

Solid State USB RF QUAD SPDT Switch

USB-4SP2T-63H

Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

FREQUENCY (MHz)	INSERTION LOSS		VSWR, Active Ports			VSWR, Internally Terminated Ports	
	(dB)		(:1)			(:1)	
	COM-1	COM-2	COM	Port 1	Port 2	Port 1	Port 2
10	1.36	1.35	1.26	1.26	1.26	1.13	1.13
20	1.38	1.37	1.26	1.26	1.26	1.13	1.13
40	1.40	1.38	1.26	1.26	1.26	1.13	1.13
50	1.40	1.39	1.26	1.26	1.26	1.13	1.13
60	1.41	1.40	1.26	1.26	1.26	1.13	1.13
70	1.42	1.41	1.26	1.26	1.26	1.13	1.13
80	1.43	1.42	1.26	1.26	1.26	1.13	1.13
90	1.43	1.42	1.26	1.26	1.26	1.13	1.13
100	1.44	1.43	1.26	1.26	1.26	1.13	1.13
200	1.49	1.48	1.26	1.27	1.26	1.14	1.14
300	1.51	1.50	1.25	1.27	1.26	1.14	1.14
400	1.53	1.52	1.25	1.25	1.25	1.13	1.13
500	1.55	1.54	1.24	1.25	1.24	1.13	1.13
600	1.57	1.56	1.23	1.24	1.23	1.13	1.13
700	1.59	1.58	1.21	1.23	1.22	1.13	1.14
800	1.61	1.60	1.19	1.22	1.21	1.13	1.13
900	1.62	1.61	1.17	1.21	1.20	1.13	1.13
1000	1.64	1.63	1.15	1.19	1.17	1.13	1.14
1100	1.67	1.66	1.13	1.17	1.16	1.13	1.14
1200	1.69	1.68	1.11	1.15	1.13	1.13	1.14
1300	1.72	1.71	1.09	1.13	1.11	1.13	1.14
1400	1.74	1.73	1.07	1.11	1.08	1.13	1.14
1500	1.77	1.76	1.05	1.08	1.06	1.12	1.14
1600	1.79	1.79	1.03	1.06	1.04	1.12	1.14
1700	1.82	1.82	1.01	1.04	1.04	1.12	1.15
1800	1.84	1.84	1.01	1.02	1.04	1.12	1.15
1900	1.86	1.86	1.03	1.01	1.05	1.12	1.15
2000	1.89	1.89	1.04	1.04	1.06	1.12	1.15
2200	1.93	1.93	1.07	1.09	1.09	1.11	1.15
2400	1.97	1.97	1.09	1.13	1.12	1.11	1.15
2600	2.01	2.00	1.12	1.18	1.15	1.11	1.15
2800	2.05	2.03	1.12	1.21	1.17	1.11	1.15
3000	2.09	2.07	1.13	1.24	1.20	1.12	1.15
3200	2.15	2.12	1.13	1.27	1.22	1.12	1.16
3400	2.22	2.19	1.15	1.28	1.23	1.13	1.17
3600	2.30	2.27	1.16	1.29	1.25	1.14	1.17
3800	2.40	2.38	1.18	1.28	1.26	1.16	1.18
4000	2.48	2.48	1.17	1.25	1.25	1.17	1.18
4200	2.58	2.57	1.15	1.22	1.22	1.18	1.19
4400	2.66	2.66	1.15	1.17	1.18	1.19	1.19
4600	2.72	2.74	1.13	1.13	1.16	1.20	1.19
4800	2.78	2.81	1.11	1.08	1.10	1.19	1.19
5000	2.82	2.85	1.09	1.04	1.06	1.19	1.19
5200	2.85	2.89	1.06	1.00	1.02	1.19	1.18
5400	2.87	2.91	1.05	1.03	1.03	1.21	1.19
5600	2.90	2.93	1.04	1.07	1.05	1.21	1.18
5800	2.93	2.95	1.06	1.10	1.10	1.22	1.19
6000	2.96	2.97	1.10	1.13	1.13	1.22	1.19
6200	3.00	3.00	1.16	1.16	1.16	1.23	1.20
6400	3.04	3.03	1.17	1.18	1.17	1.23	1.21
6500	3.05	3.04	1.18	1.19	1.17	1.23	1.21

