

Programmable Attenuator

RUDAT-6000-110

Typical Performance Data @ 0°C

FREQUENCY (MHz)	Attenuation relative to Insertion Loss (dB)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	0.28	20.37	40.52	59.32	79.31	99.01	109.24	119.79
5	0.28	20.37	40.52	59.43	79.42	99.12	109.35	119.79
10	0.28	20.37	40.52	59.55	79.54	99.25	109.45	120.03
20	0.28	20.36	40.51	59.5	79.5	99.21	109.36	119.88
50	0.27	20.32	40.47	59.53	79.52	99.22	109.47	119.93
100	0.27	20.29	40.43	59.72	79.72	99.41	109.73	120.14
200	0.27	20.19	40.31	59.88	79.87	99.58	109.77	120.27
500	0.24	19.8	39.83	59.61	79.56	99.25	109.41	120.06
750	0.23	19.57	39.52	59.41	79.33	98.99	109.18	119.89
1000	0.23	19.54	39.44	59.64	79.54	99.18	109.39	119.77
1500	0.23	19.6	39.52	59.63	79.5	99.2	109.53	120.07
2000	0.23	19.57	39.53	59.7	79.58	99.28	109.56	120.11
2500	0.23	19.67	39.67	59.96	79.87	99.71	110.09	121.17
3000	0.22	19.64	39.7	60.02	79.99	99.82	110.02	120.34
3500	0.23	19.98	40.15	60.35	80.34	100.22	110.5	120.72
4000	0.24	20.26	40.6	60.63	80.62	100.55	110.54	121.01
4500	0.23	20.24	40.68	60.82	80.85	100.85	110.74	121.17
5000	0.22	20.19	40.55	60.86	80.85	101.1	110.91	120.3
5500	0.23	20.24	40.41	60.55	80.25	101.03	110.83	120.36
6000	0.24	20.59	40.63	60.4	79.77	100.98	110.46	120.14

FREQUENCY (MHz)	Attenuation accuracy relative to nominal attenuation setting (dB)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	-0.03	-0.37	-0.52	0.68	0.69	0.99	0.76	0.21
5	-0.03	-0.37	-0.52	0.57	0.58	0.88	0.65	0.21
10	-0.03	-0.37	-0.52	0.46	0.46	0.75	0.55	-0.03
20	-0.03	-0.36	-0.51	0.5	0.5	0.79	0.64	0.12
50	-0.02	-0.32	-0.47	0.47	0.48	0.78	0.54	0.07
100	-0.02	-0.29	-0.42	0.28	0.28	0.59	0.27	-0.14
200	-0.01	-0.19	-0.31	0.12	0.13	0.42	0.23	-0.27
500	0.01	0.2	0.17	0.4	0.44	0.75	0.59	-0.06
750	0.02	0.43	0.48	0.59	0.68	1.01	0.82	0.11
1000	0.02	0.46	0.56	0.36	0.46	0.82	0.61	0.23
1500	0.02	0.4	0.48	0.37	0.5	0.8	0.47	-0.07
2000	0.02	0.43	0.47	0.3	0.42	0.72	0.44	-0.11
2500	0.02	0.33	0.33	0.04	0.13	0.29	-0.09	-1.17
3000	0.03	0.36	0.3	-0.02	0.01	0.18	-0.02	-0.34
3500	0.02	0.02	-0.15	-0.35	-0.34	-0.22	-0.5	-0.72
4000	0.01	-0.26	-0.6	-0.63	-0.62	-0.55	-0.54	-1
4500	0.02	-0.24	-0.68	-0.82	-0.85	-0.85	-0.74	-1.17
5000	0.03	-0.19	-0.55	-0.85	-0.85	-1.1	-0.91	-0.3
5500	0.02	-0.24	-0.41	-0.55	-0.25	-1.03	-0.82	-0.36
6000	0.01	-0.59	-0.63	-0.4	0.24	-0.98	-0.46	-0.14

Notes

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Programmable Attenuator

RUDAT-6000-110

Typical Performance Data @ 0°C

FREQUENCY (MHz)	IP3 (dBm)	Insertion Loss @P _{IN} =0 dBm (dB)	Insertion Loss @P _{IN} =+20 dBm (dB)
1	49.76	4.29	4.12
5	53.52	4.33	4.15
10	54.31	4.41	4.21
20	56.56	4.48	4.28
50	48.03	4.05	3.93
100	47.44	4.99	4.85
200	50.13	5.16	5.02
500	57.53	5.71	5.56
750	54.95	6	5.86
1000	50.47	6.19	6.05
1500	52.31	6.64	6.51
2000	54.74	7.06	6.91
2500	53.53	7.49	7.32
3000	57.14	8.02	7.85
3500	49.21	8.45	8.23
4000	45.85	8.91	8.77
4500	45.54	8.72	8.48
5000	48.04	8.86	8.63
5500	44.67	9.36	9.14
6000	46.43	9.61	9.38

