WINSOURCE ELECTRONICS

THE DATASHEET OF

ZYSWA-2-50DR+

Absorptive

SPDT RF Switch

ZYSWA-2-50DR+

50Ω DC[2] - 5000 MHz

The Big Deal

- Wide bandwidth DC[2] to 5000 MHz
- Very fast switching, 20ns typ.
- Low video break thru 30 mVp-p typ.



CASE STYLE: ZZ121

Product Overview

The ZYSWA-2-50DR+ is an excellent general purpose SPDT solid state absorptive RF switch. With its broad frequency range, fast 20 ns switching time and excellent RF performance, the ZYSWA-2-50DR+ is an excellent replacement for the Mini-Circuits' legacy switch model ZYSWA-2-50DR+. Refer app note AN-80-019 for more details. The smaller size and wider bandwidth makes this switch a versatile choice for several RF Applications & systems.

Key Features

Feature	Advantages
Integrated CMOS Driver	-Operates at +5V to -5V -Low control current allows compatibility with a variety of driver circuits -Fast 20 ns typ.Switching time
Excellent for a Variety of Applications From Bench to Integrated Systems	-High speed testers -Automated switching networks -Wireless Infrastructure -Military
Excellent RF Performance	-Wide bandwidth: DC[2] to 5000 MHz -Low Insertion Loss: 1.4 dB Typ -Low video leakage, 30 mVp-p typ.

2. All RF connections must be blocked or held at 0V DC. Low frequency is determined by value of Coupling capacitors at RF ports.

Notes
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B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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Absorptive

SPDT RF Switch

50Ω DC[2]-5000 MHz

Absorptive RF Switch with Internal Driver
Dual Supply Voltage, +5V & -5V

Product Features

- Wide bandwidth, DC[2] to 5000 MHz
- Low Insertion loss, 1.4 dB typ.
- Internal driver circuitry
- Fast switching, Rise/fall time, 5 ns typ.
- Wide operating temperature, -20°C to +85°C



Generic photo used for illustration purposes only

ZYSWA-2-50DR+

CASE STYLE: ZZ121

Connectors	Model
SMA	ZYSWA-2-50DR+
BRACKET (OPTION "B")	

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

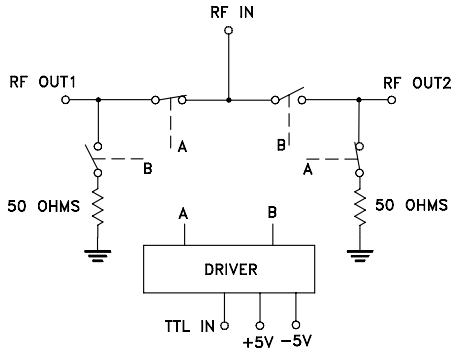
Typical Applications

- Cellular
- ISM, WCDMA, WIMAX
- PCN
- Automated switching networks
- Military

General Description

The ZYSWA-2-50DR+ is a 50Ω absorptive SPDT RF switch designed for wireless applications, covering a broad frequency range from DC[2] to 5000 MHz with low insertion loss. The ZYSWA-2-50DR+ operates with a dual supply voltage ±5V. This unit includes an internal CMOS driver which makes it easier to control switching with standard TTL voltage levels.

Schematic and Application Circuit



2. All RF connections must be blocked or held at 0V DC. Low frequency is determined by value of Coupling capacitors at RF ports.

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RF Electrical Specifications, DC[2] - 5000 MHz, T_{AMB}=25°C, Supply Voltage (+V, -V) =+5V, -5V

