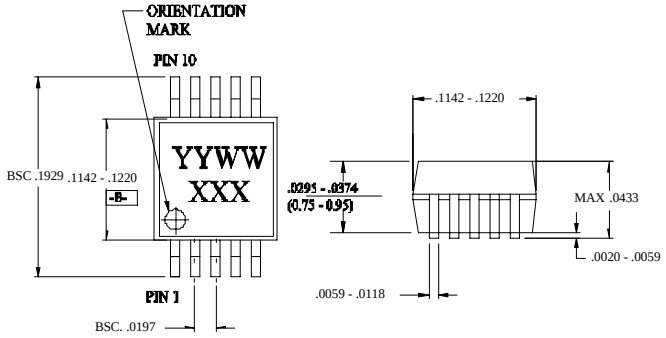
M/A-COM

GaAs High Isolation Switch
DC - 3.0 GHz

Features

- Low Power Consumption: < 15 µA @ +2.5V
- High Isolation: 50 dB Typical @ 2 GHz
- Low Insertion Loss: < 0.8 dB @ 2 GHz
- Positive 2.5 to 5 V Control
- Low Cost Plastic MSOP-10 Package

MSOP-10



Description

M/A-COM's SW-439 is a GaAs MMIC SPDT switch in a low cost MSOP-10 surface mount plastic package. This part is ideal for high isolation, broadband switching requirements. Typical applications include synthesizer switching, transmit/receive switching, switch matrices and filter banks in systems such as radio and cellular equipment, PCM, GPS, and fiber optic modules

The SW-439 is fabricated as a monolithic GaAs MMIC using a mature 1 micron process. The process features full passivation

Ordering Information

Part Number	Package
SW-439 PIN	MSOP 10-Lead Plastic Package
SW-439TR	Tape and Reel

Electrical Specifications: T_A = +25°C

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss	DC - 1.0 GHz	dB		0.55	0.65
	1.0 - 2.0 GHz	dB		0.65	0.75
	2.0 - 3.0 GHz	dB		0.80	0.90
Isolation	DC - 2.0 GHz	dB	45	47	
	2.0 - 3.0 GHz	dB	31	33	
VSWR	0.25 - 3.0 GHz			1.2:1	1.3:1
P_{1dB} (2.5V supply)	500 MHz - 2.0 GHz	dBm		20	
P_{1dB} (5V supply)	500 MHz - 2.0 GHz	dBm		28	
IP_2	2 Tone 900 MHz, 5 MHz Spacing (2.5 V)	dBm		85	
IP_3	2 Tone 900 MHz, 5 MHz Spacing (2.5 V)	dBm		50	
T_{on}, T_{off}	50% Control to 90% RF, Control to 10% RF	ns		20	
T_{rise}, T_{fall}	10% to 90% RF, 90% to 10% RF	ns		10	
Transients	In-band	mV		15	
Gate Leakage	$\|V_{CTL}\|$ = 2.5 V	µA		5	15

M/A-COM Division of AMP Incorporated ■ 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

Absolute Maximum Ratings[1]

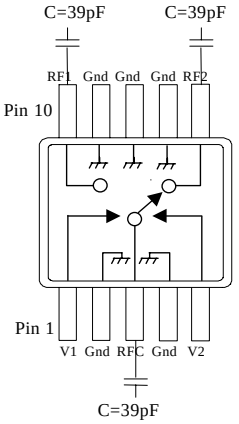
Parameter	Absolute Maximum
Input Power	+30 dBm
Operating Voltage	+8.5 Volts
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

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

Pin Configuration

PIN No.	Function	Description
1	V1	Control 1
2	Gnd	Ground
3	RFC	RF Input
4	Gnd	Ground
5	V2	Control 2
6	RF2	RF Port 2
7	Gnd	Ground
8	Gnd	Ground
9	Gnd	Ground
10	RF1	RF Port 1

Functional Schematic[1]



1. External blocking capacitors are required on all RF ports.

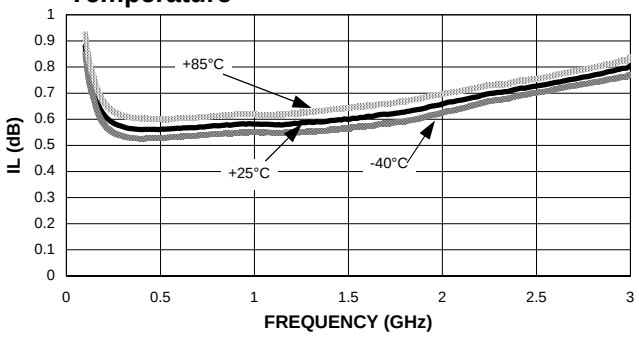
Truth Table

Mode (Control)	Control[1] V1	Control[2] V2	RFC - RF1	RFC - RF2
Positive[1]	0V	+2.5 to +5V	Off	On
	+2.5 to +5V	0V	On	Off

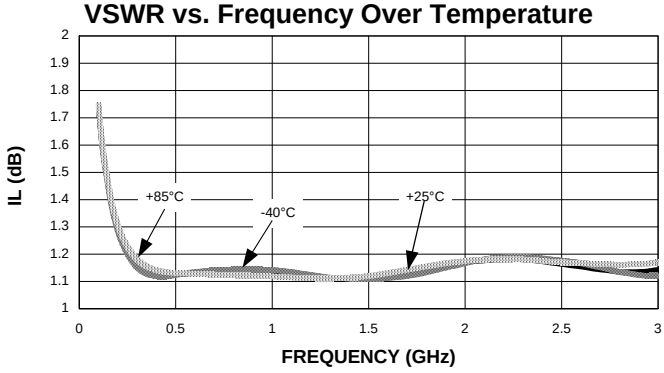
1. External DC blocking capacitors are required on all RF ports.
2. Logic 0=0±0.2 Vdc Logic 1 = +2.5 to +5 Vdc

Typical Performance Curves

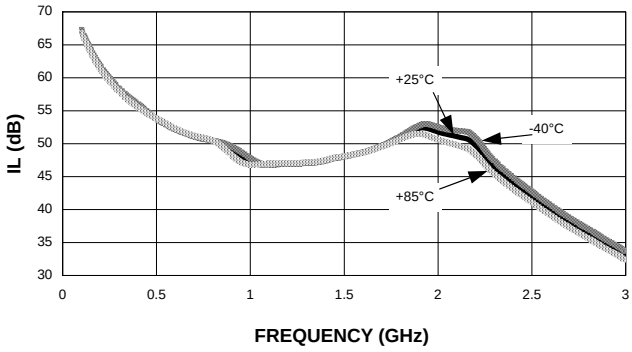
Insertion Loss vs. Frequency Over Temperature



VSWR vs. Frequency Over Temperature



Isolation vs. Frequency Over Temperature



V2.00