

Digital Step Attenuator

DAT-31R5A-PP+

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	8.09	16.01	31.62
0.3	1.01	0.54	1.05	2.06	4.09	8.10	16.02	31.64
0.5	1.01	0.54	1.05	2.06	4.09	8.10	16.02	31.63
1	1.01	0.54	1.05	2.06	4.09	8.09	16.01	31.64
5	1.04	0.54	1.04	2.05	4.08	8.08	16.00	31.63
10	1.04	0.54	1.04	2.05	4.08	8.08	16.00	31.62
50	1.06	0.54	1.04	2.05	4.08	8.07	16.00	31.61
100	1.06	0.54	1.04	2.05	4.07	8.07	15.99	31.60
200	1.07	0.54	1.04	2.05	4.07	8.07	15.99	31.60
300	1.07	0.54	1.04	2.05	4.08	8.08	16.01	31.61
400	1.07	0.54	1.04	2.05	4.08	8.08	16.01	31.61
500	1.08	0.54	1.04	2.05	4.08	8.09	16.02	31.59
600	1.10	0.54	1.04	2.05	4.08	8.08	16.01	31.54
700	1.12	0.54	1.04	2.05	4.07	8.08	16.00	31.48
800	1.15	0.54	1.04	2.05	4.07	8.08	15.99	31.41
900	1.18	0.54	1.04	2.05	4.07	8.08	15.99	31.33
1000	1.20	0.54	1.04	2.05	4.07	8.09	16.00	31.34
1100	1.21	0.54	1.04	2.05	4.07	8.09	16.01	31.39
1200	1.23	0.54	1.04	2.05	4.07	8.10	16.04	31.52
1300	1.25	0.54	1.04	2.05	4.07	8.11	16.04	31.49
1400	1.27	0.54	1.04	2.05	4.07	8.12	16.08	31.59
1500	1.30	0.54	1.04	2.05	4.08	8.13	16.10	31.63
1600	1.32	0.54	1.04	2.05	4.08	8.14	16.12	31.64
1700	1.35	0.54	1.05	2.06	4.09	8.16	16.15	31.66
1800	1.36	0.55	1.05	2.06	4.09	8.18	16.17	31.65
1900	1.37	0.55	1.06	2.07	4.11	8.21	16.22	31.66
2000	1.38	0.55	1.06	2.08	4.13	8.24	16.27	31.69
2100	1.40	0.56	1.07	2.09	4.15	8.29	16.34	31.73
2200	1.42	0.56	1.08	2.11	4.17	8.33	16.40	31.73
2300	1.44	0.57	1.08	2.12	4.19	8.38	16.47	31.72
2400	1.45	0.57	1.09	2.14	4.22	8.43	16.55	31.80
2500	1.46	0.58	1.10	2.15	4.24	8.49	16.63	31.77
2600	1.48	0.58	1.11	2.16	4.26	8.54	16.70	31.69
2700	1.50	0.58	1.11	2.17	4.28	8.59	16.77	31.71
2800	1.52	0.58	1.11	2.17	4.28	8.62	16.81	31.60
2900	1.53	0.58	1.11	2.17	4.28	8.64	16.87	31.63
3000	1.53	0.58	1.10	2.15	4.26	8.65	16.89	31.64
3200	1.52	0.56	1.08	2.12	4.22	8.64	16.92	31.49
3400	1.55	0.55	1.05	2.09	4.17	8.60	16.87	31.09
3600	1.62	0.54	1.04	2.06	4.13	8.58	16.86	31.18
3800	1.70	0.54	1.03	2.05	4.12	8.61	16.93	30.92
4000	1.76	0.54	1.03	2.05	4.11	8.62	16.92	31.00
4200	1.77	0.54	1.03	2.06	4.13	8.67	17.02	31.14
4400	1.84	0.55	1.04	2.08	4.16	8.78	17.28	32.03
4600	1.89	0.56	1.06	2.11	4.22	8.94	17.69	32.98
4800	1.94	0.57	1.09	2.15	4.29	9.13	18.04	32.99
5000	1.97	0.58	1.07	2.19	4.36	9.33	18.42	32.53

