

Coaxial Directional Coupler

ZADC-20-18-75+

75Ω 800 to 1750 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 | S |
| OUTPUT | 1 |
| COUPLED | 2 |

Features

- wideband, 800 to 1750 MHz
- excellent mainline loss, 0.4 dB typ.
- excellent VSWR, 1.2:1 typ.
- rugged shielded case

Applications

- catv
- GPS/cellular
- instrumentation



Generic photo used for illustration purposes only

CASE STYLE: F14

| | |
|------------|----------------|
| Connectors | Model |
| BNC | ZADC-20-18-75+ |

+RoHS Compliant

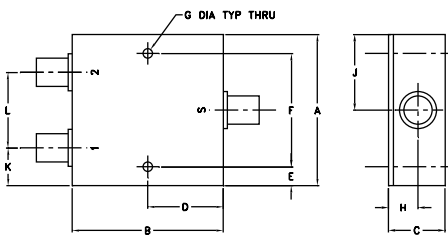
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Directional Coupler Electrical Specifications

| FREQ. RANGE (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | DIRECTIVITY (dB) | | VSWR (:1) | POWER INPUT (W) |
|-------------------|---------------|----------|---------------------------------|------|------------------|------|-----------|-----------------|
| | Nom. | Flatness | Typ. | Max. | Typ. | Min. | | |
| $f_L - f_U$ | | | | | | | | |
| 800-1750 | 19.8±0.6 | ±0.7 | 0.4 | 0.9 | 22 | 13 | 1.2 | 1.0 |

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

Outline Drawing

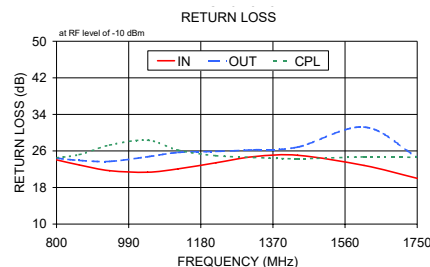
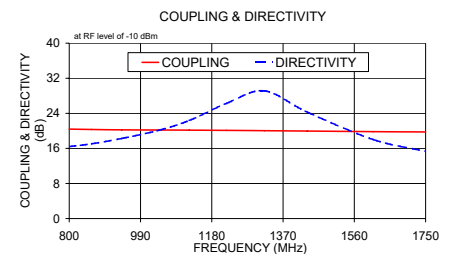
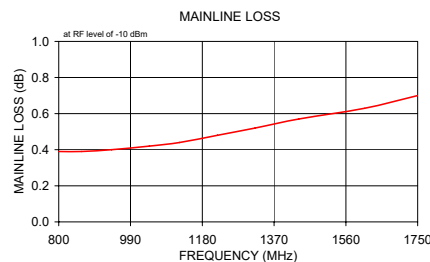


Outline Dimensions (inch/mm)

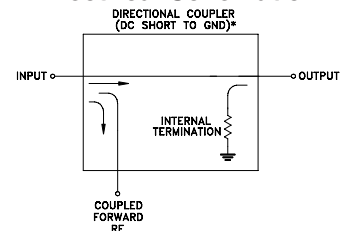
| A | B | C | D | E | F | G | H | J | K | L | wt |
|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|
| 2.00 | 2.00 | 0.75 | 1.00 | 0.25 | 1.500 | 0.125 | 0.39 | 1.00 | 0.50 | 1.00 | grams |
| 50.80 | 50.80 | 19.05 | 25.40 | 6.35 | 38.10 | 3.18 | 9.91 | 25.40 | 12.70 | 25.40 | 170.0 |

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
| | | | | In | Out | Cpl |
| 800.00 | 0.39 | 20.40 | 16.42 | 24.06 | 24.43 | 24.51 |
| 860.00 | 0.39 | 20.32 | 17.06 | 22.94 | 23.93 | 25.20 |
| 940.00 | 0.40 | 20.23 | 18.28 | 21.68 | 23.71 | 27.29 |
| 1040.00 | 0.42 | 20.19 | 20.17 | 21.34 | 24.73 | 28.36 |
| 1120.00 | 0.44 | 20.16 | 22.38 | 22.08 | 25.68 | 26.18 |
| 1220.00 | 0.48 | 20.11 | 26.29 | 23.42 | 25.91 | 24.97 |
| 1320.00 | 0.52 | 20.05 | 29.14 | 24.76 | 26.25 | 24.58 |
| 1435.00 | 0.57 | 19.95 | 24.27 | 25.05 | 26.85 | 24.31 |
| 1610.00 | 0.63 | 19.82 | 18.04 | 22.84 | 31.24 | 24.71 |
| 1750.00 | 0.70 | 19.75 | 15.32 | 20.01 | 24.63 | 24.61 |



