

GaAs DPDT Switch

DC - 2 GHz

SW-289

V 2.00

Features

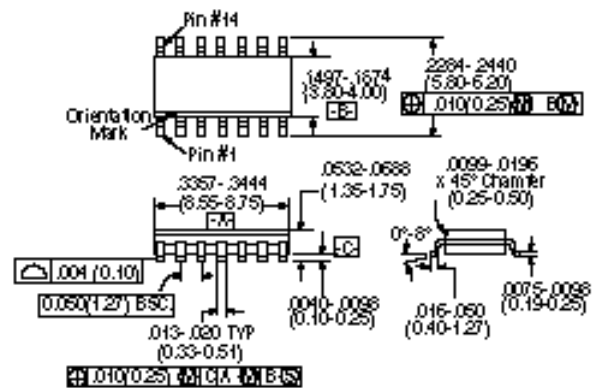
- Very Low Power Consumption: 100 μ W
- Low Insertion Loss: 0.5 dB
- High Isolation: 25 dB up to 2 GHz
- Very High Intercept Point: 48 dBm IP₃
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC14 Plastic Package
- Tape and Reel Packaging Available¹

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)
.xxx = ± 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 Ton, Toff Transients	10% to 90% RF, 90% to 10% RF 50% Control to 90% RF, 50% Control to 10% RF In Band		nS	3		
			nS	6		
			mV	15		
One dB Compression	Input Power	0.05 GHz	dBm	22		
		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		

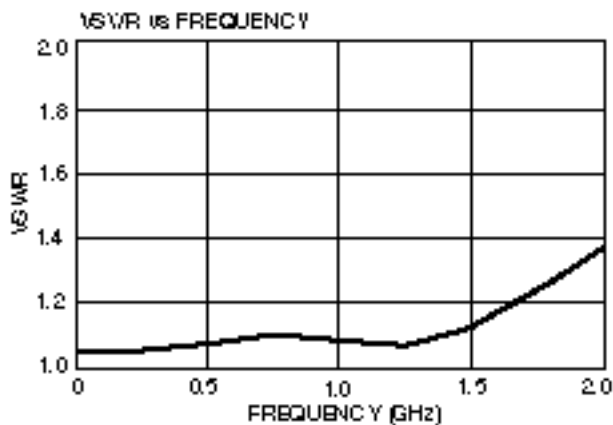
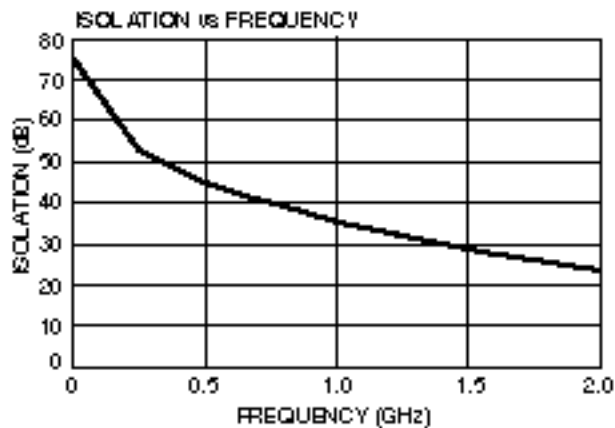
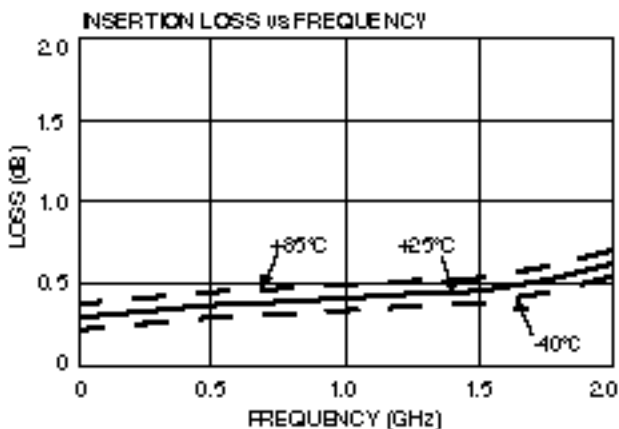
1. Refer to "Tape and Reel Packaging" section, or contact factory.
2. All measurements with 0, -5 V control voltages at 1 GHz in a 50 Ω system, unless otherwise specified.

Absolute Maximum Ratings¹

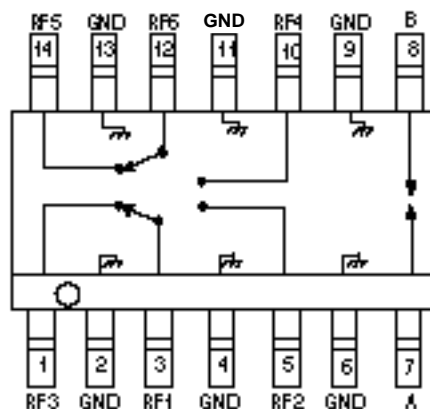
Parameter	Absolute Maximum
Max. Input Power	
0.05 GHz	+27 dBm
0.5 – 2.0 GHz	+34 dBm
Control Voltage	+5 V, -8.5 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

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	RF1	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 RF3		RF4 TO RF5	
		RF2	RF3	RF4	RF5
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