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Programmable Attenuator

RUDAT-6000-110

Typical Performance Data @ +25°C

FREQUENCY (MHz)	Attenuation relative to Insertion Loss (dB)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	0.27	20.27	40.42	59.23	79.25	98.93	109.14	119.73
5	0.27	20.27	40.42	59.33	79.34	99.02	109.26	119.82
10	0.27	20.27	40.42	59.44	79.46	99.13	109.39	119.96
20	0.27	20.26	40.41	59.39	79.42	99.1	109.3	119.69
50	0.27	20.23	40.38	59.42	79.45	99.13	109.35	119.64
100	0.27	20.21	40.36	59.65	79.67	99.36	109.62	120.12
200	0.26	20.12	40.24	59.81	79.82	99.5	109.72	120.22
500	0.24	19.7	39.72	59.5	79.46	99.1	109.36	119.78
750	0.23	19.5	39.43	59.34	79.26	98.85	109.12	119.65
1000	0.23	19.48	39.37	59.56	79.46	99.03	109.28	119.72
1500	0.23	19.55	39.47	59.58	79.49	99.09	109.31	119.92
2000	0.22	19.52	39.48	59.66	79.58	99.2	109.49	119.84
2500	0.23	19.63	39.64	59.92	79.87	99.65	109.96	120.72
3000	0.22	19.62	39.69	60	79.97	99.78	109.96	120.56
3500	0.23	19.95	40.14	60.33	80.35	100.26	110.46	121.02
4000	0.24	20.18	40.54	60.61	80.66	100.61	110.74	120.92
4500	0.23	20.13	40.56	60.78	80.86	100.92	110.87	121.26
5000	0.22	20.12	40.47	60.82	80.84	101.12	110.89	121.32
5500	0.23	20.18	40.38	60.54	80.28	101.01	110.81	120.61
6000	0.23	20.55	40.63	60.42	79.87	100.93	110.55	119.47

FREQUENCY (MHz)	Attenuation accuracy relative to nominal attenuation setting (dB)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	-0.02	-0.27	-0.42	0.77	0.75	1.07	0.86	0.27
5	-0.02	-0.27	-0.42	0.67	0.66	0.98	0.74	0.18
10	-0.02	-0.27	-0.42	0.56	0.54	0.87	0.61	0.04
20	-0.02	-0.26	-0.41	0.61	0.58	0.9	0.7	0.32
50	-0.02	-0.23	-0.38	0.58	0.55	0.87	0.65	0.36
100	-0.02	-0.21	-0.36	0.35	0.33	0.64	0.38	-0.12
200	-0.01	-0.12	-0.24	0.19	0.18	0.5	0.28	-0.22
500	0.01	0.3	0.28	0.5	0.54	0.9	0.64	0.22
750	0.02	0.5	0.57	0.66	0.74	1.15	0.88	0.35
1000	0.02	0.52	0.63	0.44	0.54	0.97	0.72	0.28
1500	0.02	0.45	0.53	0.42	0.51	0.91	0.69	0.08
2000	0.03	0.48	0.52	0.34	0.42	0.8	0.51	0.16
2500	0.03	0.37	0.36	0.08	0.14	0.35	0.04	-0.72
3000	0.03	0.38	0.31	0	0.03	0.22	0.04	-0.56
3500	0.02	0.05	-0.14	-0.33	-0.35	-0.26	-0.46	-1.02
4000	0.01	-0.18	-0.54	-0.61	-0.66	-0.61	-0.74	-0.92
4500	0.02	-0.13	-0.56	-0.78	-0.86	-0.92	-0.87	-1.26
5000	0.03	-0.12	-0.47	-0.82	-0.84	-1.12	-0.89	-1.32
5500	0.02	-0.18	-0.38	-0.54	-0.28	-1.01	-0.81	-0.61
6000	0.02	-0.55	-0.63	-0.42	0.13	-0.93	-0.55	0.53

