

## Matched GaAs SPST Switch DC - 3.0 GHz

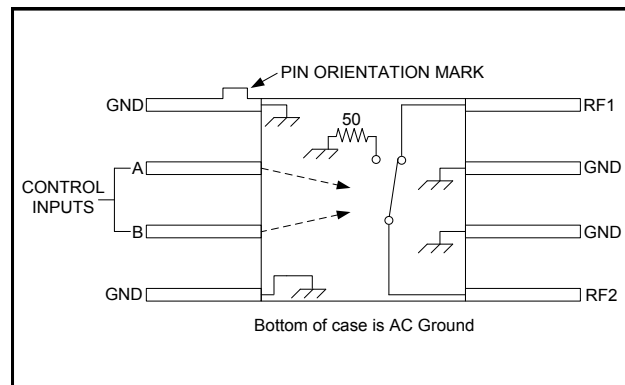
Rev. V3

### Features

- Fast Switching Speed, 6 nS Typical
- Ultra Low DC Power Consumption
- Small Package Size, 0.180" (4.6mm) Sq.

### Description

### Functional Schematic



### Ordering Information

Part Number	Package
SW-209 PIN	Ceramic (CR-3)
SW-209B PIN	Screened to MIL-STD-883C, Method 5008.4, Table VII, Class B Hybrid
SW-209G PIN	Ceramic Gull Winged (CR-10)

### Pin Configuration

### Absolute Maximum Ratings <sup>1,2</sup>

Parameter	Absolute Maximum
Max Input Power 0.05 GHz 0.5-2.0 GHz	+27 dBm +34 dBm
Control Voltage	+5V, -8.5 V
Operating Temperature	-55°C to +125°C
Storage Temperature	-65°C to +150°C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. M/A-COM does not recommend sustained operation near these survivability limits.

### Truth Table

Control Inputs		Condition of Switch
A	B	RF1 to RF2
1	0	ON
0	1	OFF

## Matched GaAs SPST Switch DC - 3.0 GHz

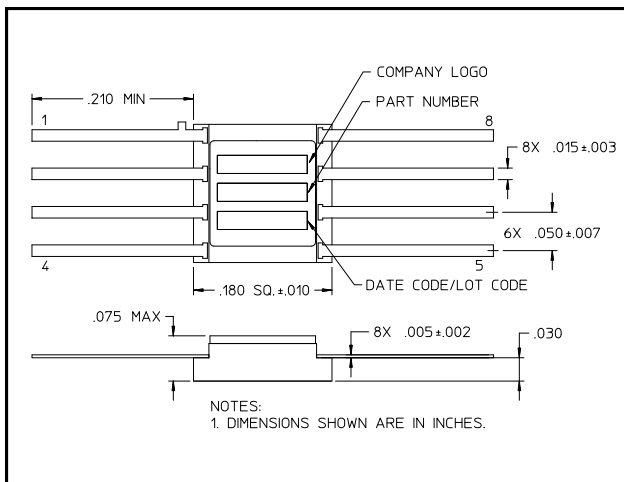
Rev. V3

### Electrical Specifications: -55°C to 85°C

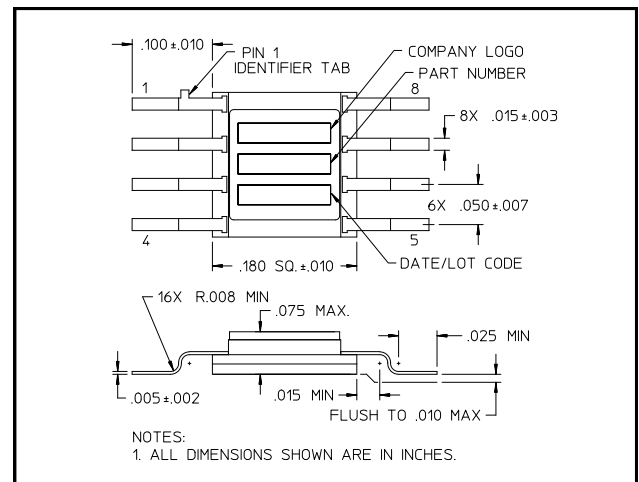
Parameter	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss	DC - 3.0 GHz	dB	—	—	1.5
	DC - 2.0 GHz	dB	—	—	1.2
	DC - 1.0 GHz	dB	—	—	1.1
	DC - 0.5 GHz	dB	—	—	0.9
Isolation	DC - 3.0 GHz	dB	27	—	—
	DC - 2.0 GHz	dB	32	—	—
	DC - 1.0 GHz	dB	40	—	—
	DC - 0.5 GHz	dB	55	—	—
VSWR	DC - 3.0 GHz	Ratio	—	—	1.6:1
	DC - 2.0 GHz	Ratio	—	—	1.5:1
	DC - 1.0 GHz	Ratio	—	—	1.2:1
	DC - 0.5 GHz	Ratio	—	—	1.2:1
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	—	30	—
1 dB Compression Point	0.5 to 3.0 GHz, 0/-5 V	dBm	—	+27	—
	0.05 GHz, 0/-5 V	dBm	—	+21	—
	0.5 to 3.0 GHz, 0/-8 V	dBm	—	+33	—
	0.05 GHz, 0/-8 V	dBm	—	+26	—
IP2	0.5 to 3.0 GHz	dBm	—	+62	—
	0.05 GHz	dBm	—	+68	—
IP3	0.5 to 3.0 GHz	dBm	—	+40	—
	0.05 GHz	dBm	—	+46	—
Control Current	V <sub>IN</sub> Low (0 to -0.2 V)	μA	—	—	20
	V <sub>IN</sub> High (-5 V @ 50 μA Typ. to -8 V)	μA	—	—	300

