

Bi-Directional Coupler

SYBD-23-13HP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = +25°C

FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB)		(dB)		(dB)		(dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
500	0.00	0.01	28.93	28.94	22.16	21.78	46.72	47.07	54.25	45.24
600	0.02	0.00	27.39	27.38	21.88	21.19	48.07	48.65	47.12	44.08
700	0.03	0.01	26.07	26.08	21.59	20.86	48.62	47.81	43.31	43.17
750	0.04	0.01	25.50	25.51	21.37	20.67	48.74	49.13	42.03	42.48
800	0.04	0.02	24.96	24.96	21.23	20.46	50.12	51.80	41.12	41.81
810	0.04	0.01	24.85	24.85	21.19	20.47	49.61	51.77	40.80	41.87
820	0.04	0.01	24.75	24.75	21.15	20.45	49.20	52.52	40.59	41.24
830	0.04	0.01	24.65	24.65	21.20	20.39	49.17	53.24	40.54	41.22
840	0.04	0.01	24.55	24.55	21.20	20.36	49.45	53.98	40.65	40.68
850	0.05	0.01	24.45	24.44	21.11	20.37	49.66	54.46	40.48	40.85
860	0.05	0.01	24.35	24.34	21.15	20.41	49.36	55.85	40.24	40.76
870	0.05	0.02	24.26	24.26	21.05	20.37	48.47	57.19	39.99	40.87
880	0.05	0.02	24.17	24.17	20.91	20.26	47.82	57.19	39.78	40.71
890	0.05	0.02	24.07	24.07	21.02	20.26	47.74	57.41	39.59	40.36
900	0.05	0.03	23.97	23.99	21.01	20.19	48.38	56.10	39.43	39.82
910	0.07	0.04	23.89	23.90	21.03	20.21	48.48	55.02	39.34	39.91
920	0.06	0.04	23.80	23.81	20.99	20.14	47.32	55.76	39.12	39.88
930	0.06	0.05	23.71	23.72	20.98	20.16	46.32	57.52	38.87	40.04
940	0.07	0.04	23.63	23.63	20.89	20.14	45.21	58.74	38.89	39.86
950	0.07	0.05	23.54	23.55	20.96	20.11	45.62	58.68	38.79	39.64
960	0.07	0.06	23.45	23.46	20.99	20.14	46.20	55.78	38.76	39.13
970	0.07	0.06	23.36	23.37	20.93	20.13	45.57	54.03	38.54	38.99
980	0.08	0.06	23.28	23.29	20.97	20.23	45.01	53.62	38.49	38.90
990	0.08	0.06	23.19	23.20	20.97	20.28	44.24	55.51	38.17	39.09
1000	0.08	0.07	23.09	23.11	21.07	20.46	43.68	55.66	38.29	38.92
1010	0.09	0.07	23.02	23.06	20.82	20.22	43.47	53.82	38.08	38.82
1020	0.08	0.07	22.99	23.03	20.21	19.64	42.87	50.17	37.79	38.38
1100	0.10	0.07	22.36	22.37	20.41	19.89	40.18	45.59	36.96	36.55
1200	0.12	0.08	21.73	21.69	19.94	19.37	37.50	42.05	35.62	35.43
1300	0.13	0.10	21.07	21.09	19.76	19.46	35.35	37.45	34.43	33.74
1400	0.14	0.11	20.50	20.51	19.70	19.55	34.14	35.48	33.13	32.28
1500	0.16	0.14	20.01	20.02	19.37	19.50	32.03	32.46	31.69	31.09
1600	0.17	0.14	19.52	19.53	19.62	19.81	31.54	31.32	30.97	30.21
1700	0.18	0.16	19.06	19.08	20.07	20.39	30.84	30.41	29.58	29.08
1800	0.22	0.18	18.63	18.63	20.82	21.69	30.20	29.88	29.26	28.94
1900	0.25	0.20	18.26	18.25	21.62	22.17	30.14	29.72	28.84	28.94
2000	0.25	0.21	18.14	18.15	19.55	19.76	30.45	29.44	28.05	28.28
2100	0.28	0.22	17.84	17.88	19.42	19.70	30.10	29.33	28.09	28.93
2200	0.29	0.24	17.45	17.46	21.27	21.18	32.04	31.05	29.05	30.27
2300	0.31	0.26	17.26	17.26	21.00	20.54	32.75	31.79	30.17	31.53
2400	0.34	0.27	17.01	17.04	20.78	20.37	34.84	33.88	31.21	33.74
2500	0.33	0.27	16.75	16.76	21.67	20.50	39.15	37.80	32.91	36.28
2600	0.35	0.30	16.51	16.54	21.71	20.52	44.66	46.26	33.90	38.36
2700	0.36	0.31	16.34	16.37	21.14	20.08	48.29	49.05	33.77	36.31
2800	0.38	0.34	16.10	16.12	21.04	19.87	38.84	38.55	31.67	33.37
2900	0.40	0.37	15.83	15.88	19.88	19.82	34.11	34.19	29.54	31.67
3000	0.40	0.36	15.84	15.89	18.24	17.56	32.97	32.59	29.23	28.74
3500	0.47	0.43	15.01	15.02	14.92	15.86	28.87	26.82	29.96	28.57
4000	0.53	0.49	14.40	14.44	12.87	13.76	36.22	29.72	39.40	34.58
4500	0.70	0.59	13.96	14.06	12.52	13.13	22.94	23.65	28.75	29.33
5000	0.76	0.66	13.80	13.92	11.93	12.67	19.72	20.06	30.60	30.66
5500	0.86	0.74	13.53	13.69	10.14	11.95	18.74	18.40	25.95	26.50
6000	0.99	0.89	13.22	13.56	7.34	9.38	16.96	16.05	17.66	18.09

