THE DATASHEET OF

ZUDC30-83-S+

ULTRA-WIDEBAND, DC PASS

Directional Coupler

ZUDC30-83-S+

50Ω 30dB Up to 50W 0.3 to 8 GHz

THE BIG DEAL

- Ultra-Wideband, 0.3 to 8 GHz
- Excellent coupling flatness, ±0.7 dB
- Low mainline loss, 0.4 dB
- Good directivity, 29 dB typ.
- High power handling, up to 50W



Generic photo used for illustration purposes only

Model No.	ZUDC30-83-S+
Case Style	HT1967-1
Connectors	SMA

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

APPLICATIONS

- Test and measurement
- Cellular/GSM/PCS
- ISM
- Extended WiFi (7.25 GHz)
- Zigbee
- Bluetooth

PRODUCT OVERVIEW

Mini-Circuits' ZUDC30-83-S+ is a coaxial directional coupler which provides 30 dB coupling with outstanding flatness across the 0.3 to 8 GHz frequency range. This model is capable of handling up to 50W RF input power and passing up to 1A DC current from input to output. 29 dB typical directivity allows accurate sampling of signal through the coupled port, and low mainline loss (0.4 dB typical) provides excellent transmission of signal power from input to output. The coupler comes housed in a rugged, compact aluminum alloy case (6.0" x 0.73" x 0.50") with SMA connectors and supplied termination for the coupled port on the return path.

KEY FEATURES

Feature	Advantages
Wideband, 0.3 to 8 GHz	One device supports a variety of system and test lab applications.
Good directivity, 29 dB	High directivity allows accurate signal sampling through the coupled port with minimal measurement error.
RF input power handling up to 50W	Usable in systems with high power requirements.
Flat coupling, ±0.7 dB	Provides consistent coupling performance across frequency.
Low mainline loss, 0.4 dB typ.	Provides excellent through-path signal power transmission.
Excellent return loss, 20 dB typ.	Well-matched for 50Ω systems with minimal signal reflection.
DC current passing up to 1.0A	Suitable for use in systems where DC power is needed through the RF line.

REV. OR
ECO-008673
ZUDC30-83-S+
CM/CP/PS
210709

ULTRA-WIDEBAND, DC PASS

Directional Coupler

ZUDC30-83-S+

MAXIMUM RATINGS

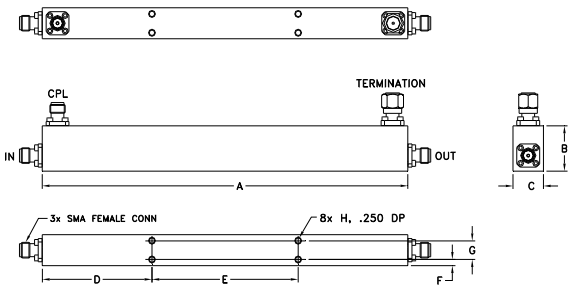
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
DC Current	1A

Permanent damage may occur if any of these limits are exceeded.

COAXIAL CONNECTIONS

Input	IN
Output	OUT
Coupled	CPL
Termination (50Ω) included	-

OUTLINE DRAWING

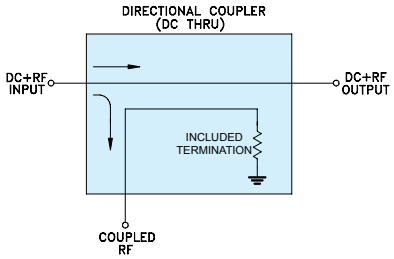


OUTLINE DIMENSIONS (INCH/MM)

A	B	C	D	E
6.00	0.73	0.50	1.8	2.4
152.4	18.54	12.70	45.72	60.96

F	G	H	wt
0.10	0.3	#4-40	grams
2.54	7.62	UNC-2B	120

ELECTRICAL SCHEMATIC



ELECTRICAL SPECIFICATIONS AT 25°C

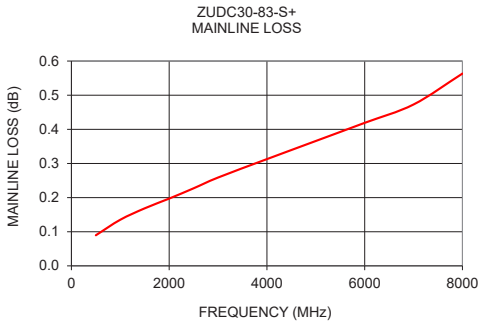
Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		0.3		8	GHz
Nominal Coupling	0.3 - 8	—	30±2.0	—	dB
Coupling Flatness (±)	0.3 - 8	—	±0.7	±1.20	dB
Mainline Loss[1]	0.3 - 8	—	0.4	1.0	dB
Directivity	0.3 - 6	15	31	—	dB
	6 - 8	13	28	—	
Return Loss (In & Out)	0.3 - 6	15.9	33	—	dB
	6 - 8	13.9	29	—	
Return Loss (Coupling)	0.3 - 6	15.9	30	—	dB
	6 - 8	13.9	28	—	
Input Power (In to Out)	0.3 - 8	—	—	50	W
Input Power (Out to In)	0.3 - 8	—	—	50	W

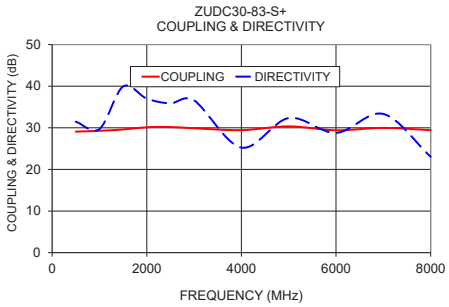
1.Mainline loss includes coupling loss

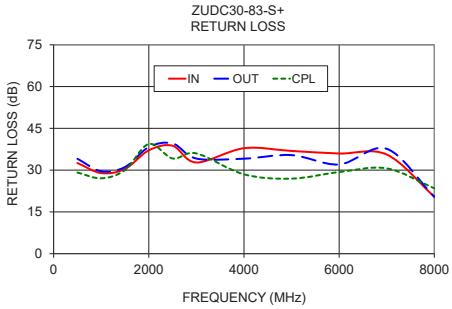
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Mainline Loss[1] (dB)	Coupling (dB)	Directivity (dB)	Return Loss (dB)		
	In-Out	In-Cpl		In	Out	Cpl
300	0.07	29.83	31.14	29.19	29.24	29.26
500	0.09	29.09	31.47	32.56	34.10	29.14
1000	0.14	29.28	29.71	28.94	29.59	27.07
1500	0.17	29.60	39.93	30.43	31.11	30.01
2000	0.20	30.14	37.02	37.12	38.27	39.39
2500	0.23	30.18	35.88	38.76	39.60	34.19
3000	0.26	29.89	36.60	32.76	34.16	36.01
4000	0.31	29.44	25.24	37.88	34.12	28.50
5000	0.37	30.35	32.35	36.89	35.40	26.95
6000	0.42	29.41	28.78	35.97	32.04	29.32
7000	0.47	29.98	33.33	35.60	37.65	30.63
8000	0.56	29.43	23.05	20.49	20.41	23.47

1. Total Loss = Insertion Loss +12dB splitter 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.

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