

## DC Pass

## Bi-Directional Coupler

## ZBDC40-ED12230/1

### Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.

Please click "Back", and then click "Contact Us" for Applications support.



CASE STYLE : HT1180

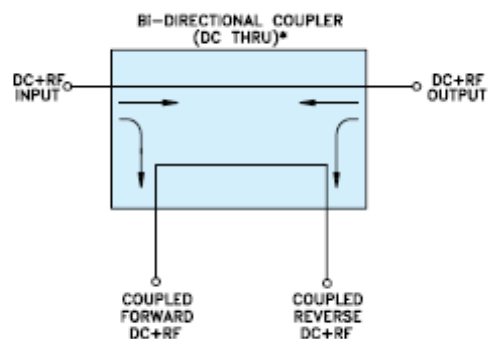
| ELECTRICAL SPECIFICATIONS 50Ω @ +25°C |              |      |          |            |
|---------------------------------------|--------------|------|----------|------------|
| Parameter                             |              | Min. | Typ.     | Max. Units |
| Frequency                             |              | 550  |          | 1450 MHz   |
| Coupling                              | Nominal      |      | 39.9±1.5 | dB         |
|                                       | Flatness     |      | ± 1.185  | dB         |
| Mainline Loss**                       | 550-1450 MHz |      | 0.15     | dB         |
| Directivity                           | 550-1450 MHz |      | 24       | dB         |
| VSWR                                  | 550-1450 MHz |      | 1.12     | (:1)       |
| RF Power Input                        | 550-1450 MHz |      |          | 50 W       |

Note: \*\*Mainline loss includes theoretical coupled power loss of 0.0004dB at 39.9dB coupling.

| MAXIMUM RATINGS       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature   | -55°C to 100°C |
| DC Current            |                |

| COAXIAL CONNECTIONS |    |
|---------------------|----|
| INPUT               | J1 |
| OUTPUT              | J2 |
| COUPLED FORWARD     | J4 |
| COUPLED REVERSE     | J3 |

### Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS.

# Bi-Directional Coupler

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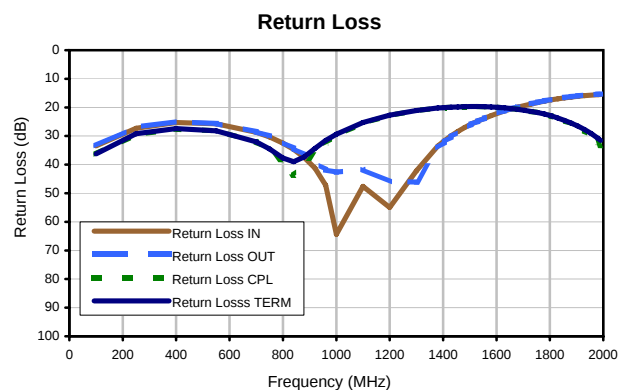
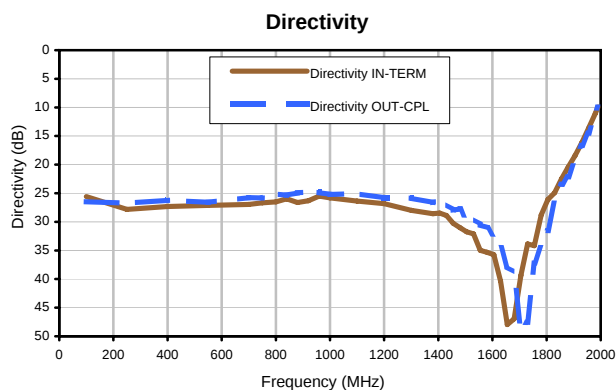
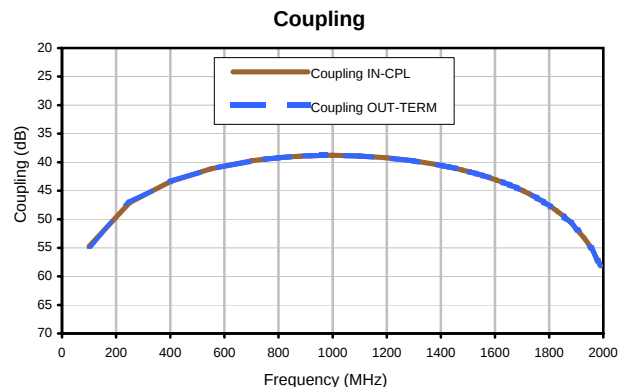
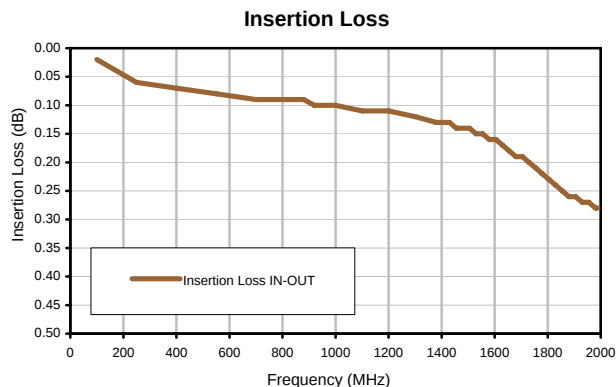
## Typical Performance Data

