Plug-In

Attenuator/Switch

PAS-2+

50Ω Bi-Phase 10 to 1000 MHz



Generic photo used for illustration purposes only

CASE STYLE: A01

+RoHS Compliant

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 100°C
Control Current	30mA

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

INPUT	1
OUTPUT	8
CONTROL	3,4^
GROUND	2,5,6,7
CASE GROUND	2,5,6,7

^ pins must be connected together externally

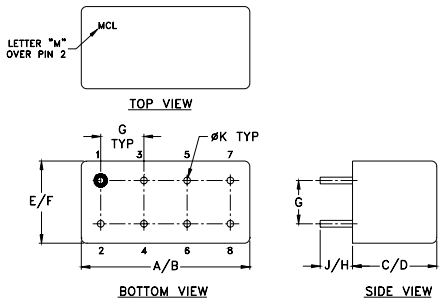
Features

- wideband, 10 to 1000 MHz
- hermetic case
- high in-out isolation
- excellent amplitude and phase unbalance

Applications

- bi-phase modulator
- electronic attenuator
- military hi-rel applications

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F
.770	.800	.385	.400	.370	.400
19.56	20.32	9.78	10.16	9.40	10.16
G	**H**	**J**	**K**		**wt**
.200	.20	.14	.031		grams
5.08	5.08	3.56	0.79		5.2

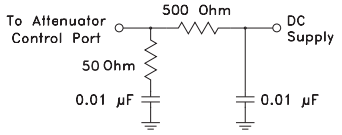
Attenuator/Switch Electrical Specifications

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.			
		Mid-Band m		Total Range				L		M		U		Δ AMP (dB)		Phase (deg.) deviation from 180°	
IN f_L-f_U	CON	Typ.	Max.	Typ.	Max.	1 dB compr.	no damage	Typ.	Min.	Typ.	Min.	Typ.	Min.	m	Total Range	m	Total Range
10-1000	DC-0.05	4.0	6.0	6.5	8.5	20	29	50	40	40	30	35	25	0.1	0.3	0.5	1.0

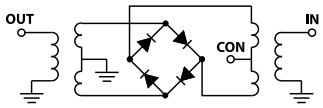
L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U] m = [2 f_L to f_U/2]

