

Digital Step Attenuator

DAT-31R5A-SP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=-40°C

FREQUENCY (MHz)	STEP ATTENUATION* AT TTL CONTROL STATE (dB)							
	000000 THRU LOSS	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	1.02	0.54	1.05	2.06	4.08	8.08	16.03	31.65
0.3	1.01	0.55	1.05	2.06	4.09	8.09	16.04	31.64
0.5	1.01	0.54	1.05	2.06	4.09	8.10	16.04	31.65
1	1.01	0.54	1.05	2.06	4.08	8.09	16.04	31.66
5	1.04	0.54	1.05	2.06	4.08	8.08	16.03	31.63
10	1.04	0.54	1.05	2.06	4.08	8.08	16.03	31.64
50	1.06	0.54	1.04	2.05	4.08	8.07	16.02	31.63
100	1.06	0.54	1.04	2.05	4.07	8.07	16.01	31.62
200	1.07	0.54	1.04	2.05	4.07	8.07	16.01	31.62
300	1.07	0.54	1.05	2.06	4.08	8.08	16.03	31.63
400	1.07	0.54	1.05	2.06	4.08	8.08	16.03	31.64
500	1.08	0.54	1.04	2.06	4.08	8.08	16.04	31.63
600	1.10	0.54	1.04	2.05	4.07	8.08	16.03	31.60
700	1.12	0.54	1.04	2.05	4.07	8.07	16.03	31.58
800	1.15	0.54	1.04	2.04	4.06	8.07	16.02	31.55
900	1.18	0.54	1.04	2.04	4.06	8.07	16.03	31.56
1000	1.20	0.54	1.04	2.04	4.06	8.08	16.04	31.55
1100	1.21	0.54	1.04	2.04	4.06	8.09	16.05	31.56
1200	1.23	0.54	1.04	2.04	4.06	8.09	16.06	31.58
1300	1.25	0.54	1.04	2.04	4.06	8.10	16.07	31.58
1400	1.27	0.54	1.04	2.05	4.07	8.11	16.10	31.65
1500	1.30	0.54	1.04	2.05	4.07	8.12	16.11	31.63
1600	1.32	0.54	1.04	2.05	4.08	8.14	16.14	31.70
1700	1.35	0.54	1.05	2.05	4.08	8.15	16.17	31.69
1800	1.36	0.55	1.05	2.06	4.09	8.17	16.19	31.67
1900	1.37	0.55	1.06	2.07	4.11	8.20	16.24	31.65
2000	1.38	0.55	1.06	2.08	4.13	8.24	16.28	31.60
2100	1.40	0.56	1.07	2.09	4.14	8.28	16.32	31.48
2200	1.42	0.56	1.08	2.11	4.17	8.33	16.40	31.54
2300	1.44	0.57	1.09	2.12	4.19	8.38	16.46	31.53
2400	1.45	0.57	1.09	2.14	4.21	8.42	16.51	31.41
2500	1.46	0.58	1.10	2.15	4.24	8.47	16.59	31.45
2600	1.48	0.58	1.10	2.16	4.26	8.52	16.64	31.29
2700	1.50	0.58	1.11	2.17	4.27	8.56	16.68	31.19
2800	1.52	0.58	1.10	2.17	4.27	8.59	16.72	31.21
2900	1.53	0.58	1.10	2.16	4.26	8.59	16.73	31.11
3000	1.53	0.57	1.09	2.15	4.24	8.59	16.75	31.13
3200	1.52	0.56	1.07	2.11	4.19	8.56	16.71	30.96
3400	1.55	0.55	1.05	2.08	4.15	8.55	16.75	31.19
3600	1.62	0.54	1.04	2.07	4.13	8.55	16.78	30.91
3800	1.70	0.54	1.04	2.08	4.13	8.56	16.77	30.06
4000	1.76	0.54	1.04	2.08	4.14	8.58	16.75	29.34
4200	1.77	0.55	1.06	2.10	4.16	8.64	16.86	29.31
4400	1.84	0.56	1.08	2.13	4.21	8.77	17.17	29.97
4600	1.89	0.58	1.10	2.17	4.28	8.98	17.67	31.20
4800	1.94	0.59	1.12	2.21	4.37	9.23	18.19	32.19
5000	1.97	0.60	1.14	2.25	4.45	9.46	18.55	32.17

* Step Attenuation above Thru Loss (TTL Logic 00000).