Notes

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Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

FREQUENCY (MHz)	ISOLATION (dB)			
	COM- Port1	COM- Port2	Port1- Port2	Between Switches
10	106.76	108.20	103.71	106.92
20	104.09	103.34	101.25	101.00
40	103.05	103.55	105.14	102.74
50	104.45	100.05	104.04	109.64
60	107.00	107.19	99.19	108.94
70	103.98	104.66	115.10	110.29
80	104.60	101.75	101.91	106.36
90	112.51	107.46	102.60	115.10
100	106.25	109.06	104.16	106.00
200	111.23	122.43	108.58	104.73
300	110.71	111.54	106.14	101.32
400	100.79	107.83	98.20	114.74
500	103.37	118.94	111.69	115.79
600	106.91	104.46	100.97	104.33
700	103.59	103.06	95.10	107.93
800	101.81	98.11	93.94	118.13
900	98.78	97.09	94.23	101.20
1000	97.94	95.17	93.67	97.93
1100	101.22	92.37	90.20	106.91
1200	95.28	95.67	87.55	108.04
1300	93.21	91.91	87.83	105.93
1400	93.16	93.38	87.40	106.17
1500	92.62	89.61	87.06	100.96
1600	90.93	91.05	85.85	113.04
1700	89.31	88.69	84.40	101.96
1800	87.29	87.53	83.26	113.46
1900	86.03	86.21	81.34	121.45
2000	84.87	85.96	81.97	99.19
2200	84.44	82.85	79.13	105.02
2400	80.98	80.19	76.66	107.58
2600	78.66	77.85	74.31	104.76
2800	75.28	75.58	71.86	99.79
3000	72.75	72.75	68.67	105.43
3200	70.10	69.80	66.09	105.01
3400	69.05	68.53	64.41	102.77
3600	68.89	68.11	63.66	102.85
3800	69.40	69.21	63.86	102.69
4000	70.16	69.82	64.27	103.46
4200	70.37	70.27	64.81	102.86
4400	70.23	70.38	64.96	100.23
4600	70.28	70.01	64.79	109.39
4800	69.23	69.10	64.44	99.36
5000	68.32	68.33	63.85	109.97
5200	67.22	66.94	63.10	104.54
5400	65.89	65.28	62.21	106.59
5600	64.08	63.73	61.22	101.95
5800	62.79	62.01	59.67	99.31
6000	60.97	60.30	58.07	98.73
6200	58.75	58.12	56.44	111.23
6400	56.42	55.80	54.38	101.86
6500	55.33	54.76	53.34	101.27

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Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

