

Coaxial High Isolation Switch

50Ω SPST, Absorptive DC⁴ to 2000 MHz

ZFSWHA-1-20+



Generic photo used for illustration purposes only

Maximum Ratings

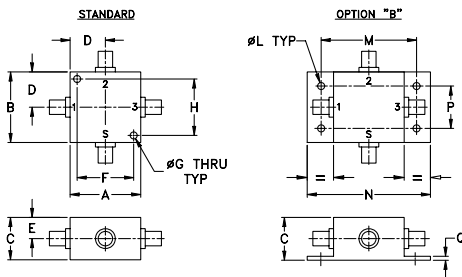
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 150°C
RF Input Power	see Table
Control Current	500 μA Typ. at V _c =-9 to -12V

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

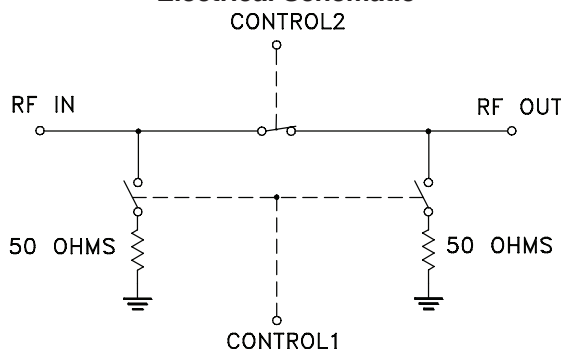
Electrical Specifications

Parameter	Condition (MHz)	Min	Typ.	Max	Units
Frequency ⁴		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
		-	3	10	
Switching Time – Turn Off	50% Control to 10% RF	-	3	10	nS
		-	3	10	
Control Voltage (V _c)	Low	-0.2	-	0	V
	High	-8	-	-5	
Control Current	0 to -8V	-	-	200	μA
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

1. 1dB Compression is specified at Control Voltage (V_c)=- 8V
2. Isolation is specified RF IN to RF OUT with Control Logic = Off
3. Video leakage or breakthrough is defined as leakage of switching control signal to RF output port
4. All RF connections must be DC blocked or held at 0V DC.

Electrical Schematic



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

Notes

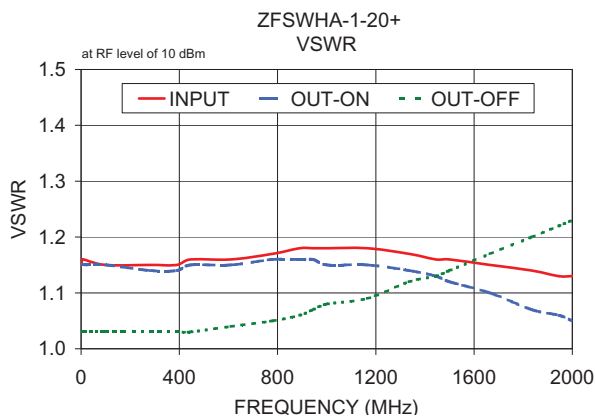
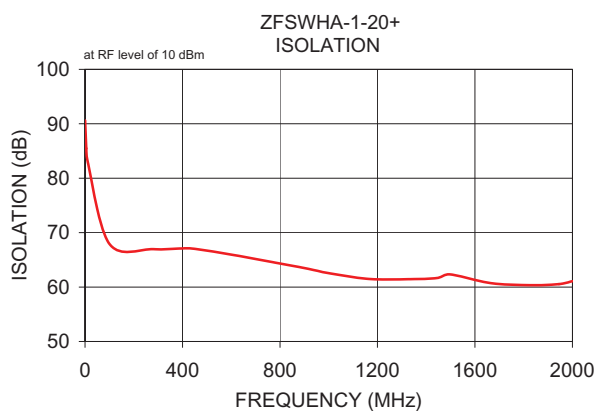
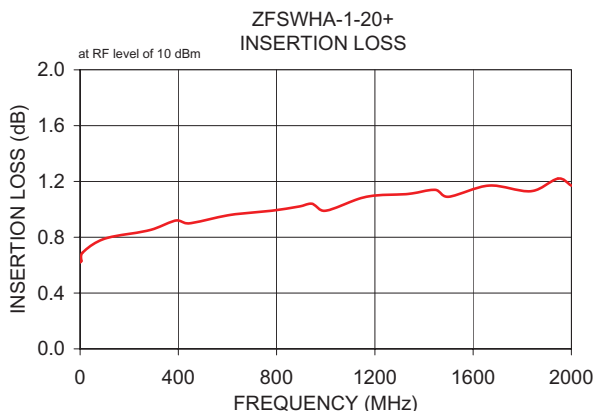
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Typical Performance Data

FREQ. (MHz)	ON INSERTION LOSS (dB) (ctrl 1 @ -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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