

**Matched GaAs SP4T Switch,
DC - 2 GHz**

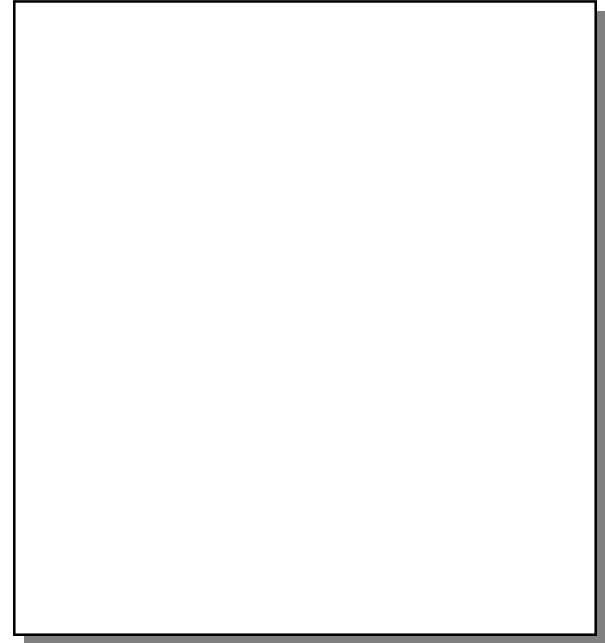
**SW-415-PIN
V3**

Features

- Low Insertion Loss
- Fast Switching Speed, 200 ns Typical
- Low DC Power Consumption
- Integral CMOS Decoder/Driver
- 50 Ohm Nominal Impedance

Description

Functional Block Diagram



Ordering Information

Part Number	Package
SW-415-PIN	FP-25

Note: Reference Application Note M513 for reel size information.

Note: Die quantity varies.

Absolute Maximum Ratings³

Parameter	Absolute Maximum
Max Input Power 0.05 GHz 0.5 - 2.0 GHz	+24 dBm +30 dBm
Control Voltage	+5V, -8.5V
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.

Truth Table

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

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

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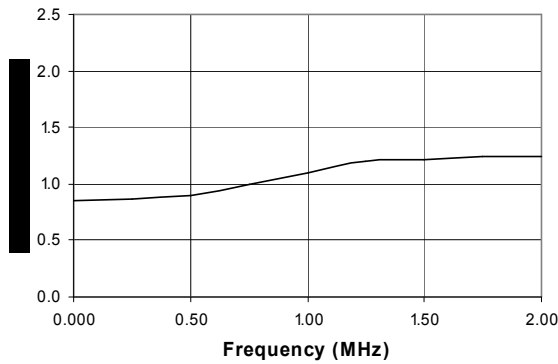
Electrical Specifications: $T_A = -55^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ ¹

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Insertion Loss	—	DC - 2.0 GHz	dB	—	—	1.8
		DC - 1.0 GHz	dB	—	—	1.5
		DC - 0.5 GHz	dB	—	—	1.2
VSWR	—	DC - 2.0 GHz	Ratio	—	—	1.8:1
		DC - 1.0 GHz	Ratio	—	—	1.8:1
		DC - 0.5 GHz	Ratio	—	—	1.4:1
Isolation	—	DC - 2.0 GHz	dB	37	—	—
		DC - 1.0 GHz	dB	43	—	—
		DC - 0.5 GHz	dB	45	—	—
Trise, Tfall Ton, Toff Transients	10% to 90% RF 50% CTL to 90/10% RF In-band	—	nS	—	50	—
		—	nS	—	200	—
		—	mV	—	15	—
1 dB Compression	Input Power	0.5 - 2.0 GHz	dBm	—	+27	—
		0.05 GHz	dBm	—	+17	—
IP ₂	For two tone input power up to +5 dBm	0.5 - 2.0 GHz	dBm	—	+60	—
		0.05 GHz	dBm	—	+45	—
IP ₃	For two tone input power up to +5 dBm	0.5 - 2.0 GHz	dBm	—	+46	—
		0.05 GHz	dBm	—	+35	—
Bias Power	-5 VDC +5 VDC	—	mA	—	—	5
		—	mA	—	—	1
Vin Low (0)	0.0 to 1.5V	—	μA	—	—	1
Vin High (1)	3.5 to 5.0V	—	μA	—	—	1

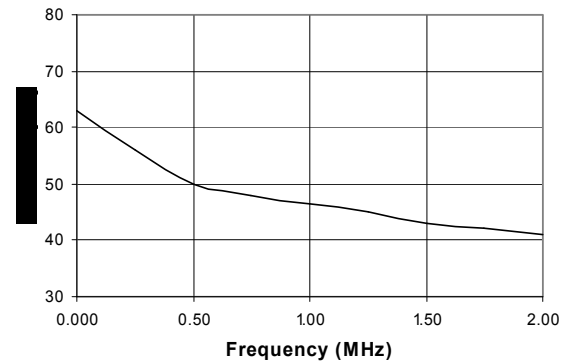
1. All specifications apply with 50 ohm impedance at all RF Ports.
2. Contact the factory for standard or customer screening requirements.

Typical Performance Curves

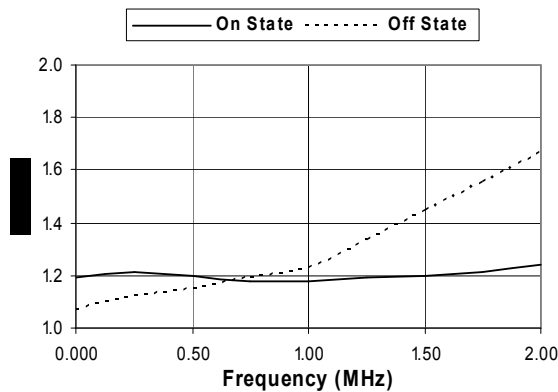
Insertion Loss



Isolation



VSWR



Functional Schematic (Top View)

