

Surface Mount Directional Coupler

TCD-10-4-75+

75Ω

5 to 1000 MHz



Maximum Ratings

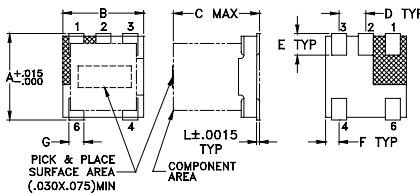
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |

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

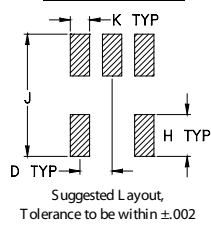
Pin Connections

| | |
|-------------------|---|
| INPUT | 3 |
| OUTPUT | 4 |
| COUPLED | 1 |
| GROUND | 2 |
| 75Ω TERM EXTERNAL | 6 |

Outline Drawing



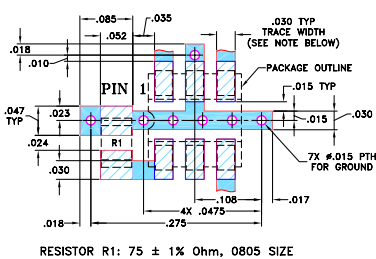
PCB Land Pattern



Outline Dimensions (inch/mm)

| A | B | C | D | E | F |
|------|------|------|------|------|-------|
| .150 | .150 | .160 | .050 | .040 | .025 |
| 3.81 | 3.81 | 4.06 | 1.27 | 1.02 | 0.64 |
| G | H | J | K | L | wt |
| .028 | .065 | .190 | .030 | .007 | grams |
| 0.71 | 1.65 | 4.83 | 0.76 | 0.18 | 0.15 |

Demo Board MCL P/N: TB-72 Suggested PCB Layout (PL-010)



- 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

Features

- wideband, 5-1000 MHz
- excellent flatness, ±0.1 dB typ.
- better performance than MA-COM EMDC-10-1-75
- footprint compatible to EMDC-10-1-75
- aqueous washable

Applications

- CATV

CASE STYLE: AT224-1
PRICE: \$1.49 ea. QTY (25-49)

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

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

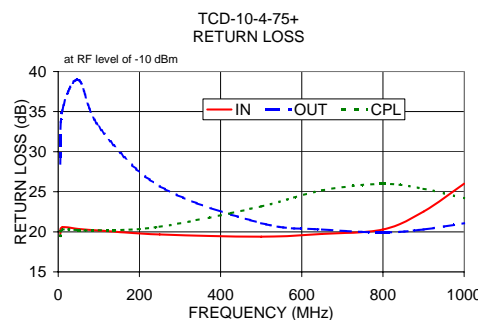
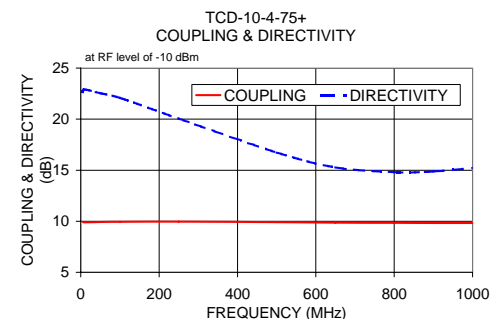
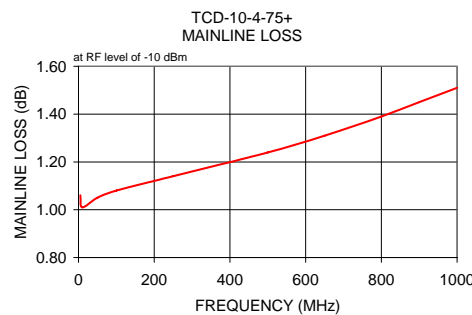
Directional Coupler Electrical Specifications

| FREQ. (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | | | | | DIRECTIVITY (dB) | | | VSWR (:1) | POWER INPUT, W | | | |
|--------------------------------|---------------|----------|---------------------------------|------|------|------|------|------|------------------|------|------|-----------|----------------|------|------|-----|
| | Nom. | Flatness | L | | M | | U | | L | M | U | | | | | |
| f _L -f _U | | | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Min. | Typ. | Min. | Typ. | Max. | | |
| 5-1000 | 9.9±0.5 | ±0.3 | 1.0 | 1.5 | 1.1 | 1.5 | 1.3 | 1.9 | 22 | 19 | 20 | 13 | 15 | 11 | 1.25 | 1.0 |

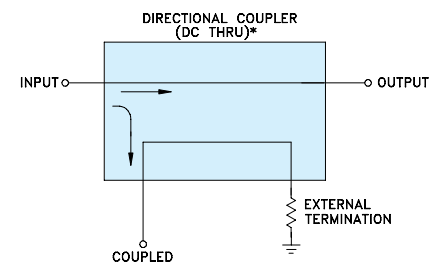
L= 5-50 MHz M= 50-500 MHz U= 500-1000 MHz
1. Mainline loss includes theoretical power loss at coupled port.

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
| | | | | In | Out | Cpl |
| 5.00 | 1.06 | 9.94 | 22.66 | 19.73 | 28.50 | 19.46 |
| 10.00 | 1.01 | 9.90 | 22.91 | 20.57 | 35.13 | 20.26 |
| 50.00 | 1.05 | 9.93 | 22.54 | 20.35 | 38.95 | 20.20 |
| 100.00 | 1.08 | 9.95 | 22.09 | 20.17 | 33.10 | 20.18 |
| 250.00 | 1.14 | 9.96 | 20.05 | 19.68 | 25.68 | 20.63 |
| 500.00 | 1.24 | 9.92 | 16.74 | 19.39 | 21.07 | 23.17 |
| 650.00 | 1.31 | 9.86 | 15.28 | 19.74 | 20.28 | 25.18 |
| 800.00 | 1.39 | 9.85 | 14.81 | 20.28 | 19.92 | 25.99 |
| 900.00 | 1.45 | 9.82 | 14.88 | 22.54 | 20.29 | 25.37 |
| 1000.00 | 1.51 | 9.83 | 15.23 | 26.00 | 21.07 | 24.19 |



Electrical Schematic



* ELECTRICAL SCHEMATIC FOR DIRECTIONAL COUPLERS REQUIRING EXTERNAL TERMINATION THAT IS DESIGNED WITHOUT INTERNAL TRANSFORMERS.

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Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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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