

Directional Coupler

ZADC-17-14HP-S

50Ω

500 to 1350 MHz



Generic photo used for illustration purposes only

CASE STYLE: F14

| Connectors | Model |
|------------|----------------|
| SMA | ZADC-17-14HP-S |

Maximum Ratings

| | |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| DC Current | 0.25A |

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

Coaxial Connections

| | |
|---------|---|
| INPUT | S |
| OUTPUT | 1 |
| COUPLED | 2 |

Features

- excellent mainline loss, 0.8 dB typ.
- excellent VSWR, 1.06:1 typ.
- useable over 300-2000 MHz
- input power up to 10W
- protected by US Patents 7,049,905 & 7,218,186
- DC current through input to output 0.25A Max. at 1.0 watt RF input power.

Applications

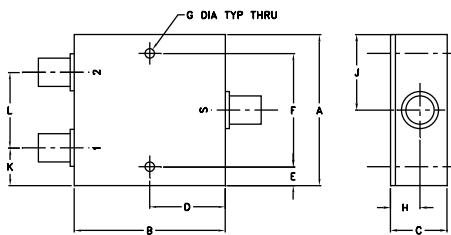
- cellular
- VHF/UHF
- instrumentation

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 | | | | | | | | |
| 500-1350 | 16.4±0.9 | ±1.3 | 0.8 | 1.5 | 29 | 16 | 1.06 | 10 |
| 800-1000 | 15.5±0.7 | ±0.5 | 0.8 | 1.3 | 30 | 20 | 1.06 | 10 |

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

Outline Drawing

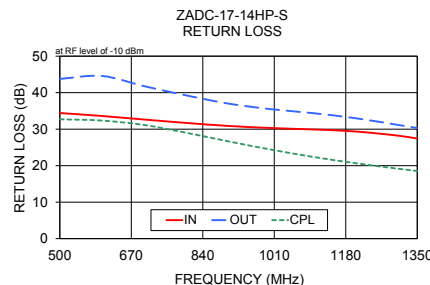
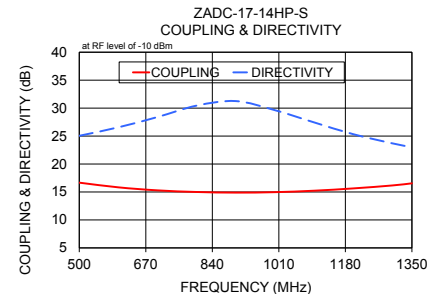
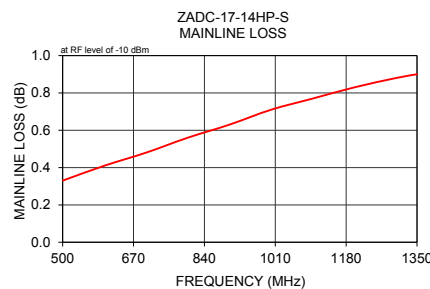


Outline Dimensions (inch/mm)

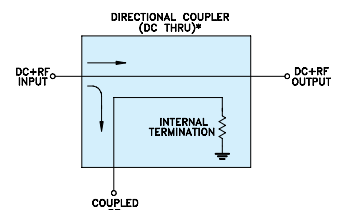
| | | | | | | |
|-------|-------|-------|-------|------|-------|-------|
| A | B | C | D | E | F | G |
| 2.00 | 2.00 | 0.75 | 1.00 | 0.25 | 1.500 | 0.125 |
| 50.80 | 50.80 | 19.05 | 25.40 | 6.35 | 38.10 | 3.18 |
| H | J | K | L | | | wt |
| 0.39 | 1.00 | 0.50 | 1.00 | | | grams |
| 9.91 | 25.40 | 12.70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

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | Cpl |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
| | | | | In | Out | |
| 500.00 | 0.33 | 16.67 | 25.05 | 34.42 | 43.77 | 32.71 |
| 600.00 | 0.41 | 15.83 | 26.57 | 33.61 | 44.58 | 32.35 |
| 700.00 | 0.48 | 15.29 | 28.41 | 32.64 | 41.80 | 31.15 |
| 800.00 | 0.56 | 15.00 | 30.45 | 31.71 | 39.27 | 29.02 |
| 900.00 | 0.63 | 14.89 | 31.26 | 30.89 | 37.02 | 26.67 |
| 1000.00 | 0.71 | 14.97 | 29.63 | 30.32 | 35.50 | 24.44 |
| 1100.00 | 0.77 | 15.23 | 27.45 | 29.92 | 34.41 | 22.44 |
| 1200.00 | 0.83 | 15.64 | 25.34 | 29.39 | 33.05 | 20.73 |
| 1300.00 | 0.88 | 16.17 | 23.70 | 28.28 | 31.24 | 19.22 |
| 1350.00 | 0.90 | 16.55 | 23.01 | 27.42 | 30.31 | 18.54 |



Electrical Schematic



* ELECTRICAL SCHEMATIC FOR DIRECTIONAL COUPLER THAT IS DESIGNED WITHOUT INTERNAL TRANSFORMERS.

