

GaAs SP4T Terminated Switch

DC - 2 GHz

SW-419

Features

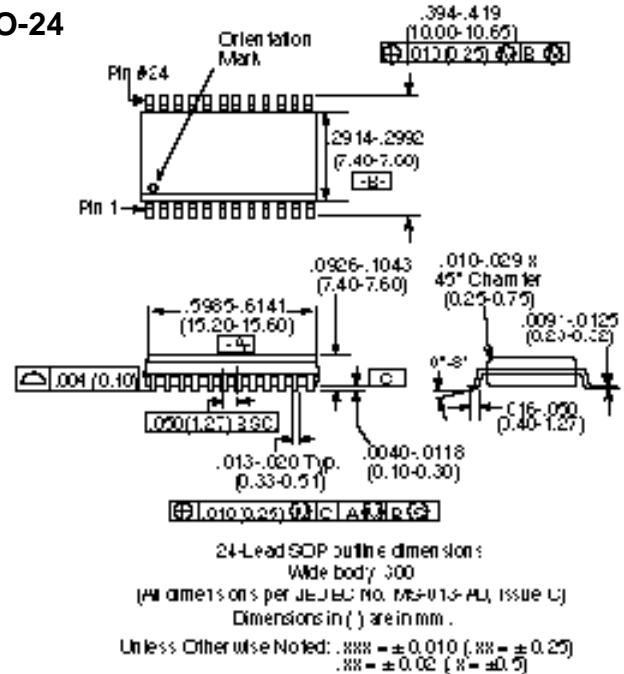
- Very Low Power Consumption: 100 μ W
- Low Insertion Loss: 1 dB
- High Isolation: 25 dB up to 2 GHz
- Very High Intercept Point: 46 dBm IP₃
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC24 Plastic Package
- Tape and Reel Packaging Available¹

Description

M/A-COM's SW-419 is a GaAs MMIC SP4T terminated switch in a low cost SOIC 24-lead wide body surface mount plastic package. The SW-419 is ideally suited for use where very low power consumption is required. Typical applications include switch matrices, and filter banks in systems such as: radio and cellular equipment, PCM, GPS, fiber optic modules, and other battery powered radio equipment.

The SW-419 is fabricated with a monolithic GaAs MMIC using a mature 1-micron process. The process features full chip passivation for increased performance and reliability.

SO-24



Ordering Information

Part No.	Package
SW-419 PIN	SOIC 24-Lead Plastic Package
SW-419 TR	Forward Tape & Reel
SW-419 RTR	Reverse Tape & Reel

Electrical Specifications, T_A = +25°C

Parameter	Test Conditions ²	Unit	Min.	Typ.	Max
Insertion Loss	DC - 0.1 GHz	dB		0.8	1.0
		dB		0.8	1.1
		dB		0.9	1.2
		dB		1.2	1.4
Isolation	DC - 0.1 GHz	dB	54	60	
	DC - 0.5 GHz	dB	46	51	
	DC - 1.0 GHz	dB	36	39	
	DC - 2.0 GHz	dB	20	24	
VSWR	On			1.3:1	
	Off			1.3:1	
Trise, Tfall Ton, Toff Transients	10% to 90% RF, 90% to 10% RF 50% Control to 90% RF, 50% Control to 10% RF In Band	nS		8	
		nS		16	
		mV		15	
One dB Compression	Input Power	0.05 GHz		21	
	Input Power	0.5 - 2.0 GHz		27	
IP ₂	Measured Relative to Input Power (for two-tone input power up to +5 dBm)	0.05 GHz		45	
		0.5 - 2.0 GHz		60	
IP ₃	Measured Relative to Input Power (for two-tone input power up to +5 dBm)	0.05 GHz		35	
		0.5 - 2.0 GHz		46	

