GaAs SPDT High Isolation Terminated Switch, 0.5 - 2.0 GHz

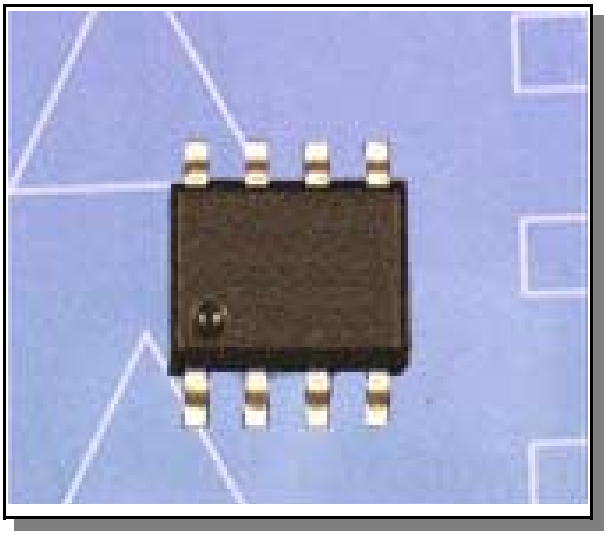
V 4.00

SW-394

Features

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

SOIC-8



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.

Electrical Specifications: T_A = 25°C

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Insertion Loss		0.5 - 2.0 GHz	dB	—	1.3	1.5
Isolation		0.5 - 1.0 GHz 1.0 - 2.0 GHz	dB dB	37 32	40 35	— —
VSWR		0.5 - 1.5 GHz	Ratio	—	1.6:1	—
1 dB Compression	Input Power, +5V Control/Supply	0.5 GHz 0.9 GHz 1.5 GHz	dBm dBm dBm	— — —	24 24 25	— — —
Trise, Tfall	10% to 90% RF, 90% to 10% RF		ns	—	34	—
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF		ns	—	36	—
Transients	In-Band		mV	—	22	—
Input IP_2	2-Tone, 5 MHz spacing, +10 dBm each	0.5 GHz 0.9 GHz	dBm dBm	— —	67 72	— —
Input IP_3	2-Tone, 5 MHz spacing, +10 dBm each	0.5 GHz 0.9 GHz	dBm dBm	— —	47 47	— —
Control Current	—	—	µA	—	10	50

Pin Configuration

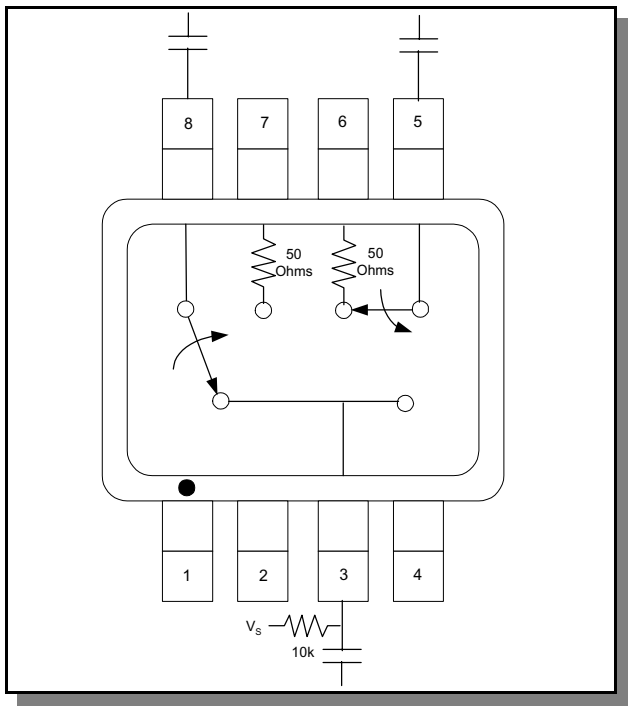
Pin No.	Function	Pin No.	Function
1	A	5	RF1
2	GND	6	GND
3	RFC	7	GND
4	B	8	RF2

Absolute Maximum Ratings [1]

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

Functional Schematic



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

Truth Table

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

"0" = 0 ± 0.2 VDC, "1" = +5 ± 0.2 VDC, Vs = +5 ± 0.2 VDC, 50 µA Max. Current Total

