

# Coaxial Directional Coupler

75Ω

10 to 250 MHz

## Maximum Ratings

Operating Temperature -55°C to 100°C

Storage Temperature -55°C to 100°C

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

## Coaxial Connections

|         |   |
|---------|---|
| INPUT   | 1 |
| OUTPUT  | 2 |
| COUPLED | 3 |

## Features

- excellent directivity, 35 dB typ.
- excellent mainline loss, 0.3 dB typ.
- rugged shielded case

## Applications

- catv
- VHF/UHF
- instrumentation
- amateur radio



CASE STYLE: K18

| Connectors           | Model           | Price       | Qty.  |
|----------------------|-----------------|-------------|-------|
| BNC                  | ZFDC-20-3-75(+) | \$49.95 ea. | (1-9) |
| BRACKET (OPTION "B") |                 | \$2.50      | (1+)  |

**+ 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.

## Directional Coupler Electrical Specifications

| FREQ.<br>RANGE<br>(MHz) | COUPLING<br>(dB)               |      | MAINLINE LOSS <sup>1</sup><br>(dB) |      |      |      |      |      | DIRECTIVITY<br>(dB) |      |      |      |      |      | VSWR<br>(:1) | POWER<br>INPUT<br>(W) |     |
|-------------------------|--------------------------------|------|------------------------------------|------|------|------|------|------|---------------------|------|------|------|------|------|--------------|-----------------------|-----|
|                         |                                |      | L                                  |      | M    |      | U    |      | L                   |      | M    |      | U    |      |              | L                     | MU  |
|                         | f <sub>L</sub> -f <sub>U</sub> | Nom. | Flatness                           | Typ. | Max. | Typ. | Max. | Typ. | Max.                | Typ. | Min. | Typ. | Min. | Typ. | Min.         |                       |     |
| 10-250                  | 19.3±0.5                       | ±0.3 | 0.25                               | 0.4  | 0.3  | 0.5  | 0.4  | 0.6  | 29                  | 25   | 29   | 25   | 28   | 24   | 1.2          | 1.0                   | 2.0 |

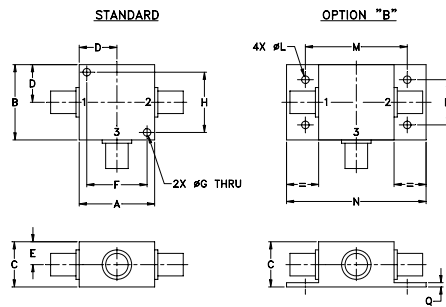
L = low range [ $f_L$  to  $10 f_L$ ] M = mid range [ $10 f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]

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) |       | Cpl   |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
|                 |                           |                      |                  | In               | Out   |       |
| 10.00           | 0.29                      | 19.36                | 54.40            | 33.81            | 29.81 | 30.17 |
| 20.00           | 0.30                      | 19.36                | 52.31            | 33.26            | 29.61 | 28.99 |
| 50.00           | 0.34                      | 19.41                | 41.16            | 29.77            | 27.51 | 23.16 |
| 90.00           | 0.37                      | 19.44                | 41.57            | 26.71            | 25.32 | 18.69 |
| 100.00          | 0.39                      | 19.46                | 41.41            | 26.15            | 24.89 | 17.85 |
| 125.00          | 0.39                      | 19.49                | 35.96            | 24.78            | 23.76 | 16.01 |
| 170.00          | 0.43                      | 19.56                | 34.87            | 23.12            | 22.40 | 13.64 |
| 200.00          | 0.44                      | 19.62                | 35.28            | 22.09            | 21.57 | 12.33 |
| 244.00          | 0.47                      | 19.73                | 34.47            | 20.73            | 20.21 | 10.76 |
| 250.00          | 0.47                      | 19.72                | 32.56            | 20.58            | 20.04 | 10.55 |

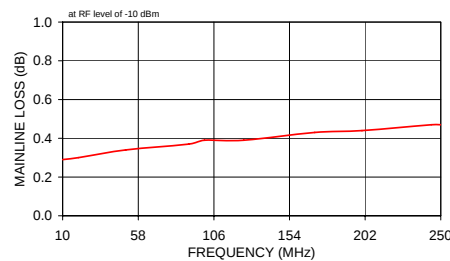
## Outline Drawing



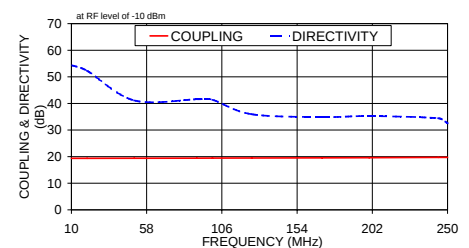
## Outline Dimensions (inch)

| A     | B     | C     | D     | E     | F     | G    | H     |
|-------|-------|-------|-------|-------|-------|------|-------|
| 1.25  | 1.25  | .75   | .63   | .38   | 1.00  | .125 | 1.000 |
| 31.75 | 31.75 | 19.05 | 16.00 | 9.65  | 25.40 | 3.18 | 25.40 |
| J     | K     | L     | M     | N     | P     | Q    | wt    |
| --    | --    | .125  | 1.688 | 2.18  | .75   | .07  | grams |
| --    | --    | 3.18  | 42.88 | 55.37 | 19.05 | 1.78 | 70.0  |

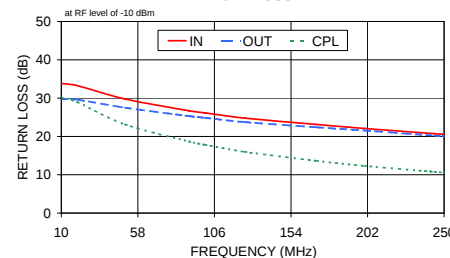
ZFDC-20-3-75  
MAINLINE LOSS



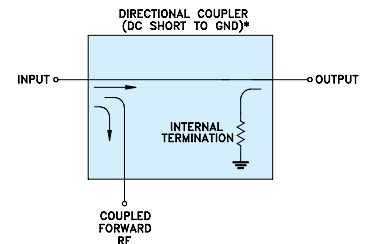
ZFDC-20-3-75  
COUPLING & DIRECTIVITY



ZFDC-20-3-75  
RETURN LOSS



## Electrical Schematic



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

**Mini-Circuits®**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

**minicircuits.com**

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

IF/RF MICROWAVE COMPONENTS

REV. B  
M119986  
ZFDC-20-3-75  
WZ/TD/CP/AM  
081112