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		DC[2]		5000	MHz
Insertion Loss	DC[2]-500	—	0.8	1.5	dB
	500-2000	—	1.3	1.9	
	2000-5000	—	1.9	—	
Isolation between Common port and RF1/RF2 Ports	DC[2]-500	38	50	—	dB
	500-2000	27	45	—	
	2000-5000	17	20	—	
Return Loss (IN PORT)	DC[2]-3000	—	15	—	dB
	3000-5000	—	13	—	
Return Loss @ RF1/RF2 ports (ON STATE)	DC[2]-3000	—	18	—	dB
	3000-5000	—	15	—	
Return Loss @ RF1/RF2 ports (off state)	DC[2]-3000		20		dB
	3000-5000		13		
Input 1dB Compression (1)	10-500	—	>20	—	dBm
	500-2000	—	>24	—	
	2000-5000	—	>23	—	
DC Electrical Specifications					
Supply Voltage (+V)		—	5	—	V
Supply Voltage (-V)			-5		V
Positive Supply Current	+V=5V		4.5		mA
Negative Supply Current	-V=-5V		3.3		mA
Control Voltage Low		0		0.7	V
Control Voltage High		2.1		5	V
Control Current		—	—	2	mA
Switching Specifications					
Rise/Fall Time (10 to 90% or 90 to 10% RF)	+V=5V, -V=-5V	—	6	—	nSec
Switching Time (50% CTRL to 90/10% RF)	+V=5V, -V=-5V	—	20	—	nSec
Video Feed through (Control 0-5V, Frequency 1 KHz)	+V=5V, -V=-5V	—	30	—	mV_{P-P}

1. At low frequency(<100 MHz), the dynamic range of switch decreases.

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature	-20°C to 85°C
Storage Temperature	-55°C to 100°C
Supply Voltage ($+V_{DD}$ & $-V_{DD}$)	+5.5V, -5.5V
Voltage Control	-0.2V min, +5.5V max
RF input power[3]	31 dBm
ESD, HBM	Class 1A (250 to <500V) per JESD22-A114

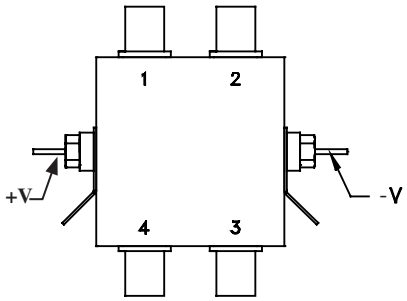
2. All RF connections must be blocked or held at 0V DC. Low frequency is determined by value of Coupling capacitors at RF ports.
3 Frequency range of 500-5000 MHz.

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Truth Table *(State of control voltage selects the desired switch state)*

State of Control Voltage	Switch State - RF IN to	
	RF1	RF2
Low	ON	OFF
High	OFF	ON
ON- low insertion loss state OFF- Isolation State		

Coaxial Configuration

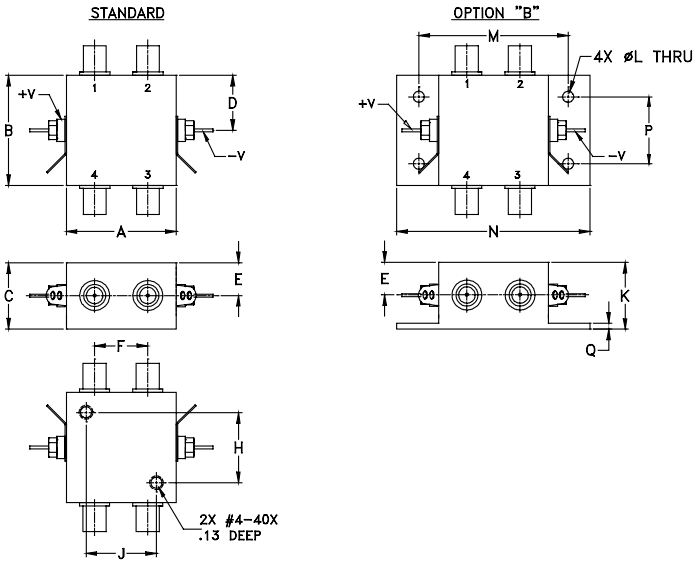


Coaxial Connections

Function	Port Number	Description
RF IN	3	RF Common/ SUM Port
RF1	2	RF Out #1/In Port #1
RF2	1	RF Out #2/In Port #2
Control	4	TTL Control IN
+5	+V	Positive Supply Voltage
-5	-V	Negative Supply Voltage

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Outline Drawing (ZZ121)



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.25	1.25	0.75	0.63	0.38	0.61	--	0.800
31.75	31.75	19.05	16.00	9.65	15.49	--	20.32

J	K	L	M	N	P	Q	wt
0.800	0.76	0.125	1.688	2.18	0.75	0.07	grams
20.32	19.30	3.18	42.88	55.37	19.05	1.78	85

Additional Detailed Technical Information

Additional information is available on our web site. To access this information enter the model number on our web site home page.

Performance data, graphs

Case Style: ZZ121

Environmental Ratings: ENV28T16

Pricing & Availability Information

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