High Power

Bi-Directional Coupler

SYBD-10-63HP+

50Ω 10dB Coupling DC Pass 2700 to 6000 MHz



Generic photo used for illustration purposes only

CASE STYLE: JB1233

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	2A

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

INPUT	1
OUTPUT	2
COUPLED (forward)	4
COUPLED (reverse)	3
GROUND	5

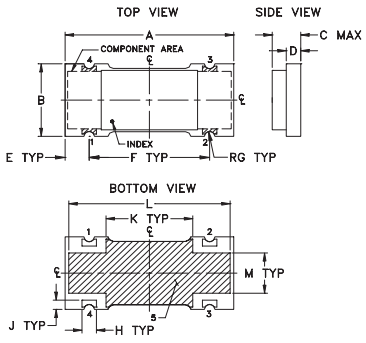
Features

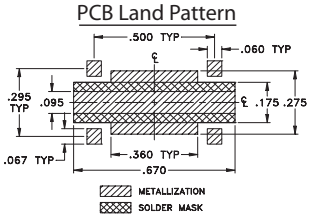
- high power handling, 25 watts typ.
- low mainline loss, 0.45 dB typ.
- excellent VSWR, 1.1:1 typ.
- excellent directivity 23 dB typ.
- wideband frequency, 2700 to 6000 MHz

Applications

- instrumentation
- ISM
- defense communications
- federal communications
- fixed satellite

Outline Drawing





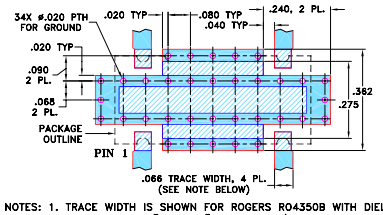
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.70	.32	.13	.060	.100	.500	.022
17.78	8.13	3.30	1.52	2.54	12.70	0.56

H	J	K	L	M		wt
.060	.040	.360	.670	.175		grams
1.52	1.02	9.14	17.02	4.45		0.68

Demo Board MCL P/N: TB-398
Suggested PCB Layout (PL-260)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications

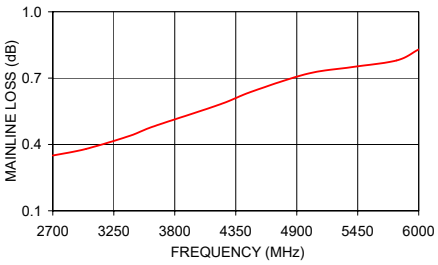
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS[1] (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
f_L-f_U	Nom.	Flatness	Typ.	Max.	Typ.	Min.	Typ.	Max.
2700-6000			**0.60**	**1.2**	**20**	**10**	**1.2**	
2700-3000	12.5±0.8	±0.5	0.40	0.8	23	16	1.1	25
3000-3600	11.8±0.8	±0.7	0.45	0.9	23	15	1.1	25
3600-4500	10.8±0.7	±0.6	0.60	1.0	22	12	1.2	20
4500-6000	10.3±0.8	±0.4	0.75	1.2	18	10	1.3	20

1. Mainline loss includes theoretical power loss at coupled port.

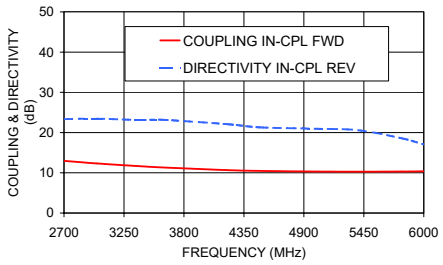
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
2700.00	0.35	12.96	13.00	23.92	23.33	30.45	30.13	28.13	28.18
3000.00	0.38	12.32	12.36	24.54	23.46	37.16	33.07	27.19	26.71
3400.00	0.44	11.63	11.65	23.99	23.10	39.27	31.87	26.78	26.40
3600.00	0.48	11.35	11.35	23.67	23.18	33.94	30.12	28.04	27.32
4200.00	0.58	10.67	10.71	22.27	22.08	25.61	24.84	40.53	33.13
4500.00	0.64	10.47	10.52	21.14	21.30	22.64	22.47	31.66	31.56
5000.00	0.72	10.31	10.36	19.25	20.96	19.70	19.86	26.55	27.23
5400.00	0.75	10.28	10.33	18.12	20.58	18.31	18.68	24.22	24.29
5800.00	0.78	10.31	10.37	17.26	18.56	16.33	16.77	21.49	21.52
6000.00	0.83	10.37	10.44	16.76	17.05	15.43	15.44	20.24	20.22

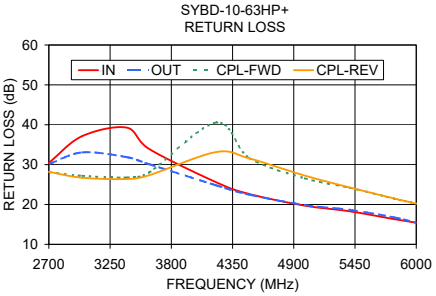
SYBD-10-63HP+
MAINLINE LOSS



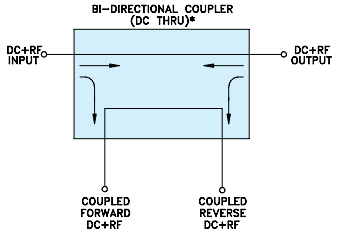
SYBD-10-63HP+
COUPLING & DIRECTIVITY



SYBD-10-63HP+
RETURN LOSS



Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS.

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