3. All specification apply with 50 Ω impedance connected to all RF ports with 0 and -5 Vdc control voltages.

### CR-3

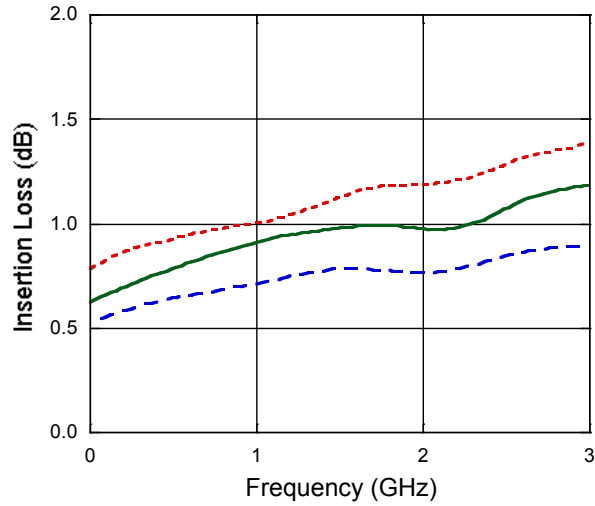


### CR-10

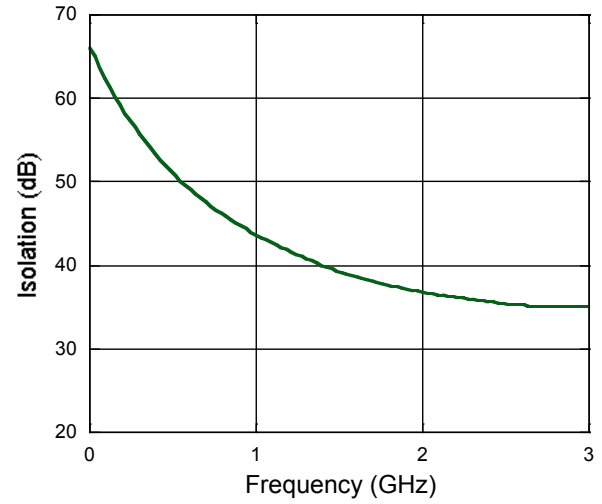


## Typical Performance Curves

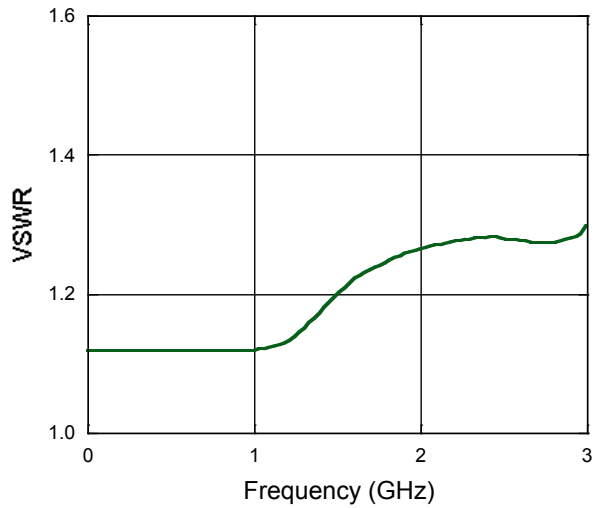
**Insertion Loss**



**Isolation**



**VSWR**



M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.