

# 3 Volt GaAs SPDT Switch DC - 2.0 GHz



## Features

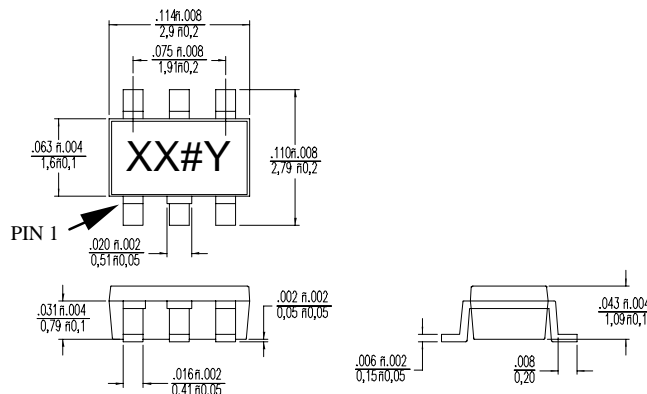
- Low Insertion Loss: <0.7 dB @ 900 MHz
- Low Power Consumption: <10µA @ =3 VDC
- Very High Intercept Point: 52 dBm IP<sub>3</sub>
- Both Positive and Negative 3 to 8 V Control
- Low Cost SOT-26 Package

## Description

M/A-COM's SW-395 is a GaAs monolithic switch in a low cost SOT-26 surface mount plastic package. The SW-395 is ideally suited for applications where very low power consumption, low intermodulation products, very small size and low cost are required. Typical application is an internal/external antenna select switch for portable telephones and data radios. In addition, because of its low loss, good isolation and inherent speed, the SW-395 can be used as a conventional T/R switch or as an antenna diversity switch. The SW-395 can be used in power applications up to 0.5 Watts in systems such as cellular, PCN, GSM an other analog/digital wireless communications systems.

The SW-395 is fabricated using a mature 1-micron gate length GaAs MESFET process. The process features full chip passivation for increased performance and reliability.

## SOT-26<sup>1</sup>



1. Dimensions are in: inches/mm

## Ordering Information

Part Number	Package
SW-395 PIN	SOT-26 Plastic Package
SW-395TR	Forward Tape and Reel <sup>1</sup>

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

## Electrical Specifications: T<sub>A</sub> = +25°C<sup>1</sup>

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss	DC - 1.0 GHz	dB		0.7	0.9
	1.0 - 2.0 GHz	dB		0.8	1.0
Isolation	DC - 1.0 GHz	dB	23	25	
	1.0 - 2.0 GHz	dB	17	19	
VSWR	DC - 2.0 GHz			1.3:1	
1 dB Compression	Input Power (3V Control)	0.5 GHz		27	
	Input Power (5V Control)	0.5 GHz		28	
	Input Power (3V Control)	0.05 GHz		16	
	Input Power (5V Control)	0.05 GHz		18	
T <sub>rise</sub> , T <sub>fall</sub>	10% to 90% RF, 90% to 10% RF	µS		7	
T <sub>on</sub> , T <sub>off</sub>	50% Control to 90% RF, Control to 10% RF	µS		8	
Transients	In-band	mV		38	
Input IP <sub>2</sub>	2-Tone, 5 MHz spacing, 3 V Control	0.05 GHz		61	
	+10 dBm each	0.5 GHz		71	
Input IP <sub>3</sub>	2-Tone, 5 MHz spacing, 3 V Control	0.05 GHz		48	
	+10 dBm each	0.5 GHz		52	

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<sup>1</sup>

Parameter	Absolute Maximum
Input Power	+33 dBm
Operating Voltage	+8.5 Volts
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

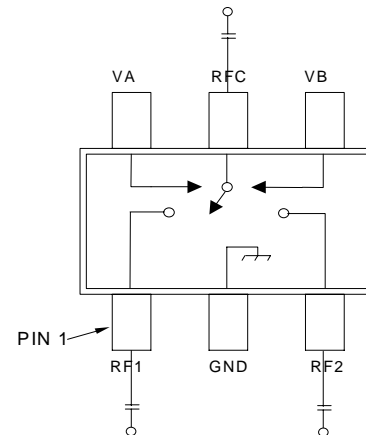
1. Exceeding any one or a combination of these limits may cause permanent damage.

### Truth Table

Mode (Control)	Control A	Control B	RFC - RF1	RFC - RF2
Positive <sup>1</sup>	0±0.2V	+3V to +8V	Off	On
	+3V to +8V	0±0.2V	On	Off
Positive/ Negative <sup>1,2</sup>	-Vc±0.2V	+Vc	On	Off
	+Vc	-Vc±0.2V	Off	On
Negative <sup>3</sup>	0±0.2V	-3V to -8V	On	Off
	-3V to -8V	0±0.2V	Off	On

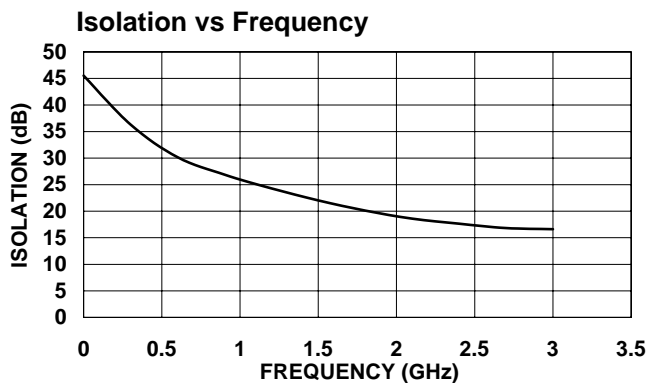
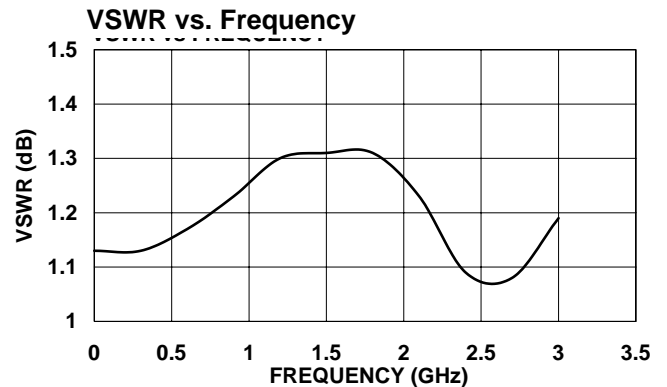
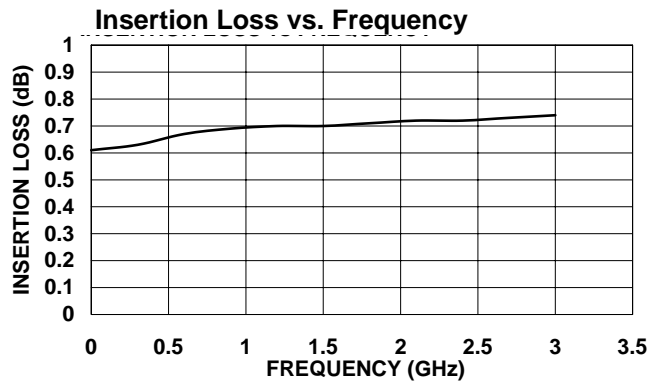
- External DC blocking capacitors are required on all RF ports.
- |Vc| ≤ 8 V.
- If negative control is used, DC blocking capacitors are not required on RF ports.

### Functional Schematic<sup>1</sup>



1. DC blocking capacitors not required if negative control voltage is used.

### Typical Performance Curves



V2.00