

Surface Mount Directional Coupler

LRDC-20-2J+

50Ω 300 to 1100 MHz

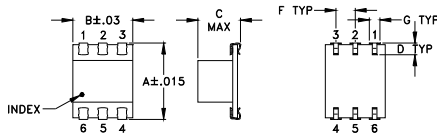
Maximum Ratings

| | |
|---|----------------|
| 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. | |

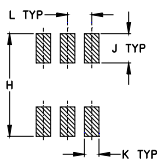
Pin Connections

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

Outline Drawing



PCB Land Pattern

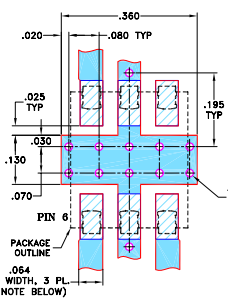


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

| A | B | C | D | E | F | G |
|-------|------|------|------|----|-------|------|
| .390 | .31 | .225 | .060 | -- | .100 | .045 |
| 9.91 | 7.87 | 5.72 | 1.52 | -- | 2.54 | 1.14 |
| H | J | K | L | M | wt | |
| .420 | .120 | .060 | .100 | -- | grams | |
| 10.67 | 3.05 | 1.52 | 2.54 | -- | 0.50 | |

Demo Board MCL P/N: TB-31 Suggested PCB Layout (PL-087)



- NOTES:
- 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.
 - 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, 0.25 dB typ.
- high directivity, 17 dB typ.
- aqueous washable
- J-leads for strain relief and excellent solderability

Applications

- VHF/UHF
- cellular
- communications
- signal sampling



Generic photo used for illustration purposes only

CASE STYLE: QQQ569

+RoHS Compliant

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

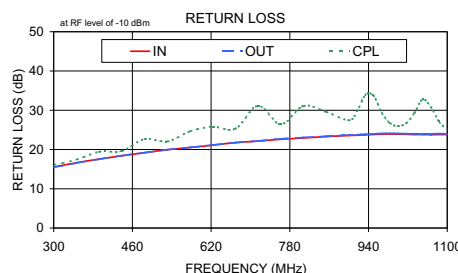
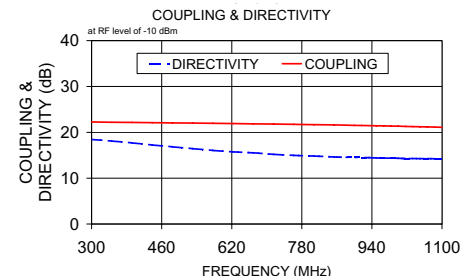
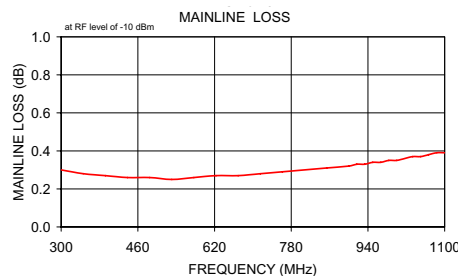
Directional Coupler Electrical Specifications

| FREQ. (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | DIRECTIVITY (dB) | | VSWR (:1) | POWER INPUT, W | | |
|---------------|---------------|----------|---------------------------------|------|------------------|------|-----------|----------------|--------|---------|
| | Nom. | Flatness | Typ. | Max. | Typ. | Min. | | Typ. | L Max. | MU Max. |
| f_L - f_U | | | | | | | | | | |
| 300-1100 | 20.5±1.0 | ±1.3 | 0.25 | 0.6 | 17 | 10 | 1.2 | 2.0 | 2.0 | |

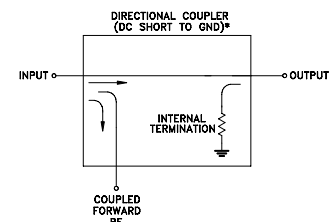
1. Mainline loss includes theoretical power loss at coupled port.

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
| | | | | In | Out | Cpl |
| 300.00 | 0.30 | 22.27 | 18.46 | 15.52 | 15.46 | 16.06 |
| 438.46 | 0.26 | 22.11 | 17.25 | 18.41 | 18.43 | 19.61 |
| 576.92 | 0.26 | 21.96 | 16.06 | 20.51 | 20.53 | 24.62 |
| 715.38 | 0.28 | 21.80 | 15.20 | 22.14 | 22.18 | 31.13 |
| 807.69 | 0.30 | 21.67 | 14.83 | 22.93 | 23.08 | 31.10 |
| 900.00 | 0.32 | 21.51 | 14.54 | 23.56 | 23.66 | 27.46 |
| 950.00 | 0.34 | 21.43 | 14.42 | 23.84 | 24.00 | 33.75 |
| 1000.00 | 0.35 | 21.33 | 14.34 | 23.91 | 24.09 | 25.94 |
| 1050.00 | 0.37 | 21.21 | 14.26 | 23.80 | 24.04 | 32.75 |
| 1100.00 | 0.39 | 21.10 | 14.24 | 23.78 | 24.01 | 25.15 |



Electrical Schematic



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