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IF/RF MICROWAVE COMPONENTS

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Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=-40°C

FREQUENCY (MHz)	INPUT RETURN LOSS AT TTL CONTROL STATE (dB)							
	000000 0 dB	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	19.12	20.90	22.75	21.00	22.72	27.63	35.30	29.37
0.3	19.30	21.10	22.95	21.21	22.95	27.93	35.14	29.31
0.5	19.33	21.14	23.00	21.25	23.00	28.07	34.96	29.36
1	19.44	21.23	23.11	21.32	23.05	28.07	34.86	29.29
5	19.37	21.18	23.06	21.25	22.95	27.92	35.00	29.28
10	19.35	21.18	23.05	21.24	22.93	27.88	35.05	29.31
50	19.21	20.97	22.76	20.97	22.55	27.09	36.92	30.40
100	19.19	20.88	22.60	20.79	22.22	26.33	40.79	32.08
200	19.15	20.82	22.51	20.77	22.22	26.39	39.60	31.46
300	19.59	21.40	23.26	21.43	23.12	28.10	34.87	29.15
400	19.72	21.57	23.50	21.64	23.39	28.58	33.65	28.92
500	19.16	20.91	22.71	20.98	22.61	27.18	34.66	30.32
600	19.24	20.93	22.65	20.85	22.29	26.44	37.17	32.15
700	19.51	21.19	22.88	20.98	22.33	26.36	38.16	32.84
800	19.43	21.04	22.64	20.73	21.96	25.68	39.34	34.88
900	19.26	20.78	22.25	20.45	21.61	25.23	44.59	35.76
1000	19.07	20.51	21.89	20.26	21.46	25.19	52.85	34.39
1100	18.90	20.26	21.56	20.06	21.28	25.08	59.72	33.20
1200	18.78	20.05	21.25	19.88	21.10	24.92	46.62	31.76
1300	18.40	19.55	20.60	19.50	20.78	24.68	38.53	29.39
1400	18.35	19.41	20.35	19.50	20.86	25.06	34.38	27.26
1500	18.09	19.08	19.96	19.33	20.80	25.22	32.70	26.26
1600	17.60	18.48	19.26	18.89	20.42	24.84	30.42	24.96
1700	17.07	17.88	18.56	18.45	20.06	24.46	28.27	23.63
1800	16.48	17.22	17.84	17.94	19.62	23.90	26.17	22.26
1900	16.16	16.85	17.41	17.71	19.45	23.55	24.14	20.89
2000	16.17	16.86	17.38	17.81	19.61	23.45	22.73	19.90
2100	16.28	16.96	17.42	17.96	19.75	23.08	21.39	18.96
2200	16.61	17.30	17.72	18.35	20.14	22.91	20.39	18.27
2300	17.07	17.78	18.18	18.87	20.63	22.76	19.66	17.77
2400	17.52	18.22	18.53	19.26	20.83	22.02	18.73	17.06
2500	18.53	19.21	19.38	20.17	21.38	21.30	17.77	16.37
2600	20.11	20.76	20.68	21.56	22.14	20.58	16.90	15.77
2700	22.49	23.19	22.70	23.68	23.22	20.11	16.32	15.40
2800	25.66	26.66	25.32	26.44	24.25	19.74	15.91	15.18
2900	30.64	31.76	27.67	29.05	24.44	19.20	15.50	14.94
3000	37.28	35.97	28.50	30.20	24.28	18.83	15.25	14.83
3200	32.66	32.11	27.89	30.06	24.41	18.81	15.25	15.04
3400	34.70	31.89	27.68	30.70	25.25	19.53	15.77	15.58
3600	42.10	31.05	26.91	29.55	25.88	20.62	16.57	16.17
3800	28.48	27.44	25.60	26.58	26.04	22.40	17.75	17.02
4000	22.12	21.93	21.44	21.81	22.57	22.47	18.57	17.21
4200	18.41	18.46	18.26	18.55	19.49	20.62	18.25	16.42
4400	16.55	16.60	16.43	16.81	17.57	18.57	16.95	15.10
4600	15.77	15.82	15.58	16.05	16.67	17.16	15.63	13.93
4800	16.16	16.16	15.78	16.33	16.72	16.54	14.74	13.23
5000	18.21	17.86	17.01	17.70	17.30	15.71	13.52	12.38



