

# Bi-Directional Coupler

# SYBD-24-142HP+

## 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	0.03	0.02	31.24	31.25	38.49	36.34	41.15	42.17	40.47	44.01
600	0.02	0.02	29.70	29.70	36.85	34.22	38.61	39.04	39.14	40.82
700	0.00	0.00	28.42	28.43	34.96	32.78	36.36	36.23	38.05	38.31
800	0.01	0.01	27.29	27.30	33.85	32.02	34.77	34.67	37.15	36.89
850	0.02	0.01	26.79	26.79	33.18	31.09	34.01	33.57	36.83	36.45
900	0.02	0.02	26.31	26.33	32.95	30.67	33.47	33.04	36.56	36.23
950	0.03	0.03	25.86	25.87	32.04	30.55	32.71	32.25	36.07	35.70
960	0.03	0.03	25.76	25.78	32.10	30.31	32.56	32.20	36.12	35.61
970	0.01	0.01	25.66	25.67	32.00	29.97	32.60	32.15	35.98	35.73
980	0.01	0.01	25.56	25.58	31.46	29.68	32.56	32.06	35.97	35.79
990	0.01	0.01	25.49	25.51	31.20	29.05	32.53	32.04	35.91	35.91
1000	0.02	0.01	25.42	25.43	30.75	28.72	32.50	31.89	35.96	35.89
1100	0.02	0.03	24.68	24.70	30.26	28.00	32.23	31.50	36.01	36.12
1150	0.03	0.03	24.32	24.34	29.99	27.60	31.90	31.18	35.81	36.61
1200	0.04	0.04	23.97	23.98	29.29	27.85	32.08	31.37	35.94	37.09
1230	0.04	0.04	23.81	23.82	28.54	26.85	32.04	31.31	36.57	37.65
1240	0.04	0.05	23.73	23.76	28.37	26.99	32.04	31.35	36.53	37.80
1250	0.03	0.04	23.67	23.70	28.17	26.41	32.15	31.47	36.52	37.85
1260	0.03	0.04	23.63	23.65	28.02	26.25	32.19	31.56	36.78	38.29
1300	0.03	0.04	23.37	23.39	28.23	26.54	32.55	31.87	37.44	38.68
1350	0.04	0.05	23.04	23.07	28.75	26.90	32.70	32.02	38.11	39.47
1400	0.05	0.05	22.80	22.81	27.70	26.06	33.50	32.81	39.00	41.27
1450	0.06	0.06	22.52	22.54	28.10	25.98	34.21	33.53	39.73	42.51
1500	0.06	0.07	22.34	22.36	26.19	24.91	35.68	34.97	41.24	45.05
1600	0.08	0.08	21.76	21.78	28.06	26.74	38.34	37.37	41.44	43.70
1700	0.09	0.09	21.44	21.45	26.20	24.67	46.35	44.90	39.29	39.87
1800	0.10	0.11	21.08	21.09	25.84	24.63	52.79	51.49	36.86	36.65
1900	0.12	0.12	20.82	20.84	24.37	23.30	40.51	39.53	34.44	34.38
2000	0.12	0.13	20.42	20.44	25.98	25.17	37.00	36.11	33.50	33.16
2100	0.15	0.15	20.10	20.14	26.76	26.05	34.42	33.33	32.84	33.26
2200	0.16	0.16	19.77	19.82	29.03	28.57	33.49	32.66	33.31	34.04
2300	0.18	0.17	19.60	19.68	27.53	27.40	33.33	32.46	33.67	34.70
2400	0.19	0.18	19.38	19.38	29.21	28.83	33.67	32.93	36.33	37.67
2500	0.19	0.19	19.13	19.20	29.96	31.19	36.20	35.59	41.11	43.84
2600	0.22	0.20	19.00	19.07	27.27	28.95	40.14	40.94	49.50	54.69
2700	0.23	0.20	18.81	18.84	27.67	28.06	48.45	47.16	37.84	38.06
2800	0.23	0.25	18.58	18.68	27.07	25.76	37.26	35.45	32.24	32.03
2900	0.23	0.24	18.48	18.50	25.65	25.37	30.62	29.93	28.65	28.78
3000	0.26	0.26	18.39	18.40	22.98	22.02	27.01	26.45	26.26	26.42
3100	0.28	0.27	18.20	18.22	22.29	21.60	24.34	24.05	24.08	24.12
3200	0.29	0.29	18.10	18.13	20.45	19.10	22.27	22.20	22.51	22.84
3300	0.31	0.31	17.97	18.05	18.66	17.82	20.74	20.82	21.57	21.95
3400	0.33	0.32	17.83	17.89	17.58	17.22	19.73	19.81	20.95	21.15
3500	0.35	0.33	17.73	17.73	17.12	16.32	19.22	19.28	20.48	20.69
3600	0.36	0.34	17.61	17.57	16.01	15.37	18.87	18.85	20.60	20.62
3700	0.37	0.36	17.51	17.48	15.39	14.86	18.77	19.03	20.61	20.80
3800	0.38	0.36	17.39	17.35	14.92	14.32	19.09	19.41	21.03	21.27
3900	0.38	0.36	17.24	17.28	14.22	13.76	19.79	20.09	21.99	22.08
4000	0.38	0.37	17.17	17.22	13.50	13.24	20.87	20.88	23.12	23.17
4500	0.42	0.42	16.91	17.00	12.37	12.31	48.53	39.94	40.14	38.66
5000	0.48	0.47	17.10	17.15	12.68	12.68	27.52	28.54	32.42	34.78
5500	0.51	0.52	17.49	17.50	11.73	11.21	34.57	34.24	46.27	50.07
6000	0.59	0.58	17.91	17.82	8.81	8.57	26.41	27.99	27.46	30.11