* 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	19.00	20.76	22.53	20.82	22.40	27.13	35.92	29.77
0.3	19.19	20.95	22.75	21.04	22.65	27.42	35.75	29.71
0.5	19.22	20.98	22.80	21.06	22.69	27.58	35.46	29.73
1	19.31	21.08	22.91	21.13	22.72	27.53	35.46	29.68
5	19.24	21.02	22.83	21.06	22.63	27.38	35.60	29.70
10	19.22	21.00	22.81	21.03	22.60	27.34	35.73	29.74
50	19.09	20.81	22.55	20.79	22.26	26.68	37.87	30.87
100	19.07	20.74	22.40	20.63	21.97	26.00	41.68	32.40
200	18.92	20.56	22.19	20.53	21.90	26.00	39.47	31.63
300	19.36	21.11	22.86	21.13	22.69	27.45	35.14	29.36
400	19.54	21.36	23.21	21.40	23.04	28.12	34.37	29.12
500	18.96	20.68	22.41	20.77	22.35	27.02	36.15	30.53
600	19.07	20.75	22.42	20.71	22.16	26.54	38.52	31.54
700	19.21	20.86	22.50	20.75	22.13	26.44	39.50	31.83
800	19.11	20.69	22.24	20.52	21.81	25.90	42.91	32.90
900	18.91	20.40	21.84	20.25	21.53	25.56	47.22	32.51
1000	18.65	20.07	21.41	19.98	21.28	25.36	44.98	31.53
1100	18.40	19.74	20.99	19.69	20.98	25.05	42.45	30.72
1200	18.21	19.45	20.59	19.42	20.68	24.63	38.94	29.65
1300	17.90	19.02	20.03	19.08	20.34	24.26	34.47	27.69
1400	17.95	19.01	19.94	19.16	20.50	24.66	32.17	26.18
1500	17.71	18.69	19.54	18.94	20.35	24.63	31.04	25.42
1600	17.31	18.19	18.94	18.55	19.98	24.17	29.13	24.24
1700	16.82	17.61	18.28	18.11	19.58	23.70	27.36	23.06
1800	16.33	17.05	17.64	17.69	19.23	23.23	25.46	21.75
1900	16.08	16.77	17.31	17.55	19.18	23.10	23.76	20.56
2000	16.13	16.81	17.32	17.68	19.37	23.13	22.52	19.69
2100	16.23	16.90	17.37	17.82	19.53	22.98	21.48	18.94
2200	16.48	17.16	17.60	18.15	19.91	23.00	20.63	18.35
2300	16.84	17.57	17.99	18.60	20.40	23.00	19.88	17.84
2400	17.36	18.12	18.49	19.18	20.90	22.55	18.93	17.16
2500	18.35	19.14	19.43	20.18	21.67	21.96	17.98	16.48
2600	19.85	20.80	20.95	21.79	22.94	21.59	17.27	16.01
2700	21.99	23.35	23.32	24.28	24.74	21.28	16.73	15.71
2800	24.39	27.12	27.01	28.22	26.97	20.96	16.31	15.54
2900	26.82	33.66	33.19	35.61	28.31	20.39	15.88	15.33
3000	26.78	35.73	40.37	46.78	28.58	20.07	15.69	15.34
3200	23.02	26.25	28.51	28.46	26.57	19.72	15.61	15.69
3400	21.46	23.85	25.67	25.65	25.57	19.96	15.93	16.32
3600	22.18	24.49	26.15	26.04	26.02	20.45	16.34	16.94
3800	23.83	26.47	28.17	27.70	27.58	21.28	16.88	17.66
4000	33.02	37.20	32.64	40.99	31.83	22.03	17.21	17.70
4200	31.61	27.92	25.49	29.02	27.40	21.59	17.20	17.09
4400	22.12	20.81	19.79	21.43	21.03	18.64	15.73	15.24
4600	18.52	17.66	16.95	18.09	17.76	16.23	14.16	13.48
4800	17.44	16.57	15.76	16.69	16.15	14.54	12.79	12.17
5000	16.78	15.78	15.06	15.64	14.72	12.97	11.44	11.01



