

## Typical Performance Data

Frequency (MHz)	Attenuation relative to control voltage @ Temperature = -40°C					
	(dB)					
	VCTRL1 = -4 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -4 V	VCTRL1 = 0 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = 0 V
2000	14.74	22.55	34.70	26.90	36.43	41.95
2500	13.00	20.51	32.59	24.85	34.49	40.57
3000	11.61	18.74	30.70	23.06	32.81	39.49
3500	10.45	17.11	28.93	21.40	31.27	38.55
4000	9.43	15.55	27.18	19.82	29.80	37.66
4500	8.53	14.11	25.55	18.33	28.46	36.82
5000	7.71	12.89	24.23	17.07	27.37	36.11
5500	6.95	11.98	23.42	16.15	26.70	35.73
6000	6.26	11.39	23.12	15.64	26.51	35.82
6500	5.66	11.00	23.11	15.38	26.63	36.22
7000	5.14	10.65	23.14	15.20	26.82	36.79
7500	4.66	10.25	23.04	14.98	26.95	37.34
8000	4.21	9.75	22.76	14.65	26.93	37.67
8500	3.85	9.25	22.42	14.25	26.80	37.85
9000	3.61	8.84	22.15	13.88	26.67	37.91
9500	3.46	8.63	22.12	13.66	26.66	37.99
10000	3.31	8.62	22.39	13.65	26.91	38.30
11000	2.88	8.85	23.47	14.06	28.00	39.74
12000	2.52	8.89	24.27	14.40	29.07	41.44
13000	2.10	8.61	24.60	14.47	29.76	42.64
14000	1.84	8.36	24.80	14.41	30.21	43.36
15000	1.62	8.26	25.14	14.46	30.71	44.19
16000	1.55	8.40	25.80	14.80	31.53	45.22
17000	1.59	8.54	26.40	15.23	32.43	46.42
18000	1.74	8.58	26.74	15.53	33.11	47.39
19000	1.94	8.65	27.00	15.80	33.77	48.08
20000	1.84	8.66	27.29	16.03	34.45	49.56
21000	1.75	8.65	27.58	16.20	35.03	50.70
22000	1.83	8.84	27.99	16.59	35.77	51.75
23000	1.89	9.10	28.50	17.06	36.67	53.45
24000	1.87	9.27	28.92	17.40	37.36	54.76
25000	1.89	9.50	29.35	17.79	37.99	55.82
26000	2.05	9.85	29.88	18.29	38.79	57.32
27000	2.46	10.16	30.26	18.65	39.33	58.62
28000	2.79	10.39	30.51	18.94	39.69	59.99
29000	2.56	10.41	30.57	19.03	39.86	58.08
30000	2.42	10.40	30.52	19.06	39.57	55.80
31000	2.81	10.96	31.18	19.70	39.98	54.66
32000	3.00	11.57	31.95	20.34	40.60	54.01
33000	2.50	11.70	32.25	20.42	40.38	52.89
34000	2.39	11.71	32.47	20.43	40.32	51.71
35000	2.64	11.86	32.84	20.60	40.36	50.11
36000	2.87	12.22	33.49	21.09	40.43	46.60
37000	3.17	12.57	33.43	21.52	39.79	44.52
38000	3.65	12.94	33.12	21.99	39.27	42.94
39000	3.80	13.21	33.19	22.43	39.46	41.74
40000	3.53	13.35	33.10	22.87	39.29	40.14
41000	3.55	13.72	33.19	23.60	38.62	38.50
42000	3.83	14.22	33.22	24.39	37.71	37.13
43000	4.23	14.80	34.33	24.99	38.41	37.11
44000	4.30	14.40	34.48	23.20	38.27	36.40
45000	4.62	14.87	35.01	23.64	38.49	36.46
46000	4.68	15.31	35.37	24.05	38.45	36.40
47000	4.72	15.78	36.12	24.33	38.33	36.10
48000	4.71	16.33	35.60	24.72	36.82	34.87
49000	4.91	16.91	35.51	25.08	36.22	34.49
50000	5.32	17.13	36.03	24.72	35.76	33.81