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# Bi-Directional Coupler

# SYBD-24-142HP+

## 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	0.06	0.11	31.23	31.23	43.11	39.09	46.05	51.46	43.89	52.43
600	0.05	0.10	29.67	29.68	39.10	36.41	41.84	43.10	42.12	44.44
700	0.04	0.10	28.38	28.39	36.70	35.06	38.16	38.14	41.20	41.03
800	0.03	0.09	27.26	27.27	36.05	33.41	36.39	36.31	39.43	38.40
850	0.03	0.10	26.75	26.77	34.94	32.40	35.32	34.89	38.45	37.61
900	0.03	0.09	26.27	26.28	34.59	32.18	34.38	33.97	38.12	37.47
950	0.02	0.09	25.82	25.84	33.34	31.25	33.23	32.82	36.59	35.88
960	0.02	0.09	25.73	25.74	33.16	30.86	33.05	32.73	36.50	35.72
970	0.04	0.11	25.62	25.63	33.34	30.78	33.03	32.63	36.27	35.82
980	0.04	0.11	25.54	25.54	33.34	30.78	32.91	32.46	36.21	35.96
990	0.04	0.11	25.44	25.46	33.43	30.45	32.78	32.36	36.07	36.11
1000	0.03	0.11	25.36	25.37	32.89	30.24	32.69	32.17	36.08	36.19
1100	0.03	0.11	24.60	24.62	31.40	28.26	31.89	31.19	34.52	35.36
1150	0.02	0.10	24.26	24.28	30.48	28.20	31.39	30.71	34.38	35.88
1200	0.02	0.10	23.94	23.93	29.89	27.62	31.45	30.78	34.81	36.38
1230	0.01	0.10	23.79	23.79	28.38	26.38	31.47	30.73	34.99	36.29
1240	0.02	0.10	23.70	23.71	28.83	26.80	31.46	30.80	34.79	36.18
1250	0.02	0.10	23.62	23.62	28.77	27.15	31.44	30.83	34.63	36.02
1260	0.03	0.11	23.54	23.56	28.66	27.36	31.45	30.88	34.65	36.18
1300	0.02	0.10	23.33	23.35	27.04	25.67	31.94	31.39	34.92	36.33
1350	0.02	0.10	23.00	23.01	28.39	26.80	32.08	31.66	36.19	37.50
1400	0.01	0.10	22.70	22.71	27.99	26.92	32.72	32.32	36.03	37.53
1450	0.01	0.11	22.50	22.51	26.55	25.39	33.56	33.07	37.92	38.99
1500	0.01	0.10	22.17	22.17	28.38	26.48	34.29	33.77	39.58	40.69
1600	0.01	0.09	21.77	21.74	25.40	24.51	37.17	35.46	39.88	45.15
1700	0.02	0.09	21.42	21.43	24.72	23.32	41.15	39.59	38.01	38.18
1800	0.03	0.08	20.96	20.95	26.03	24.79	46.93	43.22	37.45	36.56
1900	0.04	0.08	20.44	20.47	29.55	27.41	50.74	41.97	34.56	33.92
2000	0.06	0.08	20.27	20.29	25.39	25.68	35.05	34.54	32.83	33.25
2100	0.07	0.06	19.98	20.00	26.12	27.98	33.19	32.39	32.59	33.90
2200	0.06	0.06	19.76	19.81	25.89	25.19	33.12	32.48	31.96	32.75
2300	0.08	0.05	19.59	19.58	27.06	25.75	31.33	31.06	31.89	32.04
2400	0.08	0.06	19.16	19.20	29.91	28.97	32.21	31.41	35.15	35.44
2500	0.10	0.05	18.88	18.96	36.35	40.10	36.41	35.66	42.97	40.90
2600	0.11	0.06	18.87	18.92	27.79	29.36	40.91	40.90	52.19	55.29
2700	0.13	0.03	18.66	18.75	26.57	25.66	48.56	53.93	35.49	35.69
2800	0.13	0.03	18.52	18.53	26.92	26.42	38.47	36.09	31.87	32.54
2900	0.14	0.03	18.27	18.30	25.79	25.50	31.77	30.20	27.76	28.58
3000	0.15	0.01	18.07	18.12	23.84	22.92	28.13	27.70	25.15	25.92
3100	0.16	0.01	18.02	18.03	21.95	21.22	25.15	24.61	23.47	23.63
3200	0.17	0.00	17.91	17.94	19.99	19.31	22.53	22.62	22.67	22.95
3300	0.19	0.01	17.83	17.78	18.28	17.85	20.84	20.80	21.58	21.84
3400	0.21	0.01	17.68	17.67	17.70	17.43	19.39	19.47	21.40	21.73
3500	0.24	0.02	17.55	17.55	16.80	16.42	18.51	18.69	21.34	21.42
3600	0.23	0.02	17.40	17.35	16.07	15.73	18.44	18.44	21.86	21.75
3700	0.26	0.04	17.32	17.25	16.33	15.08	18.86	18.90	21.46	21.56
3800	0.24	0.03	17.19	17.16	15.07	14.57	19.18	19.38	20.84	20.88
3900	0.25	0.03	17.06	17.06	14.11	14.19	19.79	20.04	20.91	20.89
4000	0.25	0.04	17.04	17.02	13.14	13.45	20.79	20.74	21.97	21.93
4500	0.26	0.06	16.59	16.62	13.40	12.85	50.64	39.70	30.02	29.27
5000	0.31	0.07	16.77	16.88	12.30	12.50	27.99	29.10	29.04	29.79
5500	0.33	0.08	17.21	17.26	11.18	11.13	36.23	33.81	33.18	32.20
6000	0.40	0.12	17.60	17.58	8.78	8.79	26.14	27.21	27.06	31.51

