*Surface Mount*

# Directional Coupler

## LRDC-12-1-75

75Ω  5 to 600 MHz

CASE STYLE: QQQ130
PRICE: $11.95 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 |

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 |

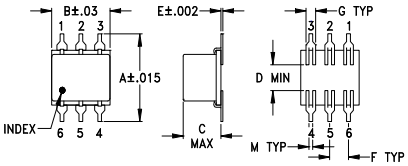
### Features

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

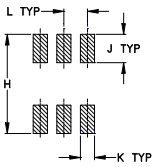
### Applications

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

### Outline Drawing




**PCB Land Pattern**




Suggested Layout,
Tolerance to be within ±.002

### Outline Dimensions ( inch / mm )

| 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 |

### Directional Coupler Electrical Specifications

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

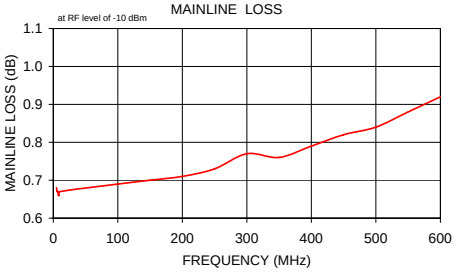
L = low range [$f_L$ to 10 $f_L$]  M = mid range [10 $f_L$ to $f_U$/2]  U = upper range [$f_U$/2 to $f_U$]

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

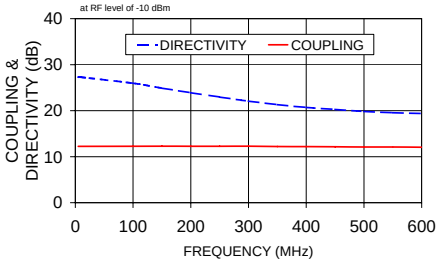
### Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) In | Return Loss (dB) Out | Return Loss (dB) 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 |

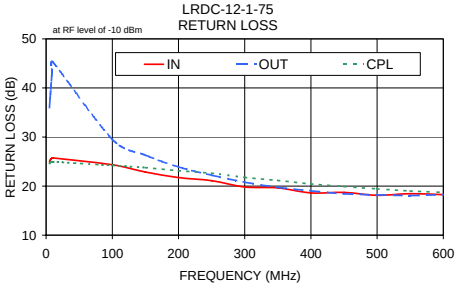
LRDC-12-1-75
MAINLINE LOSS



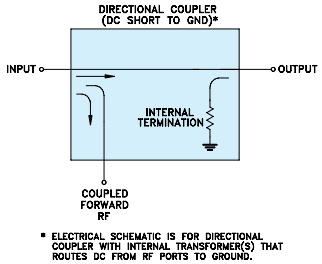

LRDC-12-1-75
COUPLING & DIRECTIVITY




LRDC-12-1-75
RETURN LOSS

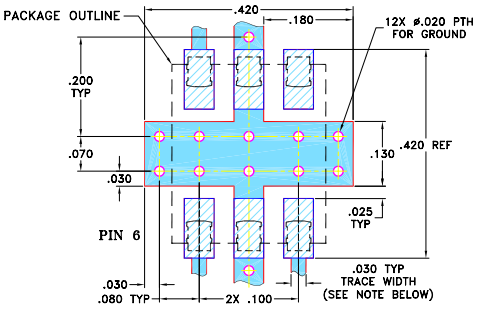



### Electrical Schematic




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

***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

*For detailed performance specs & shopping online see web site*



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