

Coaxial Attenuator/Switch

50Ω Bi-Phase

5 to 450 MHz

ZAS-1

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Control Current	30mA

Coaxial Connections

INPUT	3
OUTPUT	1
CONTROL	2

Features

- wideband, 5 to 450 MHz
- rugged shielded case
- excellent phase and amplitude unbalance

Applications

- bi-phase modulator
- electronic attenuator



CASE STYLE: M22

Connectors	Model	Price	Qty.
BNC	ZAS-1	\$59.95	(1-9)
BRACKET (OPTION "B")		\$5.00	(1+)
BRACKET (OPTION "BR")		\$1.50	(1+)

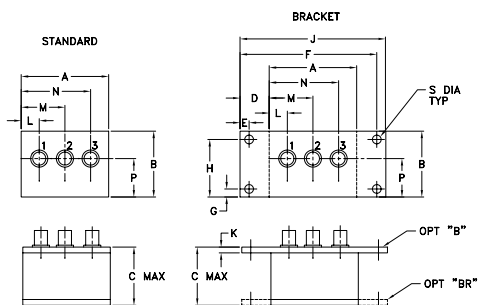
Attenuator/Switch Electrical Specifications

FREQUENCY (MHz)		INSERTION LOSS (dB) ±20 mA				MAX. INPUT PWR (dBm) ±20 mA		IN-OUT ISOLATION (dB) 0 mA				BI-PHASE X (±20 mA) Typ.					
IN	CON	Mid-Band		Total Range		1 dB compr.	no damage	L	M	U	Δ AMP (dB)	Phase(deg) deviation from 180°					
f _c -f _u		m		Typ.	Max.							m	Total Range	m	Total Range		
5-450	DC-0.05	3.5	4	3.5	4.7	20	30	65	50	55	40	35	25	0.10	0.1	0.5	1.2

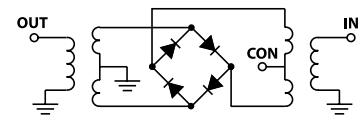
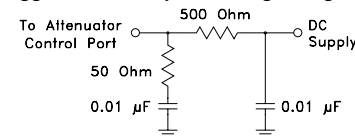
L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U] m = mid band [$2 f_L$ to $f_U/2$]

Performance specifications apply for input power up to 10 dB below stated 1dB compression.

Outline Drawing

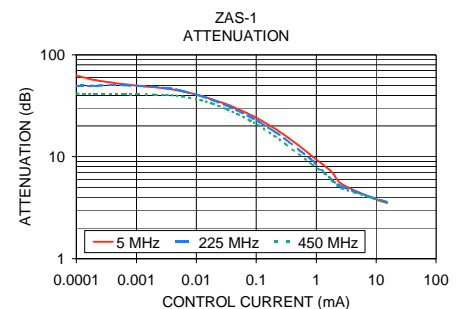
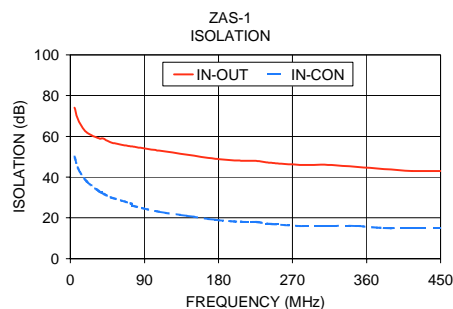
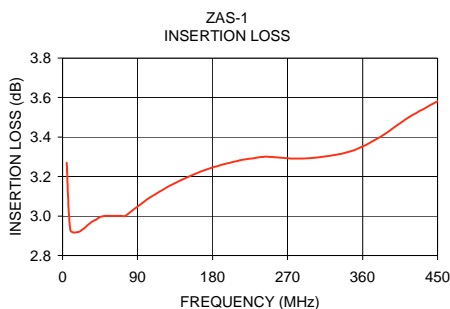