## Typical Performance Data

Frequency (MHz)	Attenuation relative to control voltage @ Temperature = 25°C					
	(dB)					
	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
2000	14.77	23.38	33.80	27.79	35.89	40.82
2500	13.02	21.33	31.71	25.77	33.96	39.31
3000	11.62	19.51	29.79	23.96	32.26	38.11
3500	10.45	17.82	27.96	22.28	30.71	37.02
4000	9.43	16.23	26.19	20.69	29.22	36.04
4500	8.52	14.77	24.57	19.23	27.89	35.12
5000	7.68	13.55	23.27	18.00	26.83	34.36
5500	6.91	12.66	22.45	17.13	26.17	33.93
6000	6.22	12.08	22.12	16.63	25.96	33.96
6500	5.62	11.71	22.07	16.41	26.05	34.29
7000	5.09	11.40	22.08	16.29	26.26	34.82
7500	4.61	11.00	21.93	16.09	26.37	35.29
8000	4.16	10.50	21.62	15.78	26.32	35.54
8500	3.78	9.99	21.24	15.39	26.17	35.60
9000	3.52	9.60	20.97	15.05	26.02	35.64
9500	3.38	9.43	20.96	14.87	26.02	35.69
10000	3.24	9.45	21.25	14.91	26.29	36.04
11000	2.82	9.71	22.21	15.36	27.30	37.36
12000	2.44	9.77	22.92	15.76	28.33	38.94
13000	2.02	9.54	23.19	15.88	29.00	40.07
14000	1.75	9.30	23.33	15.87	29.42	40.79
15000	1.53	9.22	23.63	15.96	29.90	41.51
16000	1.45	9.38	24.22	16.35	30.69	42.62
17000	1.46	9.55	24.79	16.84	31.58	43.72
18000	1.56	9.62	25.11	17.21	32.29	44.65
19000	1.79	9.67	25.32	17.48	32.89	45.47
20000	1.73	9.70	25.59	17.74	33.54	46.65
21000	1.55	9.75	25.89	18.01	34.20	47.75
22000	1.71	9.95	26.28	18.41	34.92	48.86
23000	1.79	10.21	26.76	18.89	35.74	50.22
24000	1.72	10.45	27.23	19.32	36.51	51.50
25000	1.74	10.71	27.65	19.74	37.16	52.47
26000	1.88	11.07	28.16	20.24	37.88	53.62
27000	2.22	11.44	28.64	20.70	38.45	55.00
28000	2.58	11.63	28.82	20.93	38.89	55.05
29000	2.50	11.61	28.84	20.97	38.87	55.06
30000	2.19	11.76	29.00	21.17	38.81	53.90
31000	2.64	12.32	29.66	21.77	39.29	52.54
32000	2.96	12.89	30.39	22.36	39.68	52.03
33000	2.35	13.11	30.80	22.54	39.69	51.53
34000	2.13	13.14	31.01	22.55	39.67	50.79
35000	2.38	13.27	31.33	22.73	39.82	49.41
36000	2.62	13.72	32.01	23.34	39.99	46.12
37000	2.81	14.13	32.10	23.86	39.65	44.42
38000	3.28	14.50	32.00	24.41	39.30	42.60
39000	3.57	14.77	32.17	24.97	39.92	41.80
40000	3.26	15.01	32.48	25.61	39.97	40.31
41000	3.18	15.47	32.87	26.50	39.34	38.67
42000	3.43	16.02	33.05	27.54	38.35	37.27
43000	3.78	16.69	34.39	28.24	39.17	37.22
44000	4.52	16.96	34.93	28.70	39.17	36.93
45000	4.73	17.48	35.49	29.17	39.13	36.77
46000	4.85	18.03	36.19	29.38	38.84	36.48
47000	4.93	18.62	37.12	29.50	38.51	36.10
48000	5.04	19.21	37.53	29.47	37.44	35.32
49000	5.43	19.78	37.27	29.31	36.11	34.23
50000	5.97	20.23	37.25	28.88	35.16	33.49

## Typical Performance Data

Frequency (MHz)	Attenuation relative to control voltage @ Temperature = 85°C					
	(dB)					
	VCTRL1 = -4 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -4 V	VCTRL1 = 0 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = 0 V
2000	14.74	23.85	32.88	28.34	35.25	39.63
2500	13.02	21.79	30.77	26.31	33.35	38.07
3000	11.65	19.97	28.83	24.52	31.64	36.77
3500	10.49	18.25	26.97	22.83	30.05	35.57
4000	9.48	16.64	25.20	21.24	28.57	34.47
4500	8.59	15.18	23.60	19.81	27.25	33.49
5000	7.77	13.98	22.33	18.62	26.22	32.72
5500	7.01	13.10	21.51	17.78	25.57	32.27
6000	6.33	12.54	21.15	17.30	25.32	32.23
6500	5.74	12.18	21.06	17.10	25.38	32.49
7000	5.22	11.86	21.00	16.98	25.54	32.93
7500	4.75	11.46	20.81	16.81	25.63	33.30
8000	4.31	10.97	20.47	16.51	25.56	33.47
8500	3.96	10.47	20.08	16.14	25.38	33.51
9000	3.73	10.11	19.82	15.83	25.24	33.49
9500	3.57	9.97	19.83	15.69	25.26	33.56
10000	3.41	10.02	20.11	15.75	25.52	33.89
11000	2.99	10.31	21.00	16.25	26.50	35.17
12000	2.64	10.37	21.61	16.68	27.47	36.59
13000	2.24	10.14	21.81	16.83	28.09	37.62
14000	2.00	9.93	21.93	16.85	28.49	38.23
15000	1.81	9.91	22.25	17.03	29.01	39.00
16000	1.77	10.10	22.81	17.47	29.81	40.06
17000	1.81	10.26	23.29	17.96	30.64	41.20
18000	1.96	10.31	23.55	18.32	31.31	42.06
19000	2.12	10.38	23.78	18.63	31.92	42.86
20000	2.03	10.44	24.07	18.92	32.56	43.91
21000	2.01	10.56	24.38	19.27	33.25	44.94
22000	2.09	10.79	24.79	19.72	33.96	45.98
23000	2.10	11.06	25.29	20.20	34.78	47.36
24000	2.08	11.30	25.72	20.63	35.50	48.54
25000	2.12	11.57	26.15	21.07	36.15	49.34
26000	2.32	11.96	26.69	21.61	36.89	50.47
27000	2.76	12.35	27.16	22.09	37.56	51.26
28000	3.04	12.52	27.37	22.27	37.86	52.11
29000	2.76	12.52	27.45	22.35	37.92	52.19
30000	2.69	12.75	27.73	22.62	38.02	51.48
31000	3.09	13.34	28.44	23.23	38.50	50.72
32000	3.18	13.88	29.16	23.76	38.95	50.32
33000	2.73	14.07	29.53	23.92	38.96	50.37
34000	2.75	14.10	29.76	23.96	38.95	49.56
35000	3.00	14.30	30.10	24.21	39.25	48.68
36000	3.32	14.88	30.90	24.96	39.58	45.88
37000	3.67	15.27	31.09	25.53	39.62	44.57
38000	4.10	15.65	31.17	26.15	39.46	42.63
39000	4.20	15.97	31.55	26.83	40.31	42.08
40000	3.97	16.29	32.18	27.69	40.73	40.62
41000	4.05	16.78	32.75	28.68	40.41	39.09
42000	4.35	17.38	33.28	29.86	39.15	37.35
43000	4.79	18.11	34.60	30.76	39.93	37.44
44000	5.21	17.74	35.60	29.46	39.92	36.90
45000	5.36	18.23	36.35	29.83	39.99	36.81
46000	5.34	18.68	36.98	30.27	39.83	36.67
47000	5.42	19.21	38.21	30.34	39.29	36.24
48000	5.64	19.96	38.76	30.69	37.46	34.97
49000	6.07	20.55	38.83	30.57	36.51	34.34
50000	6.68	20.87	40.63	29.88	35.85	33.77

