

# Bi-Directional Coupler

# SYBD-18-172HP+

## Typical Performance Data

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

FREQ. (MHz)	INSERTION LOSS (dB)		COUPLING (dB)		DIRECTIVITY (dB)		RETURN LOSS (dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
1000	0.04	0.02	22.85	22.86	29.68	27.38	31.54	31.33	30.23	30.93
1200	0.08	0.04	21.39	21.38	29.82	26.78	30.24	30.31	29.25	29.88
1250	0.09	0.05	21.10	21.11	31.43	27.37	30.26	30.60	29.31	29.91
1300	0.10	0.06	20.79	20.79	31.84	27.25	30.44	30.65	29.34	29.86
1350	0.10	0.07	20.49	20.51	31.25	27.02	30.72	30.79	29.51	30.01
1375	0.11	0.07	20.33	20.35	32.39	27.93	30.82	30.86	29.58	30.04
1400	0.11	0.08	20.16	20.17	31.09	27.46	30.56	30.60	29.76	30.27
1450	0.12	0.07	19.99	19.99	30.80	25.92	31.29	30.96	30.57	31.08
1475	0.11	0.06	19.86	19.87	31.96	26.47	31.72	31.61	30.72	30.99
1500	0.10	0.07	19.68	19.68	34.48	28.03	31.54	31.77	30.86	30.89
1550	0.11	0.08	19.38	19.39	33.68	28.45	31.78	31.93	31.41	31.41
1575	0.12	0.09	19.29	19.28	31.68	26.79	31.97	31.82	31.81	32.19
1580	0.12	0.09	19.31	19.31	32.41	26.17	32.01	31.84	32.08	32.39
1600	0.12	0.08	19.23	19.25	31.77	26.12	32.95	33.08	32.76	32.69
1625	0.12	0.07	19.06	19.08	36.40	28.80	32.75	33.08	33.43	32.65
1650	0.12	0.08	18.92	18.94	37.60	29.26	33.02	33.63	33.80	32.80
1675	0.12	0.08	18.80	18.82	36.98	29.41	33.47	34.17	33.97	33.07
1700	0.13	0.08	18.68	18.68	39.38	30.08	33.50	34.36	35.03	33.67
1725	0.13	0.10	18.57	18.58	34.34	28.45	34.41	35.11	34.68	33.84
1750	0.13	0.10	18.49	18.51	40.20	29.49	33.90	35.74	36.52	35.15
1775	0.15	0.11	18.34	18.35	35.91	29.90	34.49	35.93	36.30	35.07
1800	0.14	0.11	18.27	18.29	42.49	30.26	34.42	36.65	38.46	36.25
1850	0.16	0.11	18.04	18.05	40.32	31.96	35.01	37.11	39.47	36.18
1900	0.18	0.15	17.81	17.82	33.57	31.18	35.45	36.46	39.01	38.49
1950	0.17	0.14	17.78	17.78	42.78	29.50	34.23	36.95	40.16	37.42
2000	0.19	0.15	17.59	17.60	38.88	30.36	34.56	36.44	38.13	37.44
2100	0.21	0.15	17.21	17.23	43.43	34.07	33.76	35.23	36.31	36.13
2200	0.21	0.18	17.06	17.08	41.25	29.67	32.18	33.87	33.56	35.23
2300	0.26	0.19	16.72	16.72	41.16	32.72	32.25	31.69	33.68	35.76
2400	0.26	0.19	16.53	16.50	38.18	33.78	32.15	31.72	34.09	34.94
2500	0.28	0.20	16.28	16.30	37.71	35.05	32.59	31.79	35.67	36.67
2600	0.30	0.22	15.93	15.91	30.84	40.80	33.83	31.58	41.86	41.44
2700	0.33	0.29	15.89	16.05	30.71	27.69	34.45	29.62	40.25	40.62
2800	0.32	0.28	15.62	15.67	32.08	39.18	33.27	30.39	41.24	41.26
2900	0.33	0.27	15.34	15.39	27.89	30.33	31.59	28.98	33.56	34.88
3000	0.34	0.31	15.20	15.22	26.42	28.13	29.53	28.38	29.38	30.71
3100	0.38	0.30	14.96	15.04	25.31	26.88	27.96	27.07	27.02	27.80
3200	0.39	0.32	14.83	14.85	24.71	26.32	25.82	25.61	24.95	25.38
3300	0.42	0.35	14.66	14.67	22.93	23.88	24.69	24.41	23.77	23.99
3400	0.43	0.36	14.54	14.57	22.51	23.61	23.85	23.95	22.82	23.13
3500	0.45	0.40	14.41	14.37	21.88	22.80	22.92	23.17	22.39	22.85
3600	0.47	0.40	14.28	14.33	21.15	21.88	22.81	23.17	22.64	22.58
3700	0.47	0.41	14.10	14.12	22.09	21.36	22.88	23.27	22.82	22.76
3800	0.48	0.41	14.01	14.05	20.76	20.44	22.70	23.49	23.56	23.39
3900	0.50	0.44	13.89	13.85	21.23	20.39	23.30	23.71	24.71	24.70
4000	0.51	0.44	13.81	13.76	21.01	19.41	24.07	24.69	26.50	26.27
4500	0.60	0.52	13.39	13.39	21.56	18.43	28.37	28.62	31.79	31.26
4750	0.62	0.56	13.30	13.33	23.51	18.11	25.49	26.45	25.79	25.70
5000	0.68	0.60	13.36	13.29	24.29	18.65	23.78	24.56	23.70	23.77
5500	0.73	0.64	13.44	13.46	25.27	17.34	22.15	23.50	23.38	23.86
6000	0.78	0.71	13.54	13.67	25.92	16.53	22.18	22.91	21.77	20.70
6500	0.91	0.88	13.79	13.95	19.57	14.52	19.99	22.01	17.30	16.68
7000	1.15	1.13	14.54	14.66	15.25	14.38	15.07	16.56	13.50	13.24

