



Mini-Circuits

WIDEBAND, DC PASS

Directional Coupler **ZUDC30-06183-S+**

50Ω 30dB Up to 50W 6 to 18 GHz SMA Female

THE BIG DEAL

- Wide frequency range, 6 to 18 GHz
- Excellent coupling flatness, ± 0.3 dB typ.
- Good directivity, 21 dB typ. at 12 GHz
- Excellent return loss, 24 dB typ. 6 to 18 GHz
- DC current pass through input to output

APPLICATIONS

- Satellite Communications
- Test and Measurement Equipment
- Radar, EW and ECM Defense Systems



Generic photo used for illustration purposes only

Model No.	ZUDC30-06183-S+
Case Style	HT3059
Connectors	SMA-Female

+RoHS Compliant

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

PRODUCT OVERVIEW

The ZUDC30-06183-S+ is part of Mini-Circuits ZUDC family of wide band directional couplers offers exceptional performance spanning frequencies from 6 to 18 GHz. This datasheet is for the 30 dB variant but Mini Circuits offers 10 and 20 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.

KEY FEATURES

Features	Advantages
Wide bandwidth	With a bandwidth spanning 6 to 18 GHz, ZUDC couplers are ideal for most lab testing applications, avoiding the need to switch components for different frequency bands.
Excellent Directivity • 21 dB typ. at 12 GHz	High directivity allows sampling of input power with minimal detrimental effects due to mismatches.
Excellent coupling flatness • ± 0.3 dB typ. at 12 GHz	Excellent coupling flatness over the entire frequency range eliminates the need for compensation circuits in most cases.
Excellent Return Loss (IN&OUT) • 25 dB typ. 6 to 18 GHz	Good return loss over 6 to 18 GHz minimizes undesired reflections and resulting amplitude ripple.





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ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		6		18	GHz
Nominal Coupling	6 - 18	27.5	30.8	32.5	dB
Coupling Flatness	6 - 18	-	± 0.3	±1.5	dB
Mainline Loss ¹	6 - 18	-	0.3	0.7	dB
Directivity	6 - 18	10.0	21.8	-	dB
Return Loss (In & Out)	6 - 18	13.8	24.0	-	dB
Return Loss (Coupling)	6 - 18	12.5	23.0	-	dB
Input Power ²	6 - 18	-	-	50	W

1. Mainline loss includes coupling loss.

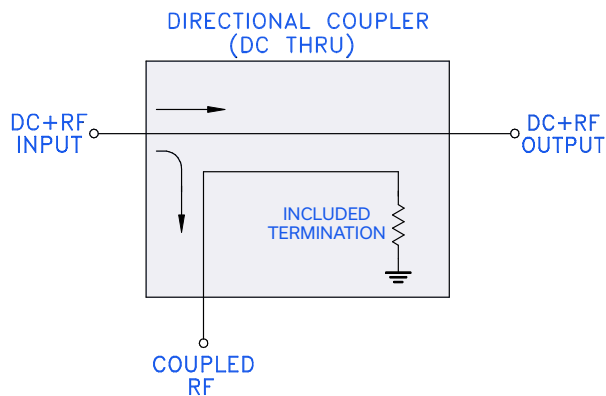
2. Up to 25°C, derates linearly to 5W at 100°C

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Supplied Termination	1W
DC Current	1A*