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Digital Step Attenuator

DAT-31R5A-SP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=-40°C

FREQUENCY (MHz)	OUTPUT RETURN LOSS AT TTL CONTROL STATE (dB)							
	000000 0 dB	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	18.73	19.54	19.92	25.83	32.09	46.89	37.80	28.63
0.3	18.92	19.73	20.11	26.08	32.44	48.05	38.42	28.58
0.5	19.01	19.82	20.20	26.22	32.74	50.19	39.21	28.58
1	19.10	19.91	20.28	26.35	32.91	50.10	39.02	28.53
5	19.15	19.96	20.33	26.44	32.96	49.97	38.60	28.56
10	19.15	19.96	20.33	26.43	32.91	49.21	38.35	28.64
50	19.14	19.92	20.26	26.19	32.16	43.30	36.32	29.33
100	18.96	19.69	20.00	25.54	30.64	38.63	33.56	31.13
200	18.82	19.54	19.85	25.22	30.01	37.35	33.51	30.88
300	18.80	19.58	19.93	25.50	30.79	40.17	36.12	29.37
400	19.20	20.02	20.38	26.34	32.36	45.56	38.68	28.55
500	19.68	20.49	20.84	27.18	33.87	49.33	37.82	28.57
600	19.71	20.45	20.73	26.71	32.25	40.64	33.87	30.40
700	19.63	20.31	20.55	26.21	30.99	38.75	33.13	31.21
800	19.96	20.58	20.77	26.38	30.61	37.63	32.79	31.21
900	20.01	20.57	20.73	25.91	29.31	35.27	32.55	30.36
1000	20.19	20.70	20.84	25.70	28.56	34.27	33.51	28.81
1100	20.07	20.54	20.68	25.21	27.79	33.38	33.72	28.21
1200	19.72	20.14	20.28	24.19	26.32	31.26	33.17	27.11
1300	19.19	19.58	19.76	23.10	25.00	29.63	33.00	25.97
1400	18.35	18.74	18.96	21.86	23.63	27.98	32.07	24.87
1500	17.66	18.04	18.28	20.80	22.40	26.33	30.58	23.62
1600	16.95	17.30	17.58	19.75	21.20	24.82	29.04	22.38
1700	16.20	16.55	16.83	18.70	20.02	23.28	27.21	21.04
1800	15.51	15.87	16.17	17.78	18.98	21.94	25.54	19.79
1900	15.03	15.40	15.73	17.16	18.26	20.96	24.20	18.76
2000	14.88	15.27	15.61	16.92	17.92	20.39	23.26	18.04
2100	14.82	15.22	15.56	16.81	17.71	19.94	22.43	17.47
2200	14.91	15.32	15.66	16.80	17.54	19.45	21.48	16.87
2300	15.31	15.71	16.05	17.05	17.57	19.10	20.66	16.38
2400	15.77	16.19	16.52	17.37	17.66	18.80	19.90	15.97
2500	16.42	16.86	17.20	17.90	17.92	18.63	19.27	15.67
2600	17.49	17.98	18.32	18.84	18.43	18.56	18.73	15.47
2700	19.04	19.63	19.98	20.28	19.20	18.60	18.29	15.38
2800	21.21	22.01	22.43	22.22	20.14	18.69	17.93	15.42
2900	23.30	24.70	25.41	24.84	21.36	18.94	17.75	15.63
3000	24.52	26.80	28.29	28.37	22.81	19.38	17.81	16.08
3200	23.30	25.62	27.31	33.44	25.25	20.16	18.01	17.12
3400	21.55	23.20	24.24	29.38	26.44	20.71	18.17	18.39
3600	20.86	22.21	22.94	28.10	27.89	21.65	18.70	20.06
3800	21.51	22.76	23.37	30.15	30.83	23.00	19.49	21.52
4000	23.74	24.88	25.33	49.88	34.83	25.37	20.89	21.88
4200	24.39	24.87	25.14	28.49	26.32	24.39	20.66	19.80
4400	22.68	22.72	22.89	22.61	21.48	21.11	18.80	17.27
4600	22.30	22.09	22.07	19.96	18.80	18.07	16.29	15.08
4800	23.15	22.51	22.18	18.49	17.12	15.84	14.19	13.50
5000	24.86	23.42	22.61	17.49	15.90	14.09	12.48	12.29



