

Directional Coupler

LRDC-12-1-75

75Ω 5 to 600 MHz



CASE STYLE: QQQ130
PRICE: Contact Sales Dept.

Maximum Ratings

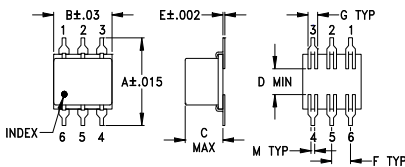
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |

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

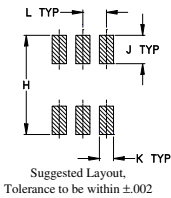
Pin Connections

| | |
|----------------------|-----|
| INPUT | 6 |
| OUTPUT | 1 |
| COUPLED | 4 |
| GROUND | 2,5 |
| ISOLATE (DO NOT USE) | 3 |

Outline Drawing



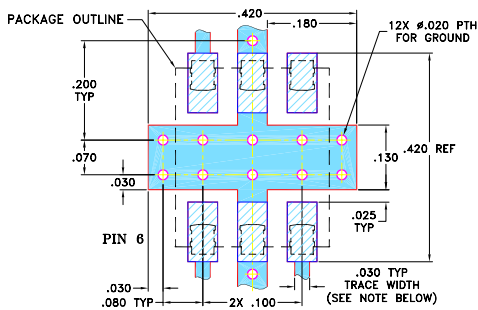
PCB Land Pattern



Outline Dimensions (inch)

| A | B | C | D | E | F | G |
|-------|------|------|------|------|-------|------|
| .400 | .31 | .200 | .10 | .010 | .100 | .050 |
| 10.16 | 7.87 | 5.08 | 2.54 | 0.25 | 2.54 | 1.27 |
| H | J | K | L | M | wt | |
| .420 | .120 | .060 | .100 | .020 | grams | |
| 10.67 | 3.05 | 1.52 | 2.54 | 0.51 | 0.55 | |

Demo Board MCL P/N: TB-34 Suggested PCB Layout (PL-043)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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-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/WCLStore/terms.jsp

Features

- low mainline loss, 0.5 dB typ.
- high directivity, 21 dB typ.

Applications

- VHF/UHF
- signal sampling
- communications
- cable tv

Directional Coupler Electrical Specifications

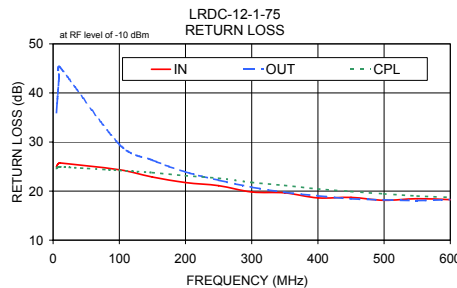
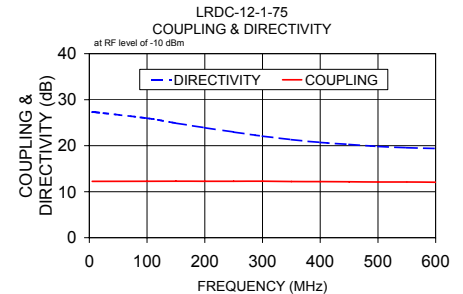
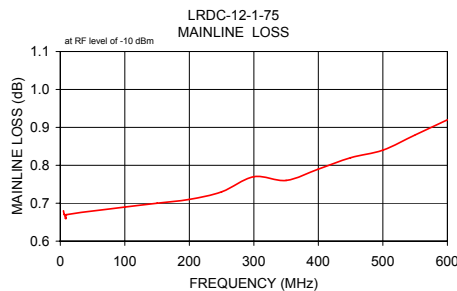
| FREQ. (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | | | | | DIRECTIVITY (dB) | | | | | | VSWR (:1) | POWER INPUT, W | | | |
|----------------|------------------|----------|------------------------------------|------|------|------|------|------|---------------------|------|------|------|------|------|--------------|-------------------|------|------|------|
| | Nom. | Flatness | L | | M | | U | | L | | M | | U | | | Typ. | Max. | Max. | |
| f_L - f_U | | | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | | | | Min. |
| 5-600 | 12.2±0.5 | ±0.6 | 0.4 | 0.8 | 0.5 | 1.0 | 0.8 | 1.5 | 20 | 17 | 21 | Min. | 18 | 20 | 12 | 1.3 | 1.0 | 1.0 | |

L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

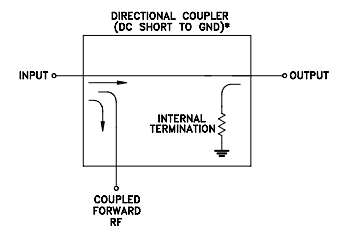
1. Mainline loss includes theoretical power loss at coupled port.

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | |
|--------------------|---------------------------------|----------------------------|---------------------|---------------------|-------|-------|
| | | | | In | Out | Cpl |
| 5.00 | 0.68 | 12.25 | 27.30 | 24.93 | 36.02 | 24.62 |
| 6.00 | 0.67 | 12.24 | 27.29 | 25.25 | 37.90 | 24.76 |
| 8.00 | 0.66 | 12.24 | 27.30 | 25.59 | 41.55 | 24.92 |
| 10.00 | 0.67 | 12.24 | 27.29 | 25.75 | 45.26 | 24.96 |
| 100.00 | 0.69 | 12.26 | 25.97 | 24.35 | 29.52 | 24.21 |
| 200.00 | 0.71 | 12.27 | 23.92 | 21.73 | 23.91 | 23.15 |
| 300.00 | 0.77 | 12.28 | 22.07 | 19.81 | 20.80 | 21.77 |
| 400.00 | 0.79 | 12.20 | 20.71 | 18.62 | 19.03 | 20.45 |
| 500.00 | 0.84 | 12.11 | 19.85 | 18.13 | 18.22 | 19.44 |
| 600.00 | 0.92 | 12.05 | 19.38 | 18.26 | 18.28 | 18.73 |



Electrical Schematic



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