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DAT-31R5A-PP+

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	18.65	19.43	19.78	25.66	31.47	44.42	37.54	29.00
0.3	18.85	19.64	20.00	25.89	31.83	45.30	38.09	29.00
0.5	18.93	19.71	20.06	26.02	32.06	47.05	38.91	28.99
1	19.02	19.80	20.14	26.15	32.22	47.07	38.70	28.93
5	19.06	19.85	20.18	26.24	32.23	46.66	38.27	28.96
10	19.06	19.84	20.17	26.20	32.18	45.98	37.99	29.05
50	18.97	19.72	20.04	25.84	31.35	41.70	36.01	29.90
100	18.83	19.54	19.83	25.33	30.17	38.05	33.72	31.44
200	18.71	19.42	19.71	25.02	29.49	36.44	33.52	30.94
300	18.56	19.30	19.64	24.97	29.67	37.49	35.16	29.72
400	18.86	19.62	19.95	25.57	30.52	38.99	36.79	28.91
500	19.36	20.12	20.44	26.44	31.84	43.40	38.35	28.81
600	19.28	19.99	20.25	25.89	30.60	39.34	34.82	30.32
700	19.10	19.73	19.97	25.18	29.05	35.52	33.07	30.68
800	19.14	19.70	19.90	24.82	28.06	33.45	31.78	30.58
900	18.95	19.47	19.63	24.11	26.77	31.38	30.86	29.44
1000	18.95	19.44	19.60	23.85	26.28	30.89	31.25	28.36
1100	18.79	19.26	19.42	23.50	25.88	30.67	31.33	28.15
1200	18.57	19.00	19.16	22.92	25.07	29.73	31.03	27.42
1300	18.25	18.67	18.87	22.32	24.40	29.15	31.36	26.67
1400	17.70	18.13	18.36	21.54	23.57	28.29	31.32	25.86
1500	17.34	17.76	18.00	20.97	22.89	27.48	31.26	24.95
1600	16.89	17.31	17.57	20.25	22.06	26.51	30.96	23.96
1700	16.39	16.80	17.09	19.49	21.17	25.35	30.24	22.74
1800	15.90	16.33	16.65	18.80	20.38	24.31	29.43	21.52
1900	15.63	16.08	16.44	18.42	19.91	23.61	28.52	20.49
2000	15.63	16.11	16.50	18.43	19.87	23.40	27.86	19.89
2100	15.62	16.14	16.55	18.48	19.85	23.15	26.86	19.35
2200	15.77	16.32	16.74	18.60	19.81	22.67	25.44	18.70
2300	16.19	16.76	17.21	18.99	19.96	22.22	23.97	18.09
2400	16.71	17.34	17.83	19.55	20.24	21.77	22.59	17.58
2500	17.42	18.15	18.70	20.52	20.85	21.53	21.50	17.24
2600	18.48	19.36	20.00	22.08	21.79	21.37	20.61	17.04
2700	19.50	20.63	21.40	24.09	22.84	21.18	19.85	16.88
2800	20.88	22.39	23.43	27.35	24.02	20.81	19.05	16.75
2900	21.49	23.42	24.81	32.93	25.45	20.64	18.49	16.87
3000	21.24	23.23	24.71	44.05	26.76	20.56	18.15	17.19
3200	19.73	21.32	22.41	30.45	27.55	20.66	17.97	17.97
3400	18.48	19.72	20.50	25.88	26.81	20.76	17.90	19.26
3600	17.95	19.01	19.61	24.95	27.75	21.84	18.58	21.24
3800	17.80	18.74	19.22	25.01	29.80	23.90	19.90	23.70
4000	18.51	19.31	19.64	26.34	32.89	29.07	22.47	24.59
4200	19.40	20.06	20.32	26.57	29.49	33.21	24.01	22.05
4400	20.61	21.10	21.28	24.98	24.75	26.48	22.38	18.76
4600	23.70	23.92	23.97	23.77	22.06	21.45	18.95	16.56
4800	27.75	27.09	26.78	21.93	19.81	18.12	16.07	14.92
5000	32.07	28.94	27.57	20.31	18.22	15.83	13.93	13.92



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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

