

Surface Mount Directional Coupler

50Ω 5 to 500 MHz

LRDC-10-1J+ LRDC-10-1J



CASE STYLE: QQQ569
PRICE: \$15.95 ea. QTY (1-9)

+ RoHS compliant in accordance
with EU Directive (2002/95/EC)

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

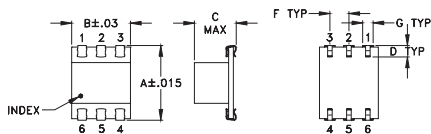
Maximum Ratings

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

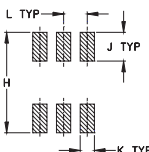
Pin Connections

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

Outline Drawing



PCB Land Pattern

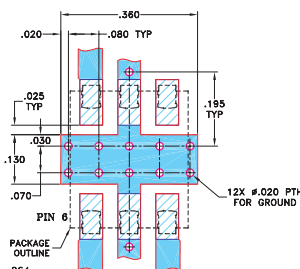


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch)

| 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-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

Features

- low mainline loss, 0.9 dB typ.
- high directivity, 30 dB typ.
- aqueous washable
- J-leads for strain relief and excellent solderability

Applications

- VHF/UHF
- reflective power measurements
- communications
- signal sampling

Directional Coupler Electrical Specifications

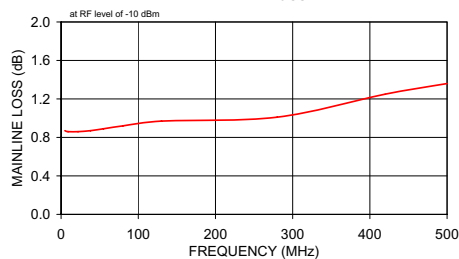
| FREQ. (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | | | | | DIRECTIVITY (dB) | | | | | | VSWR (:1) | POWER INPUT, W | |
|----------------|------------------|----------|------------------------------------|------|------|------|------|------|---------------------|------|------|------|------|------|--------------|-------------------|------|
| | Nom. | Flatness | L | | M | | U | | L | | M | | U | | | Typ. | L |
| f_L - f_U | | | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Max. | Max. |
| 5-500 | 10.7±0.5 | ±0.5 | 0.9 | 1.4 | 0.9 | 1.4 | 1.2 | 1.9 | 31 | 25 | 30 | 20 | 25 | 16 | 1.2 | 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.

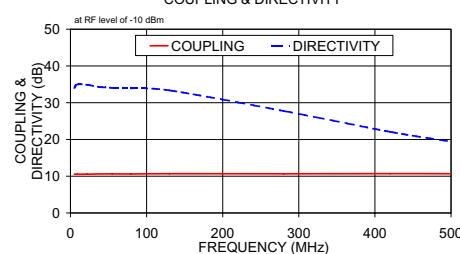
Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | |
|--------------------|---------------------------------|----------------------------|---------------------|---------------------|-------|-------|
| | | | | In | Out | Cpl |
| 5.00 | 0.87 | 10.56 | 34.05 | 32.58 | 21.08 | 21.19 |
| 9.00 | 0.86 | 10.55 | 34.98 | 34.24 | 21.38 | 21.44 |
| 22.00 | 0.86 | 10.57 | 34.87 | 34.86 | 21.43 | 21.53 |
| 38.00 | 0.87 | 10.61 | 34.30 | 33.52 | 21.31 | 21.52 |
| 55.00 | 0.89 | 10.62 | 34.06 | 31.49 | 21.16 | 21.52 |
| 80.00 | 0.92 | 10.61 | 33.94 | 28.84 | 20.90 | 21.53 |
| 130.00 | 0.97 | 10.68 | 33.37 | 25.10 | 20.17 | 21.41 |
| 280.00 | 1.01 | 10.66 | 27.76 | 19.24 | 17.58 | 20.72 |
| 420.00 | 1.25 | 10.69 | 22.09 | 16.25 | 15.45 | 19.95 |
| 500.00 | 1.36 | 10.67 | 19.44 | 15.06 | 14.47 | 19.60 |

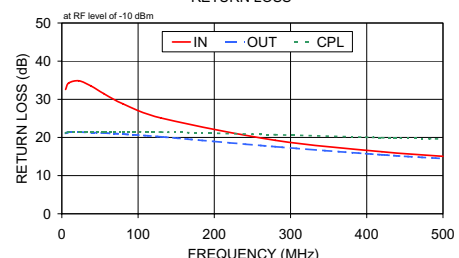
LRDC-10-1J
MAINLINE LOSS



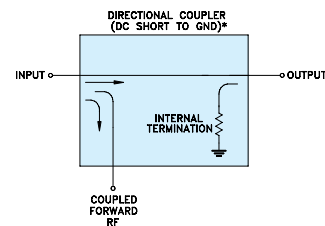
LRDC-10-1J
COUPLING & DIRECTIVITY



LRDC-10-1J
RETURN LOSS



Electrical Schematic



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

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IF/RF MICROWAVE COMPONENTS

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