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.
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Directional Coupler

ZADC-17-14HP

Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | COUPLING (dB) | DIRECTIVITY (dB) | RETURN LOSS | | |
|--------------------|---------------------------|------------------|---------------------|-------------|-------------|-------|
| | | | | IN (dB) | OUT (dB) | CPL |
| 500.0 | 0.34 | 16.53 | 22.21 | 34.87 | 41.23 | 47.04 |
| 520.0 | 0.35 | 16.31 | 22.43 | 34.96 | 42.11 | 45.67 |
| 540.0 | 0.38 | 16.16 | 22.58 | 35.10 | 42.25 | 44.39 |
| 560.0 | 0.39 | 15.97 | 22.84 | 34.87 | 41.93 | 43.26 |
| 580.0 | 0.39 | 15.80 | 23.04 | 34.75 | 42.13 | 41.95 |
| 600.0 | 0.39 | 15.65 | 23.31 | 34.29 | 43.46 | 40.56 |
| 620.0 | 0.42 | 15.52 | 23.56 | 34.10 | 44.97 | 39.28 |
| 640.0 | 0.44 | 15.40 | 24.03 | 34.27 | 45.68 | 38.19 |
| 660.0 | 0.42 | 15.28 | 24.23 | 34.00 | 44.12 | 37.17 |
| 680.0 | 0.45 | 15.17 | 24.60 | 33.73 | 42.82 | 36.10 |
| 700.0 | 0.46 | 15.11 | 25.08 | 33.34 | 43.07 | 34.92 |
| 720.0 | 0.49 | 15.02 | 25.43 | 33.10 | 44.09 | 33.91 |
| 740.0 | 0.51 | 14.94 | 25.85 | 32.90 | 45.02 | 33.04 |
| 760.0 | 0.53 | 14.91 | 26.13 | 32.99 | 43.92 | 32.29 |
| 780.0 | 0.51 | 14.82 | 26.75 | 32.92 | 41.84 | 31.60 |
| 800.0 | 0.54 | 14.78 | 27.17 | 32.42 | 40.53 | 30.80 |
| 820.0 | 0.56 | 14.75 | 27.67 | 32.08 | 40.23 | 29.95 |
| 840.0 | 0.57 | 14.74 | 28.24 | 31.93 | 40.59 | 29.16 |
| 860.0 | 0.57 | 14.74 | 28.53 | 31.88 | 40.89 | 28.44 |
| 880.0 | 0.61 | 14.70 | 29.15 | 32.10 | 39.47 | 27.86 |
| 900.0 | 0.61 | 14.67 | 30.14 | 32.14 | 37.74 | 27.31 |
| 920.0 | 0.64 | 14.69 | 30.63 | 31.78 | 36.54 | 26.72 |
| 940.0 | 0.64 | 14.72 | 31.11 | 31.47 | 35.88 | 26.13 |
| 960.0 | 0.65 | 14.75 | 31.65 | 31.14 | 36.06 | 25.57 |
| 980.0 | 0.65 | 14.73 | 31.79 | 31.20 | 36.07 | 25.00 |
| 1000.0 | 0.68 | 14.77 | 32.69 | 31.27 | 35.25 | 24.47 |
| 1020.0 | 0.70 | 14.80 | 32.69 | 31.42 | 34.13 | 23.93 |
| 1040.0 | 0.72 | 14.93 | 32.85 | 31.26 | 32.99 | 23.44 |
| 1060.0 | 0.73 | 14.94 | 32.77 | 31.01 | 32.38 | 23.00 |
| 1080.0 | 0.73 | 14.96 | 32.51 | 30.77 | 32.30 | 22.62 |
| 1100.0 | 0.74 | 15.01 | 32.20 | 30.82 | 32.35 | 22.26 |
| 1120.0 | 0.75 | 15.12 | 31.73 | 30.89 | 32.03 | 21.85 |
| 1140.0 | 0.76 | 15.20 | 31.53 | 31.09 | 31.17 | 21.39 |
| 1160.0 | 0.76 | 15.28 | 30.95 | 30.97 | 30.21 | 20.91 |
| 1180.0 | 0.78 | 15.35 | 30.45 | 30.73 | 29.62 | 20.56 |
| 1200.0 | 0.79 | 15.43 | 29.92 | 30.59 | 29.41 | 20.24 |
| 1240.0 | 0.83 | 15.64 | 28.79 | 30.43 | 29.45 | 19.63 |
| 1280.0 | 0.83 | 15.93 | 27.88 | 30.08 | 28.41 | 18.92 |
| 1300.0 | 0.82 | 16.00 | 27.18 | 29.95 | 27.70 | 18.60 |
| 1350.0 | 0.87 | 16.30 | 26.40 | 29.12 | 27.31 | 17.92 |

