

# High Power Bi-Directional Coupler

## SYBD-22-172HP+

50Ω 22dB Coupling DC Pass 1400 to 1750 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

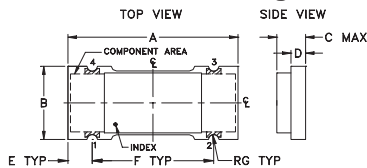
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	2A

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

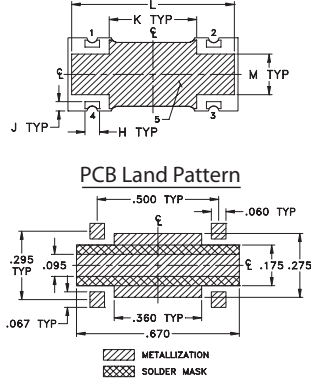
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

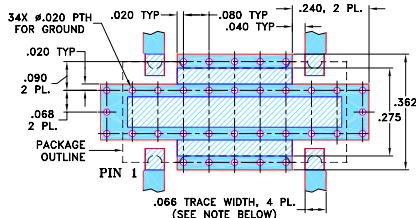


Suggested Layout,  
Tolerance to be within ±.002

### 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

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

### Features

- high power handling, 50 watts typ.
- low mainline loss, 0.09 dB typ.
- excellent VSWR, 1.15:1 typ.
- good directivity, 24 dB typ.
- wideband frequency, 1400 to 1750 MHz

### Applications

- GPS
- instrumentation
- defense communications
- federal communications

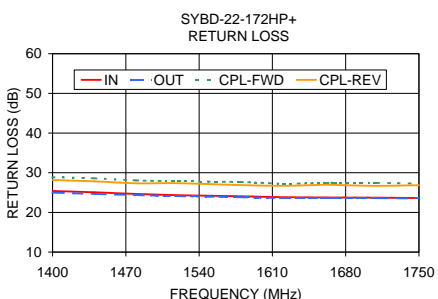
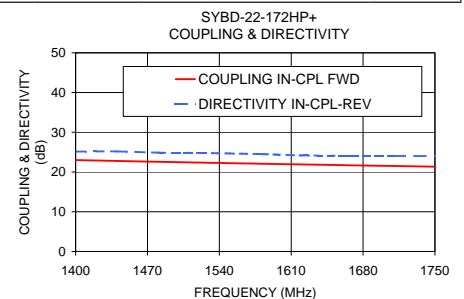
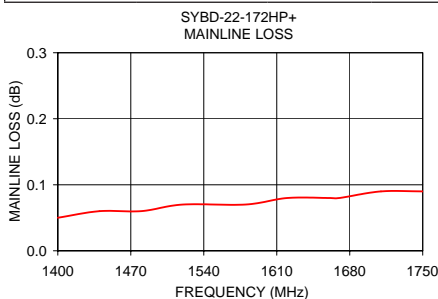
### Bi-Directional Coupler Electrical Specifications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
	Nom.	Flatness	Typ.	Max.	Typ.	Min.		
$f_c - f_u$								
1400-1750			0.09	0.30	20	16	1.15	
1400-1580	22.3±0.7	±0.7	0.07	0.30	24	17	1.15	50
1580-1750	21.5±0.7	±0.6	0.09	0.30	23	16	1.15	25

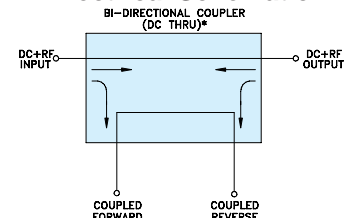
1. Mainline loss includes theoretical power loss at coupled port.

### 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
1400.00	0.05	23.00	23.02	24.67	25.14	25.39	24.98	28.86	28.19
1440.00	0.06	22.79	22.81	24.57	25.18	25.07	24.66	28.59	27.83
1480.00	0.06	22.58	22.60	24.38	24.89	24.65	24.38	28.07	27.33
1520.00	0.07	22.38	22.40	24.30	24.81	24.35	24.10	27.87	27.35
1580.00	0.07	22.08	22.10	24.13	24.51	24.06	23.84	27.66	26.89
1620.00	0.08	21.90	21.92	23.75	24.17	23.84	23.64	27.26	26.71
1660.00	0.08	21.73	21.74	23.75	24.10	23.77	23.61	27.41	26.96
1670.00	0.08	21.68	21.70	23.84	24.08	23.76	23.64	27.49	26.93
1710.00	0.09	21.52	21.53	23.80	24.04	23.71	23.59	27.44	26.69
1750.00	0.09	21.35	21.36	23.73	24.00	23.64	23.52	27.29	26.85



### 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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REV. A  
M119986  
ED-12832/3  
SYBD-22-172HP+  
WZ/CP/AM  
090911

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