# Coaxial, High Directivity **Directional Coupler**

# **ZHDC-Model Series**

10 and 16 dB Coupling 50 to 6000 MHz **50**Ω

## The Big Deal

- High directivity, up to 33 dB
- Wideband, 50 to 6000 MHz
- Excellent coupling flatness



CASE STYLE: FM1918

### **Product Overview**

Notes

Mini-Circuits' ZHDC-series high-directivity directional couplers provide outstanding directivity and excellent coupling flatness from 50 to 6000 MHz, making them low cost solutions for S-parameter measurements and intermodulation measurements as well as other test and system applications. Available in different coupling values to meet different requirements, they come housed in an aluminum alloy case (2.5 x 1.4 x 0.88") with SMA connectors at all ports.

Feature	Advantages
High directivity, up to 33 dB	High directivity allows accurate signal sampling through the coupled port with minimal measurement error.
Wideband, 50 to 6000 MHz	One device supports a broad range of system and test lab applications.
Flat coupling, ±0.45 dB	Provides consistent coupling performance across frequency.
Good VSWR. 1.2:