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# Bi-Directional Coupler

# SYBD-18-172HP+

## 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
1000	0.02	0.11	22.79	22.79	28.61	26.60	31.44	31.14	29.95	30.70
1200	0.01	0.11	21.32	21.30	28.89	26.15	29.18	29.22	28.02	28.81
1250	0.01	0.11	21.03	21.02	29.88	26.40	29.30	29.49	27.54	28.28
1300	0.01	0.10	20.72	20.71	30.27	26.61	29.56	29.60	27.47	28.04
1350	0.02	0.09	20.41	20.41	29.69	25.83	29.74	29.54	27.78	28.15
1375	0.02	0.09	20.25	20.25	31.49	26.89	29.87	29.56	28.03	28.35
1400	0.02	0.08	20.06	20.06	30.27	26.40	29.36	29.08	28.35	28.74
1450	0.03	0.10	19.97	19.95	29.28	24.68	30.10	29.38	29.37	29.93
1475	0.02	0.10	19.74	19.74	31.32	26.06	29.88	29.42	29.15	29.59
1500	0.02	0.11	19.59	19.58	32.45	26.99	29.89	29.63	29.26	29.44
1550	0.02	0.10	19.29	19.28	32.21	27.91	30.00	29.80	29.99	30.11
1575	0.03	0.09	19.18	19.16	30.80	26.89	30.30	29.82	30.78	31.02
1580	0.03	0.08	19.18	19.17	30.39	25.99	30.37	29.90	30.85	31.35
1600	0.03	0.09	19.07	19.09	30.32	25.26	31.03	30.86	30.97	31.42
1625	0.02	0.11	18.97	18.97	33.97	27.48	31.37	31.24	32.03	31.55
1650	0.03	0.11	18.82	18.83	34.97	27.94	31.97	32.05	31.67	31.20
1675	0.02	0.10	18.70	18.71	34.30	28.42	32.73	32.78	31.94	31.48
1700	0.03	0.10	18.57	18.56	37.00	29.24	32.97	33.43	33.35	32.52
1725	0.04	0.09	18.46	18.46	32.89	28.15	34.36	34.71	33.24	32.72
1750	0.04	0.09	18.38	18.39	36.89	28.89	34.13	35.38	35.84	34.49
1775	0.04	0.09	18.24	18.23	36.01	29.13	35.00	36.39	35.48	34.51
1800	0.04	0.09	18.15	18.15	41.17	30.20	34.98	37.43	37.78	35.67
1850	0.05	0.09	17.94	17.93	38.73	30.56	35.74	38.64	38.72	36.23
1900	0.08	0.06	17.63	17.62	33.99	32.64	35.91	37.74	37.67	36.02
1950	0.06	0.07	17.69	17.66	36.52	28.36	34.02	39.13	42.61	37.67
2000	0.08	0.06	17.44	17.44	40.65	31.16	34.09	39.14	38.79	38.47
2100	0.09	0.07	17.08	17.07	40.60	34.58	32.15	36.77	34.59	35.14
2200	0.10	0.06	16.90	16.90	34.91	30.18	30.19	33.82	31.74	32.64
2300	0.13	0.05	16.60	16.58	40.57	33.26	29.65	31.31	32.35	32.43
2400	0.14	0.04	16.37	16.36	34.74	33.65	29.20	31.13	34.26	34.66
2500	0.16	0.05	16.13	16.11	36.02	39.71	30.21	31.56	35.82	36.39
2600	0.18	0.02	15.78	15.67	28.12	33.72	33.06	33.12	36.18	36.50
2700	0.21	0.02	15.67	15.81	26.49	28.61	33.34	29.65	37.84	37.10
2800	0.18	0.00	15.43	15.46	30.85	37.22	31.26	29.45	42.41	39.48
2900	0.19	0.01	15.18	15.20	26.67	29.34	30.93	28.18	32.04	33.11
3000	0.20	0.02	15.01	15.02	26.68	26.47	28.93	27.57	29.56	31.15
3100	0.22	0.01	14.78	14.81	25.69	25.72	28.21	26.84	26.86	28.55
3200	0.23	0.02	14.62	14.62	24.30	26.21	27.04	25.94	24.63	25.78
3300	0.27	0.05	14.47	14.45	22.25	24.09	25.59	24.51	22.76	23.54
3400	0.26	0.05	14.35	14.36	22.30	22.72	23.67	23.04	22.32	22.79
3500	0.29	0.07	14.23	14.18	21.17	21.85	22.22	21.92	21.64	22.38
3600	0.31	0.07	14.05	14.06	20.76	22.06	22.08	21.70	23.00	23.13
3700	0.30	0.06	13.87	13.86	22.91	21.60	22.11	21.86	24.55	24.25
3800	0.31	0.06	13.77	13.79	21.61	20.86	21.97	22.11	24.39	24.05
3900	0.32	0.08	13.65	13.59	21.98	21.25	22.79	22.80	25.03	24.65
4000	0.34	0.09	13.57	13.50	21.71	20.03	23.27	23.49	25.06	24.70
4500	0.39	0.13	13.15	13.11	21.55	18.39	27.08	29.81	34.05	34.74
4750	0.41	0.15	12.95	13.00	24.27	18.38	25.24	27.19	27.40	27.17
5000	0.47	0.17	12.99	12.92	25.61	18.26	22.89	23.58	23.91	23.66
5500	0.49	0.19	13.12	13.08	27.45	16.71	21.93	22.86	21.37	21.08
6000	0.52	0.21	13.18	13.30	26.77	16.93	22.92	23.92	22.22	21.62
6500	0.65	0.32	13.42	13.44	19.41	15.90	19.61	20.36	17.86	17.68
7000	0.84	0.64	14.11	14.29	18.23	13.93	15.00	15.99	12.56	11.99