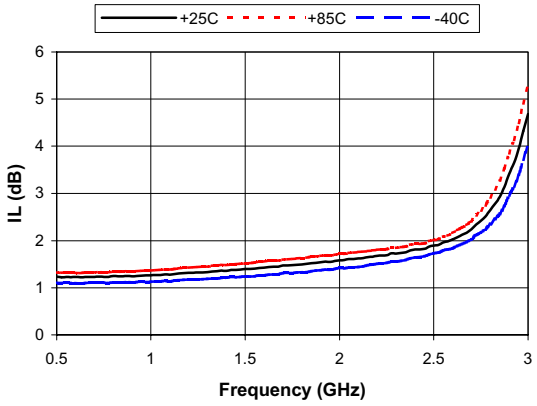
■ **North America:** Tel. (800) 366-2266
■ **Asia/Pacific:** Tel.+81-44-844-8296, Fax +81-44-844-8298
■ **Europe:** Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

tyco Electronics

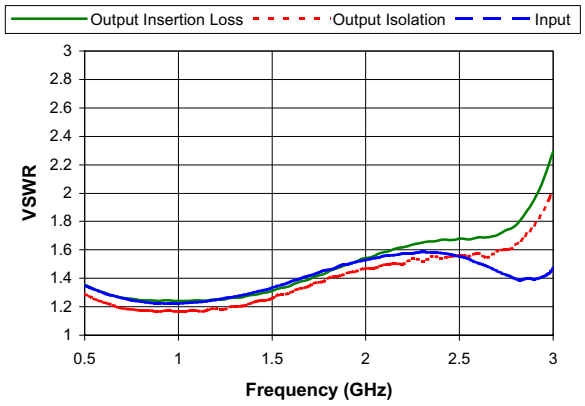
M/A-COM

Typical Performance Curves

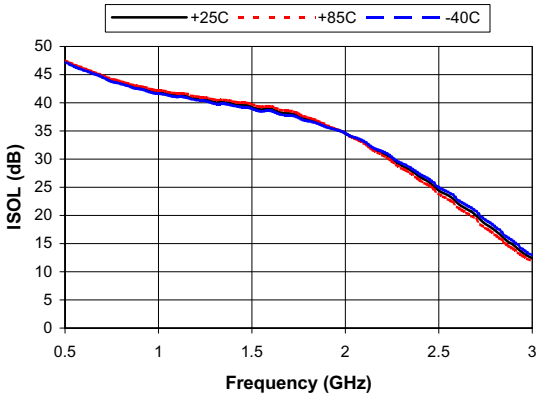
Insertion Loss vs. Frequency



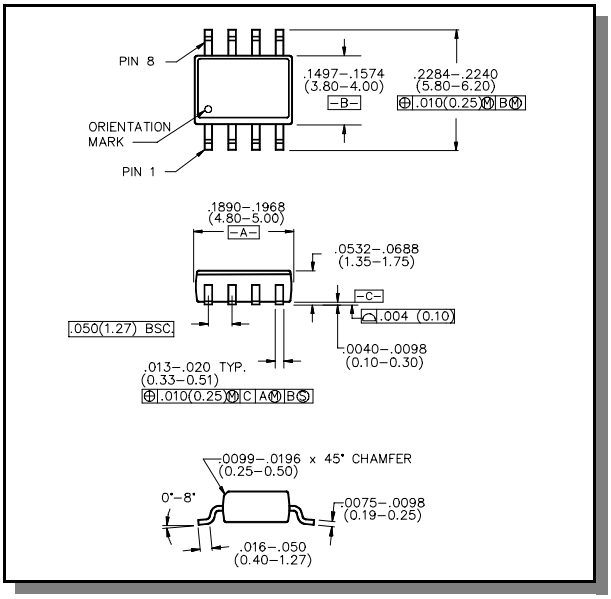
VSWR vs. Frequency



Isolation vs. Frequency



OUTLINE DRAWING



Ordering Information

Part Number	Package
SW-394 PIN	SOIC 8-Lead Plastic Package
SW-394TR	Tape and Reel [3]
SW-394SMB	Sample Board

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

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

tyco Electronics

M/A-COM