## Typical Performance Data

Frequency (MHz)	Input Return Loss Relative To Control Voltage @ Temperature = -40°C					
	(dB)					
	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
2000	19.51	5.66	1.93	3.82	1.82	1.69
2500	17.03	5.67	2.01	3.97	1.92	1.85
3000	15.72	5.92	2.24	4.36	2.17	2.15
3500	15.16	6.45	2.60	5.00	2.56	2.59
4000	15.05	7.35	3.13	5.99	3.11	3.19
4500	15.27	8.67	3.82	7.29	3.82	3.93
5000	15.42	10.31	4.61	8.80	4.64	4.77
5500	16.02	11.85	5.35	10.03	5.39	5.53
6000	17.68	12.42	5.79	10.38	5.83	5.96
6500	20.90	11.95	5.91	10.13	5.95	6.06
7000	25.86	11.21	5.88	9.84	5.92	6.02
7500	31.38	10.80	5.91	9.87	5.94	6.03
8000	31.49	11.07	6.18	10.50	6.22	6.29
8500	22.17	12.10	6.81	11.86	6.85	6.93
9000	16.97	14.16	8.02	14.38	8.07	8.15
9500	14.76	17.70	9.94	18.66	10.01	10.11
10000	14.80	23.53	12.24	22.32	12.36	12.47
11000	18.65	16.10	11.86	14.38	11.92	11.99
12000	15.07	11.75	9.39	11.67	9.39	9.43
13000	18.78	12.28	9.52	12.53	9.52	9.54
14000	28.24	15.51	12.13	16.11	12.14	12.16
15000	31.50	21.03	16.76	22.36	16.83	16.87
16000	23.05	17.82	15.74	18.24	15.70	15.75
17000	21.07	15.71	14.21	15.73	14.20	14.21
18000	15.56	14.96	14.47	14.99	14.52	14.51
19000	12.17	13.94	15.03	14.44	14.93	14.95
20000	13.59	15.27	16.30	15.70	16.03	16.08
21000	16.00	19.96	19.65	20.67	19.72	19.69
22000	15.37	16.98	17.18	17.33	17.28	17.26
23000	15.60	14.45	13.33	14.03	13.15	13.21
24000	18.62	15.43	13.09	14.96	13.12	13.14
25000	22.21	14.47	12.11	13.92	12.15	12.16
26000	17.99	12.08	10.11	11.55	9.98	10.01
27000	11.58	11.04	9.37	11.11	9.38	9.38
28000	9.45	10.67	9.27	11.05	9.28	9.28
29000	11.33	12.55	10.88	12.78	10.77	10.80
30000	13.32	16.75	13.50	17.43	13.67	13.66
31000	10.04	11.60	9.78	11.77	9.70	9.74
32000	8.63	9.31	7.98	9.21	7.85	7.89
33000	12.46	10.56	9.18	10.20	9.20	9.20
34000	18.57	14.21	13.37	13.88	13.53	13.48
35000	21.31	20.88	20.08	19.83	19.53	19.68
36000	32.10	22.79	16.61	21.87	16.89	16.86
37000	16.29	15.46	13.66	15.06	13.62	13.65
38000	11.36	13.32	14.80	13.34	14.69	14.73
39000	10.79	13.60	18.11	14.03	18.16	18.15
40000	13.80	14.39	17.12	14.48	17.17	17.18
41000	18.80	15.12	14.15	14.64	13.94	14.01
42000	21.35	17.29	14.23	16.82	13.99	14.06
43000	22.86	22.96	17.75	23.54	17.99	17.92
44000	22.34	23.51	19.14	22.97	18.79	18.70
45000	17.74	19.94	17.63	20.08	17.47	17.44
46000	12.48	13.61	12.16	13.55	12.14	12.13
47000	11.62	11.37	10.19	11.15	10.12	10.10
48000	14.75	12.36	11.21	12.24	11.37	11.38
49000	14.38	11.72	11.50	11.01	10.85	10.73
50000	12.32	12.84	13.60	12.61	13.26	13.21

