

# M/A-COM GaAs SPDT High Isolation Terminated Switch

## Features

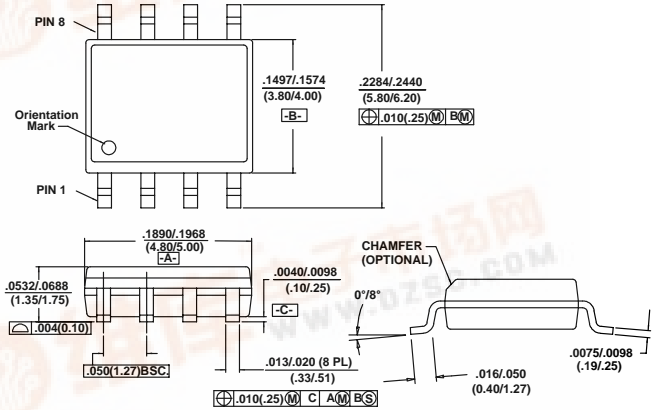
- Terminated RF Output
- High Isolation: 35 dB upto 2 GHz
- Positive Control
- Nanosecond Switching Speed
- CMOS Compatible Logic
- Low Cost SOIC 8 Plastic Package

## Description

M/A-COM's SW-394 is a GaAs monolithic SPDT terminated switch in a low cost SOIC 8-lead plastic package. The SW-394 is ideally suited for use where low power consumption and high isolation are required. Typical applications include transmit/receive switching, switch matrices and switched filter banks in systems such as radio and cellular equipment.

The SW-394 is fabricated using a mature 1-micron gate length GaAs MESFET process. The process features full chip passivation for increased performance and reliability.

## SOIC-8<sup>1</sup>



1. Dimensions are in: inches/mm

## Ordering Information

Part Number	Package
SW-394 PIN	SOIC 8-Lead Plastic Package
SW-394TR	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	0.5 - 2.0 GHz	dB		1.3	1.5	
Isolation	0.5 - 1.0 GHz	dB	37	40		
	1.0 - 2.0 GHz	dB	32	35		
VSWR	0.5 - 1.5 GHz			1.6:1		
1 dB Compression	Input Power, +5V Control/Supply	0.5 GHz	dBm	24		
		0.9 GHz	dBm	24		
		1.5 GHz	dBm	25		
T <sub>rise</sub> , T <sub>fall</sub>	10% to 90% RF, 90% to 10% RF	μs		34		
T <sub>on</sub> , T <sub>off</sub>	50% Control to 90% RF, Control to 10% RF	μs		36		
Transients	In-band	mV		22		
Input IP <sub>2</sub>	2-Tone, 5 MHz spacing, +10 dBm each	0.5 GHz	dBm		67	
		0.9 GHz	dBm		72	
Input IP <sub>3</sub>	2-Tone, 5 MHz spacing, +10 dBm each	0.5 GHz	dBm		47	
		0.9 GHz	dBm		47	

1. All measurements taken at 900 MHz in a 50Ω system unless otherwise specified. Loss varies at 0.003 dB/°C.

Specifications subject to change without notice.

### Absolute Maximum Ratings<sup>1</sup>

Parameter	Absolute Maximum
Input Power	+34 dBm
Operating Voltage(V <sub>S</sub> , V <sub>A</sub> , V <sub>B</sub> )	+8.5 Volts
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

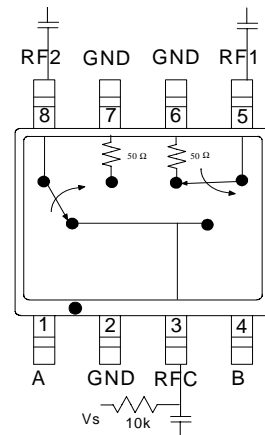
- Exceeding any one or a combination of these limits may cause permanent damage.

### Truth Table

Control Input A	Control Input B	RFC - RF2	RFC - RF1
0	1	Off	On
1	0	On	Off

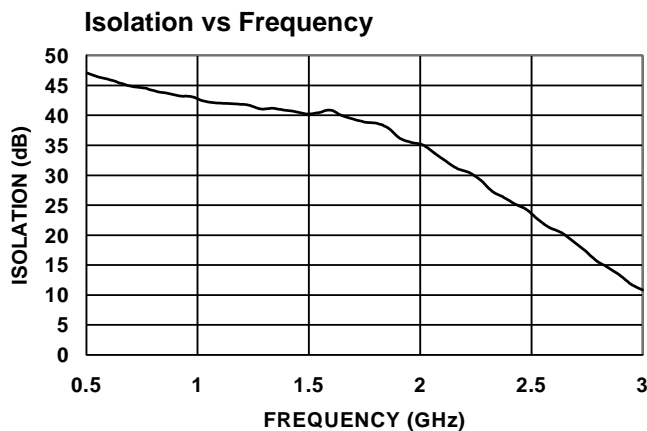
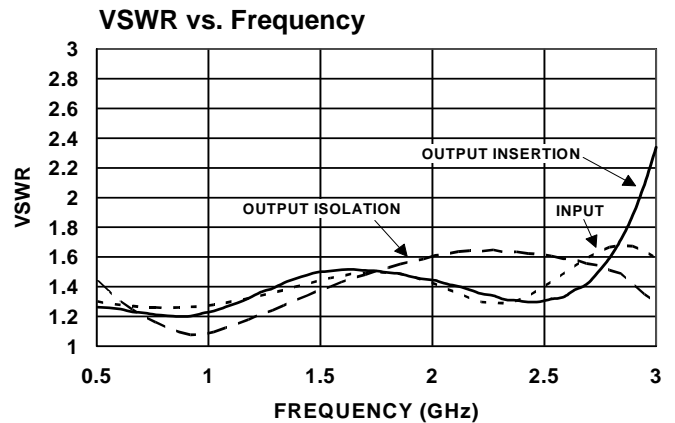
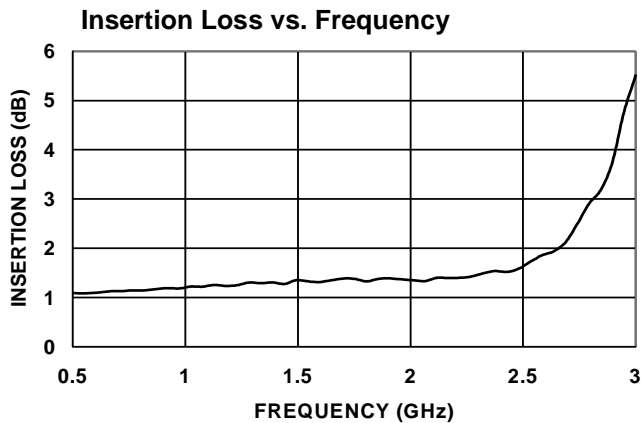
"0" = ±0.2 Vdc  
 "1" = +5±0.2 Vdc  
 V<sub>S</sub> = +5±0.2 Vdc  
 30 µA max. current total

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



- Blocking capacitors are required on all RF ports. V<sub>S</sub> can be applied at any RF port using 10K or greater pull-up resistor.

### Typical Performance Curves



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