*DC current de-rates to 316mA at 100 Deg C

FUNCTIONAL SCHEMATIC





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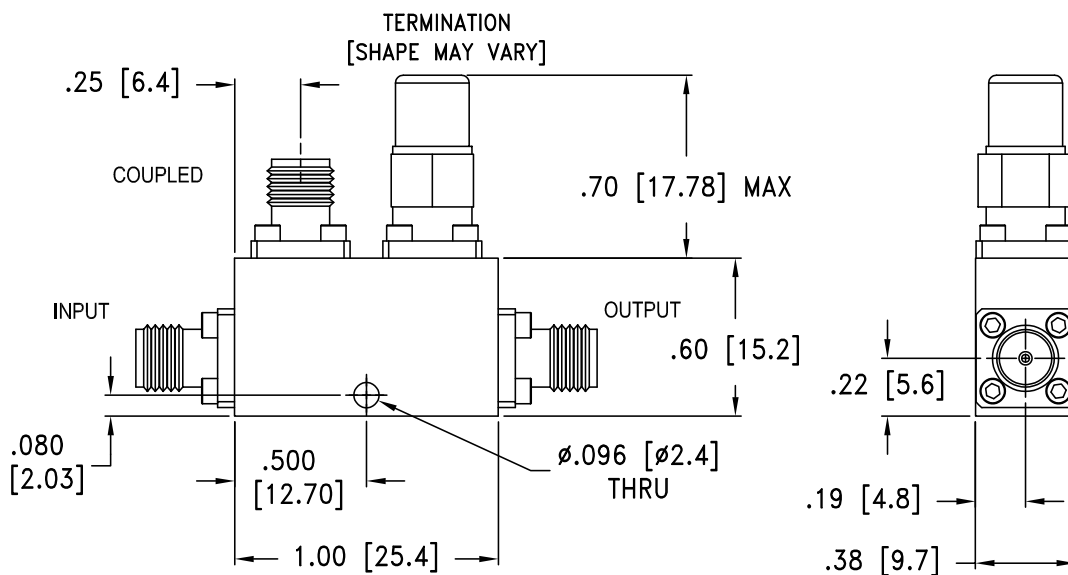
Directional Coupler **ZUDC30-06183-S+**

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COAXIAL CONNECTIONS

Ports	Marking
Input	IN
Output	OUT
Coupled	CPL
Termination (50Ω) Included	TERM

OUTLINE DRAWING



Weight: 22.7 grams

Dimensions are in inches [mm]. Tolerances: 2 PL ±.03; 3 PL ±.015



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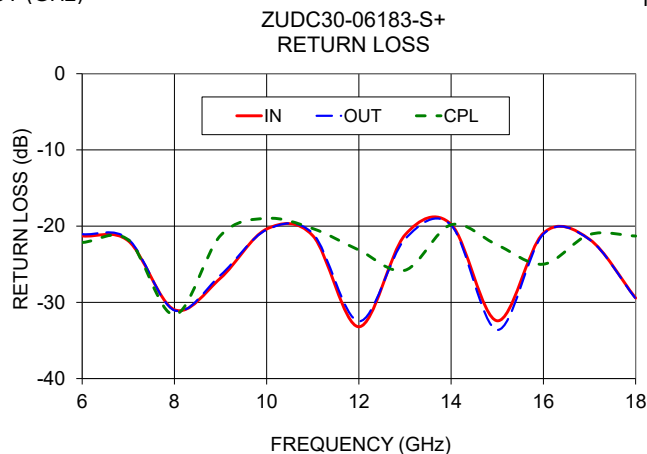
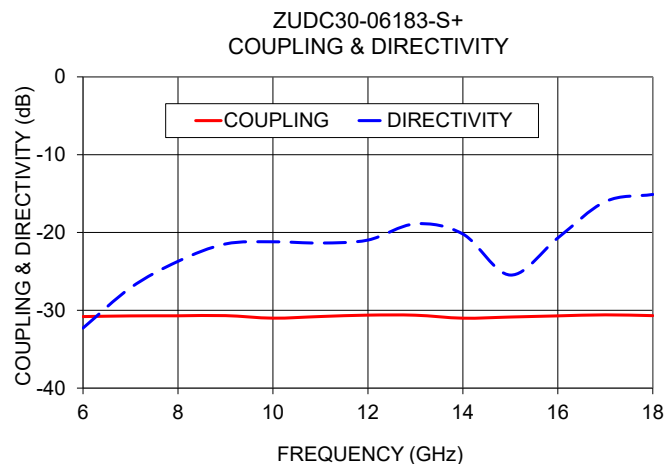
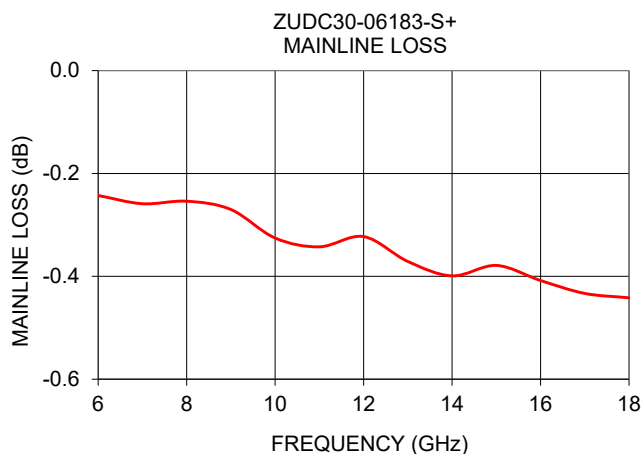
Directional Coupler **ZUDC30-06183-S+**

