

Bi-Directional Coupler

SYBD-20-142HP+

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	0.01	0.01	28.57	28.57	34.92	34.00	39.73	38.38	37.75	38.30
600	0.00	0.00	27.02	27.02	32.98	32.26	36.04	35.91	35.17	35.34
700	0.02	0.02	25.70	25.73	30.98	30.19	33.09	33.54	32.86	32.71
800	0.03	0.03	24.61	24.61	29.77	28.33	31.03	31.66	31.26	31.01
900	0.04	0.05	23.64	23.67	28.12	26.77	29.63	30.22	29.68	29.73
950	0.05	0.05	23.21	23.23	27.59	26.30	28.84	29.53	29.09	29.13
960	0.06	0.05	23.13	23.13	27.49	26.23	28.77	29.40	28.99	29.03
1000	0.04	0.04	22.75	22.77	27.47	26.08	28.46	28.89	28.58	28.70
1050	0.05	0.05	22.35	22.37	26.81	25.36	28.06	28.34	28.17	28.39
1100	0.06	0.06	21.99	21.99	26.03	24.64	27.76	28.07	27.89	28.24
1150	0.06	0.07	21.65	21.65	25.49	23.89	27.65	27.70	27.67	28.03
1200	0.08	0.07	21.36	21.34	24.59	23.19	27.59	27.63	27.67	28.02
1240	0.07	0.07	21.07	21.09	24.70	23.27	27.64	27.62	27.65	28.07
1250	0.07	0.07	21.00	21.01	24.68	23.16	27.63	27.66	27.63	28.03
1300	0.07	0.07	20.68	20.69	24.50	22.83	27.73	27.83	27.70	28.20
1350	0.08	0.08	20.44	20.44	23.35	22.06	28.13	28.20	27.96	28.47
1400	0.09	0.09	20.14	20.15	23.56	22.12	28.52	28.51	28.24	28.84
1450	0.09	0.10	19.89	19.89	23.37	21.92	29.18	29.13	28.82	29.42
1500	0.09	0.10	19.62	19.62	23.49	21.93	29.99	30.01	29.36	29.80
1600	0.11	0.12	19.13	19.14	23.27	21.58	31.96	32.17	31.03	31.40
1650	0.11	0.13	18.91	18.92	23.26	21.63	33.64	33.84	32.31	32.32
1700	0.12	0.13	18.70	18.71	23.29	21.61	35.66	35.95	33.76	33.01
1750	0.13	0.14	18.48	18.49	23.44	21.80	38.52	38.73	35.10	33.45
1800	0.14	0.16	18.26	18.23	24.00	22.24	41.73	42.38	35.99	34.33
1850	0.15	0.16	18.12	18.12	23.41	21.58	44.95	49.03	38.04	34.04
1900	0.16	0.17	17.93	17.93	23.96	21.99	43.39	45.51	38.76	33.72
1950	0.18	0.19	17.78	17.76	23.83	21.87	40.96	41.03	36.50	33.97
2000	0.19	0.19	17.69	17.68	22.99	21.15	37.04	37.11	35.78	32.72
2100	0.20	0.19	17.43	17.44	22.75	21.14	33.08	32.59	33.30	30.89
2150	0.21	0.20	17.29	17.29	23.26	21.35	32.06	31.49	32.65	30.53
2200	0.22	0.21	17.14	17.13	23.91	22.17	31.29	30.73	32.03	30.37
2300	0.25	0.22	16.94	16.96	23.71	22.02	29.91	29.52	31.16	30.27
2350	0.24	0.24	16.79	16.82	24.73	22.49	30.04	29.44	31.12	30.69
2400	0.23	0.25	16.65	16.66	25.46	23.41	30.10	29.35	31.39	31.20
2500	0.26	0.26	16.43	16.48	26.68	24.59	30.72	30.45	32.05	32.29
2750	0.28	0.29	15.90	15.91	29.83	28.56	36.95	41.55	34.38	39.72
3000	0.33	0.33	15.53	15.57	23.75	24.37	29.93	30.87	28.28	29.55
3250	0.37	0.37	15.18	15.23	20.79	20.33	23.92	23.80	23.72	24.09
3500	0.41	0.41	14.84	14.84	17.90	17.49	21.49	21.46	22.48	22.57
3750	0.44	0.45	14.51	14.54	15.74	15.28	21.78	22.02	23.74	23.81
4000	0.46	0.46	14.21	14.20	14.44	13.90	25.22	25.94	29.08	28.52
4250	0.49	0.50	13.96	13.94	13.69	13.06	33.61	46.53	42.70	35.11
4500	0.56	0.55	13.81	13.81	13.44	12.77	26.04	27.00	26.74	26.30
4750	0.62	0.60	13.83	13.79	13.18	12.52	20.76	21.30	22.59	22.53
5000	0.66	0.65	13.85	13.82	13.15	12.29	18.52	19.09	21.06	21.20
5250	0.72	0.69	13.81	13.80	12.83	12.04	17.58	18.00	20.46	20.52
5500	0.78	0.74	13.75	13.60	13.25	12.03	16.94	17.61	20.12	19.89
5750	0.80	0.78	13.70	13.54	12.32	11.33	16.50	17.09	18.87	18.60
6000	0.89	0.86	13.67	13.41	11.08	10.19	15.96	16.05	17.08	16.88
6250	1.00	0.98	13.46	13.21	10.26	9.73	14.60	14.68	15.11	14.98
6500	1.16	1.13	13.39	13.10	9.34	8.88	13.18	13.01	13.47	13.47
6750	1.41	1.35	13.53	13.11	8.46	8.20	11.23	11.43	12.17	12.08
7000	1.71	1.55	13.52	13.31	8.04	7.99	9.72	10.10	10.88	10.86

