Wideband, DC Pass

Directional Couplers ZUDC-Series

50Ω Up to 20W 10, 15, 20, and 30 dB 2 to 18 GHz

The Big Deal

- Wideband, 2 to 18 GHz
- Excellent Coupling Flatness, ±0.4 dB typ.
- Power Handling up to 20W



CASE STYLE: HT2628

Product Overview

The Mini-Circuits ZUDC family of wideband directional couplers offers exceptional performance spanning frequencies from 2 to 18 GHz. Available in models with 10, 15, 20, and 30 dB coupling, these couplers provide excellent coupling flatness, good directivity, and power handling up to 20W. They are 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 18 GHz, ZUDC couplers are ideal for most lab testing applications, avoiding the need to switch components for different frequency bands.
Excellent Directivity • 20 dB typ. up to 18 GHz	High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches.
Excellent coupling flatness • +0.4 dB typ. up to 18 GHz	Excellent coupling flatness over the entire frequency range eliminates the need for compensation circuits in most cases.
Good Return Loss • 20 dB typ. up to 18 GHz	Good return loss over 2 to 18 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

ZUDC20-02183-S+

50Ω 20dB Up to 20W 2 to 18 GHz



Generic photo used for illustration purposes only

CASE STYLE: HT2628

Connectors	Model
SMA-Fem	ZUDC20-02183-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*	1W

* Up to 50°C derate linearly to 350 mW at 100°C

Permanent damage may occur if any of these limits are exceeded

Coaxial Connections

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

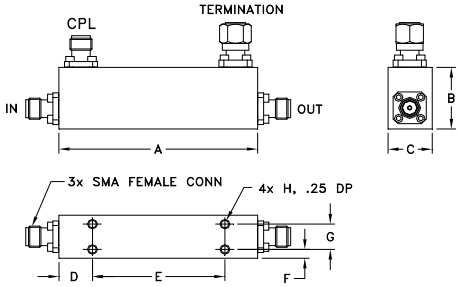
Features

- Wide frequency range, 2 to 18 GHz
- Good coupling flatness, ±0.4 dB typ.
- Good directivity, 20 dB typ. up to 18 GHz
- Good return loss, 20 dB typ. up to 18 GHz
- DC current pass through input to output

Applications

- Cellular infrastructure
- Military
- Lab use

Outline Drawing

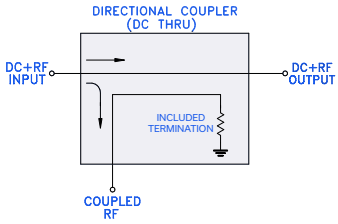


Outline Dimensions (inch / mm)

A	B	C	D	E
2.25	0.73	0.50	0.38	1.50
57.15	18.54	12.70	9.65	38.10

F	G	H	wt
0.10	0.30	#4-40	grams
2.54	7.62	UNC-2B	40

Electrical Schematic



Electrical Specifications at 25°C

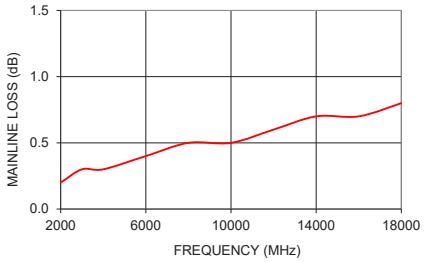
Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		2		18	GHz
Nominal Coupling	2 - 18	—	20±1.5	—	dB
Coupling Flatness	2 - 18	—	±0.4	±1.0	dB
Mainline Loss	2 - 18	—	0.5	0.9	dB
Directivity	2 - 18	15	25	—	dB
Return Loss (In & Out)	2 - 18	14	26	—	dB
Return Loss (Coupling)	2 - 18	14	25	—	dB
Input Power**	2 - 18	—	—	20	W

**Up to 85°C derate linearly to 13.7W at 100°C

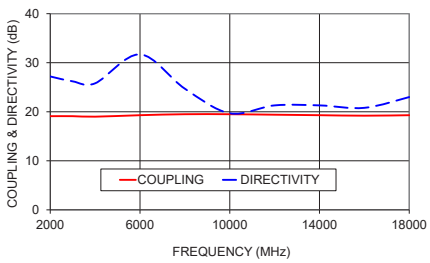
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
2000	0.2	19.1	27.2	24.3	24.1	22.2
3000	0.3	19.1	26.2	37.3	40.6	24.9
4000	0.3	19.0	25.8	23.8	24.0	29.1
6000	0.4	19.3	31.7	24.6	24.9	20.8
8000	0.5	19.5	24.7	20.3	20.0	28.3
10000	0.5	19.5	19.7	20.7	21.3	19.8
12000	0.6	19.4	21.3	19.2	19.9	19.3
14000	0.7	19.3	21.3	29.8	32.0	21.3
16000	0.7	19.2	20.8	28.8	27.4	21.7
18000	0.8	19.3	23.0	24.2	24.9	22.9

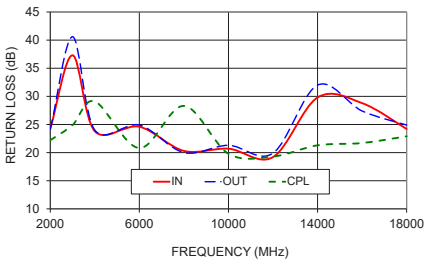
ZUDC20-02183-S+
MAINLINE LOSS



ZUDC20-02183-S+
COUPLING & DIRECTIVITY



ZUDC20-02183-S+
RETURN LOSS



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