#### Features

- Very Low Power Consumption: 50 μW
- Low Insertion Loss: 1.0 dB
- High Isolation: 35 dB up to 2 GHz
- Very High Intercept Point: 46 dBm IP3
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC-8 Plastic Package
- Tape and Reel Packaging Available

#### Description

M/A-COM's SW-259 is a GaAs MMIC SPST switch in a low cost SOIC-8 lead surface mount plastic package. The SW-259 is ideally suited for use where low power consumption is required. Typical applications include transmit/receive switching, switch matrices and switched filter banks in systems such as radio and cellular equipment, PCM, GPS, fiber optic modules, and other battery powered radio equipment.

The SW-259 is fabricated using a monolithic GaAs MMIC using a mature 1 micron process. The process features full chip passivation for increased performance and reliability.

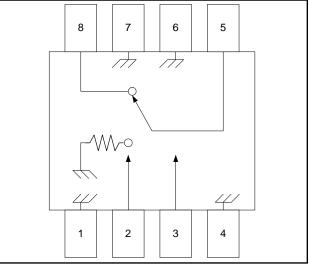
### Ordering Information<sup>1</sup>

1

Part Number	Package
SW-259 PIN	Bulk Packaging
SW-259TR	1000 piece reel

1. Reference Application Note M513 for reel size information.

# Functional Schematic



#### **Pin Configuration**

PIN No.	Description	PIN No.	Description		
1	Ground	5	RF2		
2	А	6	Ground		
3	В	7	Ground		
4	Ground	8	RF1		

#### Absolute Maximum Ratings<sup>2</sup>

Parameter	Absolute Maximum
Input Power <sup>3</sup> 0.05 GHz 0.5-2.0 GHz	+27 dBm +34 dBm
Control Voltage	+5 V, -8.5 V
Storage Temperature	-65°C to +150°C

2. Exceeding any one or combination of these limits may cause permanent damage to this device.

3. When the RF Input power is applied to a terminated port, the absolute maximum is +32 dBm.



Rev. V7

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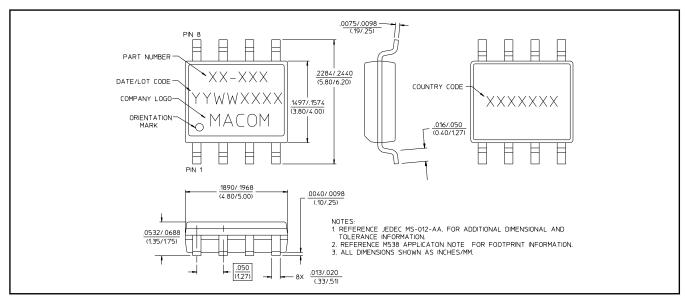
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# Electrical Specifications: T<sub>A</sub> = +25°C<sup>4</sup>

Parameter	Test Conditions	Units	Min	Тур	Max
Insertion Loss	DC - 0.1 GHz DC - 0.5 GHz DC - 1.0 GHz	dB dB dB		0.5 0.8 1.0	0.6 1.0 1.2
Isolation	DC - 2.0 GHz DC - 0.1 GHz DC - 0.5 GHz DC - 1.0 GHz DC - 2.0 GHz	dB dB dB dB dB	62 55 45 32	1.4 65 58 48 35	1.6 — — —
VSWR On VSWR Off	DC - 2.0 GHz DC - 2.0 GHz DC - 2.0 GHz	Ratio Ratio	1.2:1 1.2:1		
1 dB Compression	Input Power 0.05 GHz 0.5-2.0 GHz	dBm dBm	_	18 23	_
Trise, Tfall	10% to 90% RF, 90% to 10% RF	nS		4	
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF	nS	_	8	
Transients	In-Band	mV		35	
2nd Order Intercept	Measured Relative to Input Power, two-tone up to +5 dBm 0.05 GHz 0.5 - 2.0 GHz	dBm dBm		55 68	
3rd Order Intercept	Measured Relative to Input Power, two-tone up to +5 dBm 0.05 GHz 0.5 - 2.0 GHz	dBm dBm		40 46	

4. All measurements with 0, -5 V control voltages at 1 GHz in a 50Ω system, unless otherwise specified.

#### SOIC-8



2

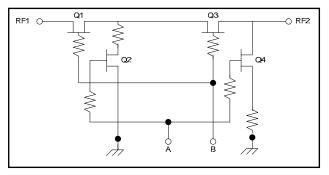
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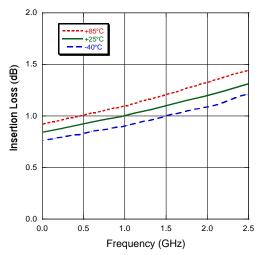
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#### **Electrical Schematic**



# **Typical Performance Curves**

#### Insertion Loss

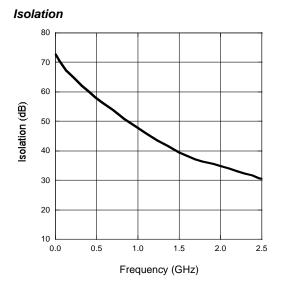


### Truth Table 5,6

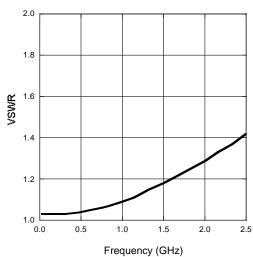
Control Inputs		Condition of Switch		
A	В	RF State		
1	0	On		
0	1	Off		

5. "0" = 0 to -0.2 V @ 20 mA max.

6. "1" = -5 V @ 20 mA Typ to -8V @ 600 mA max.



VSWR



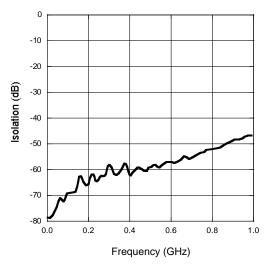
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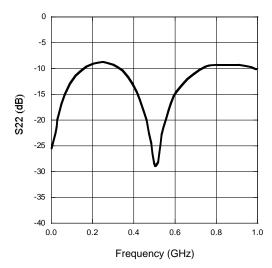
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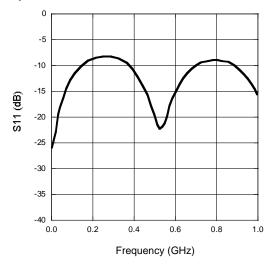
#### Isolation



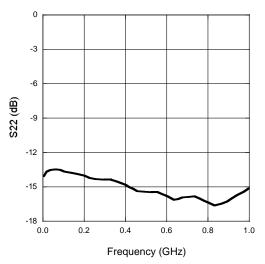
#### Output Return Loss - On



Input Return Loss - On



#### Output Return Loss - Off



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