

## Directional Coupler

ZX30-20-4

50Ω 5 to 1000 MHz

## Maximum Ratings

Operating Temperature -40°C to 85°C

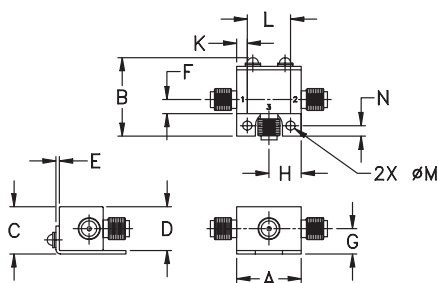
Storage Temperature -55°C to 100°C

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

## Coaxial Connections

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

## Outline Drawing



## Outline Dimensions (inch/mm)

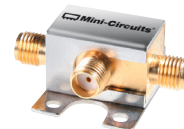
| A     | B     | C     | D     | E    | F    | G     |
|-------|-------|-------|-------|------|------|-------|
| .74   | .90   | .54   | .50   | .04  | .16  | .29   |
| 18.80 | 22.86 | 13.72 | 12.70 | 1.02 | 4.06 | 7.37  |
| H     | J     | K     | L     | M    | N    | wt    |
| .37   | --    | .122  | .496  | .106 | .122 | grams |
| 9.40  | --    | 3.10  | 12.60 | 2.69 | 3.10 | 20.0  |

## Features

- very flat coupling
- very broad, multi-octave
- all welded construction
- protected by U.S. Patents 6,140,887 & 6,784,521 & 6,790,049

## Applications

- VHF/UHF
- instrumentation
- communications receivers & transmitters
- cable tv



CASE STYLE: FL905

Connectors Model  
SMA ZX30-20-4-S

+RoHS Compliant

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

Directional Coupler Electrical Specifications ( $T_{AMB} = 25^{\circ}\text{C}$ )

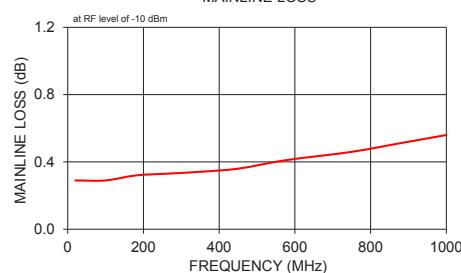
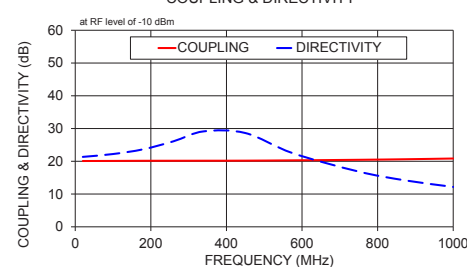
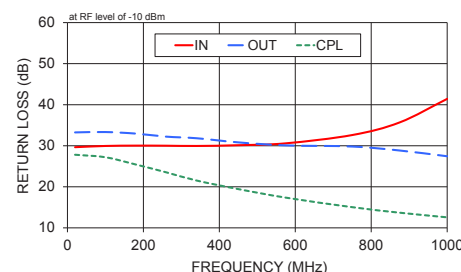
| FREQ.<br>(MHZ)                 | COUPLING<br>(dB) |      | MAINLINE LOSS <sup>1</sup><br>(dB) |      |      |      |      |      | DIRECTIVITY<br>(dB) |      |      |      |      |      | VSWR<br>(:1) | POWER<br>INPUT, W |      |      |
|--------------------------------|------------------|------|------------------------------------|------|------|------|------|------|---------------------|------|------|------|------|------|--------------|-------------------|------|------|
|                                |                  |      | L                                  |      | M    |      | U    |      | L                   |      | M    |      | U    |      |              | L                 | MU   |      |
|                                |                  |      | Typ.                               | Max. | Typ. | Max. | Typ. | Max. | Typ.                | Min. | Typ. | Min. | Typ. | Min. |              | Typ.              | Max. | Max. |
| f <sub>L</sub> -f <sub>U</sub> | Nom.             | Typ. | Flatness                           |      |      |      |      |      |                     |      |      |      |      |      |              |                   |      |      |
| 5-1000                         | 20.5±0.6         | ±0.5 |                                    | 0.3  | 0.5  | 0.35 | 0.6  | 0.6  | 0.9                 | 21   | 19   | 22   | 19   | 19   | 11           | 1.11              | 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  $f_U$ ]

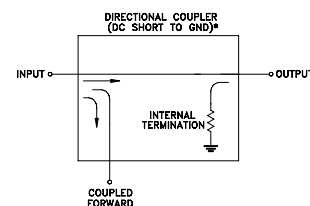
1. Mainline loss includes theoretical power loss at coupled port.

## Typical Performance Data

| Frequency<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   |
| 20.00              | 0.29                            | 20.09                      | 21.35               | 29.65               | 33.25 | 27.81 |
| 100.00             | 0.29                            | 20.12                      | 22.22               | 29.95               | 33.34 | 27.20 |
| 180.00             | 0.32                            | 20.16                      | 23.67               | 30.03               | 32.96 | 25.43 |
| 260.00             | 0.33                            | 20.17                      | 26.11               | 30.01               | 32.22 | 23.53 |
| 340.00             | 0.34                            | 20.18                      | 29.14               | 29.95               | 31.83 | 21.53 |
| 450.00             | 0.36                            | 20.20                      | 28.63               | 30.13               | 30.82 | 19.44 |
| 575.00             | 0.41                            | 20.29                      | 22.50               | 30.59               | 30.09 | 17.36 |
| 750.00             | 0.46                            | 20.46                      | 16.86               | 32.61               | 29.81 | 15.04 |
| 875.00             | 0.51                            | 20.63                      | 14.14               | 35.69               | 28.84 | 13.69 |
| 1000.00            | 0.56                            | 20.85                      | 12.18               | 41.42               | 27.44 | 12.56 |

ZX30-20-4  
MAINLINE LOSSZX30-20-4  
COUPLING & DIRECTIVITYZX30-20-4  
RETURN LOSS

## Electrical Schematic



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

## 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-Circuit's 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](http://www.minicircuits.com/MCLStore/terms.jsp)

www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. J  
M166133  
ED-10213A/5  
ZX30-20-4  
WZ/TD/CP/AM  
181213  
Page 1 of 1