

# Wideband, DC Pass Directional Coupler

## ZCDC10-18263-S+

50Ω    10dB    Up to 20W    18 to 26.5 GHz

### The Big Deal

- Wideband, 18 to 26.5 GHz
- Excellent Coupling Flatness,  $\pm 0.2$  dB typ.
- Power Handling up to 20W



CASE STYLE: HT2536-1

### Product Overview

The Mini-Circuits ZCDC10-18263-S+ wideband directional coupler offers exceptional performance operating over 18 to 26.5 GHz. This coupler has excellent coupling flatness, good directivity, and power handling. It is ideal for lab testing applications as well as for power monitoring over wide bands, among other applications.

### Key Features

| Feature                                                                                                 | Advantages                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wide bandwidth                                                                                          | With a bandwidth spanning 18 to 26.5 GHz, ZCDC10-18263-S+ coupler is ideal for most lab testing applications, avoiding the need to switch components for different frequency bands. |
| Excellent Directivity <ul style="list-style-type: none"><li>• 19 dB typ. up to 26.5 GHz</li></ul>       | High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches.                                                                         |
| Excellent coupling flatness, $\pm 0.2$ dB typ                                                           | Excellent coupling flatness over the entire frequency range minimizes the need for compensation circuits in most cases.                                                             |
| Good Return Loss (In & Out) <ul style="list-style-type: none"><li>• 17 dB typ. up to 26.5 GHz</li></ul> | Good return loss over 18 to 26.5 GHz minimizes undesired reflections and resulting amplitude ripple.                                                                                |

#### 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.  
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# Wideband, DC Pass Directional Coupler

50Ω 10dB Up to 20W 18 to 26.5 GHz

ZCDC10-18263-S+

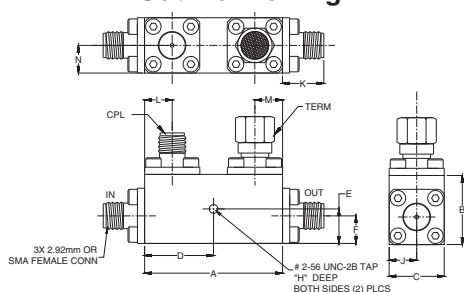
## Maximum Ratings

|                                                                |                |
|----------------------------------------------------------------|----------------|
| Operating Temperature                                          | -55°C to 100°C |
| Storage Temperature                                            | -55°C to 100°C |
| Supplied Termination*                                          | 1 W            |
| DC Current                                                     | 0.6A           |
| Permanent damage may occur if any of these limits are exceeded |                |
| * up to 25°C, derates linearly to 325mW at 100°C.              |                |

## Coaxial Connections

|                            |     |
|----------------------------|-----|
| INPUT                      | IN  |
| OUTPUT                     | OUT |
| COUPLED                    | CPL |
| TERMINATION (50Ω) INCLUDED | —   |

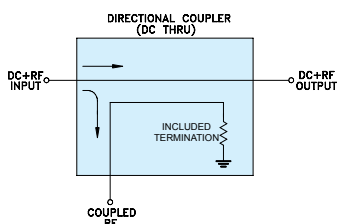
## Outline Drawing



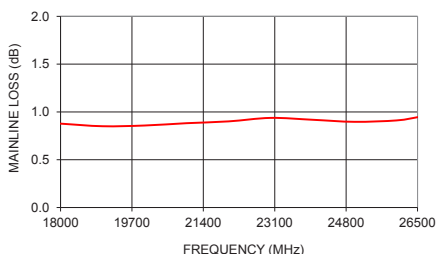
## Outline Dimensions (inch/mm)

| A     | B    | C     | D     | E     | F    | G     |
|-------|------|-------|-------|-------|------|-------|
| 1.25  | 0.63 | 0.50  | 0.63  | 0.313 | 0.25 | —     |
| 31.75 | 16.0 | 12.7  | 15.88 | 7.95  | 6.35 | —     |
| H     | J    | K     | L     | M     | N    | wt    |
| 0.120 | 0.25 | 0.43  | 0.25  | 0.25  | 0.25 | grams |
| 3.05  | 6.35 | 10.92 | 6.35  | 6.35  | 6.35 | 50    |