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

suggested control port biasing configuration

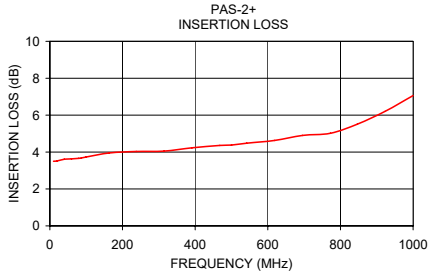


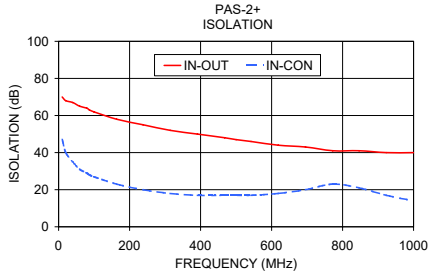
electrical schematic

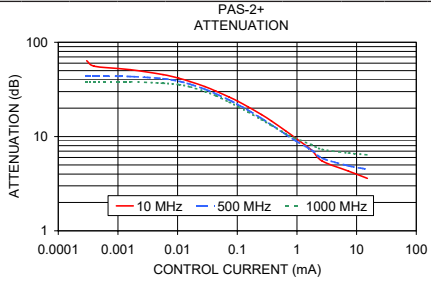


Typical Performance Data

Freq. (MHz)	I. Loss (dB) at 20mA		±Control ΔΔAMP (dB)	20mA ΔΔPhase (deg.)	Isolation (dB) (in-out)	(in-con)	Input R. Loss (dB)	Control Current (mA)	Attenuation (dB)			Phase Δ ref at 15mA Ctrl			Input VSWR		
									10 MHz	500 MHz	1000 MHz	10 MHz deg.	500 MHz deg.	1000 MHz deg.	10 MHz	500 MHz	1000 MHz
	$\bar{x}$	σ	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$										
10.0	3.50	0.025	0.01	180.00	70	47	12.3	0.0000	71.8	43.8	38.2	-37.1	96.0	63.6	3.6	2.9	7.5
19.9	3.52	0.015	0.01	180.00	68	40	12.7	0.0003	63.7	44.2	38.1	-34.3	93.2	62.4	3.6	2.9	7.5
39.7	3.61	0.008	0.01	179.90	67	35	12.6	0.0004	55.7	43.8	38.1	-12.5	86.0	57.8	3.6	2.9	7.5
59.5	3.63	0.006	0.01	179.90	65	31	12.5	0.0016	51.2	43.3	38.1	-8.5	80.1	52.8	3.6	2.8	7.4
79.3	3.66	0.006	0.01	179.90	64	29	12.5	0.0057	45.4	41.1	36.8	-4.6	55.5	35.7	3.6	2.8	7.3
86.7	3.68	0.006	0.01	179.90	63	28	12.5	0.0105	41.5	38.6	35.6	-1.2	42.6	23.4	3.5	2.8	7.1
99.1	3.73	0.006	0.01	179.90	62	27	12.4	0.0161	38.3	36.0	33.7	1.5	34.4	12.9	3.5	2.8	6.9
163.5	3.95	0.006	0.01	179.80	58	23	12.3	0.0286	33.9	31.8	30.1	3.6	24.5	0.6	3.4	2.7	6.6
237.7	4.03	0.007	0.01	179.70	55	20	12.1	0.0437	30.3	28.4	27.1	4.3	20.7	-5.6	3.3	2.6	6.2
314.4	4.05	0.008	0.01	179.37	52	18	12.0	0.0734	26.2	24.4	23.2	5.1	16.3	-9.9	3.1	2.4	5.6
391.2	4.23	0.012	0.02	179.60	50	17	12.1	0.1029	23.6	21.8	20.8	5.0	14.4	-11.4	2.9	2.3	5.2
467.9	4.36	0.017	0.04	179.60	48	17	12.3	0.1510	20.7	19.1	18.2	5.0	12.8	-11.9	2.7	2.1	4.7
500.1	4.38	0.021	0.04	179.60	47	17	12.4	0.2540	17.1	15.6	15.1	4.6	10.4	-11.1	2.4	1.8	4.0
542.1	4.48	0.027	0.06	179.50	46	17	12.5	0.3743	14.6	13.3	13.1	4.3	9.0	-9.9	2.1	1.6	3.6
618.9	4.63	0.040	0.10	179.50	44	18	12.6	0.6438	11.5	10.6	10.8	3.5	6.9	-7.5	1.7	1.3	3.1
695.6	4.90	0.053	0.13	179.60	43	20	12.1	0.9350	9.7	9.1	9.6	3.0	5.4	-6.0	1.5	1.2	2.9
772.3	5.02	0.064	0.16	179.38	41	23	10.8	1.7496	7.2	7.2	8.2	2.0	3.6	-3.6	1.2	1.1	2.7
846.6	5.51	0.073	0.16	179.70	41	21	9.1	2.6537	5.5	5.9	7.3	1.3	1.9	-1.8	1.2	1.3	2.7
923.3	6.21	0.087	0.21	179.80	40	17	7.5	7.3045	4.3	4.9	6.7	0.5	0.6	-0.7	1.4	1.5	2.6
1000.0	7.06	0.093	0.36	180.40	40	14	6.3	15.1437	3.6	4.5	6.4	0.1	0.1	-0.1	1.5	1.6	2.6







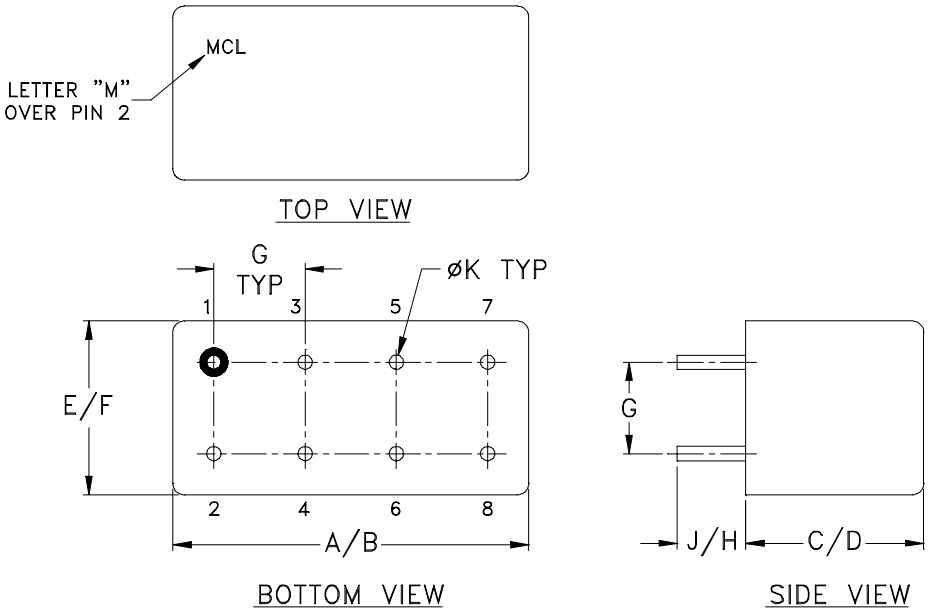
Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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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Case Style A

A01
A04
A05
A06

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A01	.770 (19.56)	.800 (20.32)	.385 (9.78)	.400 (10.16)	.370 (9.40)	.400 (10.16)	.200 (5.08)	.20 (5.08)	.14 (3.56)	.031 (.79)	5.2
A04			.200 (5.08)	.210 (5.33)							3.7
A05			.240 (6.10)	.250 (6.35)							3.7
A06			.285 (7.24)	.310 (7.87)							5.2

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .03; 3 Pl. ± .015

Notes:

1. Header material: C.R.S.
   Pin material: #52 alloy.
   Cover material: Cupro-Nickel.
2. Pin finish: Electro Tin-Silver.
3. Insulated spacer available. Request P/N B14-045-01.
4. Tolerance on pin diameter +/-.005 inch.
5. Glass meniscus 0.015 inch max.
6. Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.

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Mini-Circuits

Environmental Specifications ENV01

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A

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Specification	Test/Inspection Condition	Reference/Spec
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D

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