

Wideband, DC Pass Directional Coupler

ZCDC20-5R263-S+

50Ω 20dB Up to 20W 0.5 to 26.5 GHz

The Big Deal

- Wideband, 0.5 to 26.5 GHz
- Excellent Coupling Flatness, ± 0.8 dB typ.
- Power Handling up to 20W



CASE STYLE: HT2626

Product Overview

The Mini-Circuits ZCDC20-5R263-S+ wideband directional coupler offers exceptional performance operating over 0.5 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 0.5 to 26.5 GHz, ZCDC20-5R263-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">• 16 dB typ. up to 26.5 GHz | High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches. |
| Excellent coupling flatness, ± 0.8 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">• 22 dB typ. up to 26.5 GHz | Good return loss over 0.5 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.
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



Wideband, DC Pass Directional Coupler

50Ω 20dB Up to 20W 0.5 to 26.5 GHz

Maximum Ratings

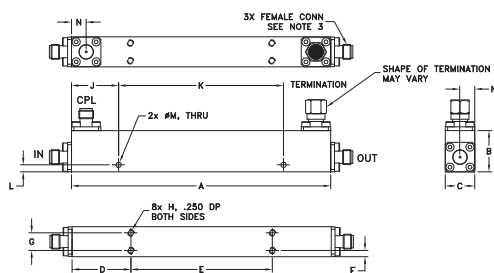
| | |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Supplied Termination* | 1 W |
| DC Current | 0.6 A |

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 | — |

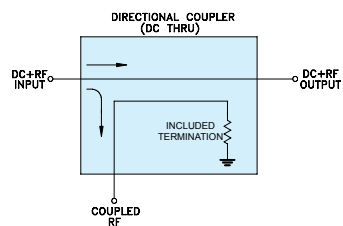
Outline Drawing



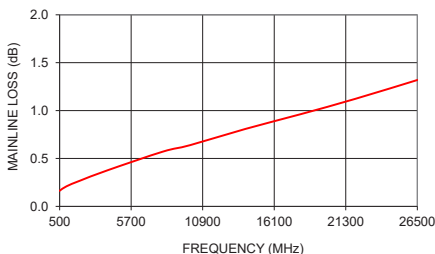
Outline Dimensions (inch mm)

| | | | | | | |
|--------|-------|-------|-------|-------|------|-------|
| A | B | C | D | E | F | G |
| 4.40 | 0.7 | 0.50 | 1.00 | 2.40 | 0.11 | 0.3 |
| 111.76 | 17.78 | 12.70 | 25.40 | 60.96 | 2.79 | 7.62 |
| H | J | K | L | M | N | wt |
| #4-40 | 0.8 | 2.8 | 0.12 | 0.09 | 0.25 | grams |
| UNC-2B | 20.32 | 71.12 | 3.05 | 2.29 | 6.35 | 90 |

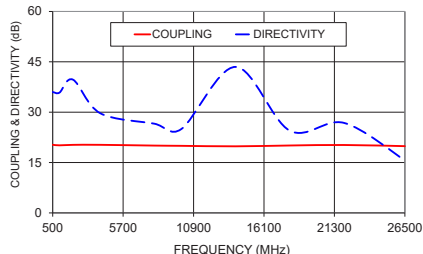
Electrical Schematic



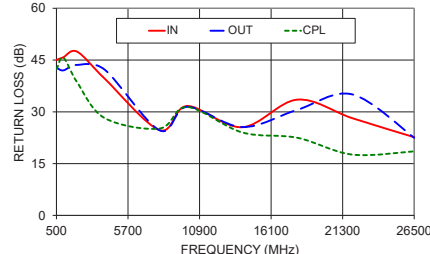
ZCDC20-5R263-S+
MAINLINE LOSS



ZCDC20-5R263-S+
COUPLING & DIRECTIVITY



ZCDC20-5R263-S+
RETURN LOSS



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ZCDC20-5R263-S+



Generic photo used for illustration purposes only

CASE STYLE: HT2626

| | |
|------------|-----------------|
| Connectors | Model |
| SMA Female | ZCDC20-5R263-S+ |

+RoHS Compliant

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

Features

- Wide frequency range, 0.5 to 26.5 GHz
- Good coupling flatness, ± 0.8 dB typ.
- Good directivity, 16 dB typ. up to 26.5 GHz
- Good return loss, 22 dB typ. up to 26.5 GHz
- DC current pass through input to output

Applications

- 5G
- mobile
- fixed satellite
- lab use

Electrical Specifications at 25°C

| Parameter | Frequency (GHz) | Min. | Typ. | Max. | Units |
|----------------------------|-----------------|------|--------------|---------|-------|
| Operating Frequency | | 0.5 | | 26.5 | GHz |
| Nominal Coupling | 0.5 - 26.5 | - | 20 \pm 1.7 | - | dB |
| Coupling Flatness | 0.5 - 26.5 | - | ± 0.8 | ± 1 | dB |
| Mainline Loss ¹ | 0.5 - 8 | - | 0.5 | 1.0 | dB |
| | 8 - 18 | - | 0.9 | 1.4 | |
| | 18 - 26.5 | - | 1.2 | 1.7 | |
| Directivity | 0.5 - 8 | 17 | 31 | - | dB |
| | 8 - 18 | 14 | 25 | - | |
| | 18 - 26.5 | 13 | 22 | - | |
| Return Loss (In & Out) | 0.5 - 8 | 17.7 | 36 | - | dB |
| | 8 - 18 | 16.2 | 27 | - | |
| | 18 - 26.5 | 15.6 | 29 | - | |
| Return Loss (Coupling) | 0.5 - 8 | 17.7 | 32 | - | dB |
| | 8 - 18 | 17.7 | 29 | - | |
| | 18 - 26.5 | 15.6 | 24 | - | |
| Input Power ² | 0.5 - 26.5 | - | - | 20 | W |

1. Mainline loss includes coupling loss

2. Up to 25°C, derates linearly to 10W at 100°C.

Typical Performance Data

| Frequency (MHz) | Mainline Loss ¹ (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) In | Return Loss (dB) Out | Cpl |
|-----------------|--|----------------------|------------------|---------------------|----------------------|-------|
| 500 | 0.16 | 20.29 | 36.00 | 45.05 | 42.77 | 42.33 |
| 1000 | 0.21 | 20.13 | 35.83 | 45.80 | 42.01 | 45.69 |
| 2000 | 0.27 | 20.27 | 39.68 | 47.43 | 43.59 | 38.58 |
| 4000 | 0.38 | 20.28 | 29.71 | 39.64 | 42.23 | 28.20 |
| 8000 | 0.57 | 20.05 | 26.57 | 24.71 | 24.64 | 25.17 |
| 10000 | 0.64 | 19.98 | 24.99 | 31.69 | 31.46 | 31.40 |
| 14000 | 0.81 | 19.83 | 43.49 | 25.54 | 25.59 | 24.04 |
| 18000 | 0.96 | 20.08 | 24.50 | 33.53 | 30.58 | 22.49 |
| 22000 | 1.12 | 20.23 | 26.82 | 28.17 | 35.05 | 17.62 |
| 26500 | 1.32 | 19.88 | 15.65 | 22.66 | 22.49 | 18.56 |

1. Mainline loss includes coupling loss

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