M/A-COM

GaAs SPST High Isolation Terminated Switch 0.5 - 2.0 GHz

Features

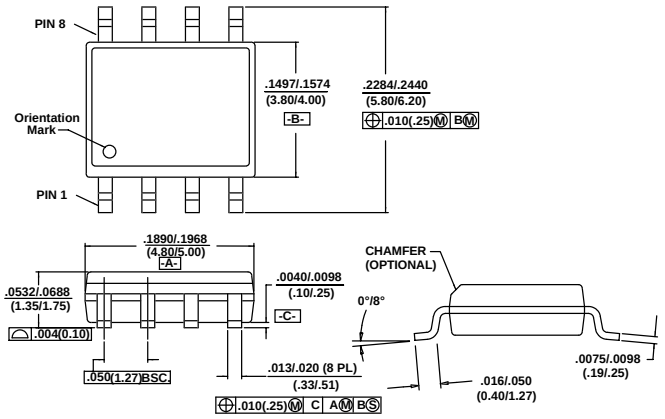
- Terminated RF Output
- High Isolation: 42 dB upto 2 GHz
- Single Positive Control
- CMOS Compatible Logic
- Low Cost SOIC-8 Plastic Package

Description

M/A-COM's SW-393 is a GaAs Monolithic SPST terminated switch in a low cost SOIC 8-lead plastic package. The SW-393 is ideally suited for use where low power consumption and high isolation are required. Typical applications include PCS and GSM LO switching, switch matrices and switched filter banks in systems such as radio and cellular equipment.

The SW-393 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[1]



1. Dimensions are in: inches/mm

Ordering Information

Part Number	Package
SW-393 PIN	SOIC 8-Lead Plastic Package
SW-393TR	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		1.6	1.8
Isolation	0.5 - 1.0 GHz		dB	50	53	
	1.0 - 2.0 GHz		dB	40	42	
VSWR	0.5 - 1.5 GHz				1.5:1	
	0.5 - 2.0 GHz				1.7:1	
1 dB Compression	Input Power, +5V Control/Supply	0.5 GHz	dBm		25	
		0.9 GHz	dBm		25	
		1.5 GHz	dBm		26	
T_{rise}, T_{fall}	10% to 90% RF, 90% to 10% RF		µS		9	
T_{on}, T_{off}	50% Control to 90% RF, Control to 10% RF		µS		9	
Transients	In-band		mV		50	
Input IP_2	2-Tone, 5 MHz spacing,	0.5 GHz	dBm		53	
	+10 dBm each	0.9 GHz	dBm		58	
Input IP_3	2-Tone, 5 MHz spacing,	0.5 GHz	dBm		39	
	+10 dBm each	0.9 GHz	dBm		38	

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

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Absolute Maximum Ratings[1]

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

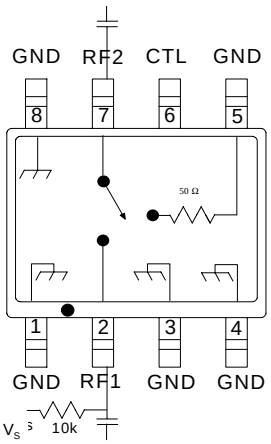
1. Exceeding any one or a combination of these limits may cause permanent damage.

Truth Table

Control	RF1 - RF2
0	Off
1	On

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

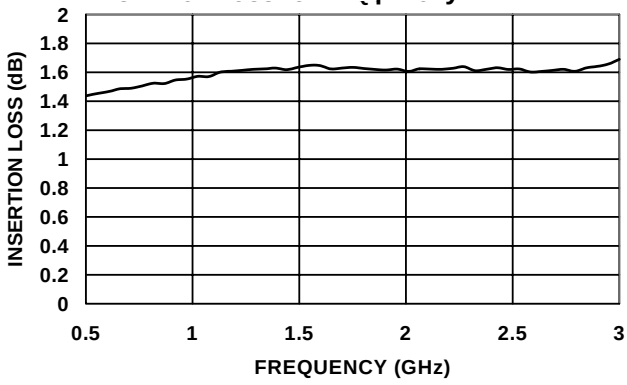
Functional Schematic[1]



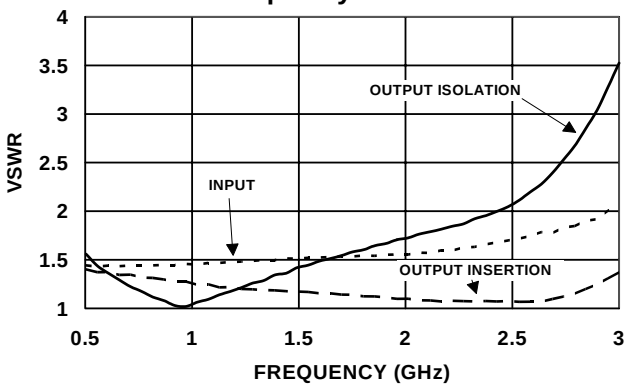
1. Blocking capacitors are required on all RF ports. V_S can be applied at RF1 or RF2 using 10K or greater pull-up resistor.

Typical Performance Curves

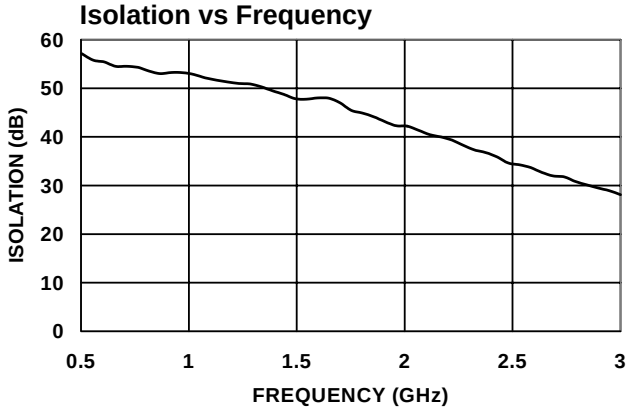
Insertion Loss vs. Frequency



VSWR vs. Frequency



Isolation vs Frequency



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