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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	15.91	31.41
0.3	1.12	0.53	1.02	2.02	4.03	7.98	15.92	31.44
0.5	1.12	0.53	1.02	2.02	4.03	7.98	15.92	31.43
1	1.12	0.53	1.02	2.02	4.02	7.97	15.91	31.40
5	1.15	0.52	1.02	2.01	4.02	7.97	15.90	31.39
10	1.15	0.52	1.02	2.01	4.02	7.97	15.91	31.41
50	1.16	0.52	1.02	2.01	4.02	7.97	15.91	31.40
100	1.16	0.52	1.02	2.01	4.02	7.97	15.91	31.40
200	1.16	0.52	1.02	2.01	4.02	7.97	15.91	31.40
300	1.17	0.52	1.02	2.01	4.02	7.97	15.91	31.39
400	1.18	0.52	1.02	2.01	4.01	7.97	15.91	31.38
500	1.19	0.52	1.02	2.01	4.01	7.97	15.91	31.37
600	1.21	0.52	1.01	2.01	4.01	7.97	15.91	31.34
700	1.22	0.52	1.01	2.01	4.01	7.97	15.91	31.30
800	1.24	0.52	1.01	2.01	4.01	7.97	15.91	31.24
900	1.26	0.52	1.01	2.01	4.01	7.97	15.91	31.20
1000	1.29	0.52	1.01	2.00	4.01	7.97	15.91	31.18
1100	1.31	0.52	1.01	2.00	4.00	7.98	15.92	31.20
1200	1.34	0.52	1.01	2.00	4.00	7.98	15.93	31.25
1300	1.36	0.52	1.01	2.00	4.00	7.99	15.94	31.31
1400	1.38	0.52	1.01	2.00	4.00	7.99	15.96	31.34
1500	1.41	0.52	1.01	2.00	4.00	8.00	15.97	31.39
1600	1.43	0.52	1.02	2.01	4.00	8.01	15.99	31.44
1700	1.46	0.52	1.02	2.01	4.01	8.02	16.02	31.50
1800	1.48	0.53	1.02	2.02	4.01	8.04	16.05	31.55
1900	1.50	0.53	1.03	2.02	4.03	8.06	16.09	31.58
2000	1.51	0.53	1.03	2.03	4.04	8.09	16.14	31.59
2100	1.53	0.54	1.04	2.04	4.06	8.13	16.20	31.63
2200	1.55	0.54	1.05	2.06	4.08	8.18	16.27	31.69
2300	1.56	0.55	1.05	2.07	4.10	8.23	16.35	31.76
2400	1.57	0.55	1.06	2.09	4.12	8.28	16.43	31.77
2500	1.58	0.55	1.07	2.10	4.14	8.33	16.51	31.74
2600	1.60	0.56	1.07	2.11	4.16	8.38	16.58	31.74
2700	1.62	0.56	1.07	2.11	4.17	8.43	16.66	31.77
2800	1.64	0.56	1.07	2.11	4.17	8.45	16.71	31.69
2900	1.65	0.55	1.06	2.10	4.16	8.47	16.75	31.72
3000	1.66	0.55	1.06	2.09	4.15	8.49	16.79	31.77
3200	1.64	0.54	1.04	2.06	4.11	8.49	16.85	31.68
3400	1.68	0.53	1.02	2.03	4.07	8.47	16.84	31.45
3600	1.75	0.52	1.01	2.01	4.04	8.47	16.86	31.37
3800	1.83	0.52	1.00	2.01	4.04	8.49	16.89	31.34
4000	1.88	0.52	1.00	2.02	4.05	8.52	16.95	31.45
4200	1.91	0.52	1.01	2.03	4.06	8.58	17.08	31.87
4400	1.99	0.53	1.02	2.05	4.10	8.68	17.35	32.80
4600	2.03	0.54	1.04	2.09	4.15	8.83	17.71	33.46
4800	2.07	0.55	1.06	2.12	4.21	9.03	18.14	34.07
5000	2.13	0.56	1.05	2.17	4.30	9.28	18.64	33.44

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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

DAT-31R5A-PP+

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	18.07	19.30	20.46	18.57	19.08	21.02	29.10	34.94
0.3	18.23	19.44	20.61	18.72	19.23	21.16	29.18	34.97
0.5	18.23	19.45	20.61	18.73	19.24	21.20	29.26	34.96
1	18.32	19.53	20.71	18.78	19.28	21.18	29.26	35.06
5	18.28	19.51	20.69	18.75	19.24	21.15	29.23	35.08
10	18.26	19.50	20.67	18.74	19.23	21.15	29.20	35.04
50	18.22	19.44	20.60	18.70	19.19	21.08	28.98	34.60
100	18.31	19.53	20.67	18.76	19.23	21.11	28.92	34.43
200	18.25	19.47	20.60	18.73	19.19	21.05	28.62	33.93
300	18.29	19.50	20.62	18.72	19.15	20.94	28.14	33.20
400	18.42	19.61	20.70	18.76	19.13	20.84	27.71	32.52
500	18.45	19.61	20.70	18.73	19.07	20.73	27.28	31.89
600	18.48	19.62	20.68	18.68	18.98	20.54	26.66	30.99
700	18.41	19.50	20.50	18.51	18.75	20.21	25.87	29.75
800	18.34	19.38	20.32	18.34	18.52	19.89	25.22	28.60
900	18.25	19.24	20.13	18.20	18.36	19.71	24.91	27.87
1000	18.14	19.07	19.91	18.07	18.22	19.58	24.67	27.21
1100	17.87	18.72	19.50	17.82	18.00	19.38	24.37	26.44
1200	17.61	18.38	19.07	17.59	17.79	19.21	24.11	25.61
1300	17.19	17.88	18.50	17.28	17.58	19.12	24.03	24.91
1400	16.77	17.40	17.95	17.02	17.45	19.16	24.18	24.37
1500	16.27	16.85	17.36	16.71	17.28	19.21	24.32	23.83
1600	15.79	16.33	16.80	16.42	17.15	19.31	24.50	23.27
1700	15.37	15.89	16.32	16.18	17.06	19.49	24.69	22.70
1800	15.04	15.54	15.94	16.00	17.05	19.77	24.86	22.16
1900	14.80	15.29	15.67	15.91	17.09	20.11	24.91	21.63
2000	14.69	15.18	15.53	15.91	17.23	20.52	24.72	21.08
2100	14.80	15.29	15.62	16.14	17.59	21.15	24.31	20.50
2200	15.17	15.67	15.98	16.62	18.20	22.05	23.83	20.07
2300	15.76	16.29	16.58	17.33	19.05	23.14	23.29	19.75
2400	16.50	17.07	17.33	18.17	20.02	24.15	22.52	19.36
2500	17.64	18.27	18.48	19.43	21.41	25.09	21.58	18.92
2600	19.24	20.00	20.15	21.29	23.44	25.71	20.56	18.48
2700	21.48	22.60	22.73	24.13	26.70	25.97	19.79	18.26
2800	23.77	25.89	26.25	27.83	31.67	25.71	19.28	18.24
2900	25.67	29.79	31.32	32.34	39.65	24.96	18.88	18.25
3000	26.36	32.77	43.12	35.44	37.95	23.73	18.34	18.12
3200	23.13	26.13	29.03	26.60	26.83	21.47	17.47	18.11
3400	20.97	23.07	25.12	23.27	23.91	20.87	17.58	19.06
3600	21.06	23.11	25.14	22.86	23.39	21.01	17.95	20.15
3800	23.19	25.94	28.99	24.49	25.08	22.94	19.38	22.52
4000	27.72	31.14	32.48	28.48	31.00	28.58	21.79	24.46
4200	24.50	24.08	23.22	25.48	28.42	30.76	22.55	22.01
4400	19.24	18.71	18.15	19.99	21.09	21.67	19.20	17.70
4600	16.66	16.18	15.70	17.13	17.63	17.58	16.10	14.84
4800	16.02	15.39	14.79	15.98	15.91	15.04	13.69	12.86
5000	16.03	15.20	14.57	15.41	14.84	13.46	12.12	11.62



