GaAs SPDT Switch
DC-2.5 GHz

SW-239

Features

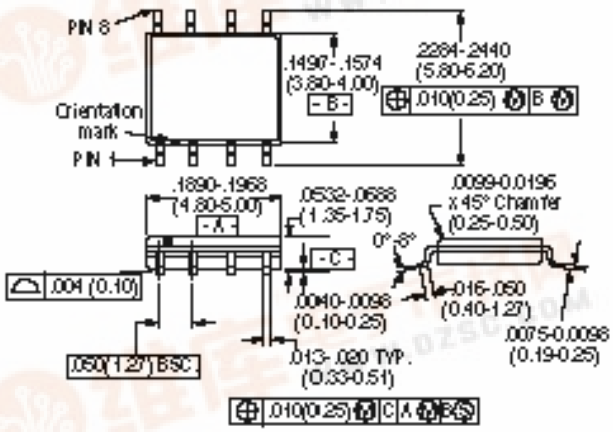
- Very Low Power Consumption: 50 µW
- Low Insertion Loss: 0.5 dB
- High Isolation: 25 dB up to 2 GHz
- Very High Intercept Point: 46 dBm IP_3
- Nanosecond Switching Speed
- Temperature Range: -40°C to + 85°C
- Low Cost SOIC8 Plastic Package
- Tape and Reel Packaging Available[1]

Description

M/A-COM's SW-239 is a GaAs MMIC SPDT switch in a low cost SOIC 8-LD surface mount plastic package. The SW-239 is ideally suited for use where very low power consumption is required. Typical applications include transmit/receive switching, switch matrices, and filter banks in systems such as: radio and cellular equipment, PCM, GPS, fiber optic modules, and other battery powered radio equipment.

The SW-239 is fabricated with a monolithic GaAs MMIC using a mature 1 micron process. The process features full chip passivation for increased performance and reliability.

SO-8



8-Lead SOP outline dimensions
Narrow body .150
(All dimensions per JEDEC No. MS-012-AA, Issue C)
Dimensions in ( ) are in mm.

Unless Otherwise Noted: .xxx = ±0.010 (.xx = ±0.25)
.xx = ±0.02 (.x = ±0.5)

Electrical Specifications, T_A = 25°C

Parameter	Test Conditions[2]		Unit	Min.	Typ.	Max
Insertion Loss		DC – 0.1 GHz	dB		0.4	0.6
		DC – 0.5 GHz	dB		0.4	0.6
		DC – 1.0 GHz	dB		0.5	0.7
		DC – 2.0 GHz	dB		0.6	0.8
Isolation		DC – 0.1 GHz	dB	52	56	
		DC – 0.5 GHz	dB	40	43	
		DC – 1.0 GHz	dB	30	33	
		DC – 2.0 GHz	dB	22	24	
VSWR		DC – 2.0 GHz		1.2:1		
Trise, Tfall	10% to 90% RF, 90% to 10% RF		nS		2	
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF		nS		4	
Transients	In Band		mV		15	
One dB Compression Point	Input Power	0.05 GHz	dBm		21	
	Input Power	0.5 – 2.0 GHz	dBm		27	
2nd Order Intercept	Measured Relative to Input Power (for two-tone input power up to +6 dbm)	0.05 GHz	dBm		55	
		0.5 – 2.0 GHz	dBm		69	
3rd Order Intercept	Measured Relative to Input Power (for two-tone input power up to +6 dbm)	0.05 GHz	dBm		40	
		0.5 – 2.0 GHz	dBm		46	

1. Refer to "Tape and Reel Packaging" Section, or contact factory.
2. All measurements with 0, -5V control voltages at 1 GHz in a 50Ω system, unless otherwise specified.

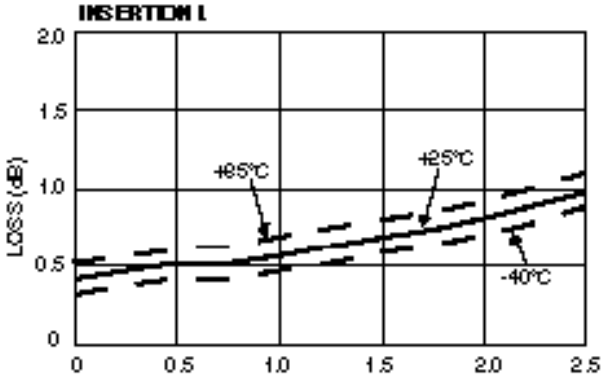
SW-239TR	Forward Tape & Reel
SW-239RTR	Reverse Tape & Reel

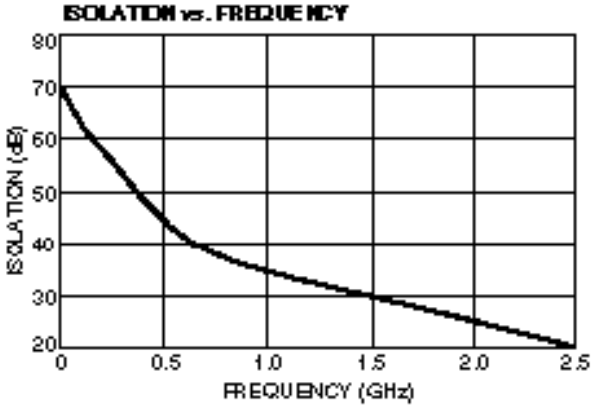
Absolute Maximum Ratings

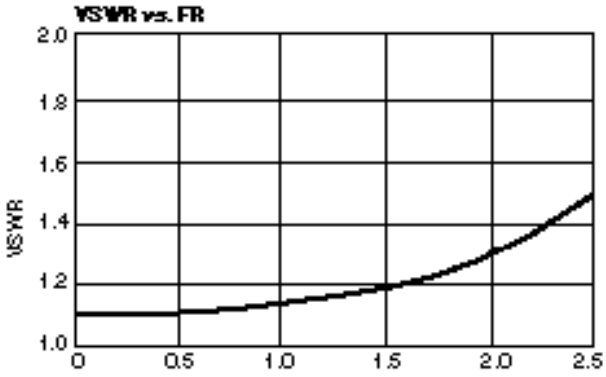
Parameter	Absolute Maximum[1]
Max. Input Power	
0.05 GHz	+27 dBm
0.5 – 2.0 GHz	+34 dBm
Control Voltage	+5V, -8.5V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

Note: 1. Operation of this device above any one of these parameters may cause permanent damage

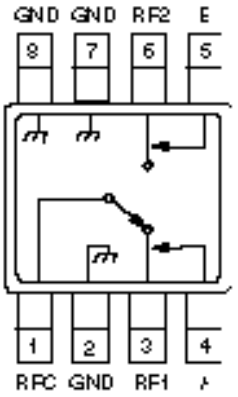
Typical Performance







Functional Schematic



Pin Configuration

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

Truth Table

Control Inputs		Condition of Switch RFCommon to Each RF Port	
A	B	RF1	RF2
1	0	On	Off
0	1	Off	On

'0' = 0 – -0.2V @ 20 µA max.
'1' = -5V @ 20 µA Typ to -8V @ 480 µA max

Electrical Schematic