Electrical Schematic



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

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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Directional Coupler

ZADC-20-18-75+

Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | COUPLING (dB) | DIRECTIVITY (dB) | RETURN LOSS | | |
|--------------------|---------------------------|------------------|---------------------|-------------|-------------|-------|
| | | | | IN | (dB) OUT | CPL |
| 800.0 | 0.39 | 20.40 | 16.42 | 24.06 | 24.43 | 24.51 |
| 815.0 | 0.39 | 20.38 | 16.55 | 23.77 | 24.28 | 24.63 |
| 830.0 | 0.39 | 20.36 | 16.72 | 23.51 | 24.18 | 24.78 |
| 845.0 | 0.39 | 20.33 | 16.91 | 23.22 | 24.01 | 24.98 |
| 860.0 | 0.39 | 20.32 | 17.06 | 22.94 | 23.93 | 25.20 |
| 875.0 | 0.40 | 20.31 | 17.31 | 22.67 | 23.79 | 25.46 |
| 880.0 | 0.40 | 20.31 | 17.33 | 22.57 | 23.81 | 25.58 |
| 910.0 | 0.41 | 20.27 | 17.72 | 22.11 | 23.69 | 26.28 |
| 940.0 | 0.40 | 20.23 | 18.28 | 21.68 | 23.71 | 27.29 |
| 970.0 | 0.42 | 20.23 | 18.68 | 21.31 | 23.70 | 28.43 |
| 1000.0 | 0.42 | 20.22 | 19.22 | 21.19 | 24.08 | 29.01 |
| 1020.0 | 0.41 | 20.18 | 19.71 | 21.23 | 24.44 | 28.84 |
| 1040.0 | 0.42 | 20.19 | 20.17 | 21.34 | 24.73 | 28.36 |
| 1060.0 | 0.42 | 20.19 | 20.67 | 21.46 | 25.04 | 27.76 |
| 1080.0 | 0.43 | 20.18 | 21.15 | 21.63 | 25.33 | 27.13 |
| 1100.0 | 0.44 | 20.17 | 21.76 | 21.84 | 25.64 | 26.62 |
| 1120.0 | 0.44 | 20.16 | 22.38 | 22.08 | 25.68 | 26.18 |
| 1140.0 | 0.45 | 20.17 | 23.08 | 22.32 | 25.73 | 25.83 |
| 1160.0 | 0.45 | 20.15 | 23.83 | 22.58 | 25.87 | 25.55 |
| 1180.0 | 0.47 | 20.14 | 24.58 | 22.85 | 25.94 | 25.31 |
| 1200.0 | 0.47 | 20.13 | 25.47 | 23.15 | 25.99 | 25.11 |
| 1220.0 | 0.48 | 20.11 | 26.29 | 23.42 | 25.91 | 24.97 |
| 1240.0 | 0.49 | 20.10 | 27.31 | 23.67 | 25.86 | 24.87 |
| 1260.0 | 0.50 | 20.09 | 28.11 | 23.96 | 25.94 | 24.83 |
| 1280.0 | 0.51 | 20.07 | 28.65 | 24.25 | 26.11 | 24.76 |
| 1300.0 | 0.51 | 20.05 | 29.02 | 24.53 | 26.25 | 24.67 |
| 1320.0 | 0.52 | 20.05 | 29.14 | 24.76 | 26.25 | 24.58 |
| 1340.0 | 0.53 | 20.04 | 28.90 | 24.93 | 26.23 | 24.52 |
| 1360.0 | 0.54 | 20.01 | 27.93 | 25.08 | 26.28 | 24.47 |
| 1380.0 | 0.55 | 20.00 | 27.06 | 25.19 | 26.48 | 24.45 |
| 1400.0 | 0.56 | 19.97 | 25.93 | 25.19 | 26.64 | 24.39 |
| 1435.0 | 0.57 | 19.95 | 24.27 | 25.05 | 26.85 | 24.31 |
| 1470.0 | 0.58 | 19.91 | 22.63 | 24.84 | 27.33 | 24.35 |
| 1505.0 | 0.60 | 19.89 | 21.17 | 24.44 | 28.10 | 24.40 |
| 1540.0 | 0.60 | 19.85 | 20.00 | 23.94 | 28.94 | 24.40 |
| 1575.0 | 0.61 | 19.82 | 18.92 | 23.49 | 30.25 | 24.58 |
| 1610.0 | 0.63 | 19.82 | 18.04 | 22.84 | 31.24 | 24.71 |
| 1645.0 | 0.64 | 19.78 | 17.18 | 22.19 | 30.83 | 24.71 |
| 1680.0 | 0.66 | 19.77 | 16.47 | 21.49 | 29.00 | 24.78 |
| 1715.0 | 0.67 | 19.78 | 15.85 | 20.70 | 26.79 | 24.78 |
| 1750.0 | 0.70 | 19.75 | 15.32 | 20.01 | 24.63 | 24.61 |

