

Precision

Digital Step Attenuator

ZFAT-4816

50Ω TTL Control, Pin Diode 10 to 1000 MHz

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



CASE STYLE: SSS173

Connectors	Model	Price	Qty.
SMA	ZFAT-4816	\$89.95	(1-9)
BRACKET (OPTION "B")		\$2.50	(1+)

Digital Step Attenuator Electrical Specifications

MODEL NO.	FREQUENCY (MHz)		PRIMARY ATTENUATION STEPS (dB)			ATTENUATION (dB)		VSWR (:1)		
	f_1	f_2	#1	#2	#3	(1,1,1)** Nom.	(0,0,0) Max.	L	M	U
ZFAT-4816	10	1000	4±0.4	8±0.4	16±0.5	28.0	4.0	1.6	1.4	1.5

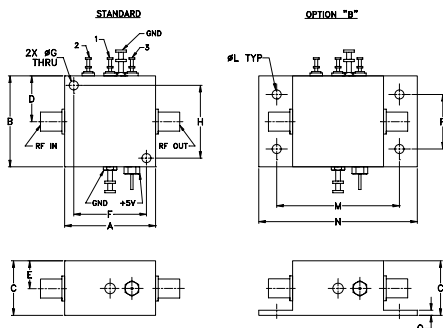
L=10 to 100 MHz M=100 to 500 MHz U=500 to 1000 MHz

** 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)

Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED

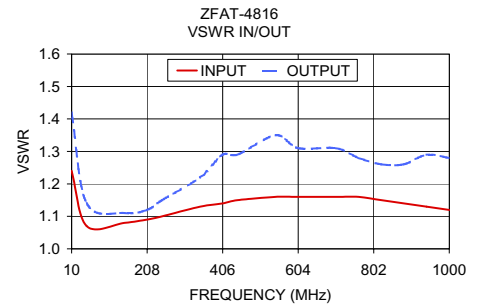
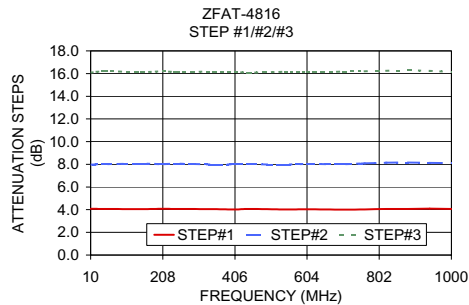
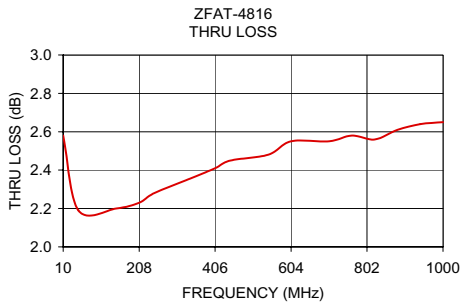
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IF/RF MICROWAVE COMPONENTS

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REV. OR
M97802
ZFAT-4816
DJ/VV/CP
070606



Step Attenuation* at TTL Control State

FREQ. (MHz)	000 (dB)	001 (dB)	010 (dB)	011 (dB)	100 (dB)	101 (dB)	110 (dB)	111 (dB)
10.00	2.58	4.08	4.08	7.97	12.05	16.09	20.15	23.88
49.60	2.19	4.07	8.01	12.07	16.20	20.22	24.12	28.16
148.60	2.20	4.05	8.05	12.12	16.14	20.12	24.07	28.26
208.00	2.23	4.08	8.02	12.13	16.19	20.34	24.10	28.37
247.60	2.28	4.06	8.05	12.08	16.14	20.20	24.19	28.31
346.60	2.36	4.05	7.99	12.06	16.17	20.14	23.99	28.29
406.00	2.41	4.02	8.00	12.08	16.14	20.21	23.98	27.93
445.60	2.45	4.07	8.00	11.99	16.09	20.16	24.21	28.32
544.60	2.48	4.02	7.99	11.97	16.16	20.26	24.46	28.32
604.00	2.55	4.03	8.03	12.01	16.13	20.17	24.10	28.34
703.00	2.55	4.01	8.02	12.00	16.17	20.15	24.22	27.91
762.40	2.58	4.02	8.08	12.12	16.20	20.30	24.12	28.39
821.80	2.56	4.06	8.14	12.09	16.24	20.26	24.15	27.99
881.20	2.61	4.07	8.15	12.11	16.28	20.25	24.17	28.06
940.60	2.64	4.09	8.13	12.16	16.24	20.36	24.33	28.22
1000.00	2.65	4.06	8.12	12.13	16.16	20.34	24.16	28.02

INPUT VSWR

FREQ. (MHz)	001	010	011	100	101	110	111
10.00	1.24	1.27	1.17	1.38	1.21	1.25	1.17
49.60	1.07	1.08	1.05	1.12	1.06	1.08	1.05
148.60	1.08	1.09	1.05	1.13	1.06	1.08	1.05
208.00	1.09	1.10	1.06	1.15	1.08	1.10	1.06
247.60	1.10	1.11	1.07	1.16	1.08	1.11	1.07
346.60	1.13	1.15	1.09	1.21	1.11	1.14	1.09
406.00	1.14	1.17	1.11	1.24	1.13	1.16	1.10
445.60	1.15	1.18	1.11	1.26	1.14	1.17	1.11
544.60	1.16	1.21	1.13	1.30	1.16	1.20	1.14
604.00	1.16	1.22	1.15	1.32	1.16	1.22	1.15
703.00	1.16	1.24	1.16	1.34	1.18	1.24	1.17
762.40	1.16	1.25	1.17	1.36	1.19	1.26	1.18
821.80	1.15	1.25	1.18	1.36	1.19	1.26	1.19
881.20	1.14	1.26	1.19	1.37	1.19	1.28	1.20
940.60	1.13	1.26	1.20	1.37	1.19	1.28	1.21
1000.00	1.12	1.26	1.21	1.37	1.19	1.30	1.23

OUTPUT VSWR

FREQ. (MHz)	001	010	011	100	101	110	111
10.00	1.42	1.29	1.29	1.11	1.11	1.10	1.11
49.60	1.14	1.09	1.10	1.05	1.05	1.05	1.06
148.60	1.11	1.07	1.06	1.05	1.04	1.04	1.04
208.00	1.12	1.06	1.05	1.02	1.02	1.02	1.01
247.60	1.15	1.08	1.07	1.05	1.04	1.04	1.04
346.60	1.22	1.20	1.12	1.09	1.07	1.07	1.08
406.00	1.29	1.19	1.18	1.12	1.13	1.11	1.12
445.60	1.29	1.19	1.18	1.13	1.13	1.13	1.12
544.60	1.35	1.26	1.26	1.19	1.20	1.19	1.20
604.00	1.31	1.24	1.23	1.19	1.19	1.18	1.20
703.00	1.31	1.25	1.26	1.21	1.23	1.23	1.21
762.40	1.28	1.25	1.26	1.23	1.23	1.23	1.24
821.80	1.26	1.22	1.23	1.20	1.19	1.20	1.19
881.20	1.26	1.22	1.23	1.20	1.21	1.21	1.21
940.60	1.29	1.23	1.25	1.19	1.19	1.21	1.22
1000.00	1.28	1.28	1.30	1.26	1.25	1.27	1.26

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



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