

Coaxial Attenuator/Switch

ZFAS-2000+

50Ω Bi-Phase 100 to 2000 MHz

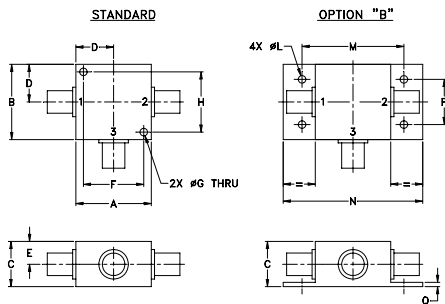
Maximum Ratings

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.	

Coaxial Connections

INPUT	2
OUTPUT	1
CONTROL	3

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.00	.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	70.0

Features

- wideband, 100 to 2000 MHz
- rugged shielded case

Applications

- bi-phase modulator



CASE STYLE: K18

Connectors Model
SMA ZFAS-2000+
BRACKET (OPTION "B")

+RoHS Compliant

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

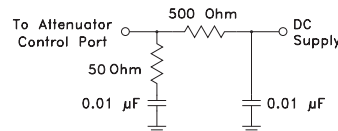
Attenuator/Switch Electrical Specifications

FREQUENCY (MHz)	INSERTION LOSS (dB) ±20 mA	MAX. INPUT PWR (dBm) ±20mA	IN-OUT ISOLATION (dB) 0 mA						BI-PHASE X̄ (±20 mA) Typ.						
			L		M		U		Δ AMP (dB)		Phase (deg.) deviation from 180°				
IN f _L -f _U	CON	Mid-Band m Typ. Max.	Total Range Typ. Max.	1 dB compr.	no damage	Typ.	Min.	Typ.	Min.	Typ.	Min.	m	Total Range	m	Total Range
100-2000	DC-0.5	4.2 6.5 5.4 7.5	19* 25	30 22	— —	26 20	0.3 0.4	5.0 8.0							

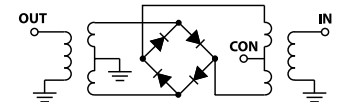
L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U] m = [2 f_L to f_U/2]
 * 15 dBm from 100-800 MHz.

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

suggested control port biasing configuration

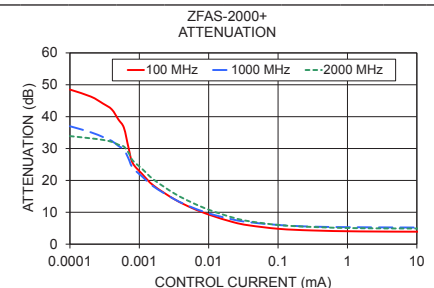
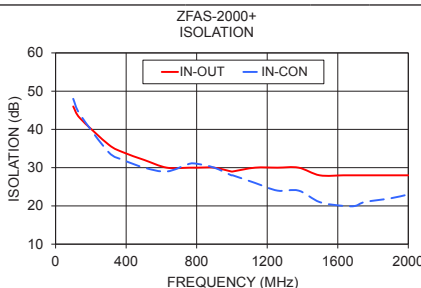
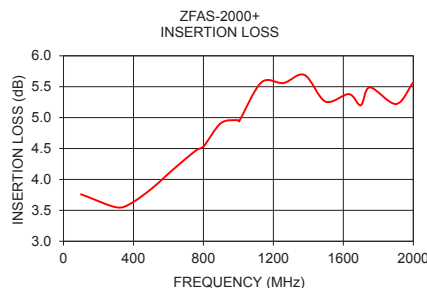