## Typical Performance Data

Frequency (MHz)	Input Return Loss Relative To Control Voltage @ Temperature = 25°C					
	(dB)					
	VCTRL1 = -4 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -4 V	VCTRL1 = 0 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = 0 V
2000	19.21	5.25	2.13	3.65	1.98	1.83
2500	16.90	5.29	2.22	3.82	2.11	2.02
3000	15.62	5.59	2.47	4.23	2.38	2.35
3500	14.94	6.16	2.87	4.91	2.81	2.82
4000	14.81	7.02	3.40	5.85	3.37	3.43
4500	15.12	8.19	4.08	7.04	4.07	4.15
5000	15.38	9.62	4.86	8.41	4.87	4.98
5500	16.11	10.97	5.61	9.59	5.64	5.76
6000	18.03	11.60	6.11	10.09	6.15	6.27
6500	21.56	11.33	6.27	9.97	6.32	6.43
7000	26.61	10.71	6.24	9.71	6.30	6.40
7500	31.62	10.42	6.29	9.79	6.36	6.44
8000	36.62	10.77	6.61	10.45	6.68	6.76
8500	23.95	11.92	7.36	11.89	7.44	7.52
9000	17.45	14.04	8.68	14.37	8.77	8.86
9500	14.53	17.38	10.62	18.06	10.72	10.83
10000	14.12	21.32	12.67	20.33	12.80	12.91
11000	18.06	15.34	11.94	14.28	12.02	12.08
12000	14.53	11.74	9.74	11.83	9.78	9.81
13000	18.26	12.28	9.97	12.58	9.99	10.02
14000	26.52	15.43	12.59	15.96	12.61	12.64
15000	29.09	19.64	16.52	20.64	16.56	16.58
16000	22.79	17.58	15.86	18.10	15.88	15.90
17000	21.43	15.31	14.14	15.34	14.13	14.14
18000	16.99	14.37	14.13	14.41	14.12	14.13
19000	11.94	14.56	15.46	15.10	15.47	15.47
20000	12.40	16.74	17.58	17.35	17.59	17.59
21000	17.26	18.82	19.09	19.26	19.10	19.10
22000	14.93	16.93	16.77	17.12	16.78	16.78
23000	14.79	14.90	13.93	14.77	13.93	13.93
24000	20.00	14.32	12.68	13.98	12.67	12.68
25000	21.24	14.20	12.23	13.81	12.23	12.23
26000	17.35	12.68	10.91	12.42	10.91	10.91
27000	11.95	10.92	9.55	10.98	9.55	9.55
28000	9.39	11.00	9.76	11.29	9.76	9.76
29000	10.19	13.80	12.05	14.13	12.04	12.05
30000	14.21	15.48	13.07	15.84	13.08	13.08
31000	9.94	11.80	10.18	12.03	10.19	10.19
32000	7.62	10.03	8.76	10.04	8.76	8.76
33000	11.30	10.97	9.86	10.65	9.85	9.85
34000	19.66	14.61	14.37	14.19	14.35	14.35
35000	20.98	24.55	22.56	23.92	22.56	22.55
36000	30.97	20.37	16.20	19.67	16.20	16.21
37000	18.10	15.11	14.16	14.87	14.15	14.15
38000	11.75	13.66	15.45	13.78	15.44	15.43
39000	10.32	14.05	17.73	14.33	17.72	17.72
40000	12.05	15.27	16.69	15.31	16.71	16.72
41000	16.57	16.44	15.11	16.29	15.11	15.12
42000	20.05	18.36	15.54	18.21	15.53	15.54
43000	23.99	22.42	18.41	22.37	18.39	18.41
44000	20.99	22.26	18.88	22.38	20.56	18.89
45000	16.84	18.45	16.52	18.53	19.12	16.54
46000	13.94	14.47	13.11	14.43	17.36	13.11
47000	13.77	12.51	11.51	12.38	14.89	11.50
48000	15.59	12.55	11.94	12.39	13.81	11.92
49000	15.61	14.05	13.93	13.94	14.54	13.90
50000	14.75	15.36	15.69	15.35	15.66	15.65