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Digital Step Attenuator

DAT-31R5A-SP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=+25degC

FREQUENCY (MHz)	STEP ATTENUATION* AT TTL CONTROL STATE (dB)							
	000000 THRU LOSS	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	1.13	0.53	1.02	2.02	4.02	7.97	15.94	31.44
0.3	1.12	0.53	1.03	2.02	4.03	7.98	15.95	31.44
0.5	1.12	0.53	1.02	2.02	4.03	7.98	15.95	31.46
1	1.12	0.53	1.02	2.02	4.03	7.98	15.94	31.44
5	1.15	0.53	1.02	2.02	4.02	7.97	15.93	31.43
10	1.15	0.53	1.02	2.02	4.02	7.97	15.93	31.44
50	1.16	0.53	1.02	2.02	4.02	7.97	15.93	31.44
100	1.16	0.53	1.02	2.02	4.02	7.97	15.93	31.43
200	1.16	0.53	1.02	2.02	4.02	7.97	15.93	31.43
300	1.17	0.52	1.02	2.02	4.01	7.96	15.93	31.42
400	1.18	0.52	1.02	2.01	4.01	7.96	15.93	31.42
500	1.19	0.52	1.01	2.01	4.01	7.96	15.93	31.42
600	1.21	0.52	1.01	2.01	4.01	7.96	15.94	31.41
700	1.22	0.52	1.01	2.01	4.01	7.96	15.94	31.41
800	1.24	0.52	1.01	2.01	4.00	7.97	15.94	31.40
900	1.26	0.52	1.01	2.01	4.00	7.97	15.95	31.41
1000	1.29	0.52	1.01	2.01	4.00	7.98	15.96	31.42
1100	1.31	0.52	1.01	2.01	4.01	7.98	15.97	31.45
1200	1.34	0.52	1.01	2.01	4.00	7.98	15.98	31.48
1300	1.36	0.52	1.01	2.01	4.00	7.99	15.99	31.52
1400	1.38	0.52	1.01	2.01	4.00	7.99	16.00	31.54
1500	1.41	0.52	1.01	2.01	4.01	8.00	16.02	31.60
1600	1.43	0.52	1.01	2.01	4.01	8.01	16.04	31.64
1700	1.46	0.53	1.02	2.01	4.01	8.02	16.06	31.68
1800	1.48	0.53	1.02	2.02	4.02	8.04	16.10	31.69
1900	1.50	0.53	1.03	2.02	4.03	8.06	16.13	31.68
2000	1.51	0.53	1.03	2.03	4.04	8.09	16.17	31.66
2100	1.53	0.54	1.04	2.05	4.06	8.13	16.23	31.68
2200	1.55	0.54	1.05	2.06	4.08	8.18	16.30	31.67
2300	1.56	0.55	1.05	2.07	4.10	8.22	16.36	31.62
2400	1.57	0.55	1.06	2.09	4.12	8.27	16.42	31.59
2500	1.58	0.55	1.06	2.10	4.14	8.32	16.48	31.54
2600	1.60	0.55	1.07	2.10	4.16	8.36	16.53	31.47
2700	1.62	0.55	1.07	2.10	4.16	8.39	16.58	31.39
2800	1.64	0.55	1.06	2.10	4.16	8.41	16.61	31.32
2900	1.65	0.55	1.06	2.09	4.15	8.42	16.62	31.25
3000	1.66	0.55	1.05	2.08	4.14	8.43	16.63	31.22
3200	1.64	0.54	1.03	2.06	4.10	8.42	16.65	31.25
3400	1.68	0.53	1.01	2.04	4.07	8.41	16.68	31.36
3600	1.75	0.52	1.01	2.03	4.05	8.42	16.72	31.10
3800	1.83	0.52	1.01	2.04	4.05	8.43	16.70	30.25
4000	1.88	0.52	1.01	2.05	4.06	8.44	16.67	29.53
4200	1.91	0.53	1.02	2.06	4.07	8.49	16.76	29.44
4400	1.99	0.54	1.04	2.08	4.11	8.60	17.06	30.07
4600	2.03	0.55	1.06	2.12	4.18	8.81	17.60	31.45
4800	2.07	0.57	1.09	2.17	4.27	9.08	18.19	32.62
5000	2.13	0.58	1.11	2.21	4.35	9.32	18.60	32.60

* Step Attenuation above Thru Loss (TTL Logic 00000).



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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

DAT-31R5A-SP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=+25degC

FREQUENCY (MHz)	INPUT RETURN LOSS AT TTL CONTROL STATE (dB)							
	000000 0 dB	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	18.18	19.42	20.62	18.72	19.29	21.27	29.34	35.55
0.3	18.35	19.58	20.78	18.87	19.44	21.40	29.44	35.62
0.5	18.35	19.59	20.78	18.88	19.47	21.46	29.53	35.58
1	18.45	19.68	20.88	18.94	19.50	21.45	29.52	35.73
5	18.40	19.65	20.85	18.91	19.45	21.42	29.52	35.77
10	18.40	19.65	20.85	18.90	19.46	21.41	29.49	35.74
50	18.42	19.66	20.86	18.91	19.46	21.40	29.37	35.47
100	18.53	19.77	20.97	19.00	19.52	21.44	29.30	35.29
200	18.44	19.66	20.83	18.91	19.41	21.27	28.65	34.09
300	18.48	19.68	20.83	18.88	19.33	21.08	27.91	32.83
400	18.59	19.76	20.88	18.89	19.26	20.89	27.19	31.74
500	18.57	19.71	20.80	18.79	19.11	20.63	26.41	30.60
600	18.60	19.70	20.74	18.69	18.94	20.32	25.62	29.47
700	18.57	19.62	20.60	18.53	18.69	19.93	24.79	28.27
800	18.54	19.54	20.46	18.37	18.45	19.59	24.12	27.23
900	18.48	19.42	20.28	18.23	18.27	19.36	23.73	26.55
1000	18.39	19.27	20.07	18.08	18.11	19.18	23.45	25.96
1100	18.11	18.92	19.65	17.84	17.90	19.02	23.23	25.38
1200	17.83	18.57	19.22	17.62	17.74	18.92	23.13	24.83
1300	17.39	18.05	18.65	17.35	17.58	18.92	23.26	24.44
1400	16.89	17.50	18.04	17.07	17.46	19.02	23.55	24.11
1500	16.33	16.89	17.39	16.74	17.30	19.11	23.83	23.71
1600	15.79	16.32	16.80	16.43	17.17	19.26	24.16	23.27
1700	15.36	15.86	16.31	16.19	17.12	19.53	24.57	22.81
1800	15.03	15.53	15.95	16.05	17.16	19.91	24.97	22.36
1900	14.82	15.31	15.72	16.00	17.25	20.34	25.17	21.86
2000	14.76	15.25	15.63	16.07	17.46	20.83	25.03	21.30
2100	14.90	15.38	15.73	16.31	17.83	21.44	24.49	20.66
2200	15.29	15.77	16.09	16.81	18.43	22.22	23.78	20.11
2300	15.92	16.40	16.68	17.51	19.23	23.02	22.95	19.62
2400	16.69	17.18	17.40	18.35	20.12	23.65	22.07	19.16
2500	17.91	18.41	18.54	19.64	21.43	24.20	21.15	18.72
2600	19.58	20.05	20.02	21.34	23.04	24.21	20.14	18.23
2700	21.91	22.37	22.02	23.69	25.01	23.89	19.32	17.88
2800	24.77	25.32	24.46	26.68	27.15	23.43	18.74	17.68
2900	28.54	29.18	27.10	30.35	28.72	22.88	18.30	17.56
3000	33.87	34.45	29.49	34.57	29.19	22.24	17.90	17.43
3200	34.82	35.97	30.76	35.02	28.51	21.55	17.51	17.53
3400	33.47	36.69	32.32	37.44	30.87	22.72	18.25	18.55
3600	36.21	41.44	33.63	42.00	40.10	25.69	19.76	20.09
3800	25.52	26.05	25.71	26.13	28.98	33.52	22.96	22.36
4000	19.83	20.03	19.99	20.35	21.99	28.21	26.05	22.23
4200	16.88	17.00	16.95	17.48	18.78	22.77	23.98	19.68
4400	15.00	15.06	14.95	15.63	16.68	19.22	19.85	16.75
4600	14.32	14.34	14.13	14.92	15.78	17.47	17.34	14.92
4800	14.95	14.85	14.45	15.41	16.01	16.69	15.67	13.77
5000	17.32	16.86	16.05	17.27	17.26	16.34	14.47	13.12



