

M/A-COM GaAs SPDT High Isolation Terminated Switch

Features

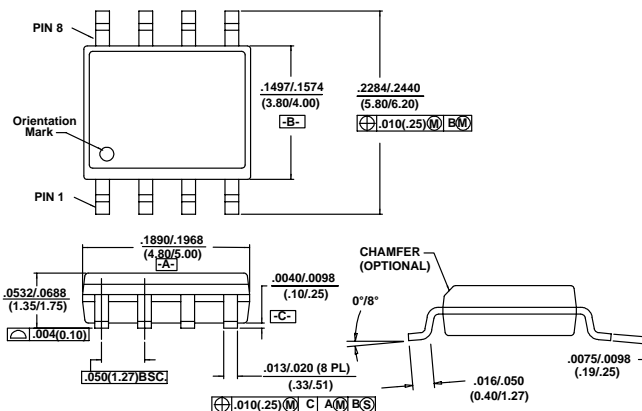
- Terminated RF Output
- High Isolation: 35 dB upto 2 GHz
- Positive Control
- Nanosecond Switching Speed
- CMOS Compatible Logic
- Low Cost SOIC 8 Plastic Package

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-8¹



1. Dimensions are in: inches/mm

Ordering Information

Part Number	Package
SW-394 PIN	SOIC 8-Lead Plastic Package
SW-394TR	Tape and Reel ¹

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

Electrical Specifications: $T_A = +25^\circ\text{C}^1$

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	
$T_{\text{rise}}, T_{\text{fall}}$	10% to 90% RF, 90% to 10% RF	μs		34		
$T_{\text{on}}, T_{\text{off}}$	50% Control to 90% RF, Control to 10% RF	μs		36		
Transients	In-band	mV		22		
Input IP_2	2-Tone, 5 MHz spacing, +10 dBm each	0.5 GHz	dBm		67	
		0.9 GHz	dBm		72	
Input IP_3	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 50 Ω system unless otherwise specified. Loss varies at 0.003 dB/ $^\circ\text{C}$.

Specifications subject to change without notice.

- North America: Tel. (800) 366-2266, Fax (800) 618-8883
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

Visit www.macom.com for additional data sheets and product information.

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Absolute Maximum Ratings¹

Parameter	Absolute Maximum
Input Power	+34 dBm
Operating Voltage (V_S , V_A , V_B)	+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 Input A	Control Input B	RFC - RF2	RFC - RF1
0	1	Off	On
1	0	On	Off

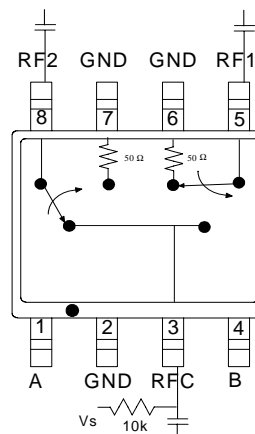
"0" = ± 0.2 Vdc

"1" = $+5 \pm 0.2$ Vdc

V_S = $+5 \pm 0.2$ Vdc

30 μ A max. current total

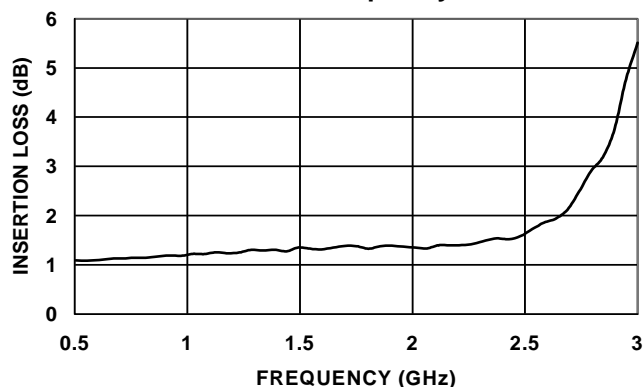
Functional Schematic¹



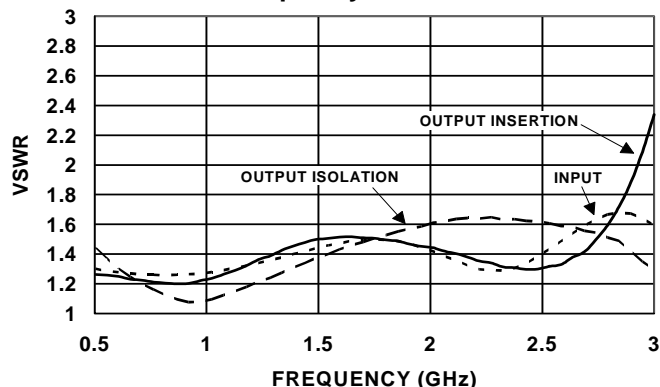
1. Blocking capacitors are required on all RF ports. V_S can be applied at any RF port using 10K or greater pull-up resistor.

Typical Performance Curves

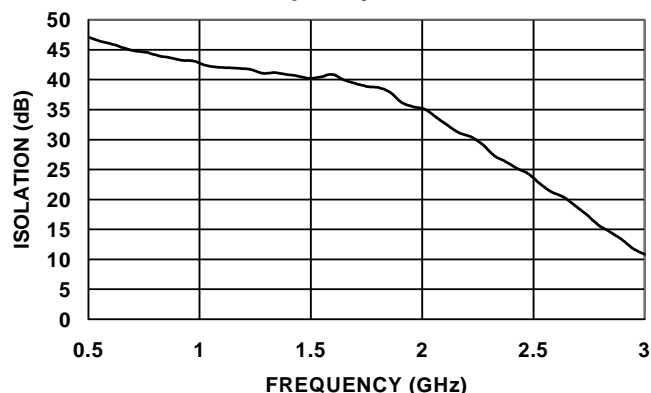
Insertion Loss vs. Frequency



VSWR vs. Frequency



Isolation vs Frequency



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