Notes

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Programmable Attenuator

RUDAT-6000-110

Typical Performance Data @ +25°C

FREQUENCY (MHz)	Input VSWR (:1)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	2.11	1.11	1.15	1.02	1.02	1.04	1.04	1.02
5	2.11	1.11	1.15	1.02	1.02	1.04	1.04	1.02
10	2.10	1.11	1.15	1.01	1.01	1.03	1.03	1.01
20	2.10	1.11	1.15	1.01	1.01	1.03	1.03	1.01
50	2.08	1.11	1.15	1.01	1.01	1.03	1.03	1.01
100	2.03	1.11	1.15	1.00	1.00	1.03	1.03	1.01
200	1.92	1.10	1.15	1.01	1.01	1.03	1.03	1.01
500	1.47	1.08	1.13	1.01	1.01	1.03	1.03	1.01
750	1.19	1.06	1.12	1.02	1.02	1.02	1.02	1.02
1000	1.08	1.05	1.11	1.02	1.02	1.01	1.01	1.02
1500	1.11	1.02	1.08	1.04	1.04	1.02	1.02	1.04
2000	1.03	1.01	1.06	1.07	1.07	1.05	1.05	1.07
2500	1.05	1.04	1.06	1.10	1.10	1.09	1.09	1.10
3000	1.09	1.07	1.09	1.12	1.12	1.12	1.12	1.12
3500	1.36	1.07	1.11	1.13	1.13	1.15	1.15	1.13
4000	1.64	1.08	1.12	1.12	1.12	1.15	1.15	1.12
4500	1.69	1.11	1.14	1.08	1.08	1.12	1.12	1.08
5000	1.41	1.11	1.13	1.03	1.04	1.06	1.06	1.03
5500	1.54	1.17	1.16	1.10	1.10	1.06	1.06	1.10
6000	1.46	1.29	1.27	1.25	1.25	1.21	1.21	1.25

FREQUENCY (MHz)	Output VSWR (:1)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	2.20	1.12	1.04	1.02	1.02	1.02	1.02	1.02
5	2.20	1.12	1.04	1.02	1.02	1.02	1.02	1.02
10	2.19	1.12	1.03	1.01	1.01	1.01	1.01	1.01
20	2.18	1.12	1.03	1.01	1.01	1.01	1.01	1.01
50	2.17	1.12	1.03	1.01	1.01	1.01	1.01	1.01
100	2.10	1.11	1.03	1.01	1.01	1.01	1.01	1.01
200	1.99	1.11	1.03	1.02	1.02	1.02	1.02	1.02
500	1.51	1.07	1.03	1.02	1.02	1.02	1.02	1.02
750	1.21	1.03	1.03	1.02	1.02	1.02	1.02	1.02
1000	1.09	1.01	1.02	1.02	1.02	1.02	1.02	1.02
1500	1.13	1.02	1.01	1.02	1.02	1.02	1.02	1.02
2000	1.03	1.01	1.01	1.02	1.02	1.02	1.02	1.02
2500	1.11	1.00	1.03	1.02	1.02	1.02	1.02	1.02
3000	1.09	1.02	1.04	1.02	1.02	1.02	1.02	1.02
3500	1.50	1.08	1.05	1.04	1.04	1.04	1.04	1.04
4000	1.85	1.18	1.07	1.07	1.07	1.07	1.07	1.07
4500	1.79	1.23	1.10	1.12	1.12	1.12	1.12	1.12
5000	1.46	1.24	1.16	1.19	1.19	1.19	1.19	1.19
5500	1.57	1.34	1.26	1.29	1.29	1.29	1.29	1.29
6000	1.47	1.43	1.39	1.42	1.42	1.42	1.42	1.42

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Programmable Attenuator

RUDAT-6000-110

Typical Performance Data @ +25°C

FREQUENCY (MHz)	IP3 (dBm)	Insertion Loss @P _{IN} =0 dBm (dB)	Insertion Loss @P _{IN} =+20 dBm (dB)
1	48.77	4.44	4.26
5	55.78	4.48	4.29
10	54.79	4.56	4.36
20	56.87	4.63	4.43
50	47.73	4.20	4.08
100	47.31	5.12	4.99
200	50.04	5.32	5.18
500	56.98	5.94	5.80
750	55.38	6.29	6.16
1000	50.24	6.49	6.35
1500	52.38	6.97	6.84
2000	57.19	7.40	7.26
2500	54.40	7.89	7.72
3000	58.32	8.46	8.29
3500	49.13	8.83	8.68
4000	45.22	9.40	9.25
4500	45.47	9.08	8.89
5000	48.66	9.20	9.02
5500	45.30	9.68	9.52
6000	47.10	9.95	9.77