| FREQ.<br>(MHz) | INSERTION<br>LOSS<br>(dB)<br>IN-OUT | COUPLING<br>(dB) |          | DIRECTIVITY<br>(dB) |         | RETURN LOSS<br>(dB) |       |       |       |
|----------------|-------------------------------------|------------------|----------|---------------------|---------|---------------------|-------|-------|-------|
|                |                                     | IN-CPL           | OUT-TERM | IN-TERM             | OUT-CPL | IN                  | OUT   | CPL   | TERM  |
| 100.0          | 0.02                                | 54.75            | 54.70    | 25.58               | 26.49   | 33.44               | 33.38 | 36.33 | 36.26 |
| 250.0          | 0.06                                | 47.06            | 47.06    | 27.83               | 26.73   | 27.29               | 26.86 | 29.47 | 29.18 |
| 400.0          | 0.07                                | 43.39            | 43.39    | 27.33               | 26.24   | 25.29               | 24.98 | 27.65 | 27.40 |
| 550.0          | 0.08                                | 41.16            | 41.16    | 27.12               | 26.60   | 25.73               | 25.62 | 28.14 | 28.21 |
| 700.0          | 0.09                                | 39.77            | 39.79    | 26.97               | 25.76   | 28.67               | 28.52 | 32.06 | 32.07 |
| 750.0          | 0.09                                | 39.45            | 39.48    | 26.68               | 25.84   | 30.33               | 30.06 | 34.57 | 34.52 |
| 800.0          | 0.09                                | 39.23            | 39.22    | 26.50               | 25.13   | 32.49               | 32.19 | 39.25 | 37.68 |
| 840.0          | 0.09                                | 39.07            | 39.06    | 25.99               | 25.35   | 34.70               | 34.36 | 43.74 | 38.98 |
| 880.0          | 0.09                                | 38.94            | 38.93    | 26.61               | 24.91   | 37.51               | 36.59 | 40.25 | 37.28 |
| 920.0          | 0.10                                | 38.87            | 38.87    | 26.31               | 24.80   | 41.24               | 39.39 | 35.92 | 34.36 |
| 960.0          | 0.10                                | 38.81            | 38.82    | 25.49               | 24.86   | 47.19               | 41.86 | 32.56 | 31.53 |
| 1000.0         | 0.10                                | 38.79            | 38.81    | 25.82               | 25.22   | 64.37               | 42.67 | 29.94 | 29.34 |
| 1100.0         | 0.11                                | 38.91            | 38.92    | 26.37               | 25.09   | 47.62               | 41.68 | 25.51 | 25.29 |
| 1200.0         | 0.11                                | 39.22            | 39.25    | 26.81               | 25.80   | 54.95               | 45.96 | 22.85 | 22.72 |
| 1300.0         | 0.12                                | 39.76            | 39.78    | 28.00               | 25.84   | 42.16               | 46.08 | 21.11 | 21.07 |
| 1380.0         | 0.13                                | 40.37            | 40.38    | 28.59               | 26.64   | 33.50               | 34.14 | 20.28 | 20.21 |
| 1405.0         | 0.13                                | 40.62            | 40.59    | 28.46               | 26.30   | 31.64               | 32.03 | 20.07 | 20.06 |
| 1430.0         | 0.13                                | 40.84            | 40.83    | 28.89               | 26.90   | 29.93               | 30.26 | 19.92 | 19.93 |
| 1455.0         | 0.14                                | 41.09            | 41.09    | 30.25               | 27.96   | 28.42               | 28.66 | 19.80 | 19.83 |