## Typical Performance Data

Frequency (MHz)	Input Return Loss Relative To Control Voltage @ Temperature = 85°C					
	(dB)					
	VCTRL1 = -4 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -4 V	VCTRL1 = 0 V VCTRL2 = -4 V	VCTRL1 = -2 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = -2 V	VCTRL1 = 0 V VCTRL2 = 0 V
2000	19.39	5.06	2.34	3.58	2.15	1.98
2500	16.87	5.12	2.44	3.76	2.28	2.17
3000	15.51	5.44	2.71	4.20	2.58	2.53
3500	14.94	6.06	3.16	4.91	3.06	3.06
4000	14.82	6.98	3.77	5.90	3.70	3.75
4500	15.07	8.19	4.52	7.12	4.48	4.56
5000	15.28	9.60	5.35	8.48	5.33	5.44
5500	15.93	10.89	6.13	9.62	6.13	6.25
6000	17.63	11.44	6.60	10.10	6.62	6.74
6500	20.85	11.14	6.71	9.96	6.76	6.86
7000	25.91	10.53	6.62	9.70	6.69	6.79
7500	32.15	10.27	6.65	9.79	6.73	6.82
8000	29.65	10.70	7.04	10.51	7.11	7.20
8500	21.10	11.97	7.91	12.05	7.99	8.09
9000	16.52	14.26	9.43	14.66	9.51	9.62
9500	14.74	17.77	11.56	18.31	11.64	11.78
10000	15.12	21.05	13.54	19.91	13.62	13.77
11000	18.68	14.94	12.18	14.18	12.30	12.36
12000	15.17	11.69	9.97	11.84	10.07	10.10
13000	19.11	12.25	10.29	12.56	10.31	10.34
14000	27.21	15.56	13.13	16.15	13.15	13.17
15000	34.85	19.75	17.12	20.53	17.07	17.12
16000	22.78	17.33	15.82	17.82	15.97	15.98
17000	20.65	15.16	14.17	15.24	14.22	14.21
18000	15.05	14.32	14.25	14.39	14.13	14.12
19000	12.40	14.75	15.42	15.30	15.52	15.50
20000	14.22	17.08	17.35	17.88	17.95	17.89
21000	16.02	18.91	19.30	19.22	19.10	19.10
22000	15.50	16.87	16.88	16.86	16.58	16.60
23000	16.45	14.97	13.86	14.91	14.17	14.17
24000	19.32	14.36	12.98	14.06	12.94	12.95
25000	21.92	14.26	12.69	13.98	12.59	12.59
26000	17.59	12.60	10.98	12.55	11.23	11.21
27000	11.15	10.80	9.70	10.87	9.67	9.67
28000	9.39	11.15	10.16	11.36	10.07	10.08
29000	12.20	14.71	12.94	15.06	13.13	13.13
30000	13.77	15.80	13.86	15.97	13.58	13.60
31000	10.11	11.67	10.26	11.92	10.37	10.36
32000	9.09	10.04	8.83	10.12	9.06	9.05
33000	13.35	11.08	10.27	10.78	10.20	10.20
34000	17.09	15.23	15.87	14.75	15.31	15.31
35000	21.89	29.56	23.98	29.89	25.30	25.32
36000	28.41	19.20	16.39	18.39	15.83	15.88
37000	15.15	14.94	14.49	14.68	14.38	14.38
38000	11.49	14.10	15.82	14.27	16.00	15.98
39000	11.52	14.57	17.53	14.79	17.52	17.50
40000	14.92	15.55	16.44	15.62	16.30	16.29
41000	19.39	16.63	15.08	16.87	15.44	15.39
42000	21.42	18.67	15.83	18.97	16.43	16.38
43000	22.23	22.29	19.44	21.87	18.80	18.84
44000	21.67	23.32	20.09	23.49	20.28	20.26
45000	16.77	18.24	16.54	18.53	16.86	16.90
46000	14.30	14.23	13.12	14.26	13.16	13.19
47000	13.66	12.43	11.60	12.36	11.63	11.64
48000	14.55	12.20	11.80	12.01	11.64	11.64
49000	14.83	13.51	13.15	13.58	13.57	13.58
50000	14.09	14.78	14.93	14.96	15.24	15.23

## Typical Performance Data

Frequency (MHz)	Output Return Loss Relative To Control Voltage @ Temperature = -40°C					
	(dB)					
	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
2000	20.14	5.89	2.04	3.83	2.10	1.74
2500	17.57	6.04	2.18	3.95	2.34	1.93
3000	16.07	6.49	2.50	4.27	2.77	2.21
3500	15.34	7.37	3.04	4.85	3.44	2.63
4000	15.06	8.79	3.81	5.75	4.38	3.21
4500	15.16	10.71	4.72	6.97	5.59	3.93
5000	15.26	12.83	5.67	8.56	7.05	4.82
5500	15.93	13.32	6.17	10.09	8.29	5.78
6000	17.62	11.91	6.08	10.59	8.68	6.38
6500	20.82	10.53	5.81	10.08	8.45	6.44
7000	25.26	9.95	5.82	9.51	8.27	6.23
7500	30.28	10.23	6.24	9.40	8.50	6.11
8000	37.69	11.58	7.25	9.95	9.35	6.27
8500	22.92	14.35	8.97	11.44	11.14	6.93
9000	17.08	18.11	11.13	14.20	14.26	8.23
9500	14.59	17.64	12.13	19.34	19.35	10.44
10000	14.39	14.12	10.87	24.84	20.33	13.51
11000	17.12	10.17	8.23	14.03	12.76	12.95
12000	14.43	9.88	8.32	11.47	11.15	9.67
13000	18.66	13.52	11.13	13.22	13.28	10.13
14000	36.98	20.07	15.42	18.28	18.87	13.43
15000	31.95	19.12	15.78	23.88	24.21	17.87
16000	22.73	16.40	13.86	19.96	19.83	17.35
17000	24.99	17.14	13.44	17.16	17.22	15.39
18000	17.57	18.95	14.62	15.65	15.97	14.86
19000	12.37	18.06	18.27	15.11	15.51	15.40
20000	12.98	18.85	27.11	16.35	16.52	16.92
21000	15.70	22.30	30.27	19.35	19.33	19.24
22000	16.43	22.37	29.36	19.47	19.53	19.16
23000	16.90	20.66	22.76	17.59	17.62	16.74
24000	20.59	20.48	19.92	17.07	17.18	15.67
25000	27.55	17.81	16.73	15.13	15.30	13.81
26000	19.42	14.12	13.11	12.36	12.60	11.08
27000	11.87	12.13	11.81	11.14	11.41	9.69
28000	9.56	11.83	12.51	11.38	11.59	9.66
29000	11.67	14.24	16.14	13.84	13.89	11.47
30000	14.50	21.01	27.60	18.93	19.07	14.72
31000	10.45	14.13	17.45	12.72	12.92	10.63
32000	8.84	10.52	11.85	9.74	9.68	8.12
33000	12.98	10.55	9.86	10.19	9.91	8.65
34000	17.78	12.71	10.54	13.46	13.02	11.98
35000	17.81	16.65	13.24	19.08	18.59	17.38
36000	29.23	23.91	17.33	26.72	25.06	18.92
37000	22.76	18.70	14.48	18.70	17.91	14.53
38000	13.39	13.90	11.24	14.79	14.52	12.96
39000	11.54	13.05	11.43	14.62	14.74	15.08
40000	15.10	15.84	15.61	17.38	17.87	22.70
41000	24.51	21.08	25.81	21.39	22.07	29.65
42000	28.28	24.69	34.68	23.30	23.77	23.98
43000	24.59	27.14	23.47	25.40	24.87	21.13
44000	19.94	22.48	21.03	21.99	21.78	20.19
45000	15.30	18.83	17.16	18.39	18.16	16.57
46000	15.55	18.89	16.12	18.95	18.32	16.28
47000	15.15	17.06	14.47	17.16	16.55	15.03
48000	16.28	13.53	12.06	12.96	12.84	11.61
49000	16.52	12.75	12.35	12.13	12.27	11.23
50000	14.17	15.40	16.17	15.34	15.53	14.84

