

# High Power Bi-Directional Coupler

## SYBD-22-82HP+

50Ω 22dB Coupling DC Pass 610 to 810 MHz



### Maximum Ratings

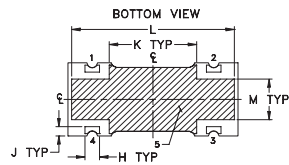
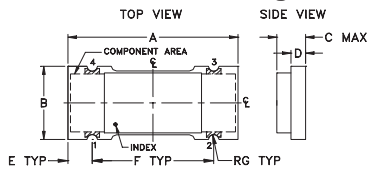
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	2A

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

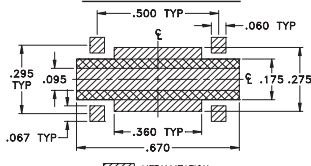
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

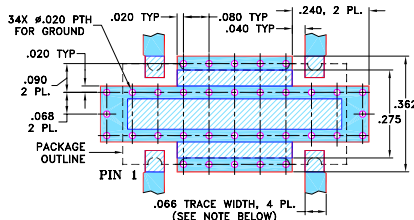


Suggested Layout,  
Tolerance to be within ±.002

### 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

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### Features

- high power handling, 150 watts at room temp.
- low mainline loss, 0.10 dB typ.
- excellent VSWR, 1.10:1 typ.
- excellent directivity 24 dB typ.

### Applications

- VHF/UHF
- SMR

### Bi-Directional Coupler Electrical Specifications

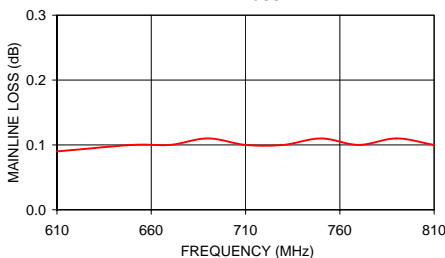
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
	Nom.	Flatness	Typ.	Max.	Typ.	Min.		
f <sub>i</sub> -f <sub>u</sub>								
610-810	22.8±0.8	±1.5	0.10	0.30	24	19	1.05	100

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

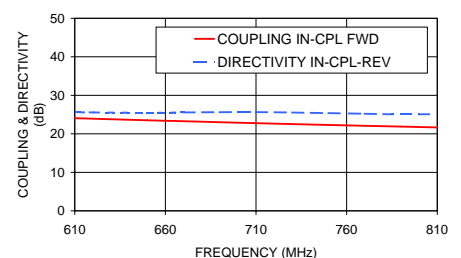
### Typical Performance Data

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
610.00	0.09	24.06	23.99	24.24	25.60	32.84	30.08	31.94	32.40
650.00	0.10	23.52	23.47	23.95	25.48	31.79	29.27	31.24	31.44
670.00	0.10	23.27	23.21	23.90	25.56	31.19	28.78	30.88	31.23
690.00	0.11	23.02	22.97	23.87	25.61	30.69	28.37	30.48	30.98
710.00	0.10	22.77	22.72	23.97	25.63	30.47	28.22	30.27	30.81
730.00	0.10	22.53	22.49	24.04	25.54	30.25	28.04	30.07	30.55
750.00	0.11	22.31	22.26	23.98	25.38	29.98	27.78	29.87	30.33
770.00	0.10	22.08	22.04	23.90	25.22	29.61	27.42	29.60	30.13
790.00	0.11	21.88	21.83	23.84	25.05	29.06	27.02	29.25	29.84
810.00	0.10	21.66	21.61	23.88	25.12	28.84	26.86	29.09	29.75

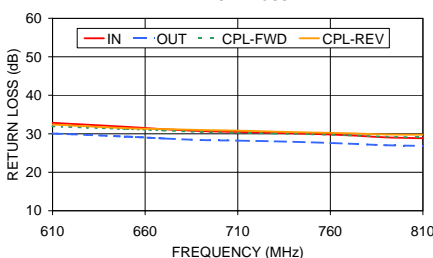
SYBD-22-82HP+  
MAINLINE LOSS



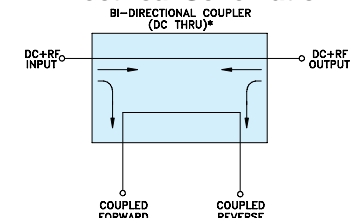
SYBD-22-82HP+  
COUPLING & DIRECTIVITY



SYBD-22-82HP+  
RETURN LOSS



### Electrical Schematic



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

For detailed performance specs & shipping online see web site

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IF/RF MICROWAVE COMPONENTS

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