

# High Power Bi-Directional Coupler

## SYBD-18-142HP+

50Ω 18dB Coupling DC Pass 960 to 1400 MHz



CASE STYLE: JB1233  
PRICE: \$29.95 ea. QTY (1-9)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The + suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

### Maximum Ratings

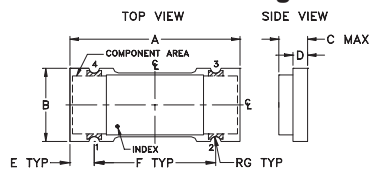
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	2A

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

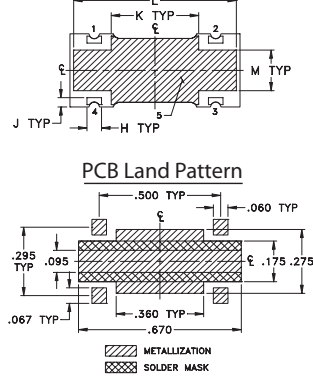
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

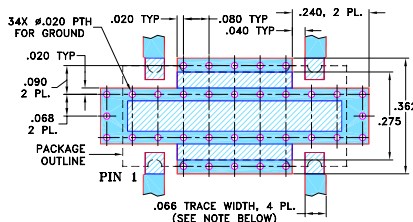


Suggested Layout,  
Tolerance to be within ±0.02

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	wt
.70	.32	.13	.060	.100	.500	.022	.060	.040	.360	.670	.175	grams
17.78	8.13	3.30	1.52	2.54	12.70	0.56	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, 100 watts at room temp.
- low mainline loss, 0.15 dB typ.
- excellent VSWR, 1.10:1 typ.
- excellent directivity 26 dB typ.
- wideband frequency, 960 to 1400 MHz

### Applications

- GPS
- defense communications

### Bi-Directional Coupler Electrical Specifications

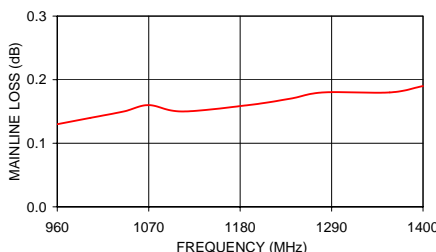
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
	Nom.	Flatness	Typ.	Max.	Typ.	Min.		
$f_c - f_u$								
960-1400			0.15	0.40	26	18	1.10	
960-1240	19.5±0.8	±1.3	0.10	0.35	26	18	1.10	50
1240-1400	18.0±0.8	±0.7	0.15	0.40	25	18	1.10	50

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

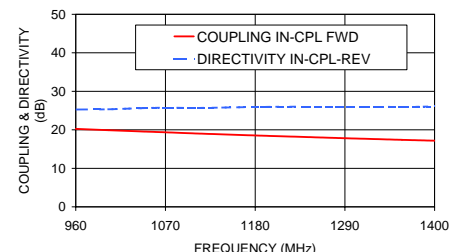
### Typical Performance Data

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
960.00	0.13	20.24	20.20	24.19	25.28	27.52	25.70	28.30	28.89
1000.00	0.14	19.91	19.86	24.02	25.34	27.10	25.29	28.16	28.91
1040.00	0.15	19.59	19.54	24.16	25.61	26.96	25.17	28.24	28.87
1070.00	0.16	19.35	19.31	24.28	25.76	27.06	25.22	28.29	28.91
1110.00	0.15	19.04	19.00	24.28	25.70	26.93	25.07	28.30	28.94
1190.00	0.16	18.47	18.42	24.49	25.96	27.08	25.16	28.92	29.59
1240.00	0.17	18.14	18.09	24.46	26.01	27.10	25.22	29.35	30.08
1280.00	0.18	17.89	17.84	24.76	26.03	27.61	25.61	30.08	30.82
1360.00	0.18	17.41	17.35	24.81	25.96	28.43	26.12	31.57	32.33
1400.00	0.19	17.18	17.13	24.96	26.06	29.33	26.82	32.71	33.70

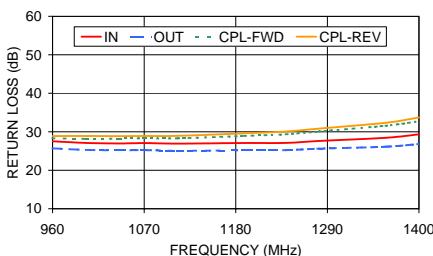
SYBD-18-142HP+  
MAINLINE LOSS



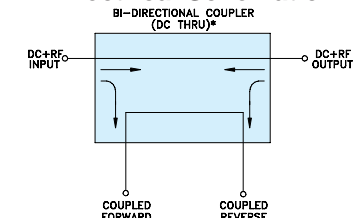
SYBD-18-142HP+  
COUPLING & DIRECTIVITY



SYBD-18-142HP+  
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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