

Bi-Directional Coupler

50Ω 30 dB Coupling 20 to 100 MHz 55 Watt

Maximum Ratings

*Operating Temperature, Case -40°C to 85°C

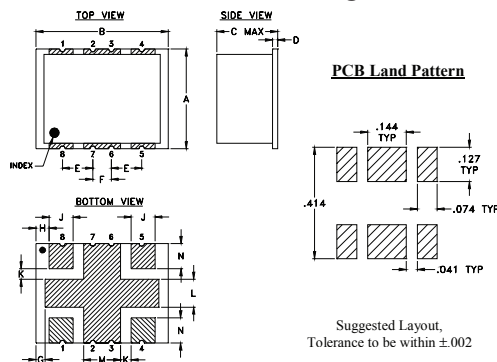
| | |
|---------------------|----------------|
| Storage Temperature | -55°C to 100°C |
|---------------------|----------------|

* Case temperature is defined as temperature on ground leads. Permanent damage may occur if any of these limits are exceeded.

Pad Connections

| | |
|-------------------|---------|
| INPUT | 8 |
| OUTPUT | 1 |
| COUPLED (forward) | 5 |
| COUPLED (reverse) | 4 |
| GROUND | 2,3,6,7 |

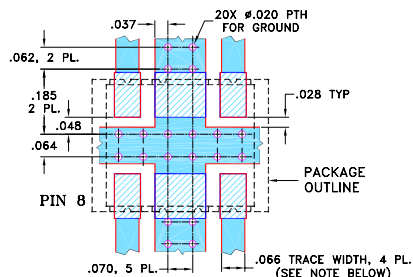
Outline Drawing



Outline Dimensions (inch)

| A | B | C | D | E | F | G |
|------|-------|------|------|------|------|-------|
| .38 | .50 | .25 | .020 | .115 | .070 | .035 |
| 9.65 | 12.70 | 6.35 | 0.51 | 2.92 | 1.78 | 0.89 |
| H | J | K | L | M | N | wt |
| .050 | .090 | .040 | .105 | .140 | .095 | grams |
| 1.27 | 2.29 | 1.02 | 2.67 | 3.56 | 2.41 | 0.80 |


Demo Board MCL P/N: TB-349
Suggested PCB Layout (PL-246)




NOTES:

- NOTES:**
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" \pm .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.

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

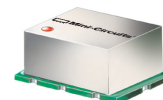
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- high power handling, 55 Watt max.
- low mainline loss, 0.06 dB typ.
- good return loss, 36 dB typ.

Applications

- military mobile
- ISM



Generic photo used for illustration purposes only

CASE STYLE: AH202-1

+RoHS Compliant

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



 Available Tape and Reel
at no extra cost

| Reel Size | Devices/Reel |
|-----------|--------------|
| 13" | 200 |

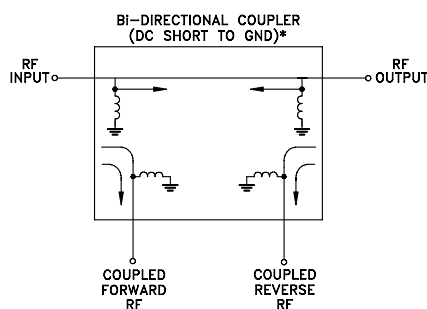
Electrical Specifications

| Parameter | Condition (MHz) | Min. | Typ. | Max. | Units |
|----------------------------|-----------------|------|--------|------|-------|
| Frequency Range | | 20 | | 100 | MHz |
| Mainline Loss ¹ | 20 - 100 | — | 0.06 | 0.15 | dB |
| Nominal Coupling | 20 - 100 | — | 29±1.0 | — | dB |
| Coupling Flatness (±) | 20 - 100 | — | ±0.6 | — | dB |
| Directivity | 20 - 100 | 20 | 30 | — | dB |
| Return Loss | 20 - 100 | — | 36 | — | dB |
| Input Power ² | 20 - 100 | — | — | 55 | W |

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

2. The user must provide adequate means of heat removal to limit the temperature of ground connections 2,3,6,7 to 85°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 35°C/W or less when the unit is driven at maximum specified RF input power, 55W. At higher ambient temperature, with the same heat sink. Input power in watts must not exceed 55W x (85°C - T_{AMBIENT}) / 60°C.

Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.

Notes

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-Circuits 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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

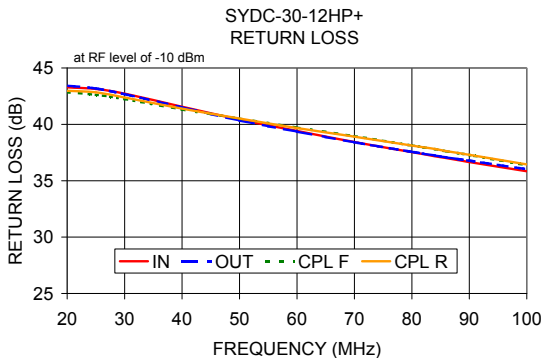
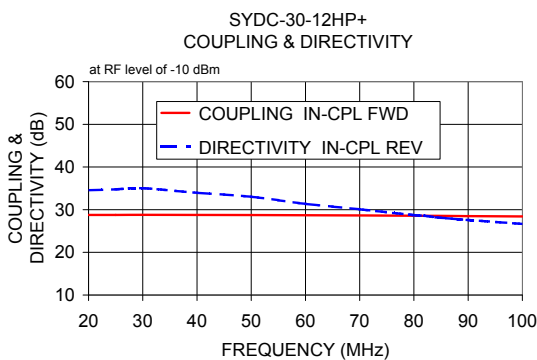
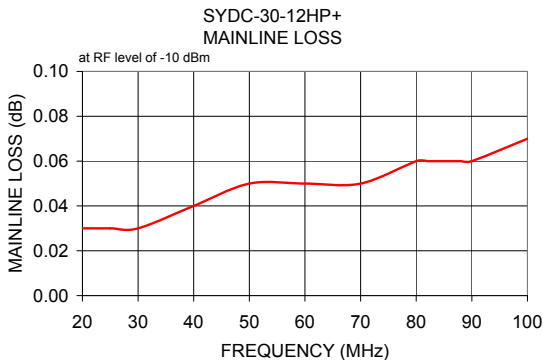


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REV. D
M151107
ED-12537/2
SYDC-30-12HP+
DY/CP/AM
151005

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 |
| 20.00 | 0.03 | 28.77 | 28.68 | 34.36 | 34.57 | 43.29 | 43.43 | 42.84 | 42.98 |
| 30.00 | 0.03 | 28.78 | 28.63 | 34.45 | 35.02 | 42.72 | 42.67 | 42.24 | 42.38 |
| 40.00 | 0.04 | 28.77 | 28.59 | 33.21 | 33.96 | 41.56 | 41.51 | 41.32 | 41.40 |
| 50.00 | 0.05 | 28.74 | 28.54 | 31.95 | 33.03 | 40.43 | 40.34 | 40.52 | 40.52 |
| 60.00 | 0.05 | 28.70 | 28.50 | 30.23 | 31.37 | 39.42 | 39.36 | 39.72 | 39.67 |
| 70.00 | 0.05 | 28.64 | 28.43 | 29.23 | 30.09 | 38.43 | 38.41 | 38.95 | 38.91 |
| 80.00 | 0.06 | 28.58 | 28.33 | 28.40 | 28.71 | 37.54 | 37.56 | 38.12 | 38.12 |
| 84.00 | 0.06 | 28.55 | 28.29 | 27.70 | 28.22 | 37.17 | 37.24 | 37.80 | 37.82 |
| 86.00 | 0.06 | 28.54 | 28.27 | 27.56 | 28.01 | 37.01 | 37.07 | 37.61 | 37.62 |
| 88.00 | 0.06 | 28.52 | 28.26 | 27.50 | 27.77 | 36.83 | 36.92 | 37.45 | 37.47 |
| 90.00 | 0.06 | 28.50 | 28.23 | 27.11 | 27.58 | 36.66 | 36.78 | 37.28 | 37.30 |
| 100.00 | 0.07 | 28.42 | 28.11 | 26.17 | 26.65 | 35.84 | 36.02 | 36.37 | 36.45 |



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