50Ω 30dB Up to 50W 6 to 18 GHz SMA Female

TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (GHz)	Mainline Loss (dB)	Coupling (dB)	Directivity (dB)	Return Loss (dB)		
	In-Out	In-Out		In	Out	Cpl
6	0.2	30.8	32.3	21.3	21.0	22.1
7	0.3	30.7	27.1	21.9	21.7	21.8
8	0.3	30.7	23.7	31.0	31.1	31.6
9	0.3	30.7	21.5	26.8	26.4	21.2
10	0.3	31.0	21.2	20.4	20.5	19.0
11	0.3	30.8	21.4	21.3	21.0	20.3
12	0.3	30.6	21.0	33.2	32.5	23.1
13	0.4	30.6	18.9	21.2	21.7	25.8
14	0.4	31.0	20.2	19.8	19.9	19.8
15	0.4	30.9	25.5	32.4	33.6	22.5
16	0.4	30.7	20.7	20.9	21.0	25.0
17	0.4	30.6	16.0	21.7	21.8	21.1
18	0.4	30.7	15.1	29.4	29.5	21.3

1. Mainline loss includes coupling loss.



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/terms/viewterm.html



Typical Performance Data

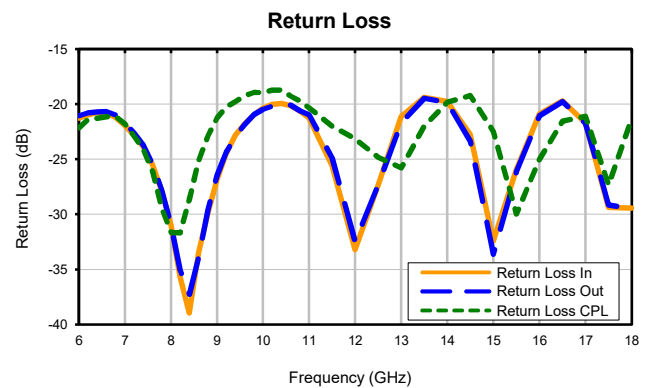
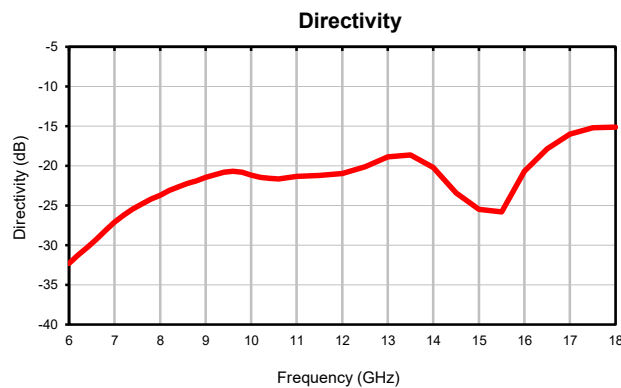
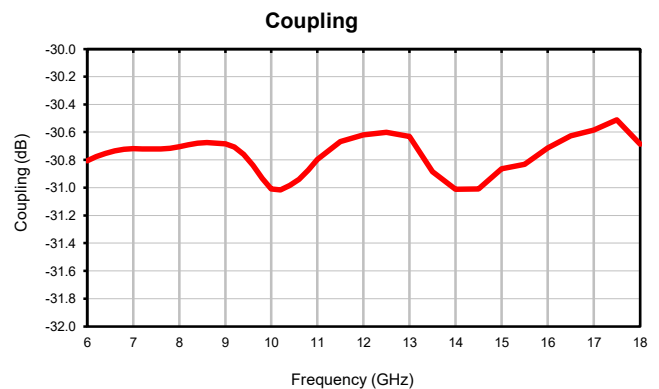
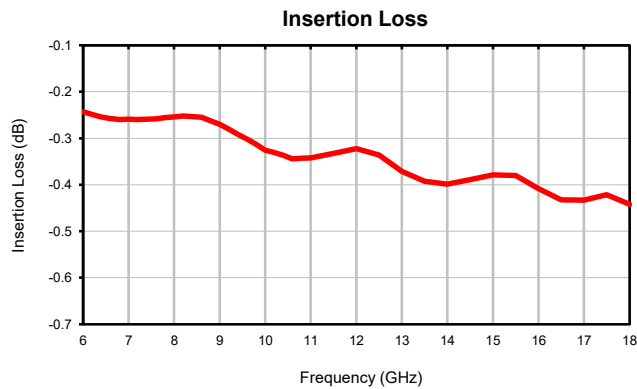
FREQUENCY (GHz)	INSERTION LOSS ⁽¹⁾ (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				(dB) IN	(dB) OUT	CPL
6.0	0.2	30.8	32.3	21.3	21.0	22.1
6.2	0.2	30.8	31.2	21.0	20.8	21.4
6.4	0.3	30.8	30.3	20.8	20.7	21.3
6.6	0.3	30.7	29.3	20.8	20.7	21.1
6.8	0.3	30.7	28.1	21.2	21.0	21.1