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Programmable Attenuator

RUDAT-6000-110

Typical Performance Data @ 50°C

FREQUENCY (MHz)	Attenuation relative to Insertion Loss (dB)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	0.27	20.13	40.26	59.07	79.08	98.76	109.02	119.66
5	0.27	20.13	40.27	59.17	79.19	98.85	109.14	119.49
10	0.27	20.13	40.26	59.28	79.31	98.96	109.23	119.63
20	0.27	20.12	40.26	59.24	79.26	98.91	109.13	119.61
50	0.27	20.1	40.23	59.27	79.29	98.96	109.17	119.67
100	0.27	20.09	40.21	59.5	79.51	99.17	109.41	119.93
200	0.26	19.99	40.08	59.64	79.65	99.28	109.52	119.99
500	0.24	19.57	39.54	59.31	79.26	98.86	109.1	119.36
750	0.23	19.38	39.25	59.15	79.05	98.58	108.87	119.13
1000	0.23	19.37	39.21	59.37	79.24	98.78	108.98	119.45
1500	0.23	19.43	39.3	59.4	79.27	98.84	109.09	119.4
2000	0.22	19.41	39.32	59.47	79.37	98.96	109.24	119.85
2500	0.22	19.51	39.48	59.72	79.64	99.35	109.58	120.14
3000	0.22	19.53	39.55	59.79	79.75	99.48	109.61	120.07
3500	0.23	19.86	40.02	60.13	80.13	99.98	110.15	120.77
4000	0.23	20.02	40.35	60.38	80.43	100.32	110.54	120.8
4500	0.22	19.96	40.34	60.55	80.62	100.65	110.69	120.84
5000	0.22	19.98	40.27	60.6	80.58	100.79	110.68	120.72
5500	0.22	20.07	40.21	60.34	80.06	100.67	110.39	120.1
6000	0.23	20.43	40.45	60.22	79.69	100.62	110.26	119.82

FREQUENCY (MHz)	Attenuation accuracy relative to nominal attenuation setting (dB)							
	0.25 dB	20 dB	40 dB	60 dB	80 dB	100 dB	110 dB	120 dB
1	-0.02	-0.13	-0.26	0.93	0.92	1.24	0.98	0.34
5	-0.02	-0.13	-0.26	0.83	0.81	1.15	0.86	0.51
10	-0.02	-0.13	-0.26	0.72	0.69	1.04	0.77	0.37
20	-0.02	-0.12	-0.26	0.76	0.74	1.09	0.87	0.39
50	-0.02	-0.09	-0.23	0.73	0.71	1.04	0.83	0.33
100	-0.01	-0.09	-0.21	0.5	0.49	0.83	0.59	0.07
200	-0.01	0.01	-0.08	0.36	0.35	0.72	0.48	0.01
500	0.02	0.43	0.46	0.69	0.74	1.14	0.9	0.64
750	0.02	0.62	0.75	0.85	0.95	1.42	1.13	0.87
1000	0.02	0.63	0.79	0.63	0.76	1.22	1.02	0.55
1500	0.02	0.57	0.7	0.6	0.73	1.16	0.92	0.6
2000	0.03	0.59	0.68	0.53	0.63	1.04	0.76	0.15
2500	0.03	0.49	0.53	0.28	0.36	0.65	0.43	-0.14
3000	0.04	0.47	0.45	0.21	0.25	0.52	0.39	-0.07
3500	0.02	0.14	-0.01	-0.13	-0.13	0.02	-0.15	-0.77
4000	0.02	-0.02	-0.35	-0.38	-0.43	-0.32	-0.54	-0.8
4500	0.03	0.04	-0.34	-0.55	-0.62	-0.65	-0.69	-0.84
5000	0.03	0.02	-0.27	-0.6	-0.58	-0.79	-0.68	-0.72
5500	0.03	-0.07	-0.21	-0.34	-0.06	-0.67	-0.39	-0.1
6000	0.02	-0.43	-0.45	-0.22	0.31	-0.62	-0.26	0.18

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Programmable Attenuator

RUDAT-6000-110

Typical Performance Data @ 50°C

FREQUENCY (MHz)	IP3 (dBm)	Insertion Loss @P _{IN} =0 dBm (dB)	Insertion Loss @P _{IN} =+20 dBm (dB)
1	49.76	4.56	4.38
5	53.52	4.61	4.42
10	54.31	4.69	4.49
20	56.56	4.76	4.56
50	48.03	4.37	4.26
100	47.44	5.32	5.19
200	50.13	5.53	5.39
500	57.53	6.16	6.02
750	54.95	6.54	6.41
1000	50.47	6.72	6.59
1500	52.31	7.24	7.11
2000	54.74	7.69	7.55
2500	53.53	8.15	7.99
3000	57.14	8.72	8.57
3500	49.21	9.19	9.04
4000	45.85	9.72	9.57
4500	45.54	9.39	9.19
5000	48.04	9.51	9.33
5500	44.67	9.95	9.78
6000	46.43	10.22	10.04

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"). Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at www.minicircuits.com/MCStore/terms.jsp