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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

DAT-31R5A-SP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=+25degC

FREQUENCY (MHz)	OUTPUT RETURN LOSS AT TTL CONTROL STATE (dB)							
	000000 0 dB	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	17.90	18.31	18.37	22.29	24.60	26.28	23.83	38.75
0.3	18.05	18.47	18.53	22.43	24.72	26.38	23.93	38.80
0.5	18.12	18.53	18.59	22.52	24.82	26.49	24.02	38.79
1	18.22	18.61	18.66	22.60	24.88	26.48	23.98	38.85
5	18.27	18.67	18.71	22.69	24.94	26.51	23.98	38.86
10	18.28	18.69	18.72	22.69	24.93	26.50	23.96	38.85
50	18.29	18.69	18.73	22.68	24.90	26.46	23.95	38.67
100	18.24	18.64	18.68	22.57	24.73	26.24	23.80	37.64
200	18.25	18.63	18.67	22.49	24.59	25.99	23.60	36.53
300	18.30	18.67	18.69	22.44	24.42	25.65	23.29	35.31
400	18.43	18.77	18.76	22.45	24.28	25.29	22.94	34.04
500	18.48	18.80	18.76	22.36	24.03	24.86	22.54	32.73
600	18.66	18.94	18.86	22.39	23.86	24.46	22.16	31.40
700	18.87	19.09	18.96	22.42	23.68	24.09	21.80	30.12
800	19.10	19.26	19.07	22.43	23.48	23.74	21.48	28.85
900	19.12	19.23	19.01	22.22	23.10	23.35	21.21	27.59
1000	19.04	19.10	18.87	21.85	22.61	22.96	20.99	26.34
1100	18.80	18.82	18.61	21.33	22.03	22.59	20.86	25.20
1200	18.38	18.39	18.23	20.63	21.33	22.18	20.79	24.06
1300	17.69	17.74	17.65	19.74	20.52	21.75	20.83	23.02
1400	16.92	17.01	17.01	18.82	19.68	21.31	20.95	22.05
1500	16.15	16.28	16.36	17.94	18.88	20.84	21.10	21.12
1600	15.44	15.61	15.75	17.15	18.15	20.43	21.37	20.30
1700	14.81	15.03	15.22	16.47	17.51	20.02	21.63	19.54
1800	14.31	14.56	14.79	15.93	17.00	19.69	21.95	18.90
1900	13.97	14.24	14.50	15.55	16.62	19.44	22.26	18.31
2000	13.80	14.09	14.37	15.33	16.38	19.27	22.55	17.82
2100	13.79	14.10	14.40	15.29	16.30	19.22	22.79	17.42
2200	14.00	14.32	14.63	15.45	16.40	19.29	22.96	17.12
2300	14.46	14.79	15.11	15.84	16.70	19.51	23.04	16.92
2400	15.14	15.49	15.81	16.43	17.16	19.83	22.98	16.82
2500	16.06	16.42	16.75	17.27	17.84	20.27	22.82	16.84
2600	17.29	17.69	18.03	18.43	18.74	20.81	22.53	16.95
2700	18.85	19.30	19.67	19.99	19.93	21.46	22.20	17.18
2800	20.81	21.40	21.81	22.06	21.45	22.15	21.82	17.54
2900	22.71	23.59	24.14	24.71	23.26	22.82	21.44	18.03
3000	24.02	25.33	26.15	28.62	25.65	23.49	21.11	18.70
3200	22.84	24.28	25.08	51.66	32.65	24.37	20.55	20.58
3400	20.77	21.81	22.28	30.51	34.89	24.56	20.24	23.40
3600	20.02	20.84	21.11	27.61	31.96	24.98	20.46	27.24
3800	21.16	21.78	21.86	29.13	33.32	27.30	21.70	30.15
4000	22.79	23.04	22.99	28.96	30.31	34.92	24.25	26.90
4200	22.17	22.12	22.21	23.84	24.24	34.09	26.36	22.17
4400	20.28	20.26	20.47	20.21	20.47	24.66	22.97	18.67
4600	19.52	19.52	19.73	18.35	18.34	20.26	18.82	16.18
4800	20.18	20.12	20.22	17.61	17.22	17.57	15.88	14.51
5000	22.57	22.09	21.82	17.49	16.59	15.62	13.77	13.37