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# Bi-Directional Coupler

# SYBD-24-142HP+

## 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
500	0.01	0.02	31.25	31.26	36.25	33.85	38.54	39.30	37.76	40.10
600	0.01	0.04	29.71	29.72	35.22	32.78	36.71	37.09	37.61	39.30
700	0.03	0.06	28.43	28.44	33.31	31.68	35.19	35.15	37.25	37.87
800	0.05	0.08	27.32	27.33	33.26	30.93	34.36	34.29	36.84	37.05
850	0.05	0.08	26.81	26.83	32.42	30.73	33.95	33.54	36.99	36.92
900	0.06	0.09	26.33	26.36	32.39	30.58	33.73	33.28	37.10	37.02
950	0.07	0.10	25.89	25.91	31.52	29.97	33.31	32.79	37.12	36.74
960	0.06	0.10	25.80	25.83	31.56	29.83	33.19	32.77	37.35	36.76
970	0.05	0.08	25.70	25.72	31.68	30.01	33.29	32.75	37.36	37.01
980	0.05	0.08	25.61	25.63	31.70	30.07	33.30	32.70	37.55	37.24
990	0.05	0.08	25.51	25.54	31.65	29.99	33.26	32.70	37.62	37.53
1000	0.06	0.09	25.43	25.45	31.42	30.00	33.27	32.60	37.91	37.70
1100	0.07	0.11	24.68	24.70	30.59	27.85	33.47	32.64	38.96	38.63
1150	0.08	0.11	24.37	24.39	29.32	27.90	33.54	32.68	39.65	40.34
1200	0.08	0.13	24.02	24.03	29.84	28.18	33.90	33.10	40.46	41.80
1230	0.09	0.13	23.87	23.89	28.59	27.25	34.05	33.11	41.77	42.98
1240	0.09	0.13	23.78	23.81	29.15	27.62	33.95	33.16	41.57	43.21
1250	0.08	0.13	23.71	23.73	29.17	27.71	33.98	33.19	41.62	43.65
1260	0.08	0.12	23.64	23.66	29.30	27.65	33.99	33.24	42.04	44.50
1300	0.08	0.13	23.45	23.47	28.28	26.62	34.54	33.69	43.35	45.75
1350	0.09	0.14	23.12	23.13	29.31	27.43	34.72	33.71	44.28	47.43
1400	0.10	0.14	22.80	22.82	30.13	28.23	35.35	34.35	43.93	49.95
1450	0.11	0.15	22.59	22.61	28.67	27.04	36.21	35.29	43.64	49.30
1500	0.12	0.16	22.29	22.31	29.28	28.11	37.48	36.60	44.22	48.36
1600	0.14	0.19	21.87	21.88	27.30	26.99	42.21	40.56	42.56	45.17
1700	0.15	0.20	21.52	21.54	26.59	25.47	60.28	54.02	40.46	40.28