REV. X1

SYBD-20-142HP+

090208

Page 1 of 3



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



Bi-Directional Coupler

SYBD-20-142HP+

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	0.05	0.10	28.53	28.53	37.95	36.04	46.17	41.99	41.76	42.58
600	0.03	0.09	26.97	26.98	34.99	33.67	39.30	38.82	37.75	37.89
700	0.02	0.09	25.67	25.68	32.32	30.97	34.45	34.91	34.10	33.82
800	0.01	0.08	24.57	24.57	30.41	29.04	31.81	32.45	31.75	31.46
900	0.00	0.08	23.57	23.58	29.75	27.75	30.07	30.67	29.92	30.05
950	0.00	0.07	23.13	23.15	28.50	27.09	29.06	29.80	29.01	29.14
960	0.01	0.07	23.05	23.06	28.62	26.94	28.96	29.62	28.84	28.94
1000	0.01	0.09	22.68	22.70	28.42	26.44	28.43	28.87	28.22	28.44
1050	0.00	0.09	22.25	22.26	27.75	25.67	27.75	28.05	27.60	28.00
1100	0.01	0.08	21.92	21.93	25.67	24.44	27.24	27.58	27.15	27.71
1150	0.02	0.07	21.57	21.55	25.36	23.17	26.88	26.99	26.86	27.38
1200	0.02	0.08	21.28	21.27	25.27	23.50	26.76	26.83	26.61	27.04
1240	0.02	0.08	20.98	21.00	25.06	23.26	26.72	26.73	26.18	26.61
1250	0.02	0.08	20.90	20.91	24.85	23.03	26.71	26.78	26.08	26.52
1300	0.02	0.08	20.62	20.63	24.27	22.62	27.00	27.10	26.10	26.65
1350	0.02	0.08	20.30	20.31	23.91	22.39	27.42	27.50	26.34	26.79
1400	0.03	0.07	20.00	20.02	23.86	22.19	27.75	27.85	26.77	27.30
1450	0.03	0.06	19.76	19.75	23.25	21.88	28.41	28.37	27.51	28.15
1500	0.03	0.07	19.50	19.51	23.62	22.07	29.22	29.27	28.44	28.82
1600	0.05	0.06	19.07	19.09	22.73	21.11	30.65	30.93	30.26	30.59
1650	0.04	0.06	18.84	18.87	22.61	21.09	31.72	31.96	31.27	31.14
1700	0.05	0.05	18.60	18.60	22.83	21.50	32.79	32.98	32.48	32.35
1750	0.06	0.05	18.32	18.33	24.05	21.92	34.29	34.62	33.89	32.69
1800	0.06	0.05	18.13	18.15	24.08	21.76	36.01	37.36	35.61	32.87
1850	0.08	0.04	18.10	18.10	21.73	20.17	40.03	43.84	36.75	33.06
1900	0.08	0.02	17.92	17.92	22.03	20.12	39.72	53.11	36.84	33.49
1950	0.09	0.04	17.70	17.73	22.60	20.73	37.75	41.18	39.05	32.53
2000	0.10	0.03	17.53	17.56	23.00	21.17	35.66	36.62	36.75	32.91
2100	0.12	0.02	17.18	17.18	24.61	22.97	33.67	32.79	35.13	32.90
2150	0.15	0.00	17.22	17.20	22.17	21.04	32.04	31.48	32.11	31.39
2200	0.14	0.01	16.92	16.91	24.60	23.67	32.02	31.35	31.54	30.49
2300	0.14	0.01	16.75	16.74	23.85	22.72	30.06	29.09	29.86	28.88
2350	0.15	0.01	16.58	16.59	25.87	25.00	30.14	28.98	30.75	30.25
2400	0.16	0.01	16.54	16.53	24.72	23.24	29.44	28.69	31.12	30.17
2500	0.18	0.02	16.23	16.26	27.97	26.76	29.60	29.18	32.01	30.89
2750	0.21	0.04	15.59	15.66	31.08	30.38	37.19	43.91	32.57	35.76
3000	0.21	0.04	15.40	15.38	24.55	25.45	30.32	30.97	26.95	28.55
3250	0.25	0.08	15.01	15.04	20.48	20.12	23.92	23.87	23.29	23.99
3500	0.29	0.10	14.66	14.67	17.17	17.35	20.69	20.72	22.93	23.03
3750	0.30	0.12	14.27	14.30	16.01	16.02	21.65	21.77	23.73	24.08
4000	0.33	0.11	14.02	13.95	14.45	14.26	24.75	25.32	26.29	26.38
4250	0.35	0.13	13.77	13.74	13.47	13.50	31.57	40.37	36.71	38.42
4500	0.40	0.17	13.56	13.58	13.95	12.80	26.02	27.46	31.29	28.07
4750	0.46	0.19	13.51	13.49	13.36	12.51	20.70	21.48	23.71	23.27
5000	0.51	0.25	13.58	13.41	12.83	11.93	19.04	19.34	19.78	19.58
5250	0.54	0.26	13.56	13.46	13.30	11.68	17.41	18.05	19.26	18.64
5500	0.61	0.31	13.56	13.20	12.92	12.24	16.86	17.64	18.66	18.21
5750	0.60	0.33	13.45	13.28	12.30	11.53	16.32	16.88	17.90	17.76
6000	0.70	0.36	13.35	13.07	11.05	10.89	15.52	15.59	16.97	17.12
6250	0.81	0.42	13.18	12.88	10.37	9.81	14.44	14.47	16.17	16.18
6500	0.94	0.60	12.89	12.65	9.41	9.08	12.96	13.02	13.62	13.60
6750	1.19	0.78	13.13	12.79	8.77	7.28	11.37	11.50	11.72	11.32
7000	1.43	1.08	13.35	12.97	8.34	7.31	9.73	10.00	9.81	9.59

