

**DC Pass**

# Directional Coupler

**ZADC-13-73-S+**

50Ω Up to 4W 2600 to 7000 MHz

## The Big Deal

- Wideband, 2600 to 7000 MHz
- Input power handling up to 4 W
- Low mainline loss, 0.8 dB
- Excellent VSWR, 1.2:1



CASE STYLE: CC1266

## Product Overview

Mini-Circuits' ZADC-13-73-S+ is a coaxial, wideband directional coupler providing 13 dB coupling with good coupling flatness across the 2600 to 7000 MHz frequency range. This model is capable of handling up to 4 W RF input power and passing up to 1.0 A DC current from input to output. 18 dB typical directivity allows accurate sampling of signal through the coupled port, and low mainline loss (0.8 dB typical) provides excellent transmission of signal power from input to output. The coupler comes housed in a rugged, compact aluminum alloy case (2.0 x 2.0 x 0.75") with SMA connectors.

## Key Features

| Feature                          | Advantages  |
|----------------------------------|---|
| Wideband, 2600 to 7000 MHz       | One device supports a broad range of system and test lab applications.                                    |
| Good directivity, 18 dB          | High directivity allows accurate signal sampling through the coupled port with minimal measurement error. |
| RF input power handling up to 4W | Usable in systems with medium power requirements.   |
| Flat coupling, $\pm 1.2$ dB      | Provides consistent coupling performance across frequency.  |
| Low mainline loss, 0.8 dB typ.   | Provides excellent through-path signal power transmission.  |
| Good VSWR. 1.2:1 typ.            | Well-matched for 50Ω systems with minimal signal reflection.  |
| DC current passing up to 1.0 A   | Suitable for use in systems where DC power is needed through the RF line.                                 |
| Small size, 2.0 x 2.0 x 0.75"    | Saves space in crowded spaces and dense system layouts.   |

### 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)



# DC Pass Directional Coupler

50Ω Up to 4W 2600 to 7000 MHz

ZADC-13-73-S+



CASE STYLE: CC1266

Connectors Model  
SMA ZADC-13-73-S+

+RoHS Compliant

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

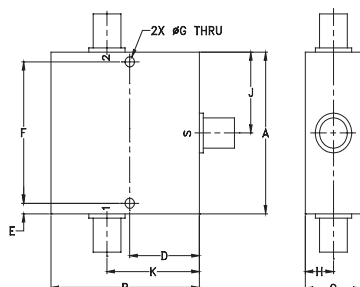
## Maximum Ratings

|   |                |
|---|----------------|
| Operating Temperature   | -55°C to 100°C |
| Storage Temperature   | -55°C to 100°C |
| DC Current  | 1.0A           |
| Permanent damage may occur if any of these limits are exceeded. |                |

## Coaxial Connections

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

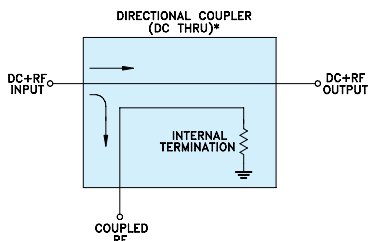
## Outline Drawing



## Outline Dimensions (inch mm)

|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| A     | B     | C     | D     | E     | F     |
| 2.00  | 2.00  | .75   | .938  | .13   | 1.750 |
| 50.80 | 50.80 | 19.05 | 23.83 | 3.30  | 44.45 |
| G     | H     | J     | K     | wt    |       |
| .125  | .38   | 1.00  | 1.25  | grams |       |
| 3.18  | 9.65  | 25.40 | 31.75 | 200.0 |       |

## Electrical Schematic



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

## Features

- excellent directivity, 18 dB typ.
- excellent VSWR, 1.20 typ.
- power input up to 4W
- low cost
- DC current through input to output 1.0A Max.