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# Bi-Directional Coupler

# SYBD-18-172HP+

## Typical Performance Data

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

FREQ. (MHz)	INSERTION LOSS (dB)		COUPLING (dB)		DIRECTIVITY (dB)		RETURN LOSS (dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
1000	0.07	0.09	22.89	22.91	31.75	27.27	31.78	31.52	30.34	31.08
1200	0.11	0.12	21.44	21.44	32.36	27.53	30.86	30.70	30.23	30.65
1250	0.12	0.13	21.16	21.17	33.94	27.35	30.92	31.03	30.46	30.79
1300	0.12	0.14	20.84	20.85	34.25	27.45	31.12	31.09	30.48	30.57
1350	0.13	0.16	20.52	20.56	32.26	26.74	31.38	31.13	30.40	30.42
1375	0.14	0.16	20.38	20.41	34.42	27.96	31.59	31.37	30.43	30.33
1400	0.14	0.17	20.21	20.23	32.41	27.44	31.30	31.00	30.75	30.61
1450	0.15	0.17	20.09	20.11	30.02	24.71	32.65	31.63	31.82	31.61
1475	0.13	0.16	19.90	19.92	35.35	27.02	32.49	32.24	32.05	31.30
1500	0.13	0.16	19.73	19.75	37.56	28.11	32.51	32.48	32.25	31.20
1550	0.14	0.18	19.44	19.46	36.70	29.03	32.88	32.85	32.62	31.52
1575	0.15	0.19	19.34	19.36	34.11	27.59	33.03	32.40	33.17	32.33
1580	0.16	0.20	19.33	19.35	34.86	27.05	33.10	32.47	33.27	32.31
1600	0.15	0.19	19.18	19.23	34.27	27.40	33.89	33.71	32.85	32.06
1625	0.15	0.18	19.14	19.17	38.21	28.37	33.85	34.00	34.59	32.26
1650	0.15	0.18	18.99	19.01	40.12	29.30	34.03	34.42	34.91	32.22
1675	0.15	0.19	18.86	18.89	39.61	29.61	34.37	35.26	34.48	32.11
1700	0.16	0.20	18.74	18.76	41.90	30.29	34.03	34.93	35.72	32.66
1725	0.16	0.20	18.63	18.66	36.61	29.66	35.03	36.03	34.70	32.44
1750	0.17	0.21	18.57	18.60	40.52	29.33	34.29	36.19	36.73	33.53
1775	0.18	0.22	18.44	18.49	36.04	29.47	35.02	36.54	35.75	34.16
1800	0.18	0.23	18.34	18.37	44.51	30.75	34.68	37.46	36.26	33.94
1850	0.19	0.24	18.14	18.16	37.48	31.07	35.35	38.16	36.01	34.14
1900	0.22	0.26	17.82	17.87	31.48	34.26	36.05	36.80	36.58	35.61