## Typical Performance Data

Frequency (MHz)	Output Return Loss Relative To Control Voltage @ Temperature = 25°C					
	(dB)					
	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
2000	19.90	5.52	2.29	3.68	2.29	1.91
2500	17.48	5.69	2.45	3.82	2.55	2.10
3000	16.00	6.19	2.81	4.18	3.00	2.42
3500	15.26	7.11	3.40	4.80	3.71	2.89
4000	14.99	8.53	4.23	5.73	4.69	3.53
4500	15.10	10.32	5.18	6.95	5.91	4.30
5000	15.26	12.14	6.13	8.47	7.38	5.24
5500	16.00	12.48	6.60	9.91	8.64	6.22
6000	17.81	11.31	6.48	10.46	9.09	6.85
6500	21.00	10.11	6.19	10.03	8.85	6.90
7000	25.14	9.62	6.17	9.49	8.62	6.66
7500	29.33	9.98	6.63	9.39	8.80	6.52
8000	36.65	11.42	7.73	10.00	9.65	6.74
8500	24.24	14.23	9.60	11.56	11.48	7.50
9000	17.65	17.42	11.72	14.50	14.76	9.02
9500	14.62	16.34	12.23	19.75	19.91	11.51
10000	14.07	13.25	10.73	23.24	20.24	14.65
11000	16.57	10.05	8.44	14.00	13.13	12.96
12000	13.98	10.07	8.72	11.81	11.61	10.15
13000	18.47	13.47	11.44	13.31	13.39	10.64
14000	35.25	19.45	15.61	17.92	18.41	13.86
15000	31.30	18.56	15.83	23.43	23.73	18.42
16000	22.27	16.27	14.00	19.46	19.46	17.32
17000	25.11	17.08	13.81	16.81	16.91	15.38
18000	18.41	19.15	15.39	15.71	15.96	15.07
19000	12.11	19.21	19.66	15.77	16.03	15.97
20000	12.32	19.93	27.56	16.86	16.95	17.32
21000	16.52	21.54	28.69	18.59	18.60	18.68
22000	15.75	22.28	26.41	19.25	19.28	18.88
23000	15.86	21.01	22.65	18.07	18.10	17.36
24000	20.61	19.52	19.19	16.74	16.81	15.70
25000	24.70	17.24	16.29	14.97	15.11	13.85
26000	20.04	14.34	13.46	12.71	12.88	11.57
27000	12.17	12.33	12.09	11.31	11.48	10.04
28000	9.49	12.37	13.07	11.78	11.90	10.23
29000	10.55	15.71	17.60	14.97	14.98	12.67
30000	14.81	20.65	25.81	18.06	18.20	14.81
31000	10.19	14.57	17.32	13.03	13.10	11.11
32000	7.86	11.20	12.14	10.41	10.33	8.91
33000	11.90	10.76	10.10	10.55	10.37	9.26
34000	19.87	12.50	10.72	13.48	13.23	12.54
35000	18.37	17.89	14.72	21.67	21.32	20.85
36000	24.99	25.84	19.36	25.38	24.50	18.91
37000	28.80	17.22	14.15	17.52	17.11	14.63
38000	14.09	14.23	12.01	15.63	15.45	14.40
39000	10.40	14.56	13.20	16.53	16.63	17.46
40000	12.98	17.63	17.84	19.21	19.60	24.89
41000	22.78	22.34	28.50	22.30	22.85	29.37
42000	27.59	25.88	33.05	24.12	24.34	24.50
43000	28.09	25.07	24.06	23.51	23.42	21.74
44000	18.56	21.09	19.78	20.24	18.88	19.21
45000	16.80	19.39	17.47	18.65	16.53	17.53
46000	16.02	17.60	15.71	16.92	13.11	15.92
47000	16.29	15.19	13.70	14.54	11.50	13.73
48000	18.77	14.17	13.24	13.50	11.93	12.84
49000	16.81	14.86	14.69	14.27	13.91	13.73
50000	14.86	15.95	16.48	15.47	15.67	15.05



