GaAs DPDT Switch
DC - 2 GHz

SW-289

V 2.00

Features

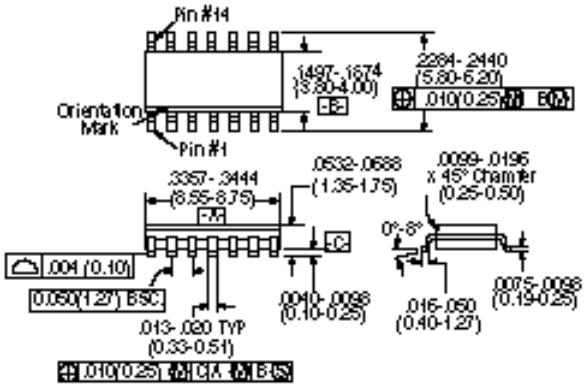
- Very Low Power Consumption: 100 µW
- Low Insertion Loss: 0.5 dB
- High Isolation: 25 dB up to 2 GHz
- Very High Intercept Point: 48 dBm IP_3
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC14 Plastic Package
- Tape and Reel Packaging Available[1]

Description

M/A-COM's SW-289 is a GaAs MMIC DPDT switch in a low cost SOIC 14-lead surface mount plastic package. The SW-289 is ideally suited for use where very low power consumption is required. Typical applications include transmit/receive switching, switch matrices, digital step attenuators, and filter banks in systems such as: radio and cellular equipment, PCM, GPS, fiber optic modules, and other battery powered radio equipment.

The SW-289 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-14



14-Lead SOP outline dimensions
Narrow body .150
(All dimensions per JEDEC No. MS-012-AB, Issue C)
Dimensions in ( ) are in mm.
Unless Otherwise Noted: .xxx = ±0.010 (.xx = ±0.25)
.xx = ±0.02 (.x = ±0.5)

Ordering Information

Part Number	Package
SW-289 PIN	SOIC 14-Lead Plastic Package
SW-289TR	Forward Tape & Reel
SW-289RTR	Reverse Tape & Reel

Electrical Specifications, T_A = +25°C

Parameter	Test Conditions[2]		Unit	Min.	Typ.	Max
Insertion Loss		DC – 0.1 GHz	dB		0.35	0.5
		DC – 0.5 GHz	dB		0.35	0.5
		DC – 1.0 GHz	dB		0.4	0.6
		DC – 2.0 GHz	dB		0.6	0.8
Isolation		DC – 0.1 GHz	dB	50	56	
		DC – 0.1 GHz	dB	40	43	
		DC – 1.0 GHz	dB	32	35	
		DC – 2.0 GHz	dB	20	23	
VSWR		DC – 2.0 GHz		1.3:1		
Trise, Tfall	10% to 90% RF, 90% to 10% RF		nS		3	
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF		nS		6	
Transients	In Band		mV		15	
One dB Compression	Input Power	0.05 GHz	dBm		22	
	Input Power	0.5 – 2.0 GHz	dBm		27	
IP_2	Measured Relative to Input Power (for two-tone input power up to +5 dBm)	0.05 GHz	dBm		54	
		0.5 – 2.0 GHz	dBm		66	
IP_3	Measured Relative to Input Power (for two-tone input power up to +5 dBm)	0.05 GHz	dBm		45	
		0.5 – 2.0 GHz	dBm		48	

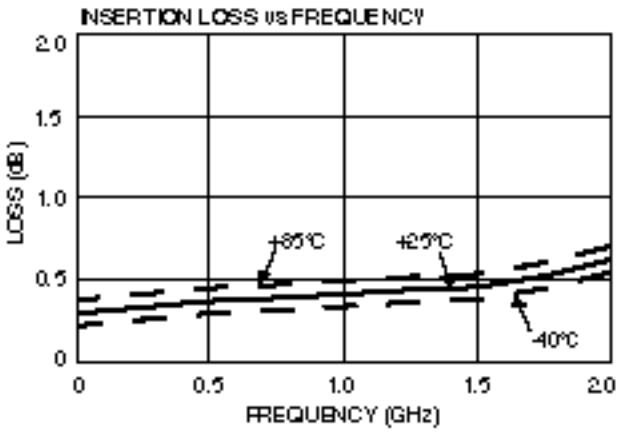
1. Refer to "Tape and Reel Packaging" section, or contact factory.
2. All measurements with 0, -5 V control voltages at 1 GHz in a 50Ω system, unless otherwise specified.

