



High Power GaAs SPDT Switch

DC-2.5 GHz

SW-279

Features

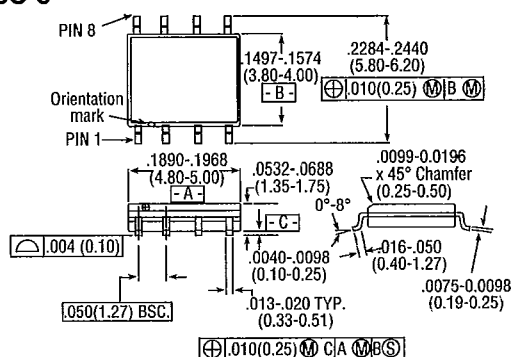
- +36 dBm Typ. 1 dB Compression Point, -8V Supply
- +65 dBm Typ. 3rd Order Intercept Point, -8V Supply
- Low Insertion Loss: 0.4 dB Typical
- Low Power Consumption: 100 μ W
- Fast Switching Speed
- Low Cost SOIC8 Plastic Package
- Tape and Reel Packaging Available¹

Description

M/A-COM's SW-279 is a GaAs MMIC SPDT switch in a low cost SOIC 8-LD surface mount plastic package. The SW-279 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-279 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, $T_A = 25^\circ\text{C}$

Parameter	Test Conditions ²	Unit	Min.	Typ.	Max
Insertion Loss	DC - 2.0 GHz	dB		0.6	0.8
	DC - 1.0 GHz	dB		0.4	0.6
	DC - 0.5 GHz	dB		0.3	0.5
	DC - 0.1 GHz	dB		0.2	0.4
Isolation	DC - 2.0 GHz	dB	15	18	
	DC - 1.0 GHz	dB	25	29	
	DC - 0.5 GHz	dB	33	36	
	DC - 0.1 GHz	dB	60	63	
VSWR	DC - 2.0 GHz			1.2:1	
Trise, Tfall	10% to 90% RF, 90% to 10% RF	nS		30	
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF	nS		35	
Transients	In Band	mV		12	
One dB Compression Point	Input Power (-5V Control)	0.9 GHz		33	
	Input Power (-8V Control)	0.9 GHz		36	
3rd Order Intercept	Measured Relative (-5V Control)	0.9 GHz		61	
	to Input Power (-8V Control)	0.9 GHz		65	
(for two-tone input power up to +10 dBm)					

1. Refer to "Tape and Reel Packaging" Section, or contact factory.

2. All specifications apply when operated with bias voltages of 0V for Vin Low and -5 to -10V for Vin Hi, and 50 Ohm impedance at all RF ports, unless otherwise specified. High power (greater than 1 watt) handling specifications apply to cold switching only. For input powers under 1 watt, hot switching can be used.

Ordering Information

Model No.	Package
SW-279 PIN	SOIC 8 Lead
SW-279TR	Forward Tape & Reel
SW-279RTR	Reverse Tape & Reel

Specifications Subject to Change Without Notice

M/A-COM Inc. ■ 1011 Pawtucket Boulevard, Lowell, MA 01853 USA

Telephone: 800-366-2266

Absolute Maximum Ratings

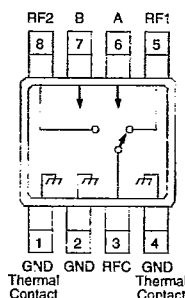
Parameter	Absolute Maximum ¹
Max. Input Power	
0.5 – 2.0 GHz	
5V Control and Supply	+37 dBm
8V Control and Supply	+40 dBm
10V Control and Supply	+42 dBm
Power Dissipation	1.0 W
Control Voltage	-12V, +1V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Thermal Resistance ² : $\theta_{JC} = 87^\circ\text{C/W}$	

Note: 1. Operation of this device above any one of these parameters may cause permanent damage.
2. Thermal resistance is given for $T_A = 25^\circ\text{C}$. T_{CASE} is the temperature of leads 1 and 4.

Pin Configuration

Pin No.	Description
1	GND, Thermal Contact
2	GND
3	RF Common
4	GND, Thermal Contact
5	RF1
6	A
7	B
8	RF2

Functional Schematic



Two Tone IP3 Measurements

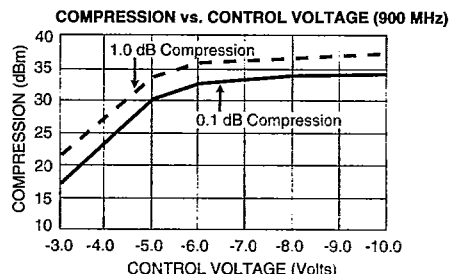
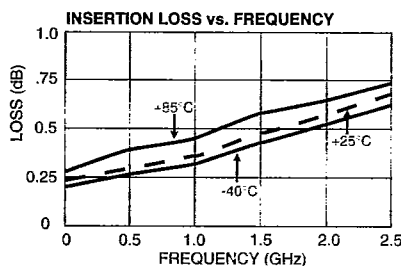
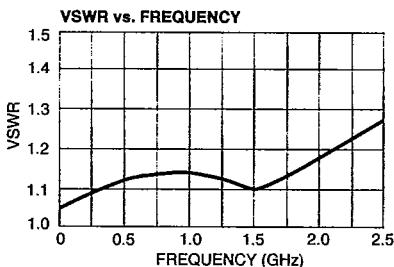
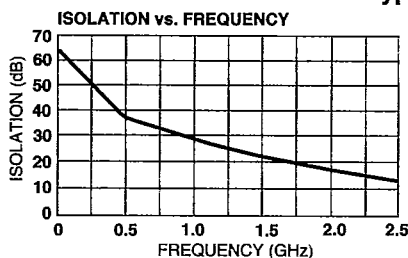
Bias Voltage	Input Power (dBm)	3rd Order Intermodulation Products (dBC)	IP3 (dBm)	Second Harmonic (dBC)
0,-5V	+27	-34	+44	-61
0,-6V	+27	-49	+51	-61
0,-7V	+27	-64	+59	-63
0,-8V	+27	-65	+59	-63
0,-10V	+27	-66	+60	-63
0,-5V	+28	-30	+43	-58
0,-6V	+28	-41	+48.5	-58
0,-7V	+28	-52	+54	-57
0,-8V	+28	-60	+58	-57
0,-10V	+28	-60	+58	-57
0,-5V	+29	-28	+43	-54
0,-6V	+29	-34	+46	-54
0,-7V	+29	-44	+51	-54
0,-8V	+29	-52	+55	-54
0,-10V	+29	-52	+55	-54
0,-5V	+30	-26	+43	-52
0,-6V	+30	-32	+46	-51
0,-7V	+30	-38	+49	-51
0,-8V	+30	-44	+52	-51
0,-10V	+30	-44	+52	-51

Truth Table

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

1. 0 – 0 to -0.2V @ 20 μA max.
1 – -5V @ 50 μA Typ to -10V @ 800 μA max.

Typical Performance



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