

Surface Mount Directional Coupler

75Ω 5 to 1000 MHz

ADC-15-4-75+ ADC-15-4-75



CASE STYLE: CD542

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

Available Tape and Reel at no extra cost

| Reel Size | Devices/Reel |
|-----------|---------------------------|
| 7" | 10, 20, 50, 100, 200, 500 |
| 13" | 500, 1000 |

Maximum Ratings

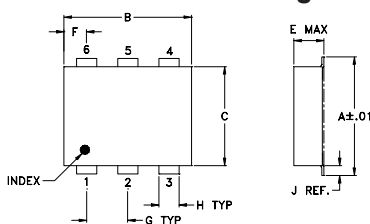
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |

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

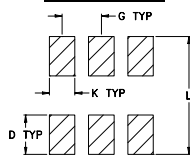
Pin Connections

| | |
|----------------------|---|
| INPUT | 1 |
| OUTPUT | 6 |
| COUPLED | 3 |
| GROUND | 2 |
| 75Ω TERM EXTERNAL | 4 |
| ISOLATE (DO NOT USE) | 5 |

Outline Drawing



PCB Land Pattern



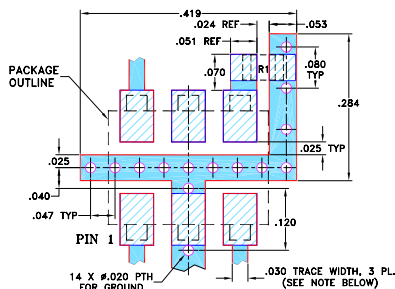
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G |
|------|------|------|------|------|------|------|
| .272 | .310 | .220 | .100 | .112 | .055 | .100 |
| 6.91 | 7.87 | 5.59 | 2.54 | 2.84 | 1.40 | 2.54 |

| H | J | K | L | wt |
|------|------|------|------|-------|
| .030 | .026 | .065 | .300 | grams |
| 0.76 | 0.66 | 1.65 | 7.62 | 0.20 |

Demo Board MCL P/N: TB-08 Suggested PCB Layout (PL-042)



RESISTOR R1: 75 Ohm, 0805 SIZE.

- NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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-Circuits' 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/MCLStore/terms.jsp

Features

- wideband, 5-1000 MHz
- low mainline loss, 0.7 dB typ.
- good directivity, 20 dB typ.
- good VSWR, 1.2:1 typ.
- excellent coupling flatness, ±0.1 dB typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

Applications

- cable tv
- communications

Directional Coupler Electrical Specifications

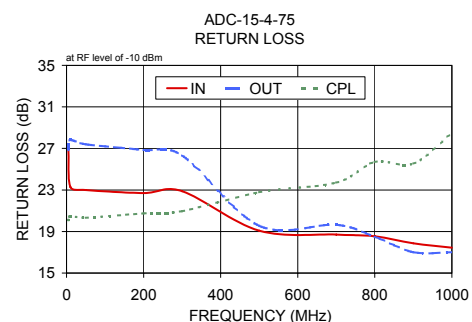
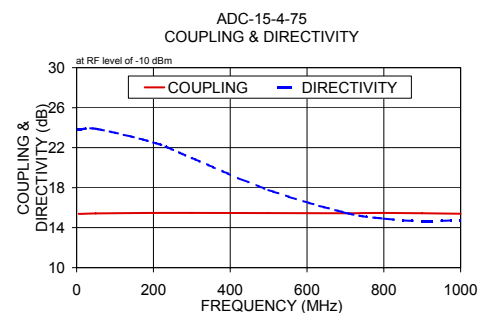
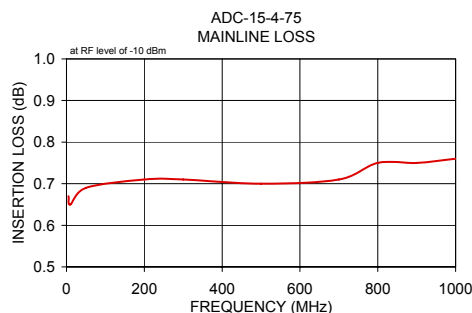
| FREQ. (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | | DIRECTIVITY (dB) | | | VSWR (:1) | POWER INPUT, W | | | | | | | |
|--------------------------------|---------------|----------|---------------------------------|------|------|------------------|------|------|-----------|----------------|------|----|----|----|-----|-----|-----|
| | Nom. | Flatness | L | M | U | L | M | U | | Typ. | L | MU | | | | | |
| f _L -f _U | | | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | Max. | | | | | | |
| 5-1000 | 15.5±0.5 | ±0.5 | 0.7 | 1.2 | 0.7 | 1.0 | 0.8 | 1.2 | 23 | 18 | 20 | 14 | 16 | 11 | 1.2 | 1.0 | 1.0 |

L= 5-50 MHz M= 50-500 MHz U= 500-1000 MHz

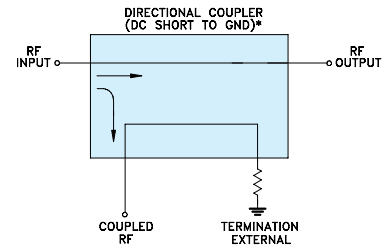
1. Mainline loss includes theoretical power loss at coupled port.

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | Cpl |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
| | | | | In | Out | |
| 5.00 | 0.67 | 15.39 | 23.83 | 26.83 | 26.83 | 20.08 |
| 10.00 | 0.65 | 15.37 | 23.82 | 23.29 | 27.82 | 20.48 |
| 50.00 | 0.69 | 15.42 | 23.89 | 23.00 | 27.40 | 20.33 |
| 200.00 | 0.71 | 15.47 | 22.52 | 22.71 | 26.85 | 20.75 |
| 300.00 | 0.71 | 15.48 | 20.96 | 22.88 | 26.32 | 20.96 |
| 500.00 | 0.70 | 15.46 | 17.77 | 19.08 | 19.55 | 22.78 |
| 700.00 | 0.71 | 15.44 | 15.49 | 18.70 | 19.65 | 23.70 |
| 800.00 | 0.75 | 15.47 | 14.90 | 18.55 | 18.50 | 25.69 |
| 900.00 | 0.75 | 15.44 | 14.64 | 17.87 | 17.00 | 25.53 |
| 1000.00 | 0.76 | 15.40 | 14.75 | 17.44 | 17.01 | 28.50 |



Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

