

Coaxial High Isolation Switch

50Ω SPST, Absorptive DC to 2000 MHz

ZFSWHA-1-20+ ZFSWHA-1-20



CASE STYLE: J17

Connectors	Model	Price	Qty.
SMA	ZFSWHA-1-20(+)	\$74.95	(1-9)
BRACKET (OPTION "B")		\$2.50	(1+)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

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

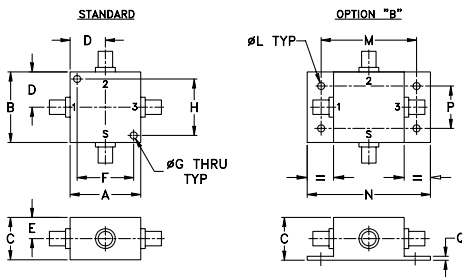
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 150°C
Input Power	see Table & Note 1
Control Current	see Table
Permanent damage may occur if any of these limits are exceeded.	

Coaxial Connections

RF IN	2
RF OUT	3
CONTROL 1	1
CONTROL 2	S

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	
1.25	1.25	.75	.63	.38	1.000	.125	1.000	
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40	
J	K	L	M	N	P	Q	wt	
--	--	.125	1.688	2.18	.75	.07	grams	
--	--	3.18	42.88	55.37	19.05	1.78	75.0	

Features

- wideband, DC to 2000 MHz
- low insertion loss, 1.3 dB typ.
- low video leakage 30 mVp-p typ.
- very fast switching

Applications

- PCN
- cellular
- antenna switching

High Isolation Switch Electrical Specifications

FREQ. (MHz)		INSERTION LOSS (dB)						1dB COMPR. (dBm)			IN-OUT ISOLATION (dB)					
		DC-100 MHz		100-1000 MHz		1000-2000 MHz		DC-100 MHz	100-1000 MHz	1000-2000 MHz	DC-100 MHz		100-1000 MHz		1000-2000 MHz	
f _L	f _U	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Min.	Typ.	Min.
DC	2000	0.8	1.2	1.3	1.7	1.3	1.7	19	19	26	75	60	65	58	65	58

Additional Specifications

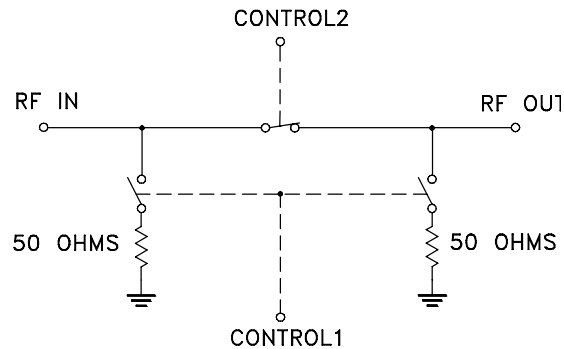
Control Voltage, volts	-0.2 to 0				
Low State					
High State (negative)	-8				
for compression specs					
for other specs	-5 to -8				
Control Current, mA	0.2 Max. to -8V				
	0.5 Max. at -9V to -12V Typ.				
RF Power Input Max. ¹	Steady State 0/-8V	DC-.02	.02-5	.5-2	
	As Modulator ²	+23	+30	+33	
		+14.5	+20	+27	
Video Leakage ³ , mVp-pmVp-p	30 Typ., 50 Max.				
VSWR (:1)	DC-0.2 GHz		0.2-2 GHz		
ON, all ports	1.25 Max.		1.5 Max.		
OFF, Input	1.25 Max.		1.5 Max.		
OFF, Output	1.4 Max.		1.5 Max.		
Rise/Fall Time (10%-90%), ns	3 Typ., 5 Max.				
Switching Time, 50% of control to 90% RF (Turn-on), ns	7 Typ., 10 Max.				
10% RF (Turn-off), ns	3 Typ., 10 Max.				

CONTROL LOGIC

Control Ports		RF outputs
1	2	
-V	0	On
0	-V	Off

1. Above 20° C derate power linearly to zero at 150°C
2. In modulator service, unrestricted switching is permitted with RF applied.
3. Video leakage or break through is defined as leakage of switching signal to RF output ports.
4. All RF connections must be DC blocked or held at 0V DC.

Electrical Schematic



Mini-Circuits®
ISO 9001 ISO 14001 AS 9100 CERTIFIED

minicircuits.com

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site

The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS

REV. A
M107792
ZFSWHA-1-20
WP/CP/AM
081223
Page 1 of 2

Typical Performance Data

FREQ. (MHz)	ON INSERTION LOSS (dB) (ctrl1 @ -8V, ctrl 2 @ 0V) IN-OUT		OFF ISOLATION (dB) (ctrl 1 @ 0V, ctrl 2 @ -8V) IN-OUT		VSWR		
	\bar{X}	σ	\bar{X}	σ	IN \bar{X}	OUT	
						ON \bar{X}	OFF \bar{X}
0.30	0.62	0.01	90.61	3.68	1.15	1.15	1.03
5.30	0.63	0.01	85.48	6.29	1.16	1.15	1.03
10.30	0.69	0.01	83.23	4.25	1.16	1.15	1.03
100.29	0.79	0.01	67.92	1.22	1.15	1.15	1.03
280.26	0.85	0.01	66.96	1.83	1.15	1.14	1.03
390.24	0.92	0.00	67.09	1.35	1.15	1.14	1.03
445.23	0.90	0.01	67.05	1.41	1.16	1.15	1.03
610.21	0.96	0.01	65.89	1.85	1.16	1.15	1.04
780.18	0.99	0.01	64.48	1.97	1.17	1.16	1.05
890.17	1.02	0.01	63.58	2.32	1.18	1.16	1.06
945.16	1.04	0.01	63.07	2.05	1.18	1.16	1.07
1000.15	0.99	0.00	62.55	1.47	1.18	1.15	1.08
1165.13	1.09	0.02	61.49	2.35	1.18	1.15	1.09
1335.10	1.11	0.02	61.45	1.70	1.17	1.14	1.12
1445.08	1.14	0.02	61.66	1.64	1.16	1.13	1.13
1500.08	1.09	0.02	62.32	2.10	1.16	1.12	1.14
1665.05	1.17	0.01	60.72	1.78	1.15	1.10	1.17
1835.03	1.13	0.01	60.34	0.70	1.14	1.07	1.20
1945.01	1.22	0.03	60.54	1.60	1.13	1.06	1.22
2000.00	1.17	0.01	61.08	1.47	1.13	1.05	1.23

