Wideband, DC Pass

Directional Coupler

ZUDC20-5R23-S+

50Ω 20dB Up to 50W 0.5 to 2 GHz

The Big Deal

- Wideband, 0.5 to 2 GHz
- Power Handling up to 50W



CASE STYLE: HT2446-2

Product Overview

The Mini-Circuits ZUDC20-5R23-S+ wideband directional coupler offers exceptional performance operating over 0.5 to 2 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 2 GHz, ZUDC20-5R23-S+ coupler is ideal for most lab testing applications, avoiding the need to switch components for different frequency bands.
Excellent Directivity • 30 dB typ. up to 2 GHz	High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches.
Excellent Return Loss (In & Out) • 30 dB typ. up to 2 GHz	Good return loss over 0.5 to 2 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

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Generic photo used for illustration purposes only

CASE STYLE: HT2446-2

Connectors	Model
SMA Female	ZUDC20-5R23-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 85°C
Storage Temperature	-55°C to 100°C
Supplied Termination*	1 W
DC Current	1A

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	—

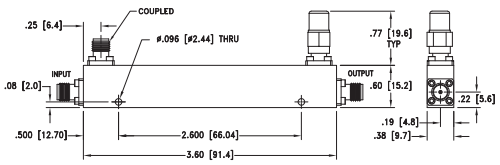
Features

- Wide frequency range, 0.5 to 2 GHz
- Good coupling flatness, ±0.5 dB typ.
- Excellent directivity, 30 dB typ. up to 2 GHz
- Excellent return loss, 30 dB typ. up to 2 GHz
- DC current pass through input to output

Applications

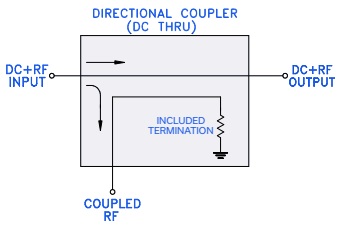
- mobile
- fixed satellite
- lab use
- GPS
- radar
- radio

Outline Drawing



Weight: 45.4 grams;
Dimensions are in inches (mm). Tolerances: 2 Pl.±.03; 3 Pl. ± .015

Electrical Schematic



Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		0.5		2	GHz
Coupling	0.5-2	-	20±1.0	-	dB
Coupling Flatness (±)	0.5-2	-	±0.5	±1.25	dB
Mainline Loss[1]	0.5-2	-	0.19	0.4	dB
Directivity	0.5-2	23	35	-	dB
Return Loss (In & Out)	0.5-2	20.8	36	-	dB
Return Loss (Coupling)	0.5-2	20.8	35	-	dB
Input Power[2]	0.5-2	-	-	50	W

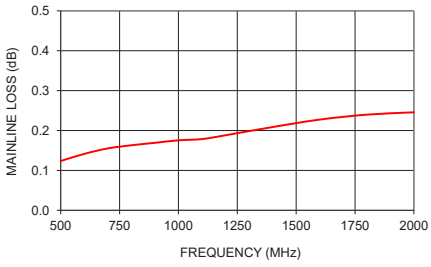
1. Mainline loss includes coupling loss
2. Up to 25°C, derates linearly to 5W at 100°C.

Typical Performance Data

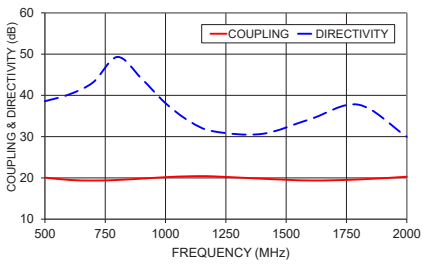
Frequency (MHz)	Mainline Loss[1] (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
500	0.12	20.07	38.58	50.45	58.88	37.59
600	0.14	19.51	40.22	46.77	47.54	39.76
700	0.16	19.36	43.17	42.36	41.64	45.49
800	0.16	19.50	49.31	39.62	39.14	60.72
900	0.17	19.82	44.10	37.51	37.17	43.55
1000	0.18	20.18	38.10	36.34	36.81	38.23
1100	0.18	20.40	33.70	37.09	37.93	35.86
1200	0.19	20.37	31.27	38.58	40.70	34.48
1400	0.21	19.80	30.67	47.66	43.42	34.44
1600	0.23	19.37	34.25	34.31	32.83	34.84
1800	0.24	19.62	37.74	30.41	29.60	31.59
2000	0.25	20.29	29.96	30.59	30.14	28.75

1. Mainline loss includes coupling loss

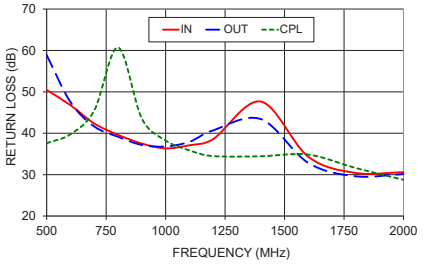
ZUDC20-5R23-S+
MAINLINE LOSS



ZUDC20-5R23-S+
COUPLING & DIRECTIVITY



ZUDC20-5R23-S+
RETURN LOSS



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