FREQUENCY (MHz)	INSERTION LOSS		VSWR, Active Ports			VSWR, Internally Terminated Ports	
	(dB)		(:1)			(:1)	
	COM-1	COM-2	COM	Port 1	Port 2	Port 1	Port 2
10	1.43	1.42	1.28	1.28	1.28	1.14	1.14
20	1.44	1.44	1.28	1.28	1.28	1.14	1.14
40	1.46	1.45	1.28	1.28	1.27	1.14	1.14
50	1.47	1.46	1.28	1.28	1.27	1.14	1.14
60	1.47	1.47	1.27	1.27	1.27	1.14	1.14
70	1.48	1.48	1.27	1.27	1.27	1.14	1.14
80	1.49	1.48	1.27	1.27	1.27	1.13	1.14
90	1.49	1.49	1.27	1.27	1.27	1.13	1.14
100	1.50	1.50	1.27	1.27	1.27	1.13	1.14
200	1.55	1.54	1.27	1.27	1.27	1.14	1.14
300	1.58	1.57	1.26	1.27	1.27	1.13	1.14
400	1.61	1.60	1.26	1.27	1.26	1.14	1.14
500	1.63	1.62	1.25	1.26	1.26	1.14	1.14
600	1.65	1.64	1.23	1.25	1.24	1.14	1.14
700	1.67	1.66	1.22	1.24	1.23	1.14	1.14
800	1.69	1.68	1.20	1.23	1.22	1.14	1.14
900	1.72	1.70	1.18	1.21	1.20	1.14	1.14
1000	1.74	1.73	1.16	1.19	1.18	1.13	1.14
1100	1.76	1.75	1.14	1.17	1.16	1.13	1.14
1200	1.79	1.78	1.12	1.15	1.13	1.13	1.14
1300	1.81	1.81	1.09	1.13	1.11	1.13	1.14
1400	1.84	1.83	1.07	1.11	1.09	1.13	1.15
1500	1.87	1.86	1.05	1.09	1.06	1.13	1.14
1600	1.89	1.89	1.03	1.07	1.04	1.13	1.15
1700	1.92	1.92	1.01	1.04	1.03	1.12	1.15
1800	1.95	1.95	1.01	1.02	1.03	1.12	1.15
1900	1.97	1.97	1.03	1.01	1.05	1.12	1.15
2000	1.99	2.00	1.04	1.03	1.06	1.12	1.15
2200	2.04	2.04	1.07	1.08	1.09	1.11	1.15
2400	2.08	2.08	1.09	1.12	1.12	1.11	1.15
2600	2.12	2.12	1.11	1.18	1.15	1.12	1.16
2800	2.17	2.16	1.12	1.23	1.18	1.12	1.17
3000	2.23	2.20	1.13	1.27	1.21	1.13	1.18
3200	2.30	2.27	1.15	1.30	1.24	1.14	1.19
3400	2.38	2.35	1.15	1.32	1.26	1.14	1.20
3600	2.47	2.44	1.17	1.32	1.27	1.16	1.20
3800	2.57	2.55	1.18	1.31	1.27	1.17	1.21
4000	2.65	2.64	1.17	1.28	1.24	1.18	1.22
4200	2.73	2.74	1.16	1.24	1.21	1.19	1.22
4400	2.79	2.81	1.15	1.18	1.19	1.20	1.22
4600	2.84	2.88	1.14	1.13	1.15	1.21	1.22
4800	2.89	2.93	1.12	1.09	1.11	1.21	1.23
5000	2.92	2.97	1.10	1.05	1.08	1.21	1.22
5200	2.95	3.00	1.09	1.05	1.06	1.23	1.22
5400	2.97	3.03	1.08	1.07	1.07	1.23	1.21
5600	2.99	3.05	1.09	1.11	1.09	1.23	1.21
5800	3.02	3.06	1.09	1.13	1.12	1.23	1.20
6000	3.04	3.07	1.11	1.15	1.16	1.24	1.20
6200	3.08	3.09	1.13	1.17	1.17	1.23	1.19
6400	3.12	3.13	1.16	1.18	1.17	1.24	1.18
6500	3.13	3.15	1.17	1.18	1.19	1.25	1.19

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Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