| 1480.0         | 0.14                                | 41.39            | 41.34    | 31.02               | 27.75   | 27.07               | 27.22 | 19.71 | 19.75 |
| 1505.0         | 0.14                                | 41.66            | 41.68    | 31.75               | 29.79   | 25.86               | 25.91 | 19.66 | 19.69 |
| 1530.0         | 0.15                                | 41.98            | 42.00    | 32.10               | 29.48   | 24.78               | 24.81 | 19.69 | 19.69 |
| 1555.0         | 0.15                                | 42.35            | 42.35    | 34.98               | 30.52   | 23.80               | 23.79 | 19.79 | 19.77 |
| 1580.0         | 0.16                                | 42.73            | 42.70    | 35.33               | 31.03   | 22.88               | 22.88 | 19.91 | 19.87 |
| 1605.0         | 0.16                                | 43.12            | 43.08    | 35.74               | 32.40   | 22.03               | 21.99 | 20.01 | 19.97 |
| 1630.0         | 0.17                                | 43.54            | 43.54    | 40.35               | 34.13   | 21.22               | 21.15 | 20.15 | 20.16 |
| 1655.0         | 0.18                                | 43.99            | 44.00    | 47.97               | 37.84   | 20.50               | 20.42 | 20.36 | 20.41 |
| 1680.0         | 0.19                                | 44.47            | 44.49    | 46.95               | 38.88   | 19.93               | 19.81 | 20.70 | 20.72 |
| 1705.0         | 0.19                                | 45.04            | 45.09    | 39.38               | 49.17   | 19.36               | 19.24 | 21.05 | 21.04 |
| 1730.0         | 0.20                                | 45.61            | 45.63    | 33.86               | 47.57   | 18.80               | 18.67 | 21.40 | 21.41 |
| 1755.0         | 0.21                                | 46.28            | 46.27    | 34.17               | 37.21   | 18.27               | 18.15 | 21.80 | 21.82 |
| 1780.0         | 0.22                                | 46.95            | 46.99    | 28.81               | 34.36   | 17.78               | 17.67 | 22.37 | 22.30 |
| 1805.0         | 0.23                                | 47.73            | 47.79    | 26.08               | 31.54   | 17.36               | 17.23 | 23.04 | 22.91 |
| 1830.0         | 0.24                                | 48.60            | 48.64    | 24.92               | 26.42   | 17.01               | 16.85 | 23.82 | 23.72 |
| 1855.0         | 0.25                                | 49.50            | 49.58    | 22.48               | 23.44   | 16.68               | 16.51 | 24.67 | 24.56 |
| 1880.0         | 0.26                                | 50.53            | 50.64    | 20.42               | 22.15   | 16.38               | 16.21 | 25.70 | 25.51 |
| 1905.0         | 0.26                                | 51.92            | 51.87    | 18.45               | 19.30   | 16.12               | 15.96 | 26.86 | 26.52 |
| 1930.0         | 0.27                                | 53.33            | 53.25    | 16.15               | 16.65   | 15.90               | 15.73 | 28.20 | 27.72 |
| 1955.0         | 0.27                                | 54.96            | 54.98    | 13.65               | 14.50   | 15.70               | 15.53 | 29.86 | 29.12 |
| 1980.0         | 0.28                                | 57.22            | 57.26    | 11.08               | 10.90   | 15.55               | 15.37 | 32.25 | 30.83 |
| 1990.0         | 0.28                                | 58.17            | 57.92    | 9.93                | 9.96    | 15.50               | 15.33 | 33.35 | 31.57 |