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Digital Step Attenuator

DAT-31R5A-PP+

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	17.79	18.18	18.23	22.11	24.27	25.94	23.68	37.34
0.3	17.94	18.33	18.38	22.25	24.40	26.01	23.80	37.38
0.5	18.01	18.39	18.44	22.33	24.48	26.11	23.89	37.31
1	18.10	18.47	18.51	22.41	24.53	26.11	23.83	37.43
5	18.14	18.53	18.55	22.47	24.58	26.12	23.83	37.44
10	18.15	18.53	18.56	22.47	24.56	26.09	23.80	37.32
50	18.09	18.49	18.51	22.40	24.46	26.00	23.75	36.80
100	18.04	18.42	18.45	22.27	24.29	25.79	23.61	36.02
200	18.08	18.45	18.48	22.25	24.23	25.67	23.51	35.44
300	18.17	18.53	18.54	22.29	24.19	25.53	23.37	34.66
400	18.34	18.67	18.67	22.38	24.16	25.36	23.19	33.78
500	18.36	18.67	18.65	22.30	23.95	25.05	22.91	32.63
600	18.49	18.77	18.71	22.30	23.78	24.73	22.61	31.40
700	18.62	18.84	18.75	22.24	23.52	24.31	22.25	29.99
800	18.70	18.86	18.74	22.08	23.16	23.85	21.85	28.61
900	18.51	18.65	18.51	21.64	22.59	23.27	21.44	27.30
1000	18.25	18.35	18.21	21.12	21.98	22.71	21.07	26.10
1100	17.95	18.03	17.90	20.59	21.40	22.25	20.80	25.08
1200	17.61	17.68	17.58	20.04	20.83	21.85	20.65	24.15
1300	17.12	17.21	17.15	19.39	20.23	21.50	20.62	23.32
1400	16.59	16.71	16.70	18.73	19.62	21.20	20.69	22.54
1500	16.05	16.20	16.24	18.09	19.05	20.91	20.87	21.82
1600	15.54	15.72	15.81	17.50	18.54	20.72	21.22	21.19
1700	15.09	15.31	15.45	17.02	18.12	20.61	21.71	20.64
1800	14.74	14.99	15.17	16.65	17.81	20.62	22.44	20.18
1900	14.51	14.79	15.01	16.39	17.59	20.70	23.34	19.74
2000	14.40	14.72	14.97	16.28	17.51	20.89	24.45	19.38
2100	14.44	14.79	15.07	16.34	17.59	21.21	25.78	19.08
2200	14.69	15.08	15.40	16.63	17.87	21.68	27.08	18.84
2300	15.21	15.63	15.98	17.20	18.39	22.31	28.02	18.67
2400	15.92	16.39	16.78	17.99	19.10	23.00	27.90	18.58
2500	16.87	17.40	17.84	19.12	20.12	23.78	26.82	18.59
2600	18.07	18.71	19.22	20.72	21.51	24.46	25.20	18.63
2700	19.48	20.29	20.92	23.03	23.44	25.01	23.68	18.81
2800	20.96	22.04	22.86	26.40	25.92	25.01	22.28	19.06
2900	21.77	23.10	24.08	31.40	29.02	24.68	21.17	19.46
3000	21.56	22.95	23.88	40.19	33.02	24.12	20.25	20.02
3200	19.37	20.43	20.97	28.86	32.60	23.13	19.20	21.82
3400	17.69	18.49	18.82	24.08	27.23	22.34	18.73	25.01
3600	17.02	17.67	17.87	22.48	25.20	22.60	19.19	31.52
3800	17.45	17.95	18.00	22.53	24.69	24.14	20.72	37.76
4000	18.23	18.53	18.47	22.43	23.78	27.27	24.11	26.48
4200	18.75	18.87	18.82	21.39	22.10	30.47	31.70	21.46
4400	19.35	19.37	19.40	20.34	20.63	27.36	29.27	18.44
4600	20.65	20.63	20.76	19.74	19.57	22.63	21.44	16.44
4800	23.29	23.07	23.15	19.79	19.03	19.38	17.40	15.22
5000	28.07	26.62	26.00	19.76	18.44	16.85	14.70	14.50