7.0	0.3	30.7	27.1	21.9	21.7	21.8
7.2	0.3	30.7	26.2	22.8	22.6	22.9
7.4	0.3	30.7	25.4	23.9	23.7	24.1
7.6	0.3	30.7	24.8	25.5	25.5	26.1
7.8	0.3	30.7	24.2	27.9	27.8	29.5
8.0	0.3	30.7	23.7	31.0	31.1	31.6
8.2	0.3	30.7	23.1	35.7	35.1	31.7
8.4	0.3	30.7	22.7	38.9	37.2	28.6
8.6	0.3	30.7	22.2	33.5	33.8	25.1
8.8	0.3	30.7	21.9	29.9	29.6	22.9
9.0	0.3	30.7	21.5	26.8	26.4	21.2
9.2	0.3	30.7	21.1	24.5	24.4	20.2
9.4	0.3	30.8	20.8	22.8	22.9	19.8
9.6	0.3	30.8	20.7	21.8	21.8	19.2
9.8	0.3	30.9	20.8	21.0	20.9	18.9
10.0	0.3	31.0	21.2	20.4	20.5	19.0
10.2	0.3	31.0	21.4	20.0	20.2	18.7
10.4	0.3	31.0	21.6	19.9	19.8	18.7
10.6	0.3	30.9	21.6	20.2	20.1	19.3
10.8	0.3	30.9	21.5	20.7	20.6	19.7
11.0	0.3	30.8	21.4	21.3	21.0	20.3
11.5	0.3	30.7	21.2	25.6	24.9	22.0
12.0	0.3	30.6	21.0	33.2	32.5	23.1
12.5	0.3	30.6	20.1	27.4	27.3	24.8
13.0	0.4	30.6	18.9	21.2	21.7	25.8
13.5	0.4	30.9	18.6	19.4	19.5	22.0
14.0	0.4	31.0	20.2	19.8	19.9	19.8
14.5	0.4	31.0	23.4	22.8	23.4	19.2
15.0	0.4	30.9	25.5	32.4	33.6	22.5
15.5	0.4	30.8	25.8	26.0	26.1	30.0
16.0	0.4	30.7	20.7	20.9	21.0	25.0
16.5	0.4	30.6	17.9	19.7	19.8	21.5
17.0	0.4	30.6	16.0	21.7	21.8	21.1
17.5	0.4	30.5	15.2	29.4	29.1	27.3
18.0	0.4	30.7	15.1	29.4	29.5	21.3