REV. X1

SYBD-20-142HP+

090208

Page 2 of 3



RF/MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



Bi-Directional Coupler

SYBD-20-142HP+

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	0.03	28.56	28.57	33.39	32.68	37.46	36.18	35.73	36.10
600	0.03	0.05	27.03	27.04	32.01	31.16	34.76	34.41	33.96	34.12
700	0.04	0.07	25.73	25.75	30.65	29.34	32.27	32.46	32.07	31.96
800	0.06	0.09	24.64	24.64	29.18	27.86	30.75	31.22	31.02	30.78
900	0.07	0.11	23.66	23.67	28.19	27.02	29.66	30.19	29.86	29.88
950	0.08	0.12	23.22	23.24	27.60	26.53	29.02	29.66	29.43	29.41
960	0.09	0.12	23.14	23.15	27.70	26.43	29.00	29.55	29.39	29.37
1000	0.07	0.11	22.78	22.79	27.67	26.13	28.74	29.11	29.12	29.15
1050	0.09	0.12	22.36	22.37	27.14	25.75	28.46	28.69	28.90	29.00
1100	0.10	0.13	22.05	22.05	25.52	24.41	28.42	28.73	28.89	29.18
1150	0.11	0.15	21.69	21.66	24.96	23.23	28.41	28.53	28.75	29.00
1200	0.11	0.14	21.39	21.38	25.40	23.93	28.51	28.62	28.91	29.17
1240	0.11	0.15	21.10	21.12	25.18	23.73	28.59	28.70	28.98	29.28
1250	0.11	0.15	21.03	21.04	25.11	23.71	28.61	28.76	28.96	29.26
1300	0.11	0.16	20.73	20.74	25.04	23.39	28.80	29.03	29.03	29.44
1350	0.12	0.17	20.42	20.42	24.92	23.25	29.01	29.23	29.10	29.52
1400	0.13	0.18	20.15	20.16	24.64	22.93	29.20	29.47	29.59	30.15
1450	0.14	0.19	19.91	19.91	24.19	22.67	29.88	30.04	30.15	30.85
1500	0.14	0.19	19.66	19.67	24.09	22.51	31.00	31.29	30.68	31.13
1600	0.16	0.22	19.23	19.24	23.35	21.67	33.30	34.05	32.39	32.58
1650	0.16	0.23	18.99	19.00	23.77	21.98	35.17	36.23	33.49	33.10
1700	0.18	0.24	18.79	18.79	23.45	21.98	37.47	38.75	34.38	33.79
1750	0.19	0.24	18.50	18.50	25.29	22.81	39.52	41.89	34.82	33.47
1800	0.19	0.26	18.34	18.34	24.79	22.62	41.40	45.71	36.51	33.92
1850	0.22	0.27	18.23	18.24	23.32	21.90	46.68	57.66	37.40	34.25
1900	0.21	0.31	18.15	18.11	22.71	20.79	43.24	46.02	36.12	35.41
