

Matched GaAs SPST Switch

DC - 3 GHz

SW-209

V 2.00

Features

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

Guaranteed Specifications¹ (-55°C to +85°C)

Frequency Range	DC – 3.0 GHz	
Insertion Loss	DC – 3.0 GHz	1.5 dB Max
	DC – 2.0 GHz	1.2 dB Max
	DC – 1.0 GHz	1.1 dB Max
	DC – 0.5 GHz	0.9 dB Max
VSWR	DC – 3.0 GHz	1.6:1 Max
	DC – 2.0 GHz	1.5:1 Max
	DC – 1.0 GHz	1.2:1 Max
	DC – 0.5 GHz	1.2:1 Max
Isolation	DC – 3.0 GHz	27 dB Min
	DC – 2.0 GHz	32 dB Min
	DC – 1.0 GHz	40 dB Min
	DC – 0.5 GHz	45 dB Min

Operating Characteristics

Impedance 50 Ohms Nominal

Switching Characteristics

T_{rise}, T_{fall}	3 ns Typ
T_{on}, T_{off} (50% CTL to 90%/10% RF)	6 ns Typ
Transients (In-Band)	30 mV Typ

Input Power for 1 dB Compression

Control Voltages (Vdc)	0/-5	0/-8	
0.5 – 3.0 GHz	+27	+33	dBm Typ
0.05 GHz	+21	+26	dBm Typ

Intermodulation Intercept Point

(for two-tone input power up to +13 dBm)

Intercept Points	IP ₂	IP ₃	
0.5 – 3.0 GHz	+62	+40	dBm Typ
0.05 GHz	+68	+46	dBm Typ

Control Voltages (Complementary Logic)

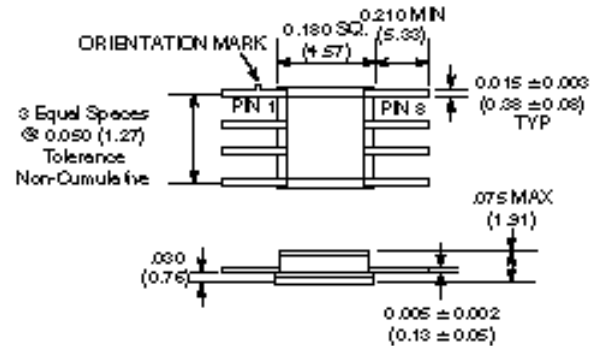
Vin Low	0 to -0.2V @ 20 µA Max
Vin High	-5V @ 50 µA Typ to -8V @ 300 µA Max

1. All specifications apply with 50 ohm impedance connected to all RF ports with 0 and -5 Vdc control voltages.

Ordering Information

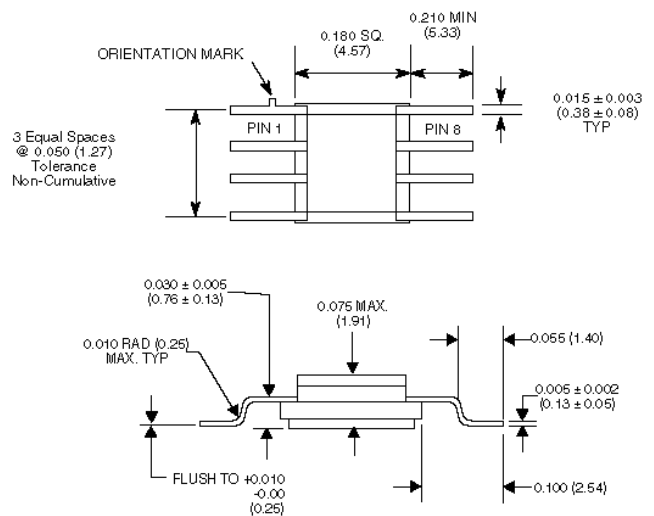
Model No.	Package
SW-209 PIN	Ceramic (CR-3)
SW-209B PIN	Screened To MIL-STD-883C, Method 5008.4, Table VII, Class B Hybrid
SW-209G PIN	Ceramic Gull Winged (CR-10)

CR-3



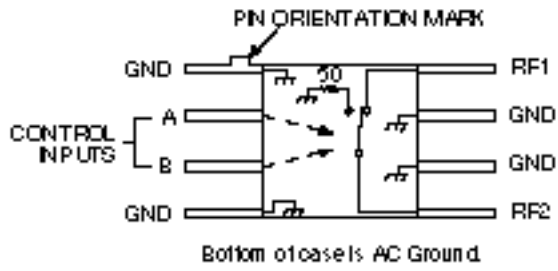
Bottom of case is AC ground.
Dimensions in () are in mm.
Unless Otherwise Noted: .xxx = ±0.010 (.xx = ±0.25)
.xx = ±0.02 (.x = ±0.5)

CR-10



Bottom of case is AC ground.
Dimensions in () are in mm.
Unless Otherwise Noted: .xxx = ±0.010 (.xx = ±0.25)
.xx = 0.02 (.x = ±0.5)

Functional Schematic



Absolute Maximum Ratings

Parameter	Absolute Maximum ¹
Max. Input Power	
0.05 GHz	+27 dBm
0.5–2.0 GHz	+34 dBm
Control Voltage	+5V, –8.5V
Operating Temperature	–55°C to +125°C
Storage Temperature	–65°C to +150°C

1. Operation of this device above any one of these parameters may cause permanent damage.

Truth Table

Control Input		Condition of Switch
A	B	RF1 to RF2
High	Low	ON
Low	High	OFF

Typical Performance

