



GaAs SPDT Reflective Switch

0.01 - 3 GHz

SW-137

V2.00

Features

- Isolation: 48dB Typ. at 1 GHz
- High Intercept Point Over Wide Bandwidth
- Trise, Tfall: 5 nS Typ.
- DIP Package
- Integral TTL Driver (CMOS Compatible)
- 50Ω Nominal Impedance

Description

M/A-COM's SW-137 is a GaAs MMIC SPDT reflective switch with an integral Silicon ASIC driver. This device is in a 14-lead DIP package. These switches offer high intercept points over a wide bandwidth of operation, while maintaining low DC power dissipation. These switches exhibit excellent performance and repeatability from 0.01 to 3.0 GHz. The SW-137 is ideally suited for RF/IF communications applications. Contact the factory for environmental screening.

Electrical Specifications¹, T_A = -55°C to +85°C

Parameter	Test Conditions	Units	Minimum	Typical	Maximum
Reference Insertion Loss	.01 - 0.5 GHz	dB			0.9
	.01 - 1.0 GHz	dB			1.0
	.01 - 2.0 GHz	dB			1.4
	.01 - 3.0 GHz	dB			1.6
Isolation	.01 - 0.5 GHz	dB	48		
	.01 - 1.0 GHz	dB	43		
	.01 - 2.0 GHz	dB	37		
	.01 - 3.0 GHz	dB	32		
VSWR	.01 - 0.5 GHz				1.25:1
	.01 - 1.0 GHz				1.4:1
	.01 - 2.0 GHz				1.7:1
	.01 - 3.0 GHz				2.0:1
Trise, Tfall Ton, Toff Transients	10% to 90% 50% Control to 90%/10% RF In-band (peak-peak)	nS nS mV		5 22 45	
1 dB Compression	0.01 - 3.0 GHz	dBm		+25	
Input IP ₃	For two-tone input power up to +5 dBm	dBm		+46	
Input IP ₂	For two-tone input power up to +5 dBm	dBm		+76	
V _{CC} V _{EE}		V V	+9 -15	+12 -12	+15 -9
I _{CC}	V _{CC} = +9 to +15 V	mA			20.0
I _{EE}	V _{EE} = -9 to -15 V	mA			15.0
V _{ctl} V _{ctl}	Low High	V V	0.0 2.0		0.8 5.0
Input Leakage Current (Low)	0 to 0.8 V	μA			1.0
Input Leakage Current (High)	2.0 to 5.0 V	μA			1.0

1: All specifications apply when operated with bias voltages of +9 to +15V for V_{CC} and -9 to -15V for V_{EE} and 50Ω impedance at all RF ports unless otherwise specified.

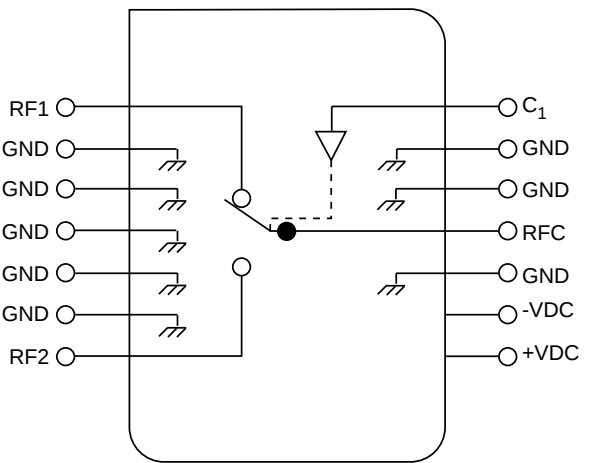
Specifications Subject to Change Without Notice.

Absolute Maximum Ratings¹

Parameter	Absolute Maximum
Max. Input Power	
0.05 GHz	+27 dBm
0.5 - 3.0 GHz	+34 dBm
Supply Voltages	
V _{CC}	-0.5V to +16.5V
V _{EE}	-16.5V to +0.5V
Control Voltage	-0.5V to V _{CC} +0.5V
Operating Temperature	-55°C to +125°
Storage Temperature	-65°C to +150°C

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

Functional Schematic (Top View)



Truth Table

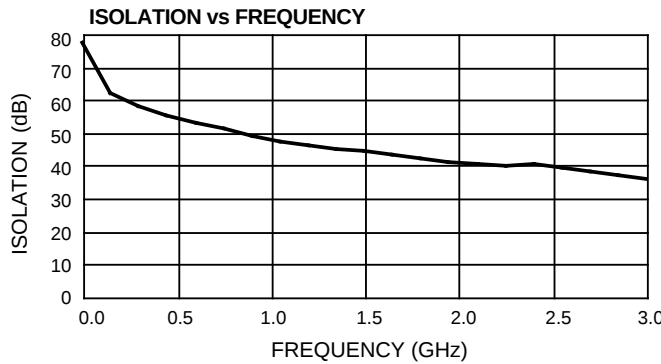
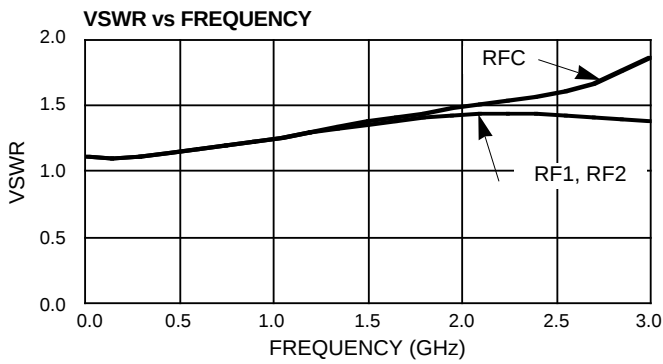
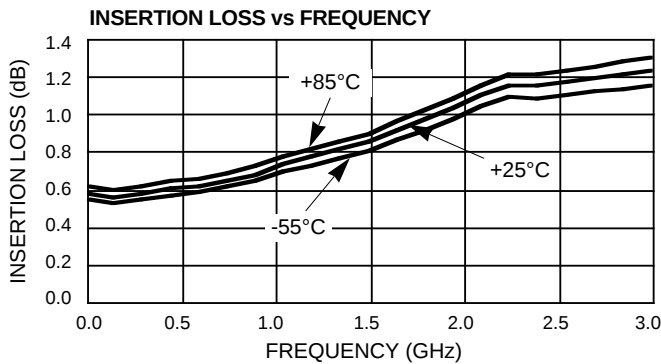
Control Inputs	Condition of Switch	
	RF Common to Each RF Port	
C1	RF1	RF2
Low	On	Off
High	Off	On

Ordering Information²

Part No.	Package
SW-137 PIN	Dual Inline

2. Contact the factory for standard or custom screening requirements

Typical Performance



Current (mA)

	±9 V	±12 V	±15 V
V _{CC}	8	11	15
V _{EE}	4	7	9