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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

DAT-31R5A-PP+

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	1.98	3.97	7.87	15.81	31.15
0.3	1.28	0.51	1.00	1.98	3.97	7.88	15.82	31.17
0.5	1.28	0.51	1.00	1.98	3.97	7.88	15.82	31.14
1	1.29	0.51	1.00	1.98	3.97	7.87	15.81	31.16
5	1.31	0.51	0.99	1.98	3.96	7.87	15.81	31.16
10	1.31	0.51	1.00	1.98	3.97	7.87	15.81	31.15
50	1.32	0.51	1.00	1.98	3.97	7.87	15.81	31.15
100	1.30	0.51	1.00	1.98	3.97	7.87	15.81	31.16
200	1.31	0.51	1.00	1.98	3.96	7.87	15.81	31.16
300	1.33	0.51	0.99	1.98	3.96	7.87	15.81	31.14
400	1.35	0.51	0.99	1.98	3.96	7.87	15.81	31.13
500	1.37	0.50	0.99	1.98	3.96	7.88	15.82	31.13
600	1.39	0.50	0.99	1.98	3.96	7.88	15.83	31.12
700	1.41	0.50	0.99	1.98	3.97	7.89	15.83	31.10
800	1.44	0.50	0.99	1.98	3.97	7.89	15.83	31.04
900	1.46	0.50	0.99	1.98	3.97	7.90	15.84	31.04
1000	1.49	0.50	0.99	1.98	3.97	7.90	15.84	31.04
1100	1.51	0.51	0.99	1.98	3.97	7.90	15.84	31.03
1200	1.54	0.51	0.99	1.98	3.96	7.90	15.85	31.13
1300	1.57	0.50	0.99	1.98	3.96	7.89	15.84	31.10
1400	1.59	0.50	0.99	1.97	3.95	7.89	15.86	31.19
1500	1.62	0.50	0.99	1.97	3.95	7.89	15.86	31.22
1600	1.65	0.51	0.99	1.97	3.95	7.89	15.88	31.32
1700	1.67	0.51	0.99	1.98	3.94	7.90	15.90	31.38
1800	1.70	0.51	0.99	1.98	3.95	7.91	15.92	31.43
1900	1.72	0.51	1.00	1.98	3.95	7.93	15.96	31.51
2000	1.73	0.51	1.00	1.99	3.96	7.94	15.99	31.47
2100	1.75	0.52	1.01	2.00	3.97	7.97	16.04	31.50
2200	1.77	0.52	1.01	2.01	3.98	8.01	16.10	31.59
2300	1.78	0.52	1.02	2.02	4.00	8.05	16.17	31.63
2400	1.79	0.53	1.02	2.03	4.02	8.10	16.26	31.73
2500	1.80	0.53	1.03	2.04	4.03	8.15	16.34	31.90
2600	1.82	0.53	1.03	2.04	4.05	8.20	16.42	31.74
2700	1.84	0.53	1.03	2.05	4.06	8.25	16.53	32.06
2800	1.86	0.53	1.03	2.05	4.06	8.28	16.58	31.95
2900	1.87	0.53	1.03	2.04	4.06	8.31	16.64	31.92
3000	1.87	0.53	1.02	2.04	4.05	8.33	16.70	32.10
3200	1.85	0.52	1.00	2.01	4.02	8.34	16.75	31.73
3400	1.90	0.51	0.99	1.99	3.99	8.34	16.76	31.52
3600	1.96	0.50	0.98	1.98	3.98	8.37	16.84	31.76
3800	2.04	0.50	0.97	1.98	3.98	8.38	16.85	31.53
4000	2.12	0.51	0.98	2.00	3.99	8.41	16.92	31.89
4200	2.18	0.51	0.98	2.01	3.99	8.45	17.03	32.39
4400	2.24	0.49	0.97	2.01	4.00	8.52	17.27	33.51
4600	2.28	0.50	0.99	2.04	4.04	8.66	17.67	34.56
4800	2.31	0.54	1.03	2.11	4.14	8.90	18.17	35.25
5000	2.39	0.55	1.03	2.16	4.22	9.17	18.72	33.76

