M/A-COM
an AMP company

Matched GaAs SP4T Switch
DC - 2 GHz
SW-415

Features

- Low Insertion Loss, 1.4 dB Typical
- Fast Switching Speed, 200 ns Typical
- Low DC Power Consumption
- Integral CMOS Decoder/Driver

Guaranteed Specifications[1]

(-55°C to + 85°C)

Frequency Range		DC – 2.0 GHz
Insertion Loss	DC – 2.0 GHz	1.8 dB Max
	DC – 1.0 GHz	1.5 dB Max
	DC – 0.5 GHz	1.2 dB Max
VSWR	DC – 2.0 GHz	1.8:1 Max
	DC – 1.0 GHz	1.8:1 Max
	DC – 0.5 GHz	1.4:1 Max
Isolation	DC – 2.0 GHz	37 dB Min
	DC – 1.0 GHz	43 dB Min
	DC – 0.5 GHz	45 dB Min

Operating Characteristics

Impedance	50 Ohms Nominal

Switching Characteristics

T_{rise}, T_{fall} (10% to 90%)	50 ns Typ
T_{on}, T_{off} (50% CTL to 90%/10% RF)	200 ns Typ
Transients (In-Band)	15 mV Typ

Input Power for 1 dB Compression

0.5 – 2.0 GHz	+27 dBm Typ
0.05 GHz	+17 dBm Typ

Intermodulation Intercept Pt.
(for two-tone input power up to +5 dBm)

Intercept Points	IP_2	IP_3	
0.5 – 2.0 GHz	+60	+46	dBm Typ
0.05 GHz	+45	+35	dBm Typ

Control Voltages

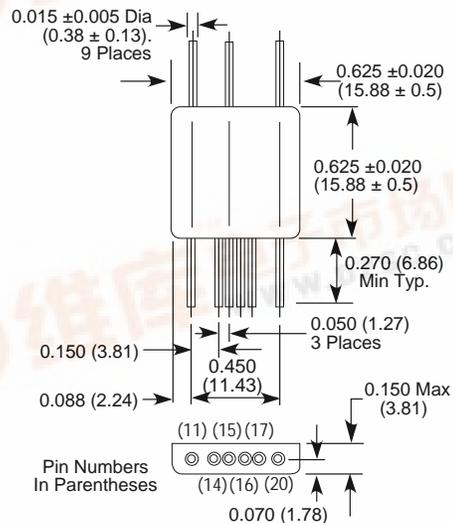| Vin Low (0)	0.0 to 1.5V @ 1 µA Max
Vin High (1)	3.5 to 5.0V @ 1 µA Max

Bias Power	-5 VDC @ 5 mA Max
	+5 VDC @ 1 mA Max

1. All specifications apply with 50 ohm impedance connected to all RF ports.
2. Contact the factory for standard or custom screening requirements.

Ordering Information

Model No.	Package
SW-415 PIN	Flatpack

FP-25

0.015 ±0.005 Dia
(0.38 ± 0.13).
9 Places

0.625 ±0.020
(15.88 ± 0.5)

0.625 ±0.020
(15.88 ± 0.5)

0.270 (6.86)
Min Typ.

0.050 (1.27)
3 Places

0.150 (3.81)

0.450
(11.43)

0.088 (2.24)

0.150 Max
(3.81)

(11) (15) (17)

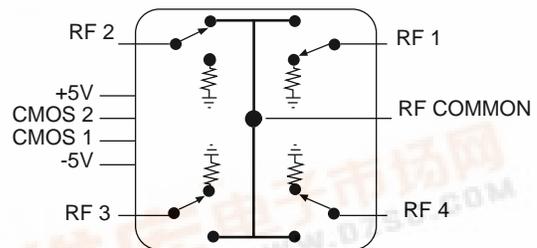Pin Numbers
In Parentheses

(14) (16) (20)

0.070 (1.78)

Weight (approx.): 0.12 Ounces 3.4 Grams
Bottom of case is AC ground.
Dimensions in ( ) are in mm.
Unless Otherwise Noted: .xxx = ± 0.010 (.xx = ± 0.25)
.xx = ± 0.02 (.x = ± 0.5)

Functional Schematic

RF 2   RF 1

+5V
CMOS 2   RF COMMON
CMOS 1
-5V

RF 3   RF 4

Truth Table

Control Input		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

Specifications Subject to Change Without Notice.

V2.00

Absolute Maximum Ratings

Parameter	Absolute Maximum[1]
Max. Input Power	
0.05 GHz	+24 dBm
0.5–2.0 GHz	+30 dBm
Control Voltage	+5V, –8.5V
Operating Temperature	–55˚C to +125°C
Storage Temperature	–65˚C to +150˚C

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

Typical Performance

INSERTION LOSS vs FREQUENCY

ISOLATION vs FREQUENCY

VSWR vs FREQUENCY