

Coaxial High Isolation Switch

50Ω SPST, Absorptive DC to 2000 MHz

ZFSWHA-1-20+



Maximum Ratings

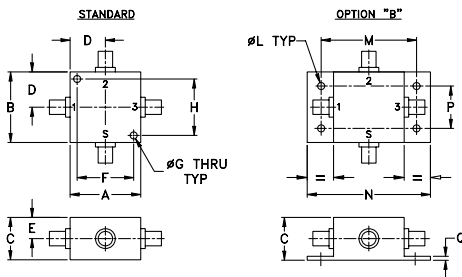
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 150°C
RF Input Power	see Table
Control Current	500 μA Typ. at Vc=-9 to -12V

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

CASE STYLE: J17

Connectors	Model	Price	Qty.
SMA	ZFSWHA-1-20+	\$74.95	(1-9)
BRACKET (OPTION "B")		\$5.00	(1+)

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

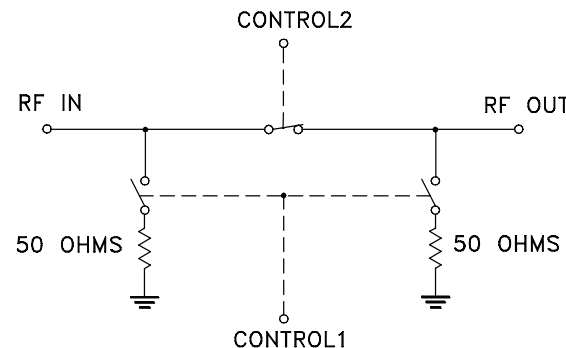
Electrical Specifications

Parameter	Condition (MHz)	Min	Typ.	Max	Units
Frequency		DC	-	2000	MHz
Insertion Loss	DC to 100 MHz	-	0.8	1.2	dB
	100 to 1000 MHz	-	1.3	1.7	
	1000 to 2000 MHz	-	1.3	1.7	
1dB Compression ¹	DC to 100 MHz	-	19	-	dBm
	100 to 1000 MHz	-	19	-	
	1000 to 2000 MHz	-	26	-	
Isolation (In to Out) ²	DC to 100 MHz	60	75	-	dB
	100 to 1000 MHz	58	65	-	
	1000 to 2000 MHz	58	65	-	
VSWR - RF IN and RF OUT (ON STATE)	DC to 200 MHz	-	-	1.25	: 1
	200 to 2000 MHz	-	-	1.5	
VSWR - RF IN (OFF STATE)	DC to 200 MHz	-	-	1.25	: 1
	200 to 2000 MHz	-	-	1.5	
VSWR - RF OUT (OFF STATE)	DC to 200 MHz	-	-	1.4	: 1
	200 to 2000 MHz	-	-	1.5	
Video Leakage ³		-	30	50	mV p-p
Rise / Fall Time	10 to 90%	-	3	5	nS
Switching Time – Turn On	50% Control to 90% RF	-	7	10	nS
		-	7	10	
Switching Time – Turn Off	50% Control to 10% RF	-	3	10	nS
		-	3	10	
Control Voltage (Vc)	Low	-0.2	-	0	V
	High	-8	-	-5	
Control Current	0 to -8V	-	-	200	mA
Max RF Input Power Steady State (not hot switching)	DC to 20 MHz	-	+23	-	dBm
	20 to 500 MHz	-	+30	-	
	500 to 2000 MHz	-	+33	-	
Max RF Input Power Hot Switching (as modulator)	DC to 20 MHz	-	+14.5	-	dBm
	20 to 500 MHz	-	+20	-	
	500 to 2000 MHz	-	+27	-	

CAUTION – IMPORTANT: RF PORTS MUST BE DC BLOCKED or HELD TO 0V DC

- 1dB Compression is specified at Control Voltage (Vc)=-8V
- Isolation is specified RF IN to RF OUT with Control Logic = Off
- Video leakage or breakthrough is defined as leakage of switching control signal to RF output port

Electrical Schematic



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

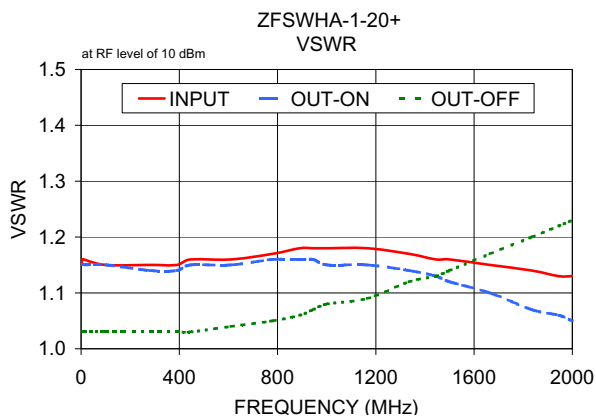
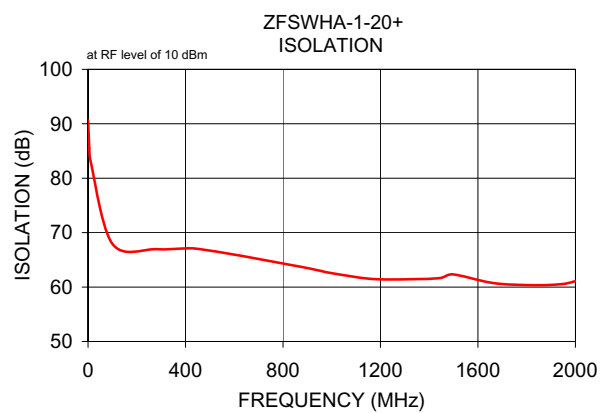
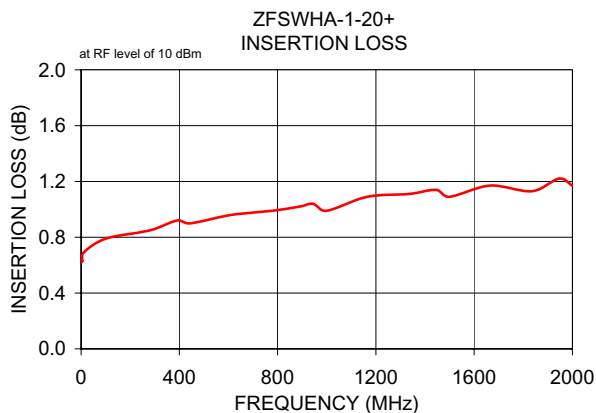
Notes

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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



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