1. Refer to "Tape and Reel Packaging" Section, or contact factory.

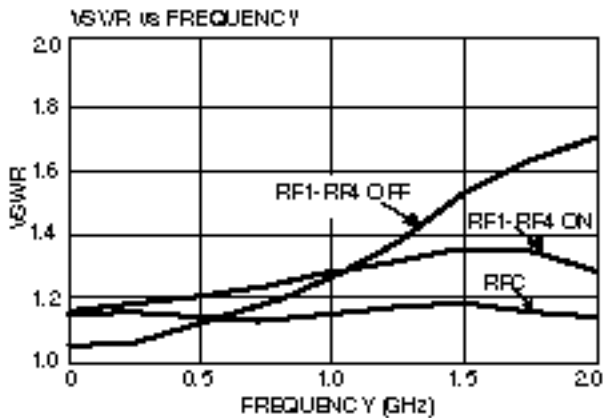
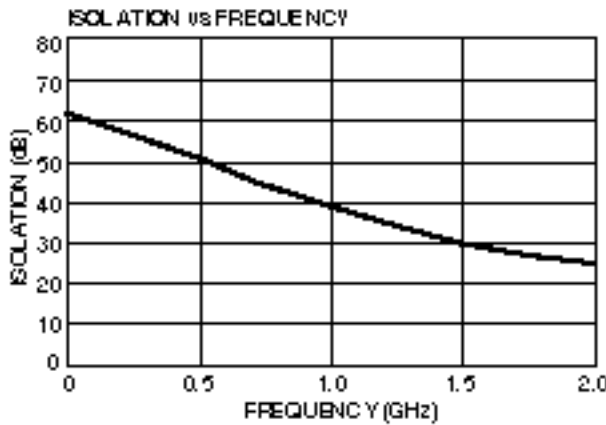
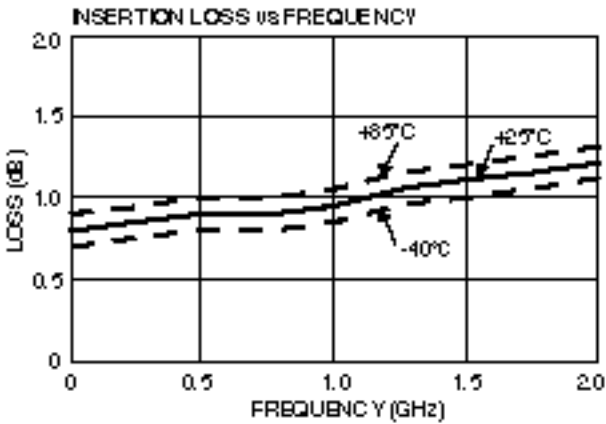
2. All measurements with 0, -5 V control voltages at 1 GHz in a 50 Ω system, unless otherwise specified.

Absolute Maximum Ratings¹

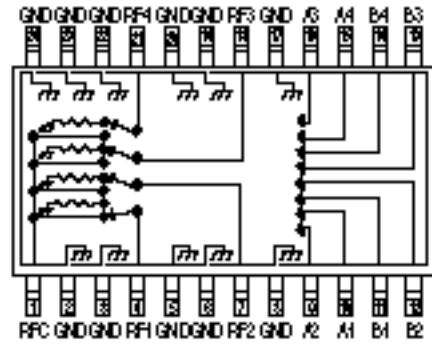
Parameter	Absolute Maximum
Max. Input Power	
Below 500 MHz	+27 dBm
Above 500 MHz	+30 dBm
Control Voltage	+5 V, -8.5 V
Storage Temperature	-65° to +150°C

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

Typical Performance



Functional Schematic



Pin Configuration

Pin No.	Description	Pin No.	Description
1	RF Common	13	B3
2	GND	14	B4
3	GND	15	A4
4	RF1	16	A3
5	GND	17	GND
6	GND	18	RF3
7	RF2	19	GND
8	GND	20	GND
9	A2	21	RF4
10	A1	22	GND
11	B1	23	GND
12	B2	24	GND

Truth Table

Control Input								Condition Of Switch RF Common to Each RF Port			
A1	B1	A2	B2	A3	B3	A4	B4	RF1	RF2	RF3	RF4
1	0	0	1	0	1	0	1	On	Off	Off	Off
0	1	1	0	0	1	0	1	Off	On	Off	Off
0	1	0	1	1	0	0	1	Off	Off	On	Off
0	1	0	1	0	1	1	0	Off	Off	Off	On

"0" – 0 – -0.2 V @ 20 µA max

"1" – -5 V @ 20 µA Typ to -8 V @ 300 µA max.

Electrical Schematic

