Precision

Digital Step Attenuator

ZFAT-124

50Ω TTL Control, Pin Diode 10 to 1000 MHz



CASE STYLE: SSS173

Connectors	Model
SMA	ZFAT-124
BRACKET (OPTION "B")	

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 125°C
Input Power	15 dBm
DC Voltage	5.5 V
TTL	5.5V

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

Features

- wideband, 10 to 1000 MHz
- excellent step accuracy, 0.2 dB typ.
- small, shielded metal case

Applications

- base stations
- cellular
- test sets

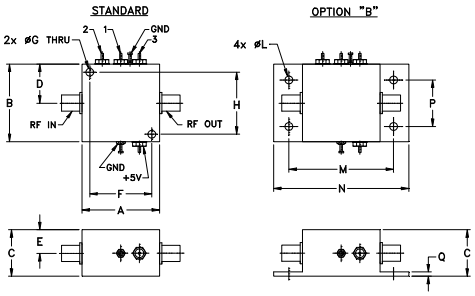
Digital Step Attenuator Electrical Specifications

MODEL NO.	FREQUENCY (MHz)		PRIMARY ATTENUATION STEPS (dB) @TTL CONTROL PORT			ATTENUATION (dB)		VSWR (:1)		
	f_L	f_U	#1	#2	#3	(1,1,1)** Nom.	(0,0,0) Max.	L	M	U
ZFAT-124	10	1000	1±0.25	2±0.25	4±0.3	7.0	4.0	1.6	1.4	1.5
								L=10 to 100 MHz	M=100 to 500 MHz	U=500 to 1000 MHz

** Total attenuation above thru-loss.

1. Step accuracy is specified for basic steps. For combination of steps accuracy is additive.
2. Thru-loss is minimum insertion loss with all attenuation elements bypassed (All TTL controls state are Low)

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.25	1.25	0.75	.63	.38	1.000	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40

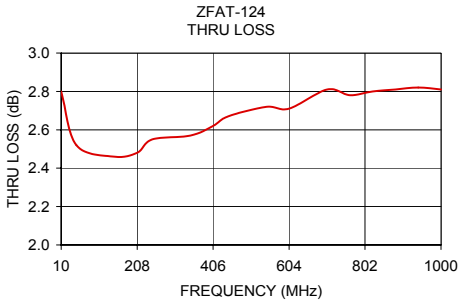
J	K	L	M	N	P	Q	wt
--	--	.125	1.688	2.18	.75	.07	grams
--	--	3.18	42.88	55.37	19.05	1.78	75

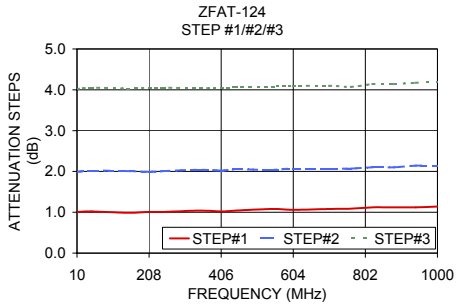
Additional Specifications

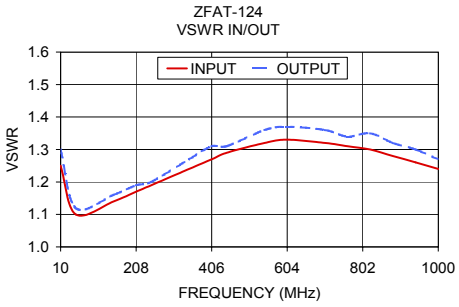
DC Voltage	+5V
DC Current	12mA max.
Switching Time (50% TTL to within specified accuracy of the next-selected attenuation step, and to within 0.1 dB of steady-state Thru-Loss)	10µs typ., 15µs max.,
TTL Input High Threshold	2V min
TTL Input Low Threshold	0.8V max.
TTL Toggle Rate	50 kHz typ.
1dB Compression	0 dBm (10-100 MHz) +10 dBm (100-1000MHz)

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.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp