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



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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

DAT-31R5A-PP+

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	16.83	17.58	18.25	16.27	16.05	16.66	20.02	21.78
0.3	16.97	17.70	18.36	16.37	16.14	16.73	20.04	21.79
0.5	16.97	17.70	18.36	16.37	16.14	16.73	20.04	21.76
1	17.03	17.77	18.43	16.41	16.17	16.74	20.05	21.77
5	17.02	17.77	18.42	16.41	16.17	16.75	20.07	21.80
10	17.03	17.78	18.43	16.42	16.17	16.75	20.06	21.80
50	17.11	17.86	18.53	16.52	16.28	16.88	20.23	22.00
100	17.40	18.20	18.90	16.84	16.62	17.27	20.80	22.70
200	17.20	17.99	18.69	16.72	16.54	17.20	20.62	22.50
300	16.82	17.53	18.15	16.27	16.01	16.53	19.48	21.12
400	16.95	17.60	18.17	16.21	15.84	16.21	18.91	20.45
500	17.10	17.71	18.25	16.21	15.77	16.05	18.59	20.08
600	17.10	17.68	18.18	16.11	15.62	15.84	18.22	19.66
700	17.05	17.59	18.05	15.97	15.43	15.59	17.84	19.19
800	17.09	17.58	17.98	15.88	15.29	15.39	17.52	18.77
900	16.95	17.40	17.75	15.72	15.12	15.21	17.26	18.40
1000	16.74	17.14	17.46	15.56	14.99	15.09	17.10	18.16
1100	16.51	16.89	17.18	15.47	14.95	15.12	17.14	18.11
1200	16.19	16.52	16.79	15.32	14.89	15.14	17.21	18.04
1300	15.61	15.92	16.18	15.00	14.72	15.10	17.22	17.89
1400	15.12	15.44	15.69	14.77	14.63	15.16	17.36	17.88
1500	14.73	15.05	15.30	14.63	14.64	15.36	17.71	18.06
1600	14.40	14.72	14.98	14.52	14.70	15.62	18.13	18.28
1700	14.09	14.41	14.67	14.42	14.76	15.91	18.62	18.49
1800	13.86	14.19	14.44	14.38	14.87	16.27	19.20	18.75
1900	13.73	14.06	14.31	14.41	15.05	16.73	19.93	19.09
2000	13.76	14.09	14.33	14.59	15.38	17.38	20.90	19.49
2100	13.82	14.16	14.39	14.79	15.73	18.07	21.90	19.80
2200	14.14	14.49	14.69	15.23	16.30	19.03	23.18	20.20
2300	14.69	15.05	15.23	15.88	17.10	20.31	24.82	20.74
2400	15.42	15.79	15.94	16.72	18.11	21.93	26.51	21.22
2500	16.39	16.77	16.87	17.80	19.35	23.94	27.50	21.49
2600	17.78	18.22	18.27	19.35	21.18	27.17	27.81	21.93
2700	19.81	20.36	20.33	21.61	23.92	32.80	26.68	22.29
2800	22.35	23.30	23.23	24.66	27.99	39.80	24.70	22.37
2900	25.24	27.25	27.31	28.43	33.88	31.99	22.86	22.16
3000	26.61	30.87	33.52	30.08	33.76	27.40	21.54	22.15
3200	23.25	26.08	29.72	24.60	24.86	22.25	19.39	21.77
3400	20.56	22.44	24.55	21.26	21.36	20.12	18.48	22.15
3600	19.74	21.38	23.08	19.88	19.82	19.23	18.28	23.02
3800	20.93	22.56	24.01	20.38	20.17	20.06	19.47	25.80
4000	22.66	23.52	23.75	21.91	22.08	23.60	23.49	35.72
4200	20.37	20.15	19.75	21.04	22.50	29.28	36.09	28.04
4400	16.70	16.46	16.10	17.92	19.41	23.30	24.85	19.87
4600	14.82	14.68	14.30	15.98	16.99	18.50	18.31	16.01
4800	14.46	14.06	13.59	15.05	15.49	15.61	14.85	13.63
5000	14.98	14.32	13.75	14.88	14.73	13.90	12.82	12.21