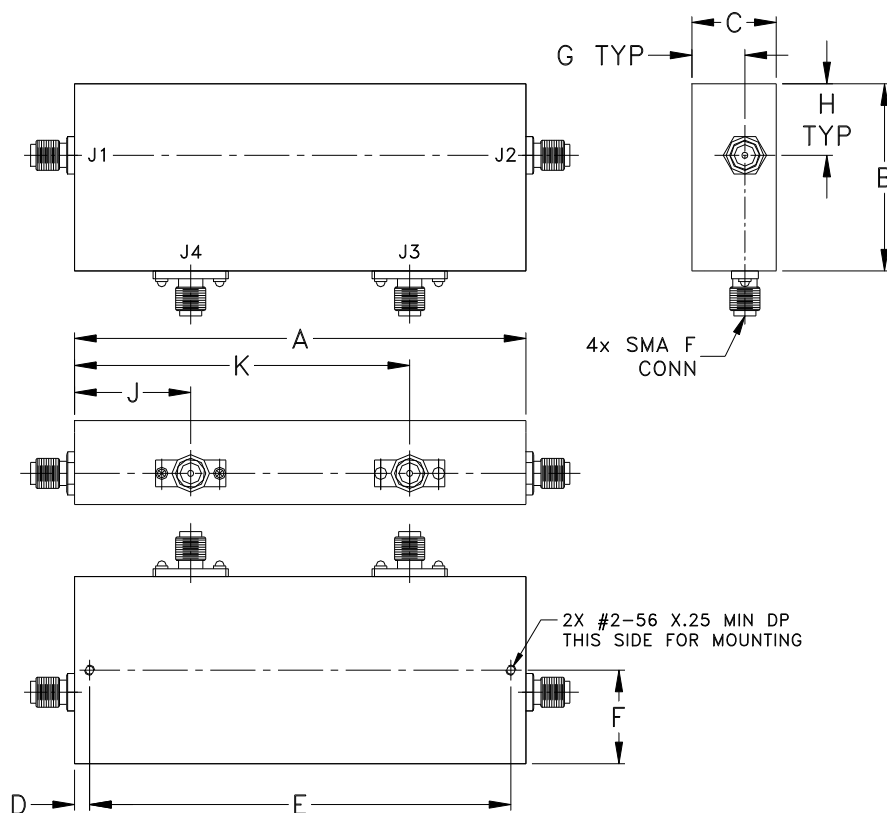
# Bi-Directional Coupler

## Typical Performance Curves

ZBDC40-ED12230/1



# HT1180



| CASE # | A               | B               | C              | D              | E                | F               | G              | H              | J              | K               | WT.<br>GRAM |
|--------|-----------------|-----------------|----------------|----------------|------------------|-----------------|----------------|----------------|----------------|-----------------|-------------|
| HT1180 | 3.75<br>(95.25) | 1.56<br>(39.62) | .70<br>(17.78) | .125<br>(3.18) | 3.500<br>(88.90) | .780<br>(19.81) | .44<br>(11.18) | .60<br>(15.24) | .97<br>(24.64) | 2.78<br>(70.61) | 130.0       |

**Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .03$ ; 3Pl.  $\pm .015$**

**Notes:**

1. Case material: Aluminum alloy.
2. Case finish:

For RoHS Case Styles: Clear Chemical conversion coating, non-chrome or trivalent chrome based.



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



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## RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification              | Test/Inspection Condition                                                              | Reference/Spec                       |
|----------------------------|----------------------------------------------------------------------------------------|--------------------------------------|
| Operating Temperature      | -55° to 100°C<br>Ambient Environment                                                   | Individual Model Data Sheet          |
| Storage Temperature        | -55° to 100° C<br>Ambient Environment                                                  | Individual Model Data Sheet          |
| Barometric Pressure        | 100,000 Feet                                                                           | MIL-STD-202, Method 105, Condition D |
| Humidity                   | 90% RH, 65°C<br>Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103              |
| Thermal Shock              | -65° to 125°C, 5 cycles                                                                | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)    | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock           | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)                          | MIL-STD-202, Method 213, Condition I |