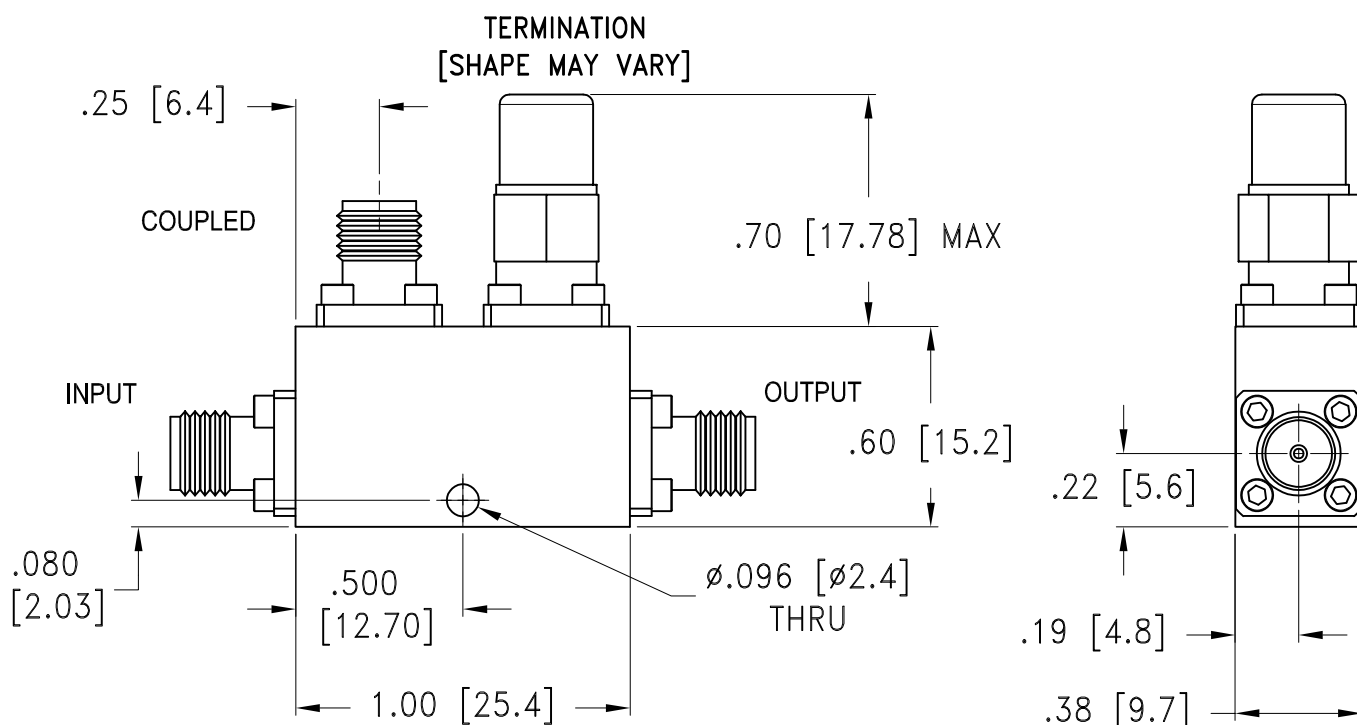
⁽¹⁾Mainline loss includes coupling loss.

Directional Coupler

Typical Performance Curves

ZUDC30-06183-S+





Weight: 22.7 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

1. Case material: Aluminum alloy.
2. Case finish: Pantone 286.

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ISO 9001 ISO 14001 CERTIFIED

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RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to +85 °C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C