

# Surface Mount Directional Coupler

## ADC-15-4+

50Ω 5 to 1000 MHz

### Maximum Ratings

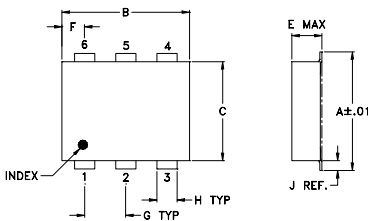
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |

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

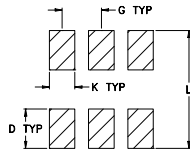
### Pin Connections

|                      |   |
|----------------------|---|
| INPUT                | 1 |
| OUTPUT               | 6 |
| COUPLED              | 3 |
| GROUND               | 2 |
| 50Ω TERM EXTERNAL    | 4 |
| ISOLATE (DO NOT USE) | 5 |

### Outline Drawing



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

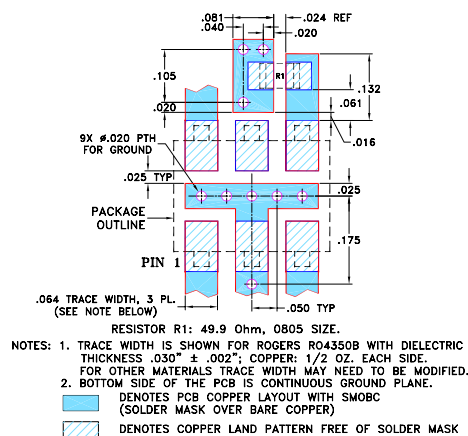
### Outline Dimensions (inch/mm)

| 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-05 Suggested PCB Layout (PL-095)



### Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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### Features

- wideband, 5-1000 MHz
- low mainline loss, 0.6 dB typ.
- high directivity, 24 dB typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

### Applications

- cable tv
- communications



Generic photo used for illustration purposes only  
CASE STYLE: CD542

### +RoHS Compliant

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

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

### Directional Coupler Electrical Specifications

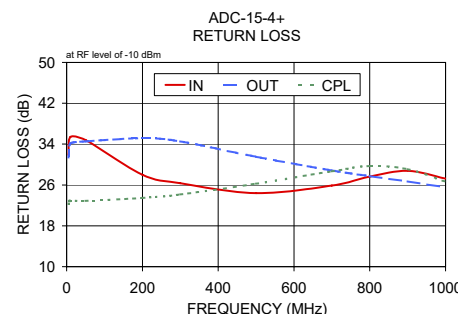
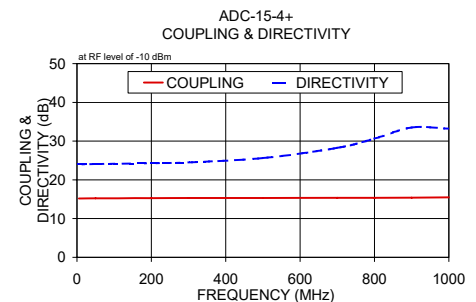
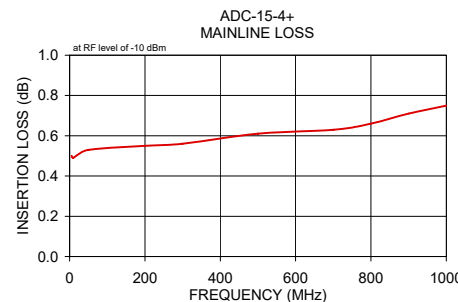
| FREQ.<br>(MHz) | COUPLING<br>(dB) |          | MAINLINE LOSS <sup>1</sup><br>(dB) |           |           | DIRECTIVITY<br>(dB) |                |                | VSWR<br>(:1) | POWER<br>INPUT, W |           |            |    |    |      |     |     |
|----------------|------------------|----------|------------------------------------|-----------|-----------|---------------------|----------------|----------------|--------------|-------------------|-----------|------------|----|----|------|-----|-----|
|                | Nom.             | Flatness | L<br>Typ.                          | M<br>Max. | U<br>Max. | L<br>Typ. Min.      | M<br>Typ. Min. | U<br>Typ. Min. |              | Typ.              | L<br>Max. | MU<br>Max. |    |    |      |     |     |
| 5-1000         | 15.5±0.5         | ±0.5     | 0.6                                | 1.0       | 0.6       | 1.0                 | 0.8            | 1.2            | 23           | 20                | 24        | 20         | 28 | 17 | 1.20 | 1.0 | 1.0 |

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

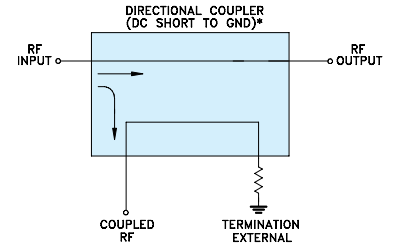
1. Mainline loss includes theoretical power loss at coupled port.

### Typical Performance Data

| Frequency<br>(MHz) | Mainline Loss<br>(dB)<br>In-Out | Coupling<br>(dB)<br>In-Cpl | Directivity<br>(dB) | Return Loss<br>(dB) |       |       |
|--------------------|---------------------------------|----------------------------|---------------------|---------------------|-------|-------|
|                    |                                 |                            |                     | In                  | Out   | Cpl   |
| 5.00               | 0.50                            | 15.21                      | 24.01               | 31.88               | 31.38 | 22.25 |
| 10.00              | 0.49                            | 15.19                      | 23.99               | 35.41               | 34.12 | 22.95 |
| 50.00              | 0.53                            | 15.23                      | 24.08               | 34.79               | 34.52 | 22.89 |
| 200.00             | 0.55                            | 15.28                      | 24.31               | 28.00               | 35.16 | 23.47 |
| 300.00             | 0.56                            | 15.30                      | 24.52               | 26.35               | 34.54 | 24.15 |
| 500.00             | 0.61                            | 15.32                      | 25.64               | 24.41               | 31.51 | 26.25 |
| 700.00             | 0.63                            | 15.34                      | 28.27               | 25.88               | 28.84 | 28.66 |
| 800.00             | 0.66                            | 15.36                      | 30.62               | 27.63               | 27.73 | 29.71 |
| 900.00             | 0.71                            | 15.42                      | 33.51               | 28.77               | 26.69 | 29.10 |
| 1000.00            | 0.75                            | 15.49                      | 33.23               | 27.25               | 25.54 | 26.64 |



### Electrical Schematic



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



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