M/A-COM

GaAs SPST High Isolation Switch, +3 Volt 0.5 - 2.0 GHz

Features

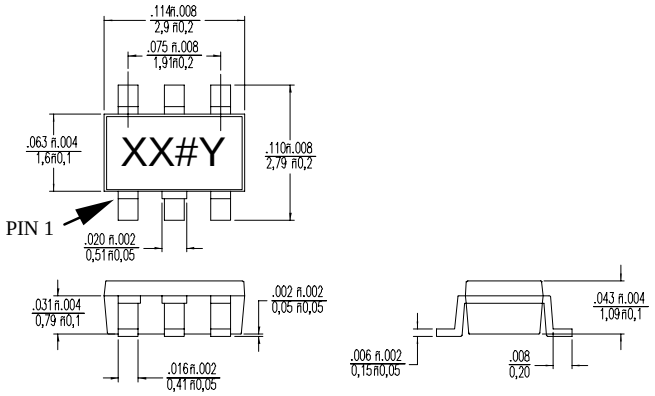
- High Isolation: 43 dB up to 2 GHz
- Low Cost Plastic SOT-26 Package
- Low Insertion Loss: <1.5 dB
- Positive Control: +3 to +8 V

Description

M/A-COM's SW-399 is a GaAs monolithic switch in a low cost SOT-26 surface mount plastic package. The SW-399 is ideally suited for applications where very low power consumption (<10µA@5V), low intermodulation products, very small size and low cost are required. The SW-399 is a general purpose RF switch which can be used in systems such as cellular, PCM, GSM and other analog/digital wireless communications systems.

The SW-399 is a GaAs MMIC using a mature 1-micron gate length GaAs MESFET process. The process features full chip passivation for increased performance and reliability.

SOT-26[1]



1. Dimensions are in: inches/mm

Ordering Information

Part Number	Package
SW-399 PIN	SOT-26 Plastic Package
SW-399TR	Forward Tape and Reel[1]

1. Refer to Application Note M513 for reel size information.

Electrical Specifications: T_A = +25°C[1]

Parameter	Test Conditions		Units	Min.	Typ.	Max.
Insertion Loss	0.5 - 2.0 GHz		dB		1.3	1.6
Isolation	0.5 - 2.0 GHz		dB	40	42	
VSWR	0.5 - 2.0 GHz				1.5:1	
1 dB Compression	Input Power +3V Control/Supply	0.5 - 2.0 GHz	dBm		25	
	Input Power +5V Control/Supply	0.5 - 2.0 GHz	dBm		26	
T_{rise}, T_{fall}	10% to 90% RF, 90% to 10% RF		µS		3	
T_{on}, T_{off}	50% Control to 90% RF, Control to 10% RF		µS		110	
Transients	In-band		mV		26	
Input IP_2	2-Tone, 5 MHz spacing	0.5 GHz	dBm		59	
	+10 dBm each	0.9 GHz	dBm		68	
Input IP_3	2-Tone, 5 MHz spacing	0.5 GHz	dBm		48	
	+10 dBm each	0.9 GHz	dBm		49	

1. All measurements at 1 GHz in a 50Ω system with a 3V control unless otherwise specified. Loss varies at 0.003 dB/°C.

V2.00

Absolute Maximum Ratings[1]

Parameter	Absolute Maximum
Input Power	+34 dBm
Operating Voltage (V_S, V_{CTRL})	+8.5 Volts
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

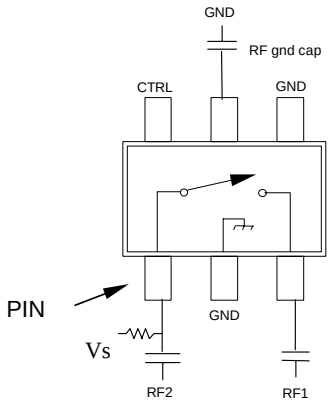
1. Exceeding any one or a combination of these limits may cause permanent damage.

Truth Table

Control	RF1 to RF2
0	Off
1	On

"0" = 0±0.2 Vdc
"1" = Vs ±0.2 Vdc
Vs = +3 to +5 Vdc

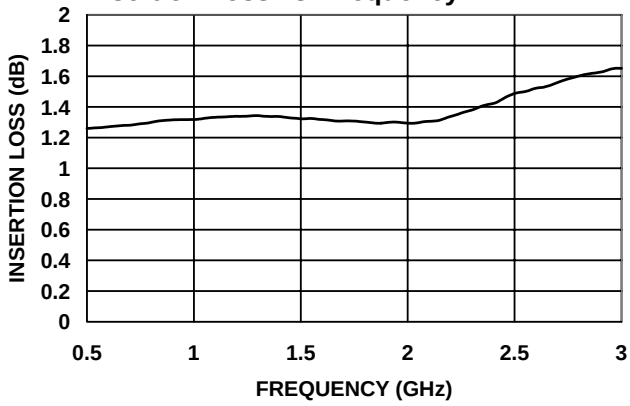
Functional Schematic[1]



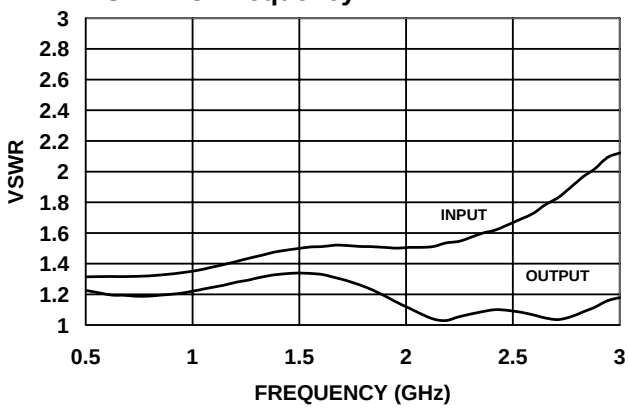
1. Blocking capacitors are required on all RF ports. V_S can be applied at RF1 or RF2 using 10K or greater pull-up resistor.

Typical Performance Curves

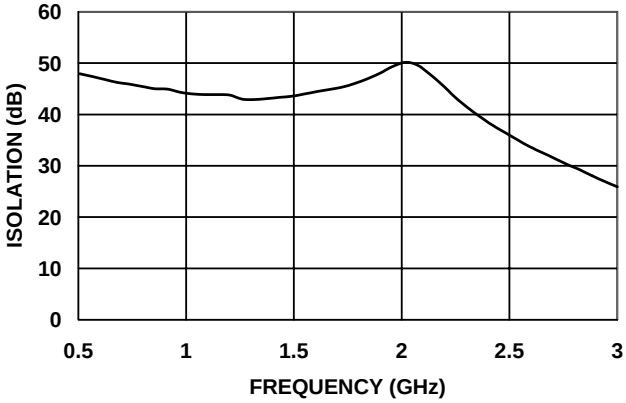
Insertion Loss vs. Frequency



VSWR vs. Frequency



Isolation vs Frequency



V2.00