electrical schematic



Typical Performance Data

Freq. (MHz)	I. Loss (dB) at 20mA	±Control ΔΔAMP (dB)	20mA ΔΔPhase (deg.)	Isolation (dB) (in-out)	Input R. Loss (dB)	Control Current (mA)	Attenuation (dB)			Phase Δ ref at 15mA Ctrl			Input VSWR				
							100 MHz	1000 MHz	2000 MHz	100 MHz	1000 MHz	2000 MHz	100 MHz	1000 MHz	2000 MHz		
X̄	σ	X̄	X̄	X̄	X̄												
100.0	3.76	0.006	0.02	179.4	46	48	9.5	0.0000	51.0	38.9	34.4	89.6	18.6	46.6	1.6	4.7	2.9
137.1	3.72	0.003	0.01	179.0	43	44	10.2	0.0001	48.5	37.0	33.9	91.3	12.9	42.2	1.6	4.7	2.9
301.5	3.55	0.001	0.03	178.2	36	34	11.0	0.0002	46.3	35.1	33.2	89.8	8.7	35.1	1.6	4.6	2.9
383.8	3.61	0.001	0.04	177.7	34	32	10.5	0.0003	44.1	33.6	32.7	85.5	5.8	31.0	1.5	4.6	2.9
503.4	3.85	0.010	0.08	177.1	32	30	9.3	0.0004	42.3	32.4	32.1	84.8	2.4	27.0	1.5	4.6	2.9
630.4	4.17	0.027	0.18	176.4	30	29	7.9	0.0005	39.1	30.8	31.2	78.5	-1.4	21.2	1.5	4.6	2.9
757.5	4.47	0.059	0.21	176.3	30	31	6.9	0.0006	36.5	29.7	30.6	71.5	-4.8	16.8	1.5	4.5	2.9
802.4	4.54	0.061	0.22	176.4	30	31	6.7	0.0007	30.2	26.8	28.7	53.5	-12.0	6.9	1.5	4.4	2.8
899.5	4.91	0.107	0.27	176.1	30	30	6.3	0.0008	25.5	24.0	26.3	43.0	-15.6	-0.9	1.4	4.2	2.7
996.7	4.96	0.114	0.28	175.9	29	28	6.2	0.0011	22.0	21.2	23.6	36.6	-16.4	-5.9	1.4	4.0	2.6
1004.2	4.94	0.118	0.28	175.8	29	28	6.2	0.0016	18.4	18.1	20.3	31.0	-16.0	-8.8	1.3	3.7	2.4
1131.3	5.57	0.162	0.36	175.7	30	26	6.4	0.0032	14.1	14.1	15.9	24.3	-13.7	-9.8	1.2	3.3	2.0
1258.3	5.56	0.105	0.36	175.5	30	24	7.0	0.0058	11.3	11.5	13.0	19.5	-11.1	-8.9	1.2	3.1	1.8
1377.9	5.69	0.045	0.37	175.5	30	24	7.7	0.0106	9.1	9.5	10.6	14.8	-8.6	-7.5	1.3	3.0	1.6
1497.5	5.26	0.053	0.33	175.2	28	21	8.7	0.0226	6.9	7.7	8.3	9.5	-5.5	-5.4	1.5	2.9	1.4
1632.1	5.38	0.045	0.27	174.7	28	20	10.0	0.0381	5.9	6.9	7.2	6.7	-4.0	-4.0	1.6	2.9	1.4
1699.4	5.20	0.068	0.29	174.2	28	20	10.8	0.1031	4.8	6.0	6.0	3.2	-2.0	-2.1	1.8	3.0	1.5
1751.7	5.49	0.068	0.27	174.2	28	21	11.3	0.3098	4.3	5.5	5.4	1.3	-0.9	-1.0	1.9	3.0	1.6
1901.2	5.22	0.090	0.23	173.0	28	22	12.4	1.5487	4.0	5.3	5.0	0.4	-0.4	-0.4	2.0	3.0	1.7
2000.0	5.57	0.156	0.25	172.7	28	23	12.5	15.1120	3.9	5.2	4.9	0.1	-0.1	0.0	2.0	3.1	1.7



Notes

- 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.
- 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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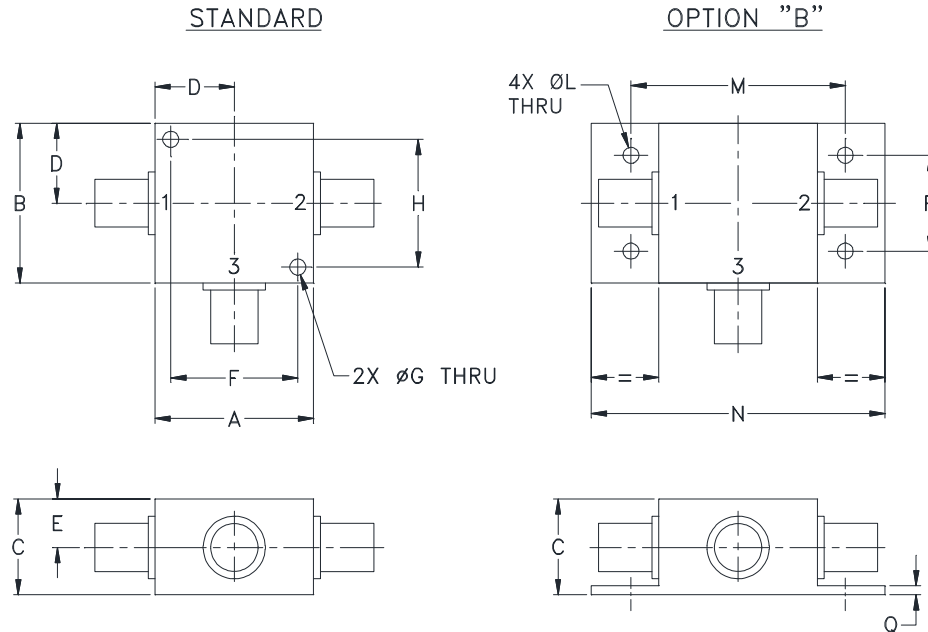


Case Style

K

K18

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
K18	1.25 (31.75)	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	--	--	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT. GRAMS
K18	.75 (19.05)	.07 (1.78)	70.0

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Mounting bracket available on request. Add suffix B to part number.
- For port marking 1, 2, and 3 see specifications data sheet.
- For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
- Refer to the individual model data sheet for the type of connectors available.

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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
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
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	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I