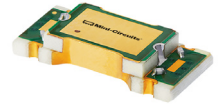


# High Power Bi-Directional Coupler

## SYBD-26-62HP+

50Ω 26dB Coupling DC Pass 400 to 610 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

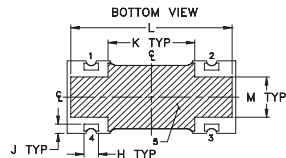
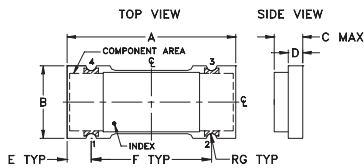
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature   | -55°C to 100°C |
| DC Current            | 2A             |

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

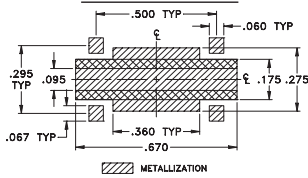
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

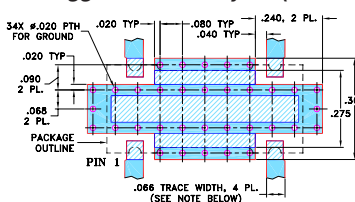


Suggested Layout,  
Tolerance to be within ±.002

### 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

### Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
C. The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at [www.minicircuits.com/WCLStore/terms.jsp](http://www.minicircuits.com/WCLStore/terms.jsp)

### Features

- high power handling, 150 watts at room temp.
- low mainline loss, 0.08 dB typ.
- excellent VSWR, 1.05:1 typ.
- excellent directivity, 24 dB typ.

### Applications

- VHF/UHF
- instrumentation
- defense communications
- federal communications

### Bi-Directional Coupler Electrical Specifications

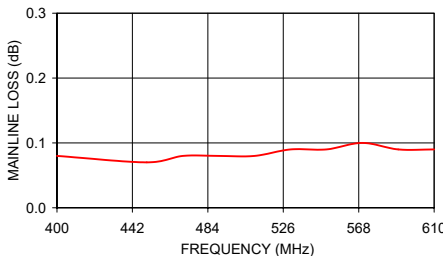
| FREQ. (MHz)   | COUPLING (dB) |          | MAINLINE LOSS <sup>1</sup> (dB) |      | DIRECTIVITY (dB) |      | VSWR (:1) | POWER INPUT (W) |
|---------------|---------------|----------|---------------------------------|------|------------------|------|-----------|-----------------|
|               | Nom.          | Flatness | Typ.                            | Max. | Typ.             | Min. |           |                 |
| $f_L$ - $f_U$ |               |          |                                 |      |                  |      |           |                 |
| 400-610       |               |          | 0.08                            | 0.25 | 24               | 20   | 1.05      |                 |
| 400-470       | 27.2±0.8      | ±0.9     | 0.08                            | 0.25 | 24               | 20   | 1.05      | 100             |
| 470-610       | 25.3±0.8      | ±1.3     | 0.09                            | 0.25 | 24               | 20   | 1.05      | 100             |

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

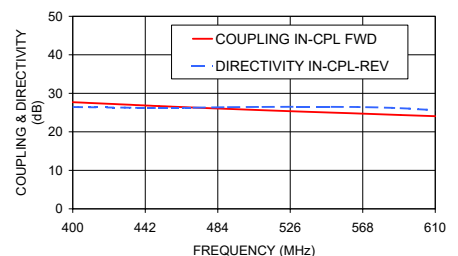
### Typical Performance Data

| 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 |
| 400.00          | 0.08               | 27.70      | 27.64         | 25.00       | 26.44            | 37.24 | 34.60            | 36.38   | 37.33   |
| 450.00          | 0.07               | 26.68      | 26.63         | 24.88       | 26.18            | 36.06 | 33.11            | 35.26   | 35.74   |
| 470.00          | 0.08               | 26.31      | 26.26         | 24.88       | 26.27            | 35.65 | 32.64            | 34.93   | 35.34   |
| 490.00          | 0.08               | 25.96      | 25.90         | 24.87       | 26.41            | 35.24 | 32.27            | 34.49   | 34.76   |
| 510.00          | 0.08               | 25.62      | 25.56         | 24.79       | 26.46            | 34.97 | 31.96            | 34.02   | 34.29   |
| 530.00          | 0.09               | 25.30      | 25.23         | 24.79       | 26.50            | 34.41 | 31.54            | 33.40   | 33.78   |
| 550.00          | 0.09               | 24.98      | 24.91         | 24.81       | 26.49            | 33.74 | 31.13            | 32.91   | 33.48   |
| 570.00          | 0.10               | 24.68      | 24.59         | 24.84       | 26.40            | 33.28 | 30.75            | 32.58   | 33.26   |
| 590.00          | 0.09               | 24.36      | 24.27         | 24.56       | 26.14            | 32.96 | 30.37            | 32.24   | 32.86   |
| 610.00          | 0.09               | 24.06      | 23.99         | 24.24       | 25.60            | 32.84 | 30.08            | 31.94   | 32.40   |

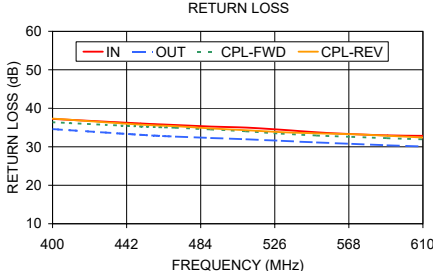
SYBD-26-62HP+  
MAINLINE LOSS



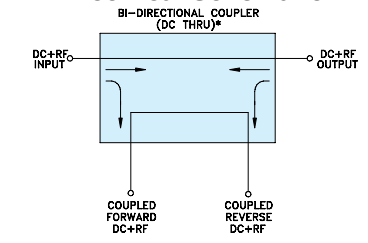
SYBD-26-62HP+  
COUPLING & DIRECTIVITY



SYBD-26-62HP+  
RETURN LOSS



### Electrical Schematic



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