## Typical Performance Data

Frequency (MHz)	Output Return Loss Relative To Control Voltage @ Temperature = 85°C					
	(dB)					
	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
2000	20.04	5.33	2.53	3.59	2.44	2.04
2500	17.39	5.52	2.70	3.75	2.70	2.24
3000	15.88	6.05	3.09	4.12	3.16	2.58
3500	15.16	7.01	3.74	4.78	3.90	3.09
4000	14.88	8.45	4.64	5.74	4.91	3.78
4500	14.98	10.21	5.66	6.98	6.17	4.63
5000	15.14	11.91	6.63	8.50	7.65	5.63
5500	15.88	12.14	7.06	9.91	8.93	6.65
6000	17.62	11.01	6.85	10.43	9.37	7.27
6500	20.97	9.90	6.51	10.00	9.09	7.27
7000	25.96	9.53	6.52	9.51	8.86	7.01
7500	33.17	10.00	7.04	9.47	9.04	6.90
8000	33.84	11.55	8.25	10.15	9.93	7.19
8500	21.79	14.36	10.21	11.79	11.81	8.07
9000	16.80	16.99	12.20	14.83	15.14	9.77
9500	14.75	15.60	12.31	20.01	20.21	12.45
10000	14.85	12.80	10.73	22.45	20.24	15.55
11000	17.33	9.99	8.61	14.03	13.37	13.14
12000	14.65	10.19	8.99	11.94	11.81	10.47
13000	19.19	13.67	11.85	13.45	13.54	11.09
14000	38.54	19.03	15.78	18.18	18.54	14.52
15000	34.92	18.01	15.66	22.40	22.58	18.48
16000	22.91	16.49	14.38	19.07	19.12	17.20
17000	25.91	17.54	14.47	16.88	16.97	15.65
18000	17.03	19.58	16.25	15.93	16.12	15.41
19000	12.60	19.81	20.63	16.13	16.30	16.28
20000	13.56	20.50	26.99	17.28	17.29	17.62
21000	15.59	21.16	26.97	18.28	18.28	18.46
22000	16.36	20.92	23.81	18.33	18.38	18.09
23000	18.09	20.30	20.83	17.83	17.86	17.11
24000	22.78	19.61	18.84	17.19	17.22	16.13
25000	30.08	17.59	16.67	15.44	15.54	14.44
26000	18.39	14.11	13.35	12.60	12.73	11.67
27000	11.17	11.99	11.86	10.99	11.12	9.93
28000	9.45	12.45	13.21	11.78	11.86	10.43
29000	12.43	16.54	18.34	15.64	15.63	13.51
30000	14.96	21.65	27.13	18.43	18.52	15.48
31000	10.36	14.37	16.54	12.80	12.84	11.17
32000	9.29	11.02	11.52	10.31	10.25	9.03
33000	14.30	10.75	10.01	10.71	10.57	9.66
34000	16.68	13.12	11.57	14.36	14.16	13.72
35000	18.84	19.88	16.58	25.15	24.69	23.77
36000	33.28	24.49	19.37	23.80	23.28	18.94
37000	20.61	17.24	14.74	17.68	17.38	15.34
38000	13.23	14.75	12.83	16.35	16.23	15.51
39000	12.63	15.79	14.62	18.11	18.18	19.47
40000	17.89	20.00	20.92	21.83	22.16	29.02
41000	27.09	24.53	31.09	24.66	25.14	33.17
42000	26.03	24.84	33.20	23.73	24.04	26.12
43000	21.74	22.75	22.66	21.41	21.42	20.76
44000	16.54	19.00	18.06	18.73	18.54	17.47
45000	16.39	18.69	16.62	19.01	18.68	17.15
46000	18.82	20.00	17.91	19.90	19.58	17.95
47000	18.31	17.47	16.05	17.17	16.95	15.74
48000	18.50	14.11	13.08	13.97	13.85	13.00
49000	15.32	13.65	13.25	13.54	13.50	12.88
50000	13.54	15.21	15.86	14.93	14.96	14.59