## Applications

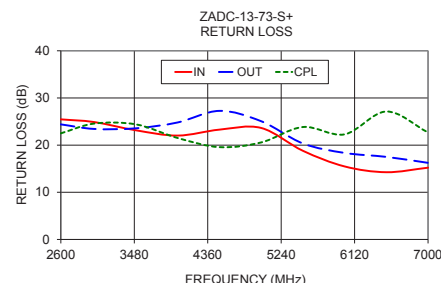
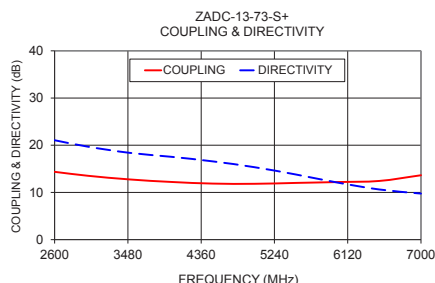
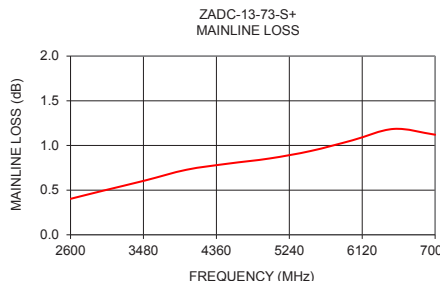
- instrumentation
- ISM
- defense communications
- federal communications
- fixed satellite

## Electrical Specifications at 25°C

| Parameter                                | Condition (MHz)                           | Min.                 | Typ.                     | Max.                      | Unit |
|--|---|----------------------|--------------------------|---------------------------|------|
| Frequency Range                          |   | 2600                 | —                        | 7000                      | MHz  |
| Mainline Loss (above theoretical 0.2 dB) | 2600<br>4500<br>6000<br>7000              | —<br>—<br>—<br>—     | 0.3<br>0.7<br>0.8<br>0.9 | 0.65<br>1.0<br>1.2<br>1.3 | dB   |
| Coupling                                 | 2600 - 4500<br>4500 - 6000<br>6000 - 7000 | —<br>—<br>—          | 13±2<br>12±1<br>13±2     | —<br>—<br>—               | dB   |
| Coupling Flatness(±)                     | 2600 - 4500<br>4500 - 6000<br>6000 - 7000 | —<br>—<br>—          | 1.2<br>0.4<br>0.5        | 1.7<br>0.7<br>1.0         | dB   |
| Directivity                              | 2600<br>4500<br>6000<br>7000              | 15<br>14<br>10<br>7  | 21<br>18<br>15<br>10     | —<br>—<br>—<br>—          | dB   |
| Return Loss (Input)                      | 2600<br>4500<br>6000<br>7000              | 20<br>18<br>13<br>10 | 29<br>26<br>18<br>15     | —<br>—<br>—<br>—          | dB   |
| Return Loss (Output)                     | 2600<br>4500<br>6000<br>7000              | 20<br>18<br>15<br>10 | 29<br>26<br>20<br>15     | —<br>—<br>—<br>—          | dB   |
| Return Loss (Coupling)                   | 2600<br>4500<br>6000<br>7000              | 15<br>15<br>15<br>15 | 18<br>21<br>19<br>25     | —<br>—<br>—<br>—          | dB   |
| Input Power                              | 2600 - 7000                               | —                    | —                        | 4.0                       | W    |

## Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | In    | Return Loss (dB) Out | Cpl   |
|-----------------|---------------------------|----------------------|------------------|-------|----------------------|-------|
| 2600            | 0.40                      | 14.37                | 21.06            | 25.46 | 24.40                | 22.50 |
| 3000            | 0.50                      | 13.53                | 19.69            | 24.88 | 23.43                | 24.57 |
| 3500            | 0.61                      | 12.76                | 18.39            | 23.14 | 23.56                | 24.40 |
| 4000            | 0.73                      | 12.22                | 17.55            | 22.02 | 24.80                | 21.51 |
| 4500            | 0.80                      | 11.88                | 16.58            | 23.28 | 27.26                | 19.57 |
| 5000            | 0.85                      | 11.83                | 15.35            | 23.64 | 25.07                | 20.57 |
| 5500            | 0.94                      | 12.02                | 13.79            | 18.80 | 20.36                | 23.84 |
| 6000            | 1.06                      | 12.20                | 12.08            | 15.48 | 18.35                | 22.28 |
| 6500            | 1.19                      | 12.44                | 10.63            | 14.26 | 17.51                | 27.12 |
| 7000            | 1.12                      | 13.64                | 9.76             | 15.22 | 16.24                | 22.69 |



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