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Digital Step Attenuator

DAT-31R5A-SP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=+105°C

FREQUENCY (MHz)	STEP ATTENUATION* AT TTL CONTROL STATE (dB)							
	000000 THRU LOSS	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	1.30	0.51	1.00	1.99	3.97	7.88	15.83	31.22
0.3	1.28	0.51	1.00	1.99	3.97	7.89	15.84	31.20
0.5	1.28	0.51	1.00	1.99	3.97	7.89	15.84	31.21
1	1.29	0.51	1.00	1.99	3.97	7.89	15.84	31.21
5	1.31	0.51	1.00	1.99	3.97	7.88	15.83	31.20
10	1.31	0.51	1.00	1.99	3.97	7.88	15.83	31.20
50	1.32	0.51	1.00	1.99	3.97	7.88	15.84	31.20
100	1.30	0.51	1.00	1.99	3.97	7.88	15.84	31.20
200	1.31	0.51	1.00	1.99	3.97	7.88	15.84	31.20
300	1.33	0.51	0.99	1.98	3.96	7.88	15.84	31.19
400	1.35	0.51	0.99	1.98	3.96	7.88	15.84	31.19
500	1.37	0.51	0.99	1.98	3.96	7.89	15.85	31.19
600	1.39	0.50	0.99	1.98	3.96	7.89	15.86	31.20
700	1.41	0.50	0.99	1.98	3.97	7.90	15.87	31.21
800	1.44	0.50	0.99	1.98	3.97	7.91	15.88	31.21
900	1.46	0.51	0.99	1.99	3.97	7.92	15.89	31.24
1000	1.49	0.51	0.99	1.99	3.98	7.92	15.90	31.27
1100	1.51	0.51	0.99	1.99	3.98	7.92	15.91	31.30
1200	1.54	0.51	0.99	1.99	3.97	7.92	15.91	31.34
1300	1.57	0.51	0.99	1.99	3.97	7.92	15.91	31.36
1400	1.59	0.51	0.99	1.98	3.96	7.92	15.93	31.49
1500	1.62	0.51	0.99	1.98	3.96	7.91	15.93	31.48
1600	1.65	0.51	0.99	1.98	3.95	7.91	15.94	31.54
1700	1.67	0.51	0.99	1.98	3.95	7.92	15.95	31.56
1800	1.70	0.51	1.00	1.98	3.95	7.92	15.98	31.62
1900	1.72	0.51	1.00	1.99	3.96	7.94	16.01	31.64
2000	1.73	0.51	1.00	1.99	3.96	7.96	16.05	31.62
2100	1.75	0.52	1.01	2.00	3.97	7.99	16.10	31.64
2200	1.77	0.52	1.01	2.01	3.99	8.02	16.13	31.49
2300	1.78	0.52	1.02	2.02	4.00	8.07	16.21	31.65
2400	1.79	0.53	1.02	2.03	4.02	8.11	16.26	31.52
2500	1.80	0.53	1.03	2.04	4.03	8.15	16.33	31.50
2600	1.82	0.53	1.03	2.04	4.04	8.19	16.37	31.44
2700	1.84	0.53	1.03	2.04	4.04	8.22	16.42	31.34
2800	1.86	0.53	1.02	2.04	4.04	8.24	16.44	31.24
2900	1.87	0.53	1.02	2.04	4.04	8.26	16.47	31.21
3000	1.87	0.52	1.01	2.03	4.03	8.28	16.51	31.26
3200	1.85	0.51	1.00	2.01	4.00	8.29	16.53	31.03
3400	1.90	0.50	0.98	2.00	3.98	8.30	16.59	31.40
3600	1.96	0.50	0.98	2.00	3.98	8.32	16.65	31.26
3800	2.04	0.50	0.98	2.01	3.98	8.33	16.62	30.36
4000	2.12	0.50	0.98	2.02	3.98	8.33	16.56	29.48
4200	2.18	0.51	0.99	2.03	3.98	8.35	16.62	29.34
4400	2.24	0.52	1.01	2.05	4.01	8.45	16.95	30.24
4600	2.28	0.53	1.03	2.09	4.08	8.66	17.57	31.97
4800	2.31	0.54	1.05	2.13	4.15	8.90	18.13	33.07
5000	2.39	0.55	1.07	2.17	4.22	9.16	18.62	33.38

