Z~Communications, Inc.

RFSW30
9 kHz - 30 GHz SPD Switch

Product Overview

The **RFSW30** is the general-purpose single-pole, double throw (SPDT) switch. It comes in a compact connetorized housing and provides high isolation and low insertion loss from 10 kHz to 30 GHz. High input linearity
1 dB power compression (P1dB): 28 dBm typical
Third-order intercept (IP3): 52 dBm typical

Features

- Ultrawideband frequency range: 9 kHz to 30 GHz
- Nonreflective 50 Ω design
- Low insertion loss: 3.0 dB to 30 GHz
- High isolation: 60 dB to 30 GHz
- High power handling: 24 dBm through path, 24 dBm terminated path
- Single power supply 6-20 V

Applications

Lab & Production Test Setups • Test & Measurment • Radar • VSAT • Microwave radios • ECMs

PERFORMANCE CHARACTERICS

Parameter	Symbol	Test Conditions/Comments	Min	Typ	Max	Unit
FREQUENCY RANGE			0.009		30,000	MHz
INSERTION LOSS						
Between RFC and RF1/RF2		9 kHz to 10 GHz		2		dB
		10 GHz to 20 GHz		2.5		dB
		20 GHz to 30 GHz		3.0		dB
ISOLATION						
Between RFC and RF1/RF2		9 kHz to 10 GHz		65		dB
		10 GHz to 20 GHz		60		dB
		20 GHz to 30 GHz		60		dB
Between RF1 and RF2		9 kHz to 10 GHz		70		dB
		10 GHz to 20 GHz		65		dB
		20 GHz to 30 GHz		60		dB
RETURN LOSS						
RFC and RF1/RF2 (On)		9 kHz to 10 GHz		23		dB
		10 GHz to 20 GHz		17		dB
		20 GHz to 30 GHz		13		dB
RF1/RF2 (Off)		9 kHz to 10 GHz		30		dB
		10 GHz to 20 GHz		18		dB
		20 GHz to 30 GHz		8		dB

Parameter	Symbol	Test Conditions/Comments	Min	Typ	Max	Unit
SWITCHING						
Rise and Fall Time	tRISE, tFALL	10% to 90% of RF output		1.0		µs
On and Off Time	tON, tOFF	50% VCTL to 90% of RF output		1.1		µs
RF Settling Time						
0.1 dB		50% VCTL to 0.1 dB of final RF output		6.2		µs
0.05 dB		50% VCTL to 0.05 dB of final RF output		10		µs
INPUT LINEARITY1		1 MHz to 30 GHz				
Power Compression						
0.1 dB	P0.1dB			27		dBm
1 dB	P1dB			28		dBm
Third-Order Intercept	IP3	Two-tone input power = 14 dBm				
		each tone, Δf = 1 MHz		52		dBm
DIGITAL CONTROL INPUTS	CTRL SMA					
Voltage						
Low	VinL	Vdd = 5 V		0.9		V
High	VinH	Vdd = 5 V	1.7		5.0	V
OPERATING CONDITONS						
Supply Voltage	Vdd			5		V
Supply Current	Idd			100	600	
RF Input Power	PIN	f = 1 MHz to 30 GHz, TCASE = 85°C				
Through Path		RF signal is applied to RFC or through				
		connected RF1/RF2			24	dBm
Terminated Path		RF signal is applied to terminated RF1/RF2			24	dBm
Hot Switching		RF signal is present at RFC while switching				

TYPICAL PERFORMANCE CHARACTERICS

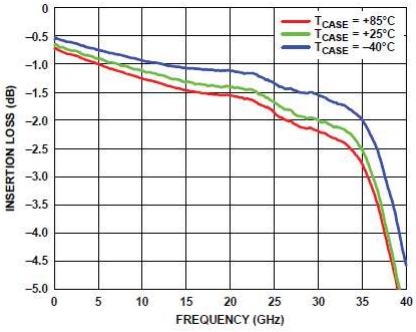

Figure 8. Insertion Loss Between RFC and RF1/RF2 vs. Frequency over

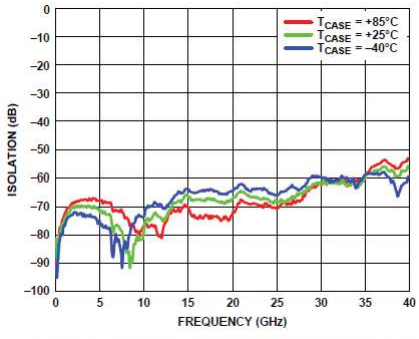

Figure 1. Isolation Between RF1 and RF2 vs. Frequency over

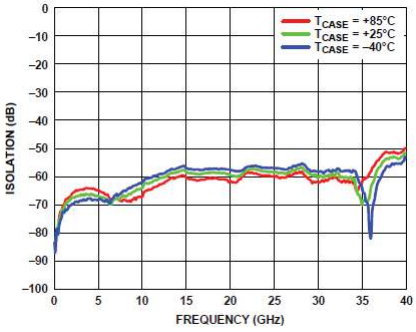

Figure 9. Isolation Between RFC and RF1/RF2 vs. Frequency

**The switch is bidirectional; the RF input signal can be applied to the RFC port while the RF throw port (RF1 or RF2) is output or vice versa.

Mechanical Enclosure Dimensions