# Voltage Variable Attenuator **PVA-453-34+**

## Typical Performance Data

Frequency (MHz)	Noise Figure Vs. temperature (dB)		
	-40°C	+25°C	+85°C
	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -4 V VCTRL 2 = -4 V
10000	3.50	4.14	4.82
11000	3.27	4.05	4.38
12000	2.76	3.57	4.15
13000	2.59	3.56	3.78
14000	2.26	2.90	3.53
15000	2.13	3.00	3.37
16000	2.06	2.82	3.52
17000	2.46	3.11	3.65
18000	2.23	3.13	3.98
19000	2.49	3.55	4.01
20000	2.29	2.97	3.45
21000	2.46	3.32	3.84
22000	2.46	3.46	4.08
23000	2.42	3.45	3.99
24000	2.25	3.19	4.12
25000	2.75	3.39	4.09
26000	2.83	3.89	4.55
27000	2.93	4.17	4.66
28000	3.50	4.48	4.65
29000	3.26	4.23	5.03
30000	3.17	4.41	4.94
31000	3.04	4.35	4.91
32000	3.32	4.65	5.12
33000	3.52	4.34	5.22
34000	3.51	4.73	5.38
35000	3.53	4.89	5.55
36000	3.79	5.47	5.98
37000	4.22	5.52	6.40
38000	4.79	5.73	6.83
39000	5.51	6.75	7.29
40000	4.86	6.37	6.90
41000	5.82	6.07	7.06
42000	5.32	6.86	7.65
43000	6.60	7.57	8.28
43500	6.43	7.26	8.21
44000	6.15	7.74	8.89
45000	6.26	6.60	7.88

## Typical Performance Data

Attenuation vs. input power at 10 GHz @ 25°C						
Input Power	(dB)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
-5	6.00	11.81	23.52	17.29	28.36	38.41
0	6.12	11.87	23.52	17.28	28.35	38.41
5	6.01	12.24	23.53	17.44	28.35	38.41
10	6.07	12.02	23.52	17.66	28.35	38.41
15	6.05	12.21	23.76	17.49	28.34	38.39

Attenuation vs. input power at 20 GHz @ 25°C						
Input Power	(dB)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
-5	3.88	11.89	27.86	19.90	35.76	48.75
0	3.92	11.87	27.84	19.88	35.70	48.75
5	3.84	11.88	27.83	19.88	35.69	48.74
10	3.94	12.06	27.82	19.89	35.68	48.70
15	3.99	12.04	27.80	19.98	35.66	48.66

Attenuation vs. input power at 44 GHz @ 25°C						
Input Power	(dB)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
-5	8.67	21.39	38.72	33.08	42.88	40.78
0	8.67	21.40	38.66	33.12	42.78	40.73
5	8.68	21.41	38.68	33.17	42.74	40.71
10	8.69	21.43	38.75	33.22	42.78	40.78
15	8.72	21.46	38.77	33.27	42.82	40.81

## Typical Performance Data

Attenuation vs. input power at 20 GHz @ temperature -40°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
-5	3.07	10.21	28.68	17.61	35.86	50.60
0	3.22	10.22	28.67	17.60	35.82	50.57
5	3.14	10.27	28.67	17.61	35.81	50.58
10	3.20	10.25	28.65	17.71	35.80	50.56
15	3.06	10.42	28.61	17.77	35.77	50.50

Attenuation vs. input power at 20 GHz @ temperature 25°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
-5	3.88	11.89	27.86	19.90	35.76	48.75
0	3.92	11.87	27.84	19.88	35.70	48.75
5	3.84	11.88	27.83	19.88	35.69	48.74
10	3.94	12.06	27.82	19.89	35.68	48.70
15	3.99	12.04	27.80	19.98	35.66	48.66

Attenuation vs. input power at 20 GHz @ temperature 85°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
-5	4.01	12.56	26.17	20.88	34.54	45.90
0	4.16	12.55	26.16	20.87	34.50	45.89
5	3.96	12.52	26.16	20.86	34.50	45.88
10	4.16	12.52	26.15	20.84	34.49	45.85
15	4.15	12.68	26.13	20.88	34.47	45.83

## Typical Performance Data

IIP3 vs. input power at 10 GHz @ temperature 25°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
5	36.04	38.53	40.14	37.29	40.34	39.63
10	36.12	38.62	40.27	37.54	40.50	39.79
15	34.51	38.96	40.41	38.13	40.71	39.93

IIP3 vs. input power at 20 GHz @ temperature 25°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
5	34.23	38.19	39.89	36.67	39.86	40.12
10	34.43	38.06	40.01	36.79	40.10	40.24
15	34.28	38.24	40.15	37.27	40.19	40.39

IIP3 vs. input power at 44 GHz @ temperature 25°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
5	33.88	37.44	41.49	36.01	44.92	48.67
10	33.84	37.74	42.14	36.25	45.76	51.61
15	34.18	38.21	42.47	36.70	45.65	50.85

## Typical Performance Data

IIP3 vs. input power at 20 GHz @ temperature -40°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
5	35.57	33.54	38.42	31.58	38.56	38.66
10	34.97	33.94	38.45	32.01	38.56	38.90
15	34.54	34.96	38.62	33.08	38.72	39.10

IIP3 vs. input power at 20 GHz @ temperature 25°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
5	34.24	38.29	39.80	36.53	39.78	39.96
10	34.41	38.01	39.97	36.63	39.97	40.12
15	34.22	38.19	40.08	37.10	40.10	40.30

IIP3 vs. input power at 20 GHz @ temperature 85°C						
Input Power	(dBm)					
(dBm)	VCTRL1 = -4 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -4 V	VCTRL1 = 0 V VCTRL 2 = -4 V	VCTRL1 = -2 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = -2 V	VCTRL1 = 0 V VCTRL 2 = 0 V
5	33.61	39.59	41.16	41.02	41.21	40.95
10	34.09	39.67	41.27	41.06	41.16	41.19
15	33.68	40.08	41.28	41.17	41.18	41.29