## Electrical Schematic



ZCDC10-18263-S+  
MAINLINE LOSS



## Features

- Wide frequency range, 18 to 26.5 GHz
- Good coupling flatness,  $\pm 0.2$  dB typ.
- Good directivity, 19 dB typ. up to 26.5 GHz
- Good return loss (In & Out) 17 dB typ. up to 26.5 GHz
- DC pass input to output

## Applications

- Cellular infrastructure
- Military
- Lab use



CASE STYLE: HT2536-1

|            |                 |
|------------|-----------------|
| Connectors | Model           |
| SMA-Female | ZCDC10-18263-S+ |

## +RoHS Compliant

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

## Electrical Specifications at 25°C

| Parameter                   | Frequency (GHz) | Min. | Typ.         | Max. | Units |
|-----------------------------|-----------------|------|--------------|------|-------|
| Operating Frequency         |                 | 18   |              | 26.5 | GHz   |
| Nominal Coupling            | 18-26.5         |      | 10 $\pm$ 0.7 |      | dB    |
| Coupling Flatness ( $\pm$ ) | 18-26.5         |      | 0.2          | 0.4  | dB    |
| Mainline Loss <sup>1</sup>  | 18-26.5         |      | 0.9          | 1.2  | dB    |
| Directivity                 | 18-26.5         | 14.0 | 24           |      | dB    |
| Return Loss (In & Out)      | 18-26.5         | 15.5 | 26           |      | dB    |
| Return Loss (Coupling)      | 18-26.5         | 15.5 | 23           |      | dB    |
| Input Power**               |                 |      |              | 20   | W     |

1. Mainline loss includes coupling loss

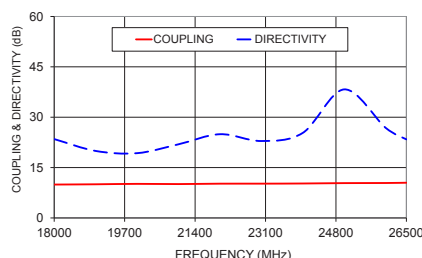
\*\* Up to 25°C, derates linearly to 9W at 100°C.

## Typical Performance Data

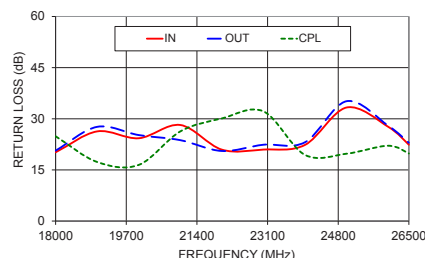
| Frequency (MHz) | Mainline Loss <sup>1</sup> (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) In | Return Loss (dB) Out | Cpl   |
|-----------------|----------------------------------------|----------------------|------------------|---------------------|----------------------|-------|
| 18000           | 0.88                                   | 9.94                 | 23.49            | 20.17               | 20.66                | 24.86 |
| 19000           | 0.85                                   | 10.02                | 19.95            | 26.30               | 27.64                | 17.33 |
| 20000           | 0.86                                   | 10.15                | 19.29            | 24.29               | 25.22                | 16.47 |
| 21000           | 0.88                                   | 10.09                | 21.94            | 28.18               | 23.73                | 26.29 |
| 22000           | 0.90                                   | 10.21                | 24.94            | 20.95               | 20.55                | 30.10 |
| 23000           | 0.94                                   | 10.21                | 22.91            | 20.97               | 22.39                | 32.18 |
| 24000           | 0.92                                   | 10.26                | 25.34            | 22.33               | 23.11                | 19.40 |
| 25000           | 0.90                                   | 10.38                | 38.29            | 33.30               | 35.15                | 19.75 |
| 26000           | 0.91                                   | 10.41                | 26.83            | 27.67               | 27.99                | 22.09 |
| 26500           | 0.94                                   | 10.49                | 23.40            | 22.39               | 22.96                | 19.82 |

1. Mainline loss includes coupling loss

ZCDC10-18263-S+  
COUPLING & DIRECTIVITY



ZCDC10-18263-S+  
RETURN LOSS



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Page 2 of 2