1800	0.16	0.23	21.03	21.06	29.54	28.28	55.28	50.20	38.70	38.98
1900	0.20	0.24	20.69	20.71	29.55	28.47	46.43	45.40	37.97	37.49
2000	0.20	0.25	20.44	20.47	28.28	27.02	39.57	39.36	37.09	35.63
2100	0.24	0.29	20.12	20.19	27.43	27.39	38.05	37.04	36.12	37.52
2200	0.24	0.29	19.92	20.00	26.69	26.39	35.46	35.42	38.25	39.01
2300	0.24	0.31	19.70	19.73	27.73	27.49	37.51	35.93	40.40	42.64
2400	0.26	0.34	19.46	19.41	27.81	29.24	40.13	38.39	41.67	50.11
2500	0.29	0.35	19.27	19.27	26.49	26.24	40.27	40.51	45.31	51.85
2600	0.30	0.35	19.12	19.16	26.25	26.10	47.64	47.48	45.68	47.40
2700	0.31	0.38	19.03	19.11	24.97	24.80	42.43	43.04	38.12	36.77
2800	0.34	0.40	18.72	18.76	26.86	27.57	36.20	33.87	33.50	32.85
2900	0.34	0.41	18.58	18.63	25.34	25.21	30.79	29.61	29.83	29.71
3000	0.36	0.44	18.39	18.44	24.33	23.68	26.75	26.50	27.81	27.59
3100	0.37	0.47	18.29	18.40	22.41	21.13	24.16	24.04	25.72	25.41
3200	0.38	0.48	18.19	18.23	21.12	19.72	22.68	22.80	23.81	23.94
3300	0.42	0.51	18.21	18.15	19.58	18.71	21.26	21.56	22.67	22.94
3400	0.43	0.53	18.05	18.05	17.79	17.65	20.72	20.91	21.77	21.80
3500	0.45	0.55	17.83	17.90	17.72	16.63	20.25	20.45	20.86	21.09
3600	0.47	0.57	17.80	17.73	16.08	15.55	19.69	19.74	20.53	20.84
3700	0.50	0.59	17.67	17.67	15.24	15.23	19.18	19.36	20.66	21.11
3800	0.50	0.61	17.50	17.51	15.00	14.73	19.30	19.53	21.22	21.81
3900	0.52	0.62	17.47	17.49	13.95	13.64	19.85	20.29	22.17	22.53
4000	0.51	0.62	17.35	17.40	13.50	13.02	20.98	21.05	23.28	23.61
4500	0.56	0.69	17.06	17.13	12.15	12.39	38.45	37.25	40.18	38.75
5000	0.64	0.80	17.37	17.44	12.69	11.95	27.37	28.16	31.78	40.16
5500	0.69	0.85	17.76	17.85	11.72	11.19	31.37	32.73	41.68	37.76
6000	0.76	0.95	18.30	18.11	8.66	8.49	26.18	28.23	27.05	28.66

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