

Ultra-Wideband

Directional Coupler

ZUDC-Series

50Ω Up to 50W 10, 20, and 30 dB 0.5 to 18 GHz

The Big Deal

- Ultra-wideband, 0.5 to 18 GHz
- Excellent Coupling Flatness, ± 0.4 dB typ.
- Power Handling up to 50W



CASE STYLE: HT1967

Product Overview

The Mini-Circuits ZUDC family of ultra-wideband directional couplers offers exceptional performance spanning frequencies from 0.5 to 18 GHz. Available in models with 10, 20, and 30 dB coupling, these couplers provide excellent coupling flatness, good directivity, and power handling up to 50W. They are ideal for lab testing applications as well as for power monitoring over wide bands, among other applications.

Key Features

Feature	Advantages
Ultra-wide bandwidth	With a bandwidth spanning 0.5 to 18 GHz, ZUDC couplers are ideal for most lab testing applications, avoiding the need to switch components for different frequency bands.
Excellent Directivity <ul style="list-style-type: none">• 22 dB at 4 GHz• 12 dB at 18 GHz	High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches.
Excellent coupling flatness, ± 0.4 dB typ.	Excellent coupling flatness over the entire frequency range eliminates the need for compensation circuits in most cases.
Good Return Loss, 15 dB typ.	Good return loss over 0.5 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



Ultra-Wideband, DC Pass Directional Coupler

50Ω 10dB Up to 50W 0.5 to 18 GHz

ZUDC10-183+

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	3A
Supplied Termination*	1W

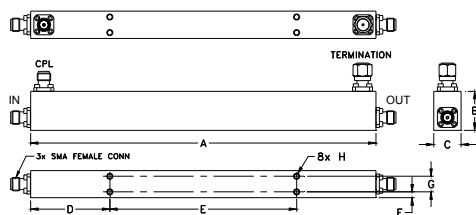
* With load at coupled port (<2.0:1 VSWR)

Permanent damage may occur if any of these limits are exceeded

Coaxial Connections

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

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E
6.47	.73	.51	1.48	3.500
164.34	18.54	12.95	37.59	88.90
F	G	H		wt
.11	.293	#4-40		grams
2.79	7.44	UNC-2B		120.0

Features

- ultra wide frequency range, 0.5 to 18 GHz
- good coupling flatness, ± 0.6 dB typ.
- good directivity, 22dB typ up to 4 GHz
- good VSWR, 1.4 typ up to 18 GHz, 1:15 up to 4 GHz
- DC current pass through input to output

Applications

- cellular
- lab use
- WiMax
- ISM
- GSM
- PCN



CASE STYLE: H1196/

Connectors	Model
SMA	ZUDC10-183+

+RoHS Compliant

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

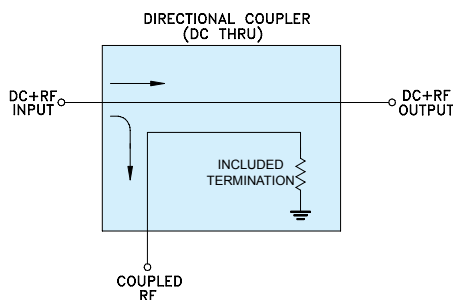
Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		0.5		18	GHz
Nominal Coupling (include flatness)	0.5 - 18	—	10 \pm 1.5	—	dB
Coupling Flatness	0.5 - 4	—	± 0.3	± 0.6	dB
	4 - 12.4	—	± 0.3	± 0.6	
	12.4 - 18	—	± 0.4	± 0.9	
Mainline Loss	0.5 - 4	—	0.8	1.1	dB
	4 - 12.4	—	1.4	1.9	
	12.4 - 18	—	1.8	2.9	
Directivity	0.5 - 4	20	22	—	dB
	4 - 12.4	14	17	—	
	12.4 - 18	—	12	—	
Return Loss (In & Out)	0.5 - 4	—	23	—	dB
	4 - 12.4	—	17	—	
	12.4 - 18	—	15	—	
Return Loss (Coupling)	0.5 - 4	—	21	—	dB
	4 - 12.4	—	18	—	
	12.4 - 18	—	16	—	
Input Power ^{1,2}	0.5 - 4	—	—	50	W
	4 - 12.4	—	—	25	
	12.4 - 18	—	—	10	

1. At 25°C with no DC current. Derate linearly to 20, 10, 4W at 100°C

2. Peak power 1.5 KW

Electrical Schematic



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-Circuit's 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

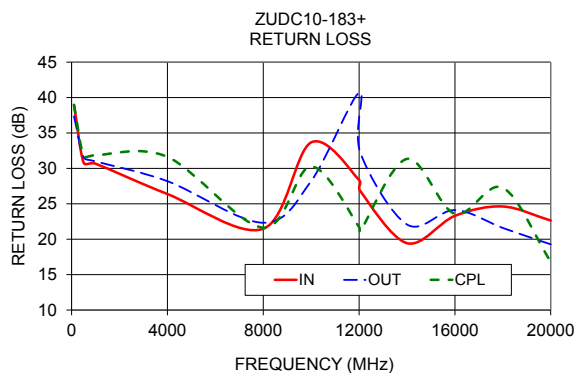
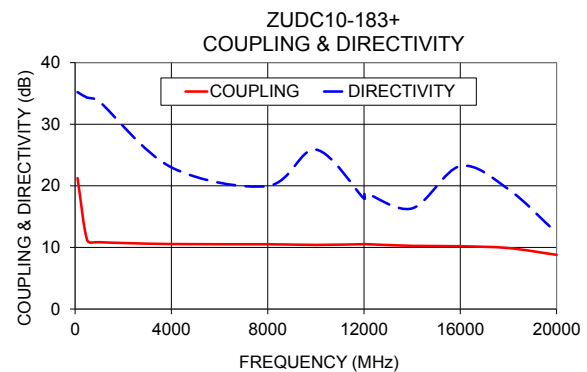
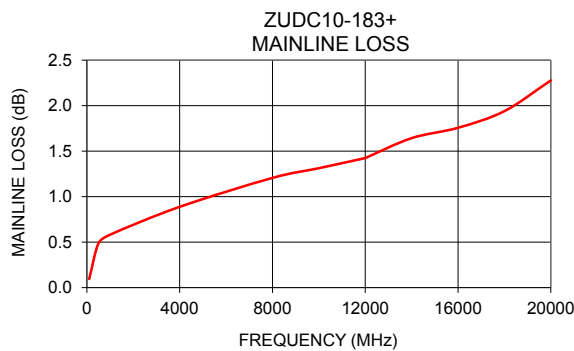


www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. D
M168957
ZUDC10-183+
RS/CP/AM
180713
Page 2 of 3

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	In	Return Loss (dB) Out	Cpl
100	0.10	21.25	35.21	38.98	37.36	38.94
500	0.49	11.22	34.31	30.82	31.59	31.80
1000	0.58	10.86	33.70	30.66	30.99	31.87
4000	0.89	10.55	23.00	26.38	28.20	31.63
8000	1.21	10.52	19.97	21.48	22.33	21.63
10000	1.31	10.41	25.88	33.67	28.22	30.27
12000	1.42	10.53	17.92	28.36	40.68	21.72
12050	1.43	10.54	18.87	26.81	32.23	21.13
12400	1.46	10.70	19.60	24.06	26.17	25.16
16000	1.76	10.20	23.20	23.30	24.12	23.58
18000	1.94	9.90	19.44	24.62	21.59	27.27
20000	2.28	8.80	12.36	22.64	19.28	16.83



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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