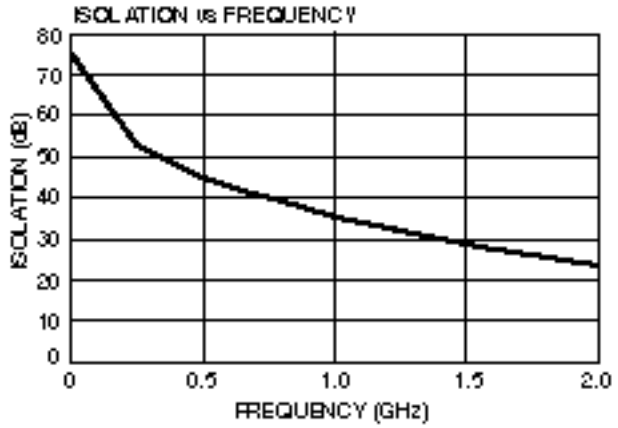
Absolute Maximum Ratings[1]

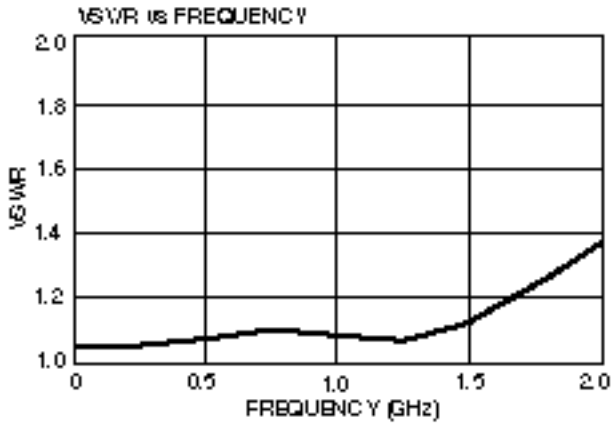
Parameter	Absolute Maximum
Max. Input Power	
0.05 GHz	+27 dBm
0.5 – 2.0 GHz	+34 dBm
Control Voltage	+5 V, -8.5 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

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

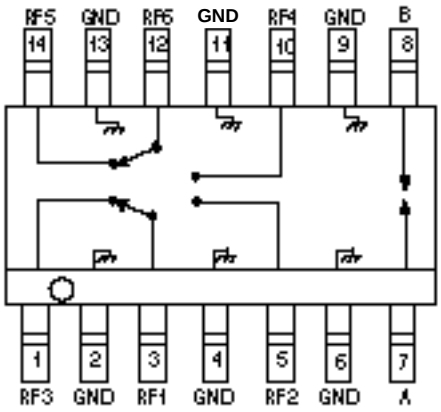
Typical Performance







Functional Schematic



Pin Configuration

Pin No.	Description	Pin No.	Description
1	RF3	8	B
2	GND	9	GND
3	RFI	10	RF4
4	GND	11	GND
5	RF2	12	RF6
6	GND	13	GND
7	A	14	RF5

Truth Table

Control Input		Condition of Switch			
A	B	RF1 TO		RF6 TO	
		RF2	RF3	RF4	RF 5
1	0	On	Off	On	Off
0	1	Off	On	Off	On

"0" – 0 – -0.2V @ 20 µA max.
"1" – -5V @ 40 µA Typ to -8V @ 900 µA max.

Electrical Schematic