

Matched GaAs SPST Switch DC - 3.0 GHz

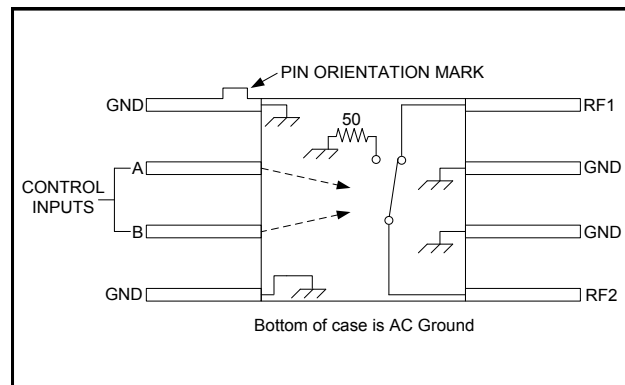
Rev. V3

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 ^{1,2}

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

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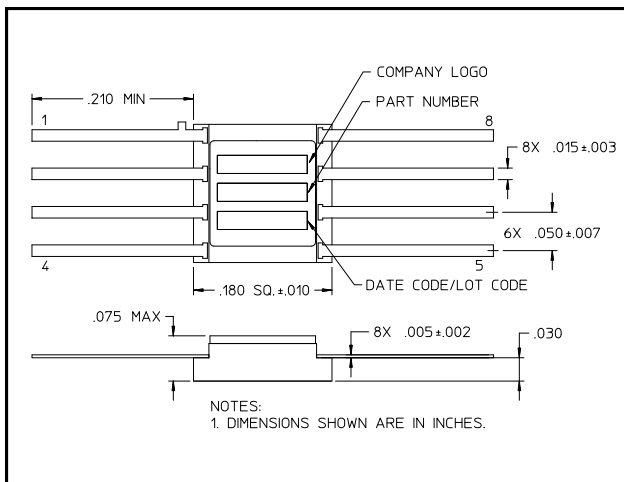
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Electrical Specifications: -55°C to 85°C

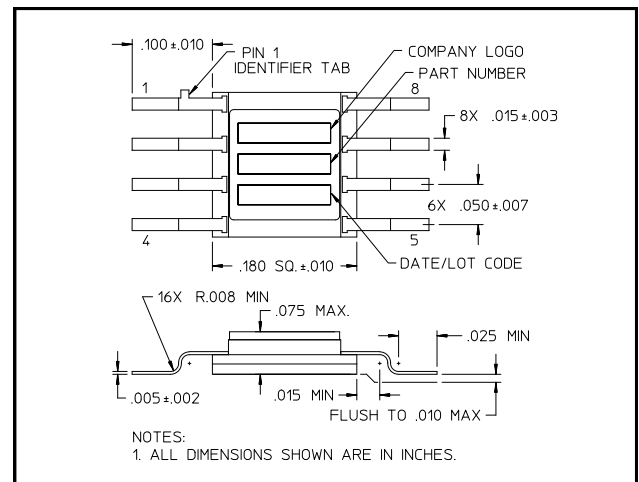
Parameter	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss	DC - 3.0 GHz	dB	—	—	1.5
	DC - 2.0 GHz	dB	—	—	1.2
	DC - 1.0 GHz	dB	—	—	1.1
	DC - 0.5 GHz	dB	—	—	0.9
Isolation	DC - 3.0 GHz	dB	27	—	—
	DC - 2.0 GHz	dB	32	—	—
	DC - 1.0 GHz	dB	40	—	—
	DC - 0.5 GHz	dB	55	—	—
VSWR	DC - 3.0 GHz	Ratio	—	—	1.6:1
	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 _{IN} Low (0 to -0.2 V)	μA	—	—	20
	V _{IN} 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

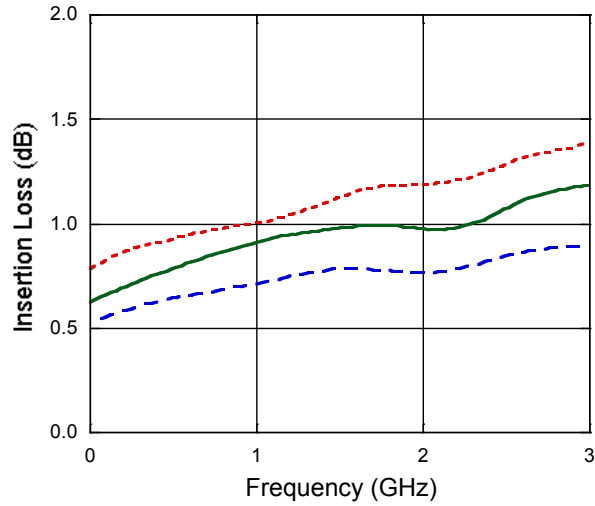


CR-10

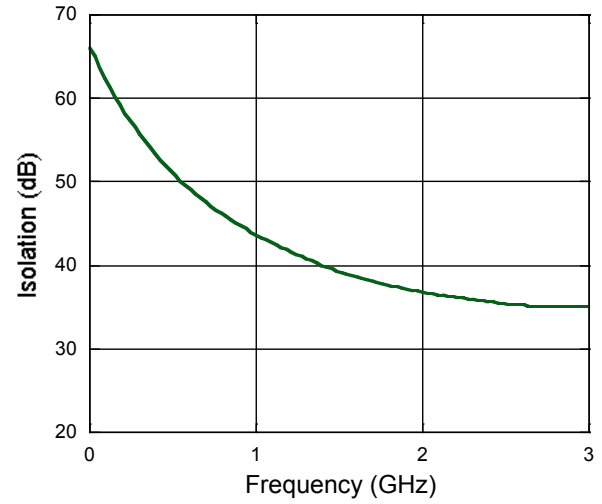


Typical Performance Curves

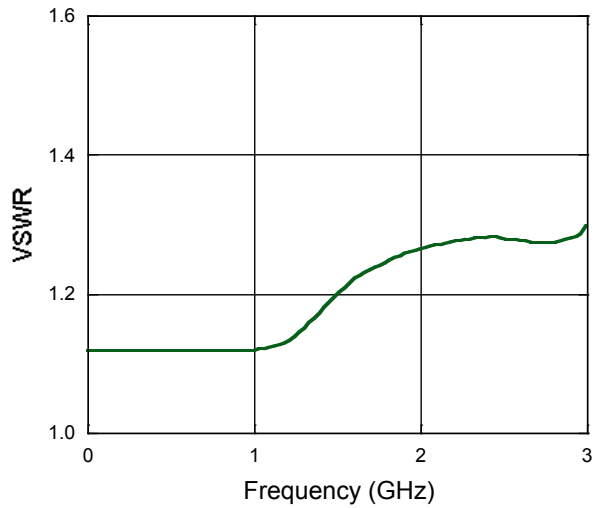
Insertion Loss



Isolation



VSWR



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