FREQUENCY (MHz)	ISOLATION (dB)			
	COM-Port1	COM-Port2	Port1-Port2	Between Switches
10	106.79	102.63	106.06	103.80
20	101.56	99.85	110.29	106.74
40	107.18	102.33	99.46	102.14
50	102.77	99.92	114.57	104.33
60	99.82	104.81	109.16	96.47
70	100.33	104.79	108.19	108.09
80	117.67	103.13	109.21	108.86
90	100.57	117.07	104.73	105.31
100	105.03	114.71	107.30	109.35
200	107.70	114.33	102.84	105.86
300	101.37	103.00	103.71	103.87
400	106.04	104.72	100.47	108.31
500	101.67	101.50	105.27	104.61
600	97.89	104.30	98.70	106.88
700	102.47	98.83	99.30	107.47
800	105.17	99.75	94.51	115.52
900	95.66	98.28	94.01	105.40
1000	100.93	96.59	93.93	101.78
1100	97.64	94.57	91.29	102.32
1200	95.10	98.06	92.72	108.27
1300	93.81	96.49	88.61	104.17
1400	97.49	91.57	88.54	111.16
1500	93.05	93.87	89.80	101.38
1600	92.08	88.81	87.10	106.26
1700	89.56	92.09	84.75	100.56
1800	90.63	88.92	84.48	109.63
1900	87.39	88.94	82.50	109.07
2000	84.99	86.31	81.14	106.51
2200	83.55	84.63	79.22	111.50
2400	81.21	81.67	76.72	105.45
2600	78.62	78.23	74.28	112.25
2800	75.90	76.12	71.59	102.49
3000	73.35	73.48	69.15	107.10
3200	70.90	70.56	66.69	114.17
3400	69.86	69.31	64.98	115.43
3600	69.52	69.29	64.06	112.67
3800	70.00	69.81	64.44	102.50
4000	70.39	70.28	64.76	102.95
4200	70.63	70.73	65.05	99.64
4400	70.84	70.89	65.14	120.78
4600	70.29	70.45	65.07	114.88
4800	69.77	69.61	64.78	99.20
5000	68.79	68.66	64.19	105.80
5200	67.52	67.10	63.43	105.45
5400	66.51	65.76	62.58	91.21
5600	64.49	63.91	61.46	95.15
5800	63.23	62.42	59.98	105.63
6000	61.41	60.73	58.39	97.72
6200	59.19	58.58	56.73	98.71
6400	56.87	56.34	54.74	106.42
6500	55.83	55.31	53.72	97.47

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Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

FREQUENCY (MHz)	INSERTION LOSS (dB)		VSWR, Active Ports (:1)			VSWR, Internally Terminated Ports (:1)	
	COM-1	COM-2	COM	Port 1	Port 2	Port 1	Port 2
	10	1.50	1.49	1.29	1.30	1.30	1.15
20	1.51	1.50	1.29	1.30	1.30	1.15	1.15
40	1.53	1.52	1.29	1.30	1.29	1.15	1.15
50	1.54	1.53	1.29	1.29	1.29	1.15	1.15
60	1.54	1.54	1.29	1.29	1.29	1.15	1.15
70	1.55	1.55	1.29	1.29	1.29	1.14	1.14
80	1.56	1.55	1.29	1.29	1.29	1.14	1.14
90	1.56	1.56	1.29	1.29	1.29	1.14	1.14
100	1.57	1.56	1.29	1.29	1.29	1.14	1.14
200	1.61	1.60	1.28	1.29	1.29	1.14	1.14
300	1.64	1.64	1.28	1.29	1.29	1.14	1.14
400	1.67	1.67	1.27	1.28	1.28	1.14	1.14
500	1.70	1.69	1.26	1.28	1.27	1.15	1.15
600	1.72	1.71	1.25	1.26	1.26	1.15	1.15
700	1.74	1.73	1.23	1.26	1.25	1.15	1.15
800	1.76	1.76	1.22	1.24	1.23	1.15	1.15
900	1.78	1.78	1.19	1.23	1.21	1.15	1.15
1000	1.81	1.80	1.17	1.21	1.19	1.15	1.15
1100	1.83	1.82	1.15	1.19	1.17	1.14	1.16
1200	1.86	1.85	1.13	1.17	1.14	1.14	1.16
1300	1.88	1.88	1.11	1.15	1.12	1.14	1.16
1400	1.91	1.91	1.08	1.12	1.09	1.14	1.16
1500	1.94	1.94	1.06	1.09	1.07	1.13	1.16
1600	1.96	1.97	1.03	1.06	1.05	1.13	1.16
1700	1.99	2.00	1.01	1.04	1.04	1.13	1.16
1800	2.02	2.02	1.01	1.01	1.04	1.13	1.16
1900	2.05	2.05	1.03	1.01	1.05	1.12	1.16
2000	2.07	2.08	1.05	1.04	1.06	1.12	1.16
2200	2.11	2.12	1.07	1.10	1.10	1.12	1.16
2400	2.16	2.16	1.10	1.15	1.13	1.11	1.16
2600	2.20	2.19	1.12	1.20	1.17	1.12	1.16
2800	2.24	2.23	1.13	1.24	1.19	1.13	1.16
3000	2.29	2.27	1.15	1.27	1.23	1.13	1.17
3200	2.35	2.34	1.17	1.29	1.25	1.14	1.17
3400	2.44	2.43	1.19	1.31	1.27	1.15	1.18
3600	2.53	2.52	1.20	1.31	1.29	1.17	1.19
3800	2.63	2.63	1.21	1.29	1.27	1.17	1.19
4000	2.71	2.72	1.20	1.26	1.24	1.17	1.19
4200	2.80	2.81	1.19	1.22	1.21	1.18	1.20
4400	2.87	2.89	1.17	1.19	1.19	1.20	1.21
4600	2.92	2.95	1.15	1.15	1.16	1.21	1.22
4800	2.96	2.99	1.13	1.10	1.12	1.21	1.22
5000	2.98	3.02	1.10	1.07	1.09	1.22	1.22
5200	3.00	3.04	1.09	1.06	1.08	1.24	1.23
5400	3.01	3.06	1.08	1.07	1.08	1.26	1.24
5600	3.03	3.07	1.08	1.08	1.08	1.25	1.23
5800	3.02	3.08	1.10	1.12	1.13	1.26	1.22
6000	3.07	3.11	1.13	1.16	1.18	1.28	1.23
6200	3.08	3.13	1.16	1.19	1.21	1.29	1.24
6400	3.12	3.15	1.17	1.20	1.21	1.27	1.23
6500	3.15	3.17	1.18	1.20	1.21	1.26	1.22