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060718
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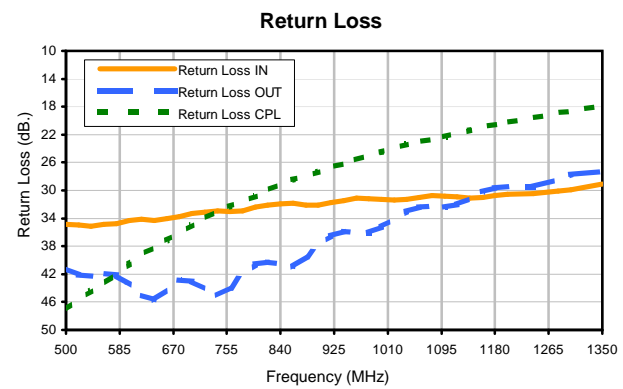
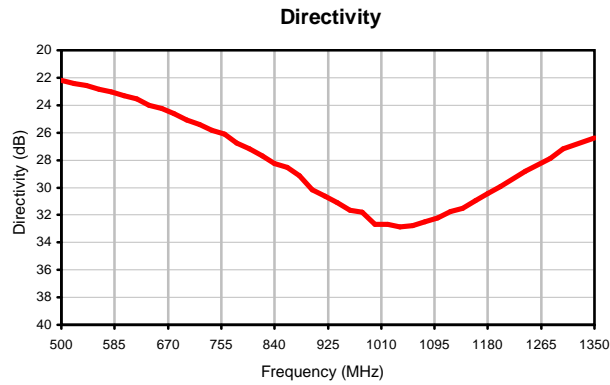
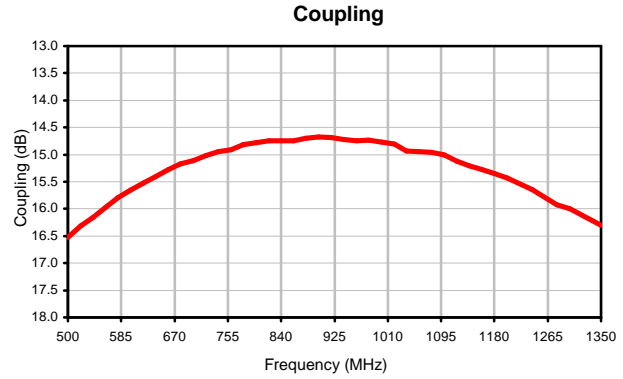
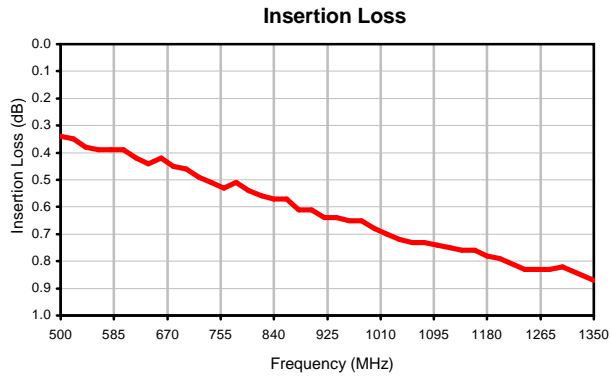
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ZADC-17-14HP

Typical Performance Curves



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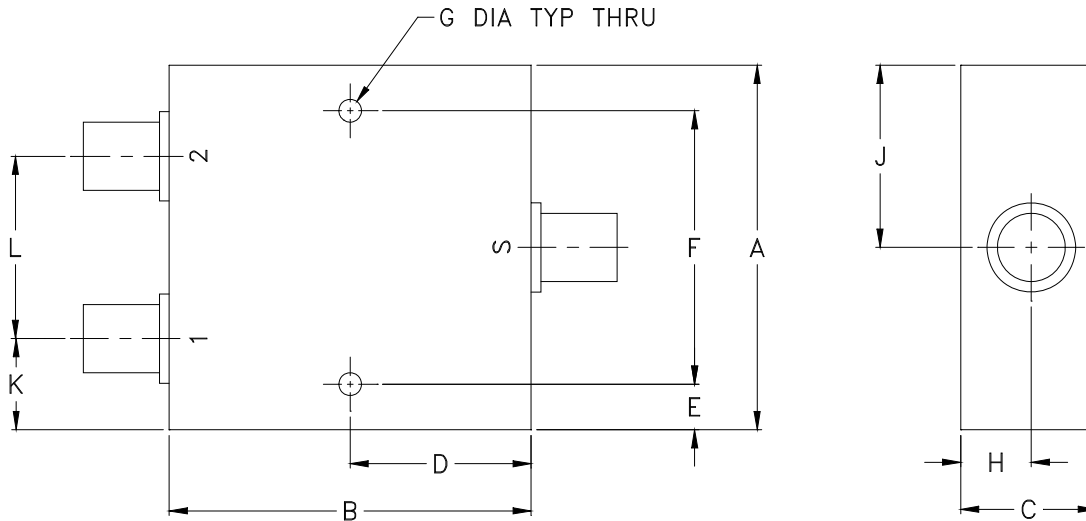
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Outline Dimensions



| 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 |