* Step Attenuation above Thru Loss (TTL Logic 00000).



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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

DAT-31R5A-SP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=+105°C

FREQUENCY (MHz)	INPUT RETURN LOSS AT TTL CONTROL STATE (dB)							
	000000 0 dB	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	16.94	17.70	18.37	16.39	16.18	16.81	20.13	21.92
0.3	17.06	17.81	18.48	16.48	16.28	16.88	20.16	21.93
0.5	17.07	17.81	18.47	16.48	16.28	16.89	20.17	21.91
1	17.14	17.88	18.54	16.53	16.30	16.89	20.18	21.92
5	17.13	17.88	18.55	16.52	16.30	16.90	20.18	21.94
10	17.13	17.89	18.55	16.53	16.31	16.90	20.19	21.96
50	17.23	18.00	18.69	16.66	16.46	17.08	20.44	22.26
100	17.44	18.25	18.97	16.92	16.73	17.42	20.95	22.90
200	17.23	18.04	18.75	16.80	16.67	17.35	20.76	22.69
300	16.81	17.51	18.13	16.28	16.06	16.58	19.45	21.10
400	16.91	17.56	18.13	16.20	15.88	16.26	18.89	20.43
500	16.99	17.62	18.15	16.16	15.76	16.04	18.48	19.98
600	16.86	17.43	17.90	15.90	15.43	15.61	17.82	19.20
700	16.88	17.39	17.81	15.75	15.20	15.30	17.36	18.63
800	17.09	17.54	17.91	15.78	15.14	15.17	17.12	18.32
900	17.10	17.50	17.82	15.71	15.04	15.03	16.89	18.02
1000	16.90	17.24	17.52	15.52	14.87	14.86	16.67	17.69
1100	16.66	16.96	17.21	15.41	14.82	14.86	16.68	17.60
1200	16.42	16.70	16.94	15.36	14.85	14.97	16.84	17.66
1300	15.94	16.22	16.45	15.16	14.79	15.04	16.97	17.69
1400	15.36	15.64	15.87	14.90	14.70	15.12	17.15	17.70
1500	14.83	15.11	15.35	14.69	14.68	15.32	17.50	17.85
1600	14.44	14.74	14.99	14.58	14.76	15.64	18.02	18.16
1700	14.10	14.41	14.67	14.46	14.82	15.95	18.53	18.43
1800	13.83	14.15	14.41	14.40	14.94	16.34	19.16	18.71
1900	13.70	14.03	14.28	14.46	15.16	16.88	19.99	19.05
2000	13.77	14.09	14.33	14.68	15.55	17.61	21.06	19.52
2100	13.96	14.29	14.51	15.01	16.04	18.49	22.29	19.98
2200	14.27	14.60	14.80	15.43	16.60	19.44	23.51	20.31
2300	14.80	15.12	15.28	16.06	17.35	20.62	24.69	20.53
2400	15.64	15.95	16.06	17.02	18.49	22.37	26.08	20.96
2500	16.91	17.20	17.23	18.39	20.05	24.73	26.88	21.34
2600	18.35	18.63	18.56	19.95	21.85	27.45	26.63	21.60
2700	20.17	20.40	20.14	21.88	24.02	30.03	25.33	21.51
2800	22.62	22.74	22.16	24.52	27.09	31.04	23.74	21.27
2900	26.77	26.73	25.38	29.27	32.89	29.34	22.24	21.10
3000	31.07	31.70	29.04	35.50	43.17	27.78	21.53	21.32
3200	33.47	48.11	38.23	37.36	35.84	25.78	20.80	21.90
3400	31.09	38.91	48.96	32.36	32.26	26.05	21.26	23.60
3600	27.42	29.40	29.82	27.49	28.74	29.46	24.02	28.97
3800	22.22	22.53	22.41	22.43	23.69	29.88	30.24	33.72
4000	18.20	18.28	18.17	18.69	19.86	24.73	40.63	25.80
4200	15.55	15.57	15.44	16.24	17.37	21.18	27.16	20.59
4400	13.86	13.86	13.70	14.64	15.69	18.64	21.44	17.30
4600	13.60	13.58	13.35	14.46	15.49	17.99	19.22	15.86
4800	14.34	14.24	13.86	15.21	16.16	17.99	17.79	15.05
5000	16.62	16.21	15.46	17.20	17.74	17.79	16.13	14.31