1950	0.21	0.27	17.90	17.91	37.09	28.62	34.70	38.17	37.01	35.55
2000	0.22	0.28	17.62	17.66	36.89	32.79	35.16	38.08	36.82	35.87
2100	0.25	0.28	17.28	17.32	42.55	36.27	33.74	36.84	36.41	35.98
2200	0.26	0.31	17.12	17.14	45.01	31.62	32.79	35.70	36.47	36.85
2300	0.30	0.33	16.82	16.89	44.81	35.01	33.53	33.79	37.80	37.10
2400	0.31	0.34	16.58	16.59	42.39	35.12	33.13	33.55	39.87	37.91
2500	0.33	0.35	16.36	16.39	42.88	37.81	32.77	33.07	41.16	37.22
2600	0.35	0.38	16.05	16.03	35.18	38.07	33.63	32.29	46.69	36.28
2700	0.40	0.44	15.96	16.10	30.21	28.30	34.98	29.49	46.18	34.16
2800	0.37	0.43	15.76	15.85	35.82	33.63	33.67	30.90	37.63	35.77
2900	0.38	0.45	15.47	15.53	29.51	30.46	32.05	29.55	31.64	32.22
3000	0.40	0.48	15.28	15.38	27.53	27.09	29.90	28.77	28.24	28.93
3100	0.42	0.49	15.11	15.18	26.70	25.77	27.83	27.01	26.48	26.61
3200	0.45	0.52	14.95	14.99	25.45	25.66	24.99	24.91	25.10	24.77
3300	0.49	0.55	14.76	14.80	23.85	23.12	23.61	23.57	24.67	24.13
3400	0.49	0.55	14.70	14.71	23.02	23.06	23.20	23.50	24.05	23.29
3500	0.52	0.60	14.55	14.56	22.52	21.72	22.67	22.91	24.00	23.12
3600	0.54	0.61	14.44	14.44	21.89	21.14	22.79	23.25	23.93	22.56
3700	0.54	0.63	14.26	14.27	22.26	20.60	23.15	23.50	24.07	22.65
3800	0.56	0.64	14.14	14.22	20.97	19.98	22.94	23.79	25.05	23.50
3900	0.57	0.66	14.02	14.02	21.10	19.86	23.77	24.28	27.04	25.58
4000	0.58	0.68	13.92	13.93	21.55	19.60	24.87	25.78	30.33	28.65
4500	0.69	0.78	13.58	13.57	21.59	18.99	27.30	26.89	33.77	28.83
4750	0.72	0.83	13.49	13.51	23.65	19.06	24.12	24.01	27.39	24.97
5000	0.79	0.88	13.51	13.44	25.35	19.31	23.74	23.73	26.73	26.67
5500	0.84	0.97	13.63	13.75	24.45	16.43	22.71	25.01	22.73	22.91
6000	0.88	1.10	13.72	13.87	25.20	14.79	21.67	21.97	18.68	17.47
6500	1.03	1.27	13.95	14.23	20.29	14.90	20.12	22.05	17.57	15.83
7000	1.35	1.50	14.87	14.74	15.47	14.78	15.39	17.60	15.54	16.15

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