

Wideband, DC Pass

# Directional Coupler

ZCDC10-K0244+

50Ω 10dB Up to 15W 2 to 40 GHz

## The Big Deal

- Wideband, 2 to 40 GHz
- Excellent Coupling Flatness,  $\pm 0.6$  dB typ.
- Power Handling up to 15W



CASE STYLE: HT2627

## Product Overview

The Mini-Circuits ZCDC10-K0244+ wideband directional coupler offers exceptional performance operating over 2 to 40 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 2 to 40 GHz, ZCDC10-K0244+ coupler is ideal for most lab testing applications, avoiding the need to switch components for different frequency bands. |
| Excellent Directivity<br>• 24 dB typ. up to 40 GHz       | High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches.                                                                    |
| Excellent coupling flatness, $\pm 0.6$ dB typ            | Excellent coupling flatness over the entire frequency range minimizes the need for compensation circuits in most cases.                                                        |
| Good Return Loss (In & Out)<br>• 15 dB typ. up to 40 GHz | Good return loss over 2 to 40 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 15W 2 to 40 GHz

ZCDC10-K0244+

## Maximum Ratings

Operating Temperature -55°C to 100°C

Storage Temperature -55°C to 100°C

Supplied Termination\* 1 W

Permanent damage may occur if any of these limits are exceeded  
\* up to 25°C, derates linearly to 325mW at 100°C.

## Coaxial Connections

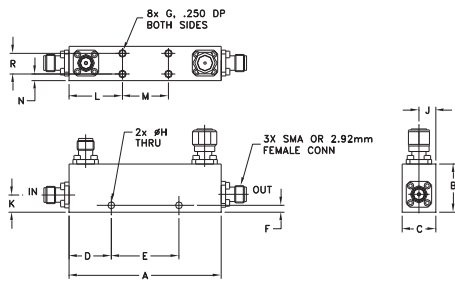
INPUT IN

OUTPUT OUT

COUPLED CPL

TERMINATION (50Ω) INCLUDED —

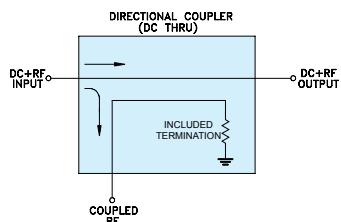
## Outline Drawing



## Outline Dimensions (inch mm)

| A     | B     | C     | D     | E     | F     | G      |
|-------|-------|-------|-------|-------|-------|--------|
| 2.25  | 0.7   | 0.50  | 0.63  | 1.00  | 0.10  | #4-40  |
| 57.15 | 17.78 | 12.70 | 16.00 | 25.40 | 2.54  | UNC-2B |
| H     | J     | K     | L     | M     | wt    |        |
| 0.1   | 0.25  | 0.25  | 0.79  | 0.68  | grams |        |
| 2.54  | 6.35  | 6.35  | 20.07 | 17.27 | 80    |        |

## Electrical Schematic



## Features

- Wide frequency range, 2 to 40 GHz
- Good coupling flatness,  $\pm 0.6$  dB typ.
- Good directivity, 24 dB typ. up to 40 GHz
- Good return loss, 15 dB typ. up to 40 GHz
- DC current pass through input to output

