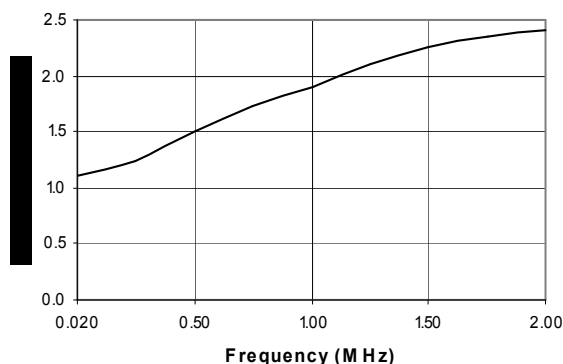
Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
IP ₂	For two tone input power up to +5 dBm	0.5 - 2.0 GHz	dBm	—	+72	—
		0.05 GHz	dBm	—	+50	—
IP ₃	For two tone input power up to +5 dBm	0.5 - 2.0 GHz	dBm	—	+44	—
		0.05 GHz	dBm	—	+40	—
Bias Power	+5 VDC	—	mA	—	—	2
Vin Low (0)	0.0 to 1.5V	—	μA	—	—	1
Vin High (1)	3.5 to 5.0V	—	μA	—	—	1

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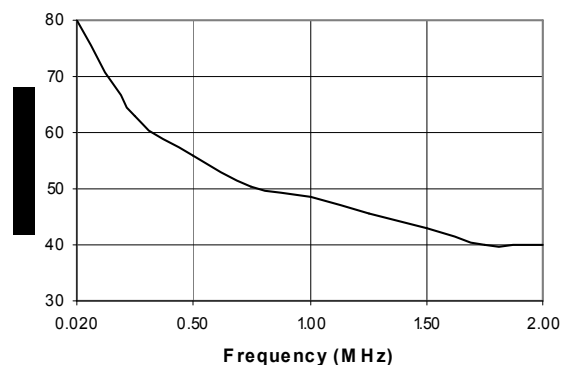
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Typical Performance Curves

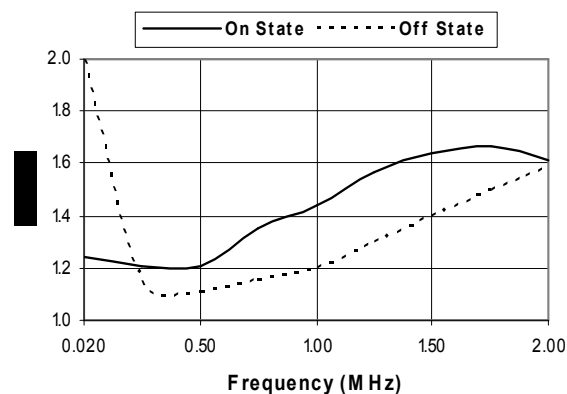
Insertion Loss



Isolation



VSWR



Pin Configuration

Pin No.	Description	Pin No.	Description
1	RF1	11	RF2
2	GND	12	GND
3	GND	13	GND
4	GND	14	+5 VDC
5	RF Common	15	CMOS 2
6	GND	16	CMOS 1
7	GND	17	N/C
8	GND	18	GND
9	GND	19	GND
10	RF4	20	RF3

Functional Schematic (Top View)