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Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

FREQUENCY (MHz)	ISOLATION (dB)			
	COM- Port1	COM- Port2	Port1- Port2	Between Switches
10	104.87	120.83	115.48	106.15
20	104.18	104.04	106.14	111.56
40	113.89	105.64	104.14	127.28
50	121.98	105.24	106.17	97.97
60	108.66	103.99	103.39	107.20
70	107.66	110.60	113.74	108.02
80	103.65	121.08	105.86	102.77
90	102.63	100.94	102.93	103.07
100	105.67	105.86	111.80	99.79
200	109.94	102.87	101.66	104.11
300	108.12	107.32	107.51	109.39
400	98.97	103.85	102.78	107.50
500	107.59	100.85	98.89	99.28
600	104.47	98.87	103.39	115.94
700	97.61	99.13	91.99	98.43
800	103.47	97.40	97.62	103.22
900	101.26	98.08	96.33	120.42
1000	100.49	97.05	93.31	101.71
1100	99.07	97.09	95.81	110.28
1200	91.52	97.27	90.26	106.11
1300	96.01	97.76	88.03	106.68
1400	93.57	92.40	88.48	104.05
1500	93.80	89.55	90.10	105.68
1600	90.99	90.41	86.76	114.71
1700	90.35	89.06	85.58	119.70
1800	88.08	92.00	83.67	110.18
1900	87.88	88.48	83.39	105.59
2000	87.70	87.56	81.58	103.73
2200	85.07	84.40	79.43	97.82
2400	82.58	82.34	77.24	107.59
2600	79.04	79.07	74.80	98.68
2800	76.60	76.46	72.42	112.84
3000	74.17	74.11	69.78	109.16
3200	71.38	71.34	67.25	112.39
3400	70.56	70.09	65.81	99.10
3600	70.45	69.95	64.83	105.05
3800	70.88	70.46	64.92	103.58
4000	71.21	70.97	65.18	103.57
4200	71.22	71.54	65.28	106.63
4400	71.48	71.41	65.57	102.77
4600	70.81	70.94	65.29	113.02
4800	69.88	69.85	64.87	116.66
5000	69.09	68.91	64.39	112.69
5200	67.84	67.62	63.70	105.95
5400	66.56	65.97	62.77	96.95
5600	64.78	64.23	61.70	95.94
5800	63.59	62.71	60.25	103.54
6000	61.71	61.21	58.84	102.63
6200	59.64	58.97	57.15	106.99
6400	57.33	56.83	55.13	106.63
6500	56.35	55.78	54.16	102.51

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-Circuits' applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits 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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