## Applications

- 5G
- mobile
- fixed satellite
- lab use



CASE STYLE: HT2627

Connectors

2.92mm Female

Model

ZCDC10-K0244+

+RoHS Compliant

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

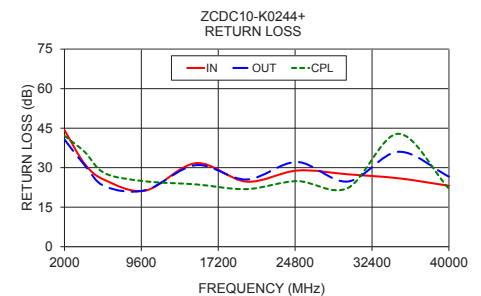
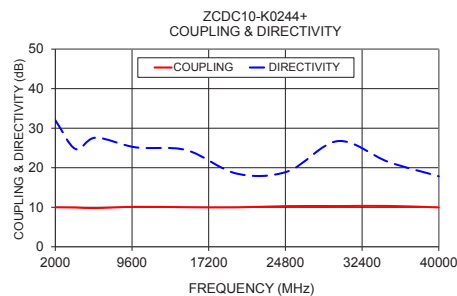
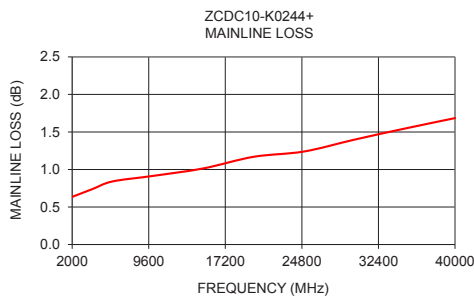
## Electrical Specifications at 25°C

| Parameter              | Frequency (GHz) | Min. | Typ.         | Max.      | Units |
|------------------------|-----------------|------|--------------|-----------|-------|
| Operating Frequency    |                 | 2    |              | 40        | GHz   |
| Nominal Coupling       | 2 - 40          | —    | 10 $\pm$ 1.4 | —         | dB    |
| Coupling Flatness      | 2 - 40          | —    | $\pm 0.6$    | $\pm 0.8$ | dB    |
| Mainline Loss          | 2 - 8           | —    | 0.8          | 1.1       | dB    |
|                        | 8 - 18          | —    | 1.0          | 1.3       |       |
|                        | 18 - 26.5       | —    | 1.2          | 1.6       |       |
|                        | 26.5 - 40       | —    | 1.6          | 2.1       |       |
| Directivity            | 2 - 8           | 16   | 27           | —         | dB    |
|                        | 8 - 18          | 13   | 25           | —         |       |
|                        | 18 - 26.5       | 11   | 23           | —         |       |
|                        | 26.5 - 40       | 10   | 20           | —         |       |
| Return Loss (In & Out) | 2 - 8           | 15.5 | 29           | —         | dB    |
|                        | 8 - 18          | 13.9 | 29           | —         |       |
|                        | 18 - 26.5       | 12.7 | 28           | —         |       |
|                        | 26.5 - 40       | 11.7 | 25           | —         |       |
| Return Loss (Coupling) | 2 - 8           | 15.5 | 29           | —         | dB    |
|                        | 8 - 18          | 13.9 | 26           | —         |       |
|                        | 18 - 26.5       | 12.7 | 27           | —         |       |
|                        | 26.5 - 40       | 11.7 | 22           | —         |       |
| Input Power**          | 2 - 40          | —    | —            | 15        | W     |

\*\* up to 25°C, derates linearly to 6W at 100°C.

## Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) In | Return Loss (dB) Out | Cpl   |
|-----------------|---------------------------|----------------------|------------------|---------------------|----------------------|-------|
| 2000            | 0.64                      | 9.99                 | 32.02            | 44.27               | 40.71                | 42.10 |
| 4000            | 0.74                      | 9.94                 | 24.74            | 31.44               | 30.91                | 35.97 |
| 8000            | 0.90                      | 9.85                 | 29.11            | 21.93               | 21.76                | 23.07 |
| 10000           | 0.91                      | 10.12                | 25.14            | 21.31               | 21.46                | 24.83 |
| 18000           | 1.11                      | 9.85                 | 18.31            | 27.68               | 37.43                | 22.05 |
| 20000           | 1.17                      | 9.98                 | 18.50            | 24.70               | 25.51                | 21.86 |
| 26000           | 1.29                      | 10.15                | 36.95            | 26.69               | 28.56                | 24.16 |
| 30000           | 1.40                      | 10.30                | 26.73            | 27.49               | 24.75                | 22.27 |
| 35000           | 1.54                      | 10.33                | 21.48            | 25.98               | 36.03                | 42.86 |
| 40000           | 1.68                      | 9.96                 | 17.83            | 23.14               | 26.63                | 22.05 |



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