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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	16.62	16.69	16.46	18.93	19.46	19.36	17.65	22.37
0.3	16.74	16.80	16.57	19.02	19.52	19.40	17.70	22.39
0.5	16.78	16.83	16.61	19.06	19.55	19.41	17.70	22.37
1	16.84	16.88	16.64	19.10	19.57	19.42	17.70	22.38
5	16.92	16.96	16.72	19.19	19.62	19.45	17.72	22.38
10	16.93	16.97	16.73	19.20	19.63	19.46	17.72	22.39
50	16.95	17.01	16.78	19.25	19.72	19.58	17.85	22.56
100	16.98	17.06	16.85	19.39	19.93	19.88	18.13	23.04
200	17.15	17.23	17.03	19.59	20.13	20.05	18.26	23.27
300	17.10	17.14	16.90	19.27	19.63	19.35	17.63	22.17
400	17.00	16.99	16.70	18.89	19.08	18.64	16.97	21.09
500	16.91	16.86	16.55	18.64	18.71	18.20	16.58	20.41
600	17.13	17.03	16.67	18.70	18.64	18.04	16.41	20.06
700	17.20	17.05	16.66	18.59	18.41	17.72	16.11	19.54
800	17.11	16.90	16.48	18.26	17.98	17.28	15.74	18.84
900	16.93	16.70	16.27	17.92	17.60	16.94	15.48	18.29
1000	16.66	16.42	16.02	17.54	17.23	16.68	15.32	17.84
1100	16.26	16.05	15.69	17.10	16.87	16.48	15.25	17.51
1200	15.77	15.60	15.31	16.61	16.51	16.33	15.26	17.23
1300	15.33	15.20	14.99	16.19	16.21	16.26	15.35	17.01
1400	14.89	14.82	14.68	15.79	15.94	16.24	15.54	16.85
1500	14.46	14.44	14.36	15.41	15.69	16.27	15.82	16.75
1600	14.12	14.16	14.14	15.13	15.54	16.42	16.23	16.74
1700	13.83	13.90	13.94	14.89	15.42	16.60	16.73	16.77
1800	13.64	13.75	13.84	14.74	15.38	16.89	17.38	16.84
1900	13.57	13.72	13.85	14.70	15.42	17.27	18.19	16.94
2000	13.55	13.72	13.90	14.71	15.51	17.73	19.18	17.10
2100	13.69	13.90	14.10	14.88	15.76	18.38	20.50	17.35
2200	13.99	14.22	14.46	15.20	16.12	19.19	22.18	17.63
2300	14.53	14.79	15.05	15.76	16.74	20.34	24.58	18.05
2400	15.26	15.56	15.84	16.54	17.55	21.83	28.10	18.59
2500	16.20	16.54	16.84	17.60	18.68	23.89	34.49	19.31
2600	17.42	17.79	18.13	19.02	20.16	26.75	53.77	20.17
2700	18.66	19.11	19.46	20.67	21.88	30.67	33.50	21.02
2800	19.91	20.46	20.82	22.98	24.41	38.46	27.93	22.15
2900	20.48	21.14	21.50	25.37	27.46	39.86	24.79	23.54
3000	20.51	21.21	21.53	27.62	31.29	31.67	22.61	25.36
3200	18.97	19.55	19.74	25.99	29.27	25.16	20.03	30.93
3400	17.22	17.66	17.76	22.31	23.94	21.89	18.51	51.21
3600	16.74	17.03	17.00	20.75	21.58	20.67	18.21	29.50
3800	17.09	17.21	17.06	20.14	20.37	20.60	19.01	23.88
4000	17.56	17.49	17.28	19.31	19.28	21.16	21.03	20.56
4200	17.54	17.41	17.29	18.19	18.27	22.07	25.37	18.44
4400	17.57	17.42	17.46	17.33	17.57	22.89	37.52	16.94
4600	18.16	18.10	18.30	17.08	17.34	22.60	26.44	15.90
4800	20.02	20.12	20.37	17.69	17.75	21.05	19.92	15.34
5000	24.06	23.87	23.95	18.74	18.36	18.67	16.18	15.16



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