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060718
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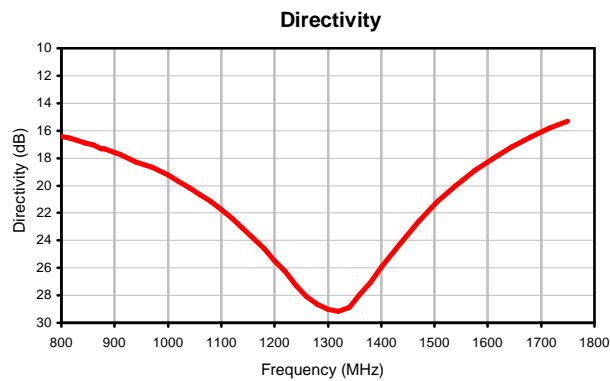
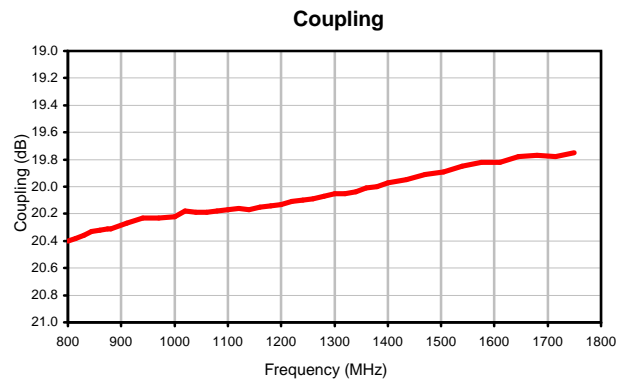
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Directional Coupler

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Typical Performance Curves



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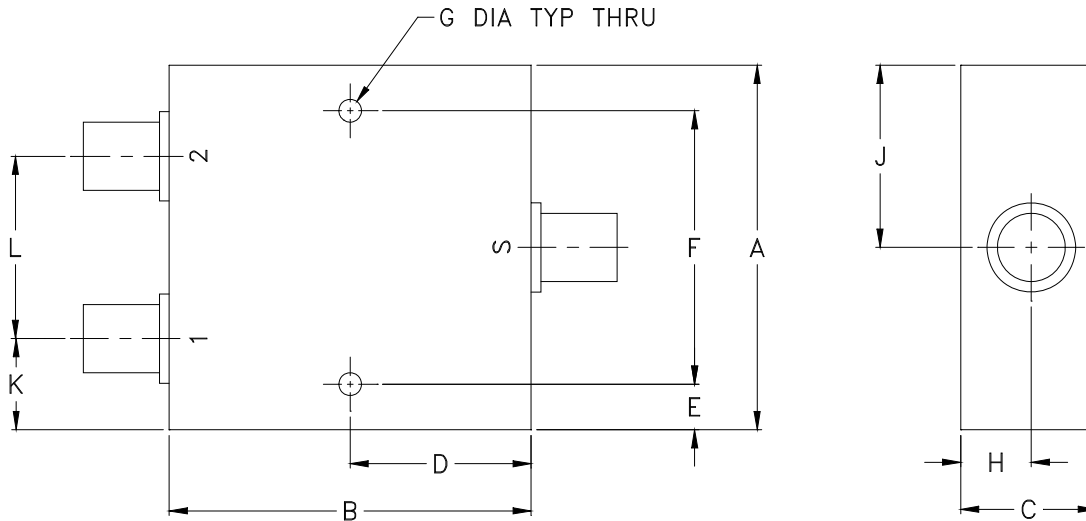


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Outline Dimensions



| CASE # | A | B | C | D | E | F | G | H | J | K | L | WT. GRAM |
|--------|-----------------|-----------------|----------------|-----------------|---------------|------------------|----------------|---------------|-----------------|----------------|-----------------|----------|
| F14 | 2.00 (50.80) | 2.00 (50.80) | .75 (19.05) | 1.00 (25.40) | .25 (6.35) | 1.500 (38.10) | .125 (3.18) | .39 (9.91) | 1.00 (25.40) | .50 (12.70) | 1.00 (25.40) | 170.0 |

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Refer to the individual model data sheet for the type of connectors available.



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| Specification | Test/Inspection Condition | Reference/Spec |
|----------------------------|--|--------------------------------------|
| Operating Temperature | -55° to 100°C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | 90% RH, 65°C 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 |