1950	0.22	0.28	17.92	17.93	23.24	21.57	41.84	43.02	37.64	33.03
2000	0.24	0.30	17.75	17.79	23.57	21.56	40.19	40.76	36.82	32.82
2100	0.25	0.32	17.43	17.46	24.70	21.89	36.33	34.97	34.39	31.94
2150	0.29	0.34	17.41	17.36	22.88	21.88	34.55	34.31	33.63	32.46
2200	0.29	0.34	17.16	17.14	25.70	23.55	34.08	33.45	34.29	32.41
2300	0.29	0.34	17.02	17.01	24.55	22.08	32.05	31.32	33.34	31.90
2350	0.31	0.38	16.86	16.88	24.86	22.64	32.89	31.93	32.58	33.10
2400	0.32	0.38	16.77	16.73	25.33	22.77	32.89	32.80	33.32	33.17
2500	0.34	0.39	16.40	16.52	27.72	25.24	34.29	35.14	33.14	34.87
2750	0.39	0.46	15.94	15.95	27.20	28.53	35.57	50.99	33.24	38.59
3000	0.40	0.50	15.65	15.67	23.58	25.17	29.85	30.35	29.16	30.21
3250	0.45	0.56	15.30	15.37	21.05	20.13	24.83	24.57	25.00	25.14
3500	0.50	0.61	15.02	14.98	18.19	17.91	22.50	22.66	22.79	22.70
3750	0.54	0.65	14.65	14.69	16.00	15.36	21.96	22.47	24.28	24.24
4000	0.58	0.70	14.42	14.34	14.53	13.77	25.30	26.22	30.38	29.65
4250	0.61	0.75	14.14	14.18	13.36	12.87	34.19	42.61	42.17	34.28
4500	0.69	0.80	14.00	13.97	13.14	12.71	27.58	28.45	26.54	26.51
4750	0.78	0.87	14.01	13.99	13.16	12.41	21.34	21.80	22.33	22.57
5000	0.81	0.93	14.04	13.96	13.14	12.26	18.60	19.11	21.61	22.07
5250	0.89	0.99	14.03	13.99	12.72	11.91	17.46	18.00	21.36	21.87
5500	0.95	1.05	13.96	13.81	13.01	12.19	16.68	17.35	20.29	20.31
5750	0.97	1.13	14.01	13.83	12.57	11.08	16.25	16.74	19.11	18.72
6000	1.05	1.19	13.82	13.69	11.64	10.23	15.70	16.01	16.75	16.55
6250	1.14	1.34	13.77	13.42	10.15	9.68	15.09	14.84	14.70	14.35
6500	1.35	1.49	13.61	13.32	9.75	8.99	13.63	13.18	13.55	13.20
6750	1.60	1.71	13.94	13.43	8.29	7.74	11.53	11.62	12.84	12.69
7000	1.93	1.90	13.84	13.59	7.98	8.46	9.89	10.31	11.59	11.86

REV. X1

SYBD-20-142HP+

090208

Page 3 of 3



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see