Step Attenuation* at TTL Control State

FREQ.	000	001	010	011	100	101	110	111
	THRU LOSS	1	2	3	4	5	6	7
(MHz)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
10.00	2.80	1.01	1.99	3.01	4.02	5.03	6.03	7.03
49.60	2.52	1.02	2.02	3.05	4.05	5.06	6.05	7.09
148.60	2.46	0.99	2.01	3.02	4.03	5.03	6.02	7.07
208.00	2.48	1.01	1.99	3.00	4.05	5.07	6.02	7.05
247.60	2.55	1.01	2.01	3.03	4.05	5.06	6.02	7.02
346.60	2.57	1.04	2.04	3.03	4.04	5.07	6.08	7.06
406.00	2.62	1.02	2.02	3.03	4.05	5.06	6.04	7.05
445.60	2.67	1.04	2.05	3.09	4.06	5.11	6.06	7.09
544.60	2.72	1.08	2.04	3.11	4.08	5.14	6.06	7.13
604.00	2.71	1.06	2.07	3.11	4.09	5.14	6.11	7.15
703.00	2.81	1.08	2.07	3.11	4.10	5.17	6.09	7.16
762.40	2.78	1.09	2.07	3.17	4.07	5.20	6.10	7.21
821.80	2.80	1.12	2.10	3.20	4.14	5.25	6.17	7.27
881.20	2.81	1.12	2.10	3.19	4.14	5.23	6.22	7.30
940.60	2.82	1.12	2.14	3.20	4.17	5.31	6.22	7.35
1000.00	2.81	1.14	2.14	3.28	4.19	5.37	6.28	7.42

INPUT VSWR

FREQ.	001	010	011	100	101	110	111
(MHz)							
10.00	1.25	1.26	1.22	1.27	1.23	1.24	1.20
49.60	1.10	1.10	1.09	1.10	1.09	1.09	1.08
148.60	1.14	1.12	1.12	1.13	1.12	1.11	1.11
208.00	1.17	1.15	1.15	1.16	1.16	1.14	1.14
247.60	1.19	1.17	1.17	1.17	1.18	1.16	1.16
346.60	1.24	1.21	1.22	1.22	1.23	1.20	1.22
406.00	1.27	1.24	1.25	1.24	1.26	1.22	1.24
445.60	1.29	1.25	1.27	1.26	1.27	1.24	1.26
544.60	1.32	1.28	1.30	1.29	1.31	1.27	1.30
604.00	1.33	1.29	1.31	1.31	1.33	1.29	1.32
703.00	1.32	1.28	1.32	1.31	1.33	1.29	1.34
762.40	1.31	1.28	1.32	1.31	1.34	1.29	1.34
821.80	1.30	1.26	1.31	1.30	1.33	1.29	1.35
881.20	1.28	1.25	1.31	1.29	1.33	1.29	1.35
940.60	1.26	1.23	1.30	1.27	1.32	1.27	1.34
1000.00	1.24	1.21	1.29	1.25	1.31	1.26	1.34

OUTPUT VSWR

FREQ.	001	010	011	100	101	110	111
(MHz)							
10.00	1.30	1.27	1.25	1.16	1.16	1.15	1.15
49.60	1.12	1.10	1.10	1.07	1.07	1.07	1.06
148.60	1.16	1.13	1.14	1.09	1.10	1.09	1.09
208.00	1.19	1.16	1.16	1.11	1.11	1.09	1.10
247.60	1.20	1.18	1.18	1.13	1.13	1.11	1.12
346.60	1.27	1.23	1.23	1.16	1.17	1.16	1.15
406.00	1.31	1.25	1.26	1.18	1.19	1.17	1.19
445.60	1.31	1.27	1.28	1.19	1.20	1.18	1.18
544.60	1.36	1.30	1.30	1.21	1.22	1.21	1.21
604.00	1.37	1.31	1.31	1.21	1.22	1.21	1.23
703.00	1.36	1.32	1.33	1.22	1.23	1.24	1.23
762.40	1.34	1.30	1.32	1.23	1.24	1.25	1.25
821.80	1.35	1.30	1.31	1.22	1.24	1.25	1.24
881.20	1.32	1.29	1.28	1.22	1.22	1.23	1.25
940.60	1.30	1.27	1.29	1.23	1.23	1.25	1.25
1000.00	1.27	1.26	1.27	1.23	1.23	1.27	1.24

* Step attenuation above thru-loss (TTL logic 000)

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