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Digital Step Attenuator

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Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, TEMPERATURE=+105°C

FREQUENCY (MHz)	OUTPUT RETURN LOSS AT TTL CONTROL STATE (dB)							
	000000 0 dB	000001 0.5 dB	000010 1.0 dB	000100 2.0 dB	001000 4.0 dB	010000 8.0 dB	100000 16 dB	111111 31.5 dB
0.1	16.70	16.77	16.57	19.04	19.61	19.49	17.75	22.56
0.3	16.82	16.88	16.67	19.13	19.67	19.53	17.78	22.57
0.5	16.88	16.93	16.71	19.16	19.70	19.55	17.79	22.55
1	16.93	16.99	16.76	19.22	19.73	19.55	17.78	22.55
5	17.01	17.06	16.83	19.29	19.78	19.59	17.80	22.57
10	17.02	17.07	16.84	19.31	19.79	19.60	17.81	22.57
50	17.06	17.12	16.90	19.40	19.93	19.78	17.99	22.86
100	17.16	17.25	17.05	19.62	20.22	20.13	18.31	23.41
200	17.14	17.25	17.07	19.62	20.23	20.14	18.34	23.46
300	16.94	17.00	16.78	19.09	19.51	19.23	17.53	22.04
400	16.85	16.86	16.61	18.76	19.02	18.59	16.93	21.08
500	16.78	16.75	16.47	18.53	18.68	18.17	16.54	20.44
600	17.00	16.91	16.57	18.55	18.53	17.87	16.22	19.91
700	17.20	17.04	16.63	18.51	18.30	17.52	15.88	19.30
800	17.27	17.04	16.60	18.35	18.01	17.19	15.59	18.72
900	17.24	16.97	16.50	18.13	17.73	16.93	15.40	18.25
1000	17.19	16.87	16.41	17.89	17.47	16.74	15.29	17.83
1100	16.84	16.55	16.14	17.47	17.13	16.58	15.26	17.47
1200	16.37	16.13	15.80	17.00	16.80	16.50	15.36	17.20
1300	15.82	15.65	15.41	16.49	16.45	16.45	15.52	16.97
1400	15.21	15.12	14.97	15.94	16.07	16.40	15.74	16.73
1500	14.59	14.57	14.51	15.39	15.69	16.39	16.06	16.55
1600	14.08	14.12	14.14	14.95	15.41	16.47	16.51	16.44
1700	13.73	13.82	13.90	14.64	15.22	16.62	17.07	16.38
1800	13.41	13.54	13.68	14.36	15.04	16.77	17.69	16.31
1900	13.17	13.33	13.51	14.13	14.88	16.93	18.36	16.24
2000	13.08	13.28	13.49	14.06	14.86	17.20	19.18	16.22
2100	13.16	13.37	13.60	14.12	14.95	17.56	20.17	16.24
2200	13.42	13.65	13.90	14.35	15.21	18.10	21.45	16.40
2300	13.84	14.09	14.36	14.73	15.59	18.77	22.93	16.58
2400	14.50	14.76	15.04	15.34	16.18	19.67	24.83	16.89
2500	15.41	15.69	15.98	16.19	17.00	20.85	27.15	17.33
2600	16.62	16.90	17.20	17.30	18.03	22.29	29.52	17.86
2700	17.92	18.23	18.53	18.61	19.28	24.07	30.92	18.50
2800	19.50	19.86	20.17	20.34	20.94	26.48	30.03	19.34
2900	21.11	21.57	21.89	22.56	23.07	29.65	27.98	20.35
3000	22.60	23.19	23.49	25.54	26.00	33.46	25.77	21.69
3200	22.11	22.76	22.92	30.44	33.66	31.04	22.50	25.78
3400	20.02	20.49	20.53	26.63	28.95	25.66	20.56	33.52
3600	19.35	19.64	19.54	24.25	25.14	23.55	19.88	33.08
3800	19.89	19.95	19.71	23.51	23.61	23.61	20.62	26.82
4000	20.45	20.26	20.02	22.15	22.08	25.20	23.47	23.00
4200	19.46	19.29	19.31	19.75	20.04	26.60	31.23	20.32
4400	17.95	17.94	18.17	17.57	18.07	24.46	31.82	17.93
4600	17.51	17.59	17.87	16.46	16.90	21.32	21.99	16.04
4800	18.17	18.27	18.55	16.17	16.42	18.87	17.62	14.79
5000	20.43	20.38	20.50	16.63	16.49	16.90	14.85	14.00



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