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Bi-Directional Coupler

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Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = -55°C

FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB)		(dB)		(dB)		(dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
500	0.04	0.09	28.92	28.92	22.27	21.85	47.80	49.88	43.77	41.71
600	0.02	0.09	27.36	27.37	22.10	21.59	55.00	56.69	42.67	41.43
700	0.01	0.09	26.05	26.06	21.86	21.30	57.35	57.83	42.44	42.82
750	0.01	0.09	25.46	25.47	21.74	21.18	51.94	56.53	41.80	42.87
800	0.01	0.09	24.94	24.94	21.30	20.67	51.14	56.07	40.45	41.78
810	0.02	0.11	24.82	24.83	21.44	20.77	49.83	57.45	40.14	41.85
820	0.02	0.11	24.71	24.72	21.49	20.87	49.55	58.37	39.95	41.43
830	0.01	0.11	24.61	24.62	21.36	20.74	49.54	56.97	39.84	41.16
840	0.01	0.10	24.52	24.52	21.40	20.71	49.43	56.11	39.89	40.73
850	0.01	0.10	24.41	24.41	21.43	20.72	49.47	55.69	39.67	40.79
860	0.01	0.10	24.31	24.33	21.41	20.74	48.32	56.24	39.39	40.80
870	0.01	0.10	24.22	24.23	21.41	20.67	46.85	59.50	39.11	40.95
880	0.01	0.10	24.13	24.14	21.25	20.61	45.85	58.23	38.87	40.70
890	0.01	0.10	24.03	24.04	21.26	20.56	45.77	56.95	38.72	40.40
900	0.01	0.10	23.94	23.95	21.37	20.57	46.10	55.46	38.56	39.91
910	0.00	0.09	23.85	23.86	21.36	20.55	46.14	55.45	38.45	39.99
920	0.00	0.08	23.76	23.77	21.31	20.49	45.09	56.62	38.22	40.06
930	0.00	0.07	23.67	23.69	21.20	20.48	44.01	59.42	38.02	40.33
940	0.01	0.08	23.59	23.60	21.20	20.40	43.01	60.51	38.08	40.37
950	0.01	0.07	23.50	23.52	21.16	20.42	43.30	60.44	38.14	40.25
960	0.01	0.08	23.42	23.43	21.19	20.47	43.68	57.61	38.24	39.90
970	0.01	0.07	23.32	23.34	21.17	20.45	43.23	57.06	38.17	39.91
980	0.01	0.07	23.24	23.25	21.15	20.51	42.83	57.90	38.09	39.96
990	0.01	0.07	23.16	23.16	21.15	20.47	42.22	62.54	37.72	40.16
1000	0.01	0.07	23.07	23.08	21.18	20.55	41.95	60.84	37.77	39.94
1010	0.02	0.07	22.98	23.00	21.21	20.56	42.23	57.86	37.81	39.75