suggested control port biasing configuration



Typical Performance Data

Freq. (MHz)	I. Loss (dB) at 20mA	±Control Δ Amp (dB)	20mA ΔPhase (deg.)	Isolation (dB)		Input R. Loss (dB)	Control Current (mA)	Attenuation (dB)			PhaseΔ ref at 15mA Ctrl			Input VSWR			
				(in-out)	(in-con)			5 MHz	225 MHz	450 MHz	5 MHz deg.	225 MHz deg.	450 MHz deg.	5 MHz	225 MHz	450 MHz	
\bar{x}	σ	\bar{x}	\bar{x}	\bar{x}	\bar{x}	\bar{x}											
5.0	3.27	0.025	0.02	179.9	74	50	11.8	0.0000	68.1	50.0	41.3	-52.4	124.7	108.2	2.9	2.9	2.6
9.5	2.93	0.019	0.02	179.9	68	44	13.4	0.0001	62.8	49.6	41.6	-9.9	119.7	103.2	2.9	2.9	2.6
19.5	2.92	0.017	0.02	179.9	62	38	14.3	0.0002	56.7	49.9	41.3	-18.0	114.6	102.4	2.9	2.9	2.6
35.0	2.97	0.017	0.02	179.9	59	33	14.5	0.0006	51.7	50.5	41.3	-20.7	101.4	95.5	2.9	2.9	2.6
39.5	2.98	0.017	0.03	179.9	59	32	14.5	0.0032	46.6	47.3	40.4	-10.7	58.4	76.3	2.9	2.9	2.6
49.5	3.00	0.017	0.03	179.9	57	30	14.4	0.0058	43.8	44.3	39.0	-6.4	45.6	60.3	2.9	2.9	2.6
74.0	3.00	0.019	0.04	179.8	55	27	14.1	0.0116	39.8	39.6	36.0	-0.4	29.9	43.3	2.8	2.9	2.6
75.1	3.00	0.018	0.03	179.8	55	26	14.1	0.0184	36.6	36.1	33.2	3.3	24.8	33.3	2.8	2.8	2.5
107.4	3.10	0.019	0.04	179.7	53	23	14.3	0.0327	32.6	31.6	29.1	5.9	18.3	23.7	2.8	2.7	2.4
141.8	3.18	0.019	0.04	179.7	51	21	14.6	0.0486	29.5	28.4	26.2	6.9	15.6	19.4	2.7	2.7	2.4
176.3	3.24	0.021	0.04	179.6	49	19	14.5	0.0787	25.9	24.6	22.6	7.6	13.3	14.8	2.6	2.5	2.2
210.8	3.28	0.021	0.04	179.5	48	18	14.6	0.1081	23.5	22.2	20.3	7.9	12.2	12.8	2.5	2.4	2.1
225.3	3.29	0.023	0.04	179.5	48	18	14.7	0.1975	19.1	17.8	16.1	7.8	10.0	9.7	2.2	2.2	1.9
244.2	3.30	0.024	0.04	179.4	47	17	14.8	0.3085	16.0	14.8	13.3	7.4	8.7	7.9	2.0	1.9	1.7
278.7	3.29	0.024	0.04	179.3	46	16	15.1	0.5100	12.9	11.7	10.6	6.5	7.3	6.0	1.7	1.7	1.4
313.2	3.30	0.026	0.05	179.2	46	16	15.1	0.8548	10.1	9.2	8.4	5.3	5.5	4.4	1.5	1.4	1.2
347.7	3.33	0.029	0.05	179.1	45	16	14.8	1.7555	7.2	6.0	6.1	3.3	3.4	2.5	1.3	1.2	1.1
381.0	3.40	0.034	0.05	179.1	44	15	15.0	2.6670	5.4	5.1	4.9	2.0	2.0	1.3	1.3	1.2	1.2
415.5	3.50	0.041	0.06	179.0	43	15	14.7	8.1232	4.0	4.0	4.0	0.5	0.5	0.4	1.5	1.4	1.4
450.0	3.58	0.044	0.06	178.9	43	15	13.7	15.1218	3.5	3.6	3.6	0.0	-0.1	0.0	1.6	1.5	1.4



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