

Precision

# Digital Step Attenuator

## ZFAT-3610

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

### 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-3610	\$89.95	(1-9)
BRACKET (OPTION "B")		\$2.50	(1+)

### Digital Step Attenuator Electrical Specifications

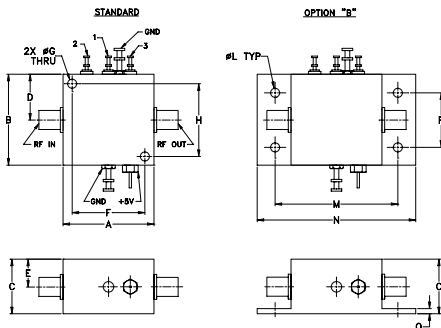
MODEL NO.	FREQUENCY (MHz)		PRIMARY ATTENUATION STEPS (dB)			ATTENUATION (dB)		VSWR (:1)		
	$f_L$	$f_U$	#1	#2	#3	(1,1,1)** Nom.	(0,0,0) Max.	L	M	U
ZFAT-3610	10	1000	3±0.3	6±0.4	10±0.4	19.0	4.0	1.6	1.4	1.5

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)

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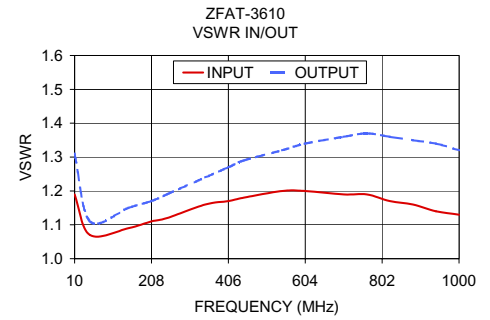
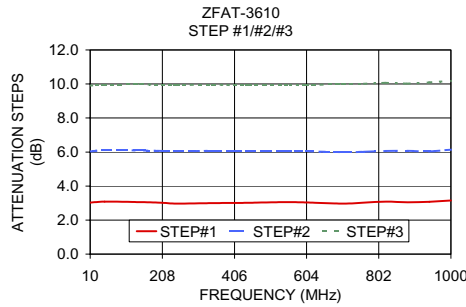
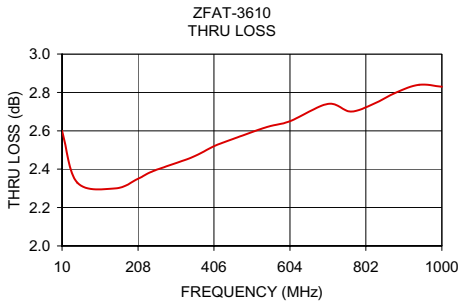
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS

REV. OR  
M97802  
ZFAT-3610  
DJ/VV/CP  
070606



### Step Attenuation\* at TTL Control State

FREQ.	000	001	010	011	100	101	110	111
(MHz)	THRU LOSS (dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
10.00	2.60	3.03	6.03	9.12	9.91	13.02	16.00	19.02
49.60	2.33	3.08	6.10	9.15	9.95	13.03	15.97	19.03
148.60	2.30	3.06	6.09	9.12	9.97	12.98	16.03	19.03
208.00	2.35	3.02	6.06	9.06	9.94	12.97	16.03	19.01
247.60	2.39	2.97	6.04	9.04	9.94	12.99	15.93	19.04
346.60	2.46	3.00	6.07	9.05	9.95	12.95	16.02	19.00
406.00	2.52	3.01	6.07	9.04	9.93	12.94	15.99	18.94
445.60	2.55	3.02	6.06	9.00	9.95	12.95	15.98	18.82
544.60	2.62	3.06	6.04	9.01	9.95	12.98	16.02	18.98
604.00	2.65	3.04	6.04	8.94	9.93	13.00	15.97	18.94
703.00	2.74	2.97	6.00	8.94	9.99	12.94	15.91	18.89
762.40	2.70	3.03	6.01	8.97	10.01	12.96	16.00	18.91
821.80	2.74	3.08	6.06	9.05	10.07	13.08	16.07	18.97
881.20	2.80	3.05	6.07	9.01	10.02	13.11	15.98	19.00
940.60	2.84	3.07	6.03	9.04	10.09	13.15	16.13	19.01
1000.00	2.83	3.15	6.14	9.07	10.18	13.25	16.08	19.24

### INPUT VSWR

FREQ.	001	010	011	100	101	110	111
(MHz)							
10.00	1.19	1.22	1.14	1.28	1.17	1.21	1.14
49.60	1.07	1.08	1.05	1.11	1.07	1.08	1.05
148.60	1.09	1.09	1.06	1.13	1.08	1.08	1.05
208.00	1.11	1.11	1.07	1.15	1.09	1.10	1.07
247.60	1.12	1.12	1.08	1.17	1.10	1.11	1.08
346.60	1.16	1.15	1.11	1.20	1.13	1.13	1.10
406.00	1.17	1.16	1.12	1.23	1.15	1.15	1.12
445.60	1.18	1.18	1.13	1.24	1.16	1.16	1.13
544.60	1.20	1.20	1.15	1.27	1.18	1.19	1.15
604.00	1.20	1.21	1.16	1.29	1.19	1.20	1.17
703.00	1.19	1.21	1.18	1.30	1.20	1.22	1.19
762.40	1.19	1.21	1.19	1.30	1.20	1.22	1.20
821.80	1.17	1.22	1.20	1.31	1.20	1.23	1.21
881.20	1.16	1.21	1.20	1.30	1.20	1.24	1.22
940.60	1.14	1.21	1.21	1.29	1.19	1.24	1.23
1000.00	1.13	1.21	1.22	1.28	1.19	1.25	1.24

### OUTPUT VSWR

FREQ.	001	010	011	100	101	110	111
(MHz)							
10.00	1.31	1.24	1.22	1.12	1.11	1.11	1.10
49.60	1.11	1.09	1.08	1.05	1.05	1.04	1.05
148.60	1.15	1.11	1.10	1.07	1.07	1.06	1.06
208.00	1.17	1.11	1.11	1.07	1.07	1.07	1.06
247.60	1.19	1.13	1.13	1.09	1.09	1.09	1.08
346.60	1.24	1.17	1.17	1.13	1.12	1.12	1.12
406.00	1.27	1.21	1.21	1.15	1.15	1.14	1.14
445.60	1.29	1.21	1.19	1.14	1.15	1.15	1.14
544.60	1.32	1.25	1.24	1.19	1.19	1.18	1.19
604.00	1.34	1.26	1.26	1.20	1.19	1.20	1.20
703.00	1.36	1.28	1.28	1.22	1.24	1.23	1.23
762.40	1.37	1.29	1.31	1.24	1.25	1.26	1.27
821.80	1.36	1.31	1.33	1.25	1.26	1.26	1.28
881.20	1.35	1.30	1.31	1.26	1.26	1.26	1.27
940.60	1.34	1.32	1.35	1.29	1.30	1.30	1.30
1000.00	1.32	1.33	1.35	1.29	1.30	1.30	1.33

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