

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
SMA	ZFAT-4816
BRACKET (OPTION "B")	

Digital Step Attenuator Electrical Specifications

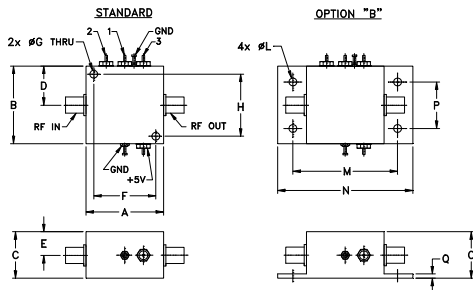
MODEL NO.	FREQUENCY (MHz)		PRIMARY ATTENUATION STEPS (dB)			ATTENUATION (dB)		VSWR (:1)		
	f_L	f_U	#1	#2	#3	(1,1,1)** Nom.	(0,0,0) Max.	L	M	U
ZFAT-4816	10	1000	4±0.4	8±0.4	16±0.5	28.0	4.0	1.6	1.4	1.5

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)

Notes

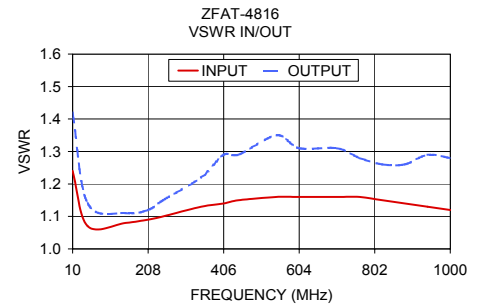
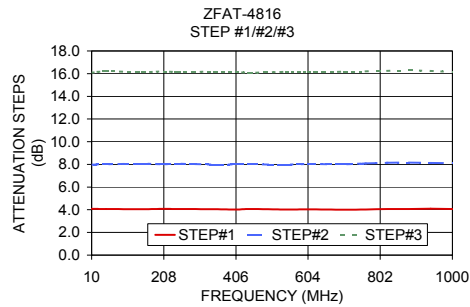
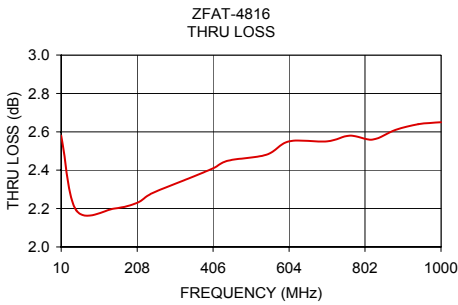
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REV. B
M151107
ZFAT-4816
DJ/VV/CP/AM
151029

ZFAT-4816



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	7.97	12.05	16.09	20.15	23.88	28.02
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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