1020	0.02	0.07	22.90	22.91	21.18	20.53	41.98	57.60	37.66	39.54
1100	0.04	0.07	22.32	22.33	20.51	19.97	39.60	54.98	36.54	38.09
1200	0.04	0.08	21.63	21.62	20.21	19.70	39.03	50.31	37.01	38.10
1300	0.05	0.07	20.98	21.00	19.75	19.22	37.03	41.68	36.50	36.85
1400	0.06	0.06	20.37	20.40	19.74	19.42	35.33	37.88	35.43	35.12
1500	0.06	0.05	19.87	19.88	19.51	19.45	33.18	33.96	32.84	32.38
1600	0.07	0.05	19.46	19.50	18.86	18.80	32.67	32.41	30.95	30.41
1700	0.09	0.03	18.96	18.98	19.60	20.06	33.02	32.17	29.99	29.30
1800	0.10	0.02	18.57	18.58	19.68	19.87	32.62	31.04	28.81	28.73
1900	0.13	0.02	18.25	18.25	19.89	19.51	30.86	29.76	28.14	28.05
2000	0.15	0.00	17.88	17.88	20.78	20.69	30.28	28.96	27.43	27.71
2100	0.16	0.01	17.61	17.63	20.11	20.82	29.59	28.35	27.90	28.59
2200	0.19	0.01	17.29	17.27	21.32	21.72	31.19	29.86	27.37	28.09
2300	0.18	0.01	17.06	17.07	21.49	21.26	31.23	29.58	28.10	28.39
2400	0.21	0.00	16.86	16.88	20.52	20.64	31.60	29.81	30.81	31.05
2500	0.22	0.03	16.61	16.62	21.76	21.20	32.67	32.09	31.62	32.86
2600	0.22	0.04	16.30	16.39	22.53	21.50	36.47	36.45	35.54	36.20
2700	0.25	0.06	16.11	16.14	23.29	20.94	45.52	43.95	33.17	36.91
2800	0.24	0.06	16.03	16.09	20.71	18.49	44.39	41.10	31.45	33.11
2900	0.23	0.05	15.90	15.93	19.02	18.01	37.10	36.15	29.53	31.02
3000	0.26	0.05	15.64	15.70	18.22	18.38	32.56	32.04	27.55	27.94
3500	0.30	0.09	14.82	14.79	14.39	15.27	26.05	25.51	30.56	30.66
4000	0.36	0.12	14.17	14.14	12.67	13.77	40.37	30.90	33.73	46.49
4500	0.47	0.18	13.72	13.80	13.22	12.93	22.33	22.40	31.74	28.90
5000	0.53	0.24	13.40	13.56	11.98	12.71	19.19	19.39	25.97	26.80
5500	0.61	0.26	13.18	13.38	9.46	12.20	18.61	18.46	23.85	25.70
6000	0.72	0.36	12.97	13.10	7.68	10.25	17.19	15.89	17.78	18.63

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Bi-Directional Coupler

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Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = +100°C

FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB)		(dB)		(dB)		(dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
500	0.02	0.03	28.94	28.95	22.38	21.64	42.96	43.00	48.76	43.00
600	0.04	0.04	27.38	27.41	21.86	20.96	43.95	43.92	45.01	42.67
700	0.05	0.05	26.09	26.10	21.38	20.46	44.12	42.77	40.88	41.28
750	0.06	0.06	25.49	25.52	21.23	20.49	44.64	43.69	40.16	41.13
800	0.07	0.06	24.99	24.99	20.86	19.97	46.42	45.56	39.85	41.28
810	0.06	0.05	24.87	24.88	20.85	20.04	46.09	45.46	39.57	41.30
820	0.06	0.05	24.75	24.78	20.96	20.01	45.64	45.65	39.33	40.79
830	0.06	0.06	24.66	24.68	20.92	19.89	45.76	46.07	39.28	40.96
840	0.06	0.06	24.56	24.57	20.83	19.98	46.30	46.66	39.50	40.49
850	0.07	0.06	24.46	24.47	20.90	19.96	46.61	47.25	39.37	40.69
860	0.07	0.06	24.37	24.37	20.79	19.90	46.77	47.80	39.16	40.77
870	0.07	0.07	24.27	24.29	20.59	19.81	46.44	48.28	38.90	40.99
880	0.07	0.07	24.19	24.20	20.64	19.83	46.02	48.56	38.76	40.77
890	0.08	0.08	24.08	24.10	20.65	19.84	46.12	48.82	38.75	40.49
900	0.07	0.08	23.99	24.01	20.66	19.84	46.84	48.76	38.74	40.09
910	0.09	0.09	23.92	23.93	20.70	19.75	47.17	48.05	38.72	40.24
920	0.09	0.10	23.83	23.84	20.61	19.72	46.27	48.29	38.50	40.46
930	0.09	0.10	23.73	23.75	20.48	19.65	45.25	48.79	38.33	40.71
940	0.09	0.10	23.65	23.67	20.47	19.65	44.32	50.39	38.29	40.57
950	0.09	0.11	23.57	23.58	20.47	19.62	44.75	51.59	38.24	40.23
960	0.09	0.11	23.47	23.49	20.46	19.55	45.63	51.89	38.21	39.56
970	0.10	0.12	23.39	23.41	20.42	19.59	45.25	50.57	38.03	39.42
980	0.10	0.12	23.30	23.33	20.48	19.67	44.67	50.11	37.90	39.31
990	0.10	0.12	23.22	23.24	20.48	19.70	43.93	51.77	37.52	39.46
1000	0.10	0.13	23.13	23.16	20.48	19.72	43.55	54.37	37.61	39.21
1010	0.11	0.13	23.05	23.08	20.46	19.68	43.99	57.19	37.67	39.07
1020	0.10	0.13	22.96	22.99	20.45	19.77	43.53	54.16	37.56	38.81
1100	0.13	0.13	22.40	22.42	19.70	19.41	39.29	45.83	36.28	36.69
1200	0.14	0.14	21.72	21.72	19.66	19.34	36.66	41.86	35.00	34.92
1300	0.16	0.16	21.09	21.11	19.48	19.25	34.36	37.03	33.85	33.43
1400	0.17	0.18	20.51	20.53	19.56	19.59	33.51	35.30	32.50	31.78
1500	0.18	0.21	20.00	20.02	19.42	19.81	31.57	32.19	31.42	30.56
1600	0.20	0.23	19.63	19.66	18.95	18.96	30.65	30.56	30.44	29.65
1700	0.22	0.24	19.08	19.11	20.03	20.87	30.04	29.82	29.86	28.88
1800	0.24	0.28	18.80	18.84	19.35	20.17	29.44	28.81	29.16	28.86
1900	0.28	0.30	18.44	18.44	20.23	20.59	29.69	28.84	28.97	28.87
2000	0.29	0.32	18.11	18.12	20.71	21.11	31.38	29.96	29.04	28.95
2100	0.31	0.31	17.82	17.86	20.30	20.74	30.63	29.29	29.55	30.03
2200	0.34	0.35	17.46	17.46	21.84	21.99	32.33	31.09	30.81	31.88
2300	0.37	0.36	17.34	17.39	19.88	19.36	32.63	31.14	31.26	33.04
2400	0.38	0.37	17.08	17.10	20.49	20.06	36.67	34.21	32.43	35.01
2500	0.40	0.41	16.77	16.85	21.57	20.31	40.62	39.58	32.69	37.60
2600	0.40	0.45	16.52	16.58	22.15	20.34	56.32	54.14	32.80	40.68
2700	0.42	0.45	16.36	16.41	21.45	19.43	45.18	50.87	32.10	37.40
2800	0.44	0.49	16.33	16.35	19.21	18.12	39.24	40.40	31.36	34.60
2900	0.42	0.48	16.15	16.24	17.98	17.25	37.96	37.46	31.62	32.57
3000	0.44	0.49	15.95	15.98	18.31	17.59	33.04	32.88	31.37	29.63
3500	0.52	0.59	15.16	15.15	14.99	15.89	29.68	27.31	28.58	27.47
4000	0.61	0.69	14.54	14.55	12.51	13.62	35.24	28.80	42.68	34.75
4500	0.78	0.79	14.17	14.25	11.72	12.77	22.68	23.16	27.60	27.90
5000	0.90	0.93	13.89	14.01	12.26	12.80	19.02	19.51	27.63	30.54
5500	0.95	1.01	13.69	13.91	10.22	11.82	19.03	18.47	26.61	25.70
6000	1.10	1.20	13.41	13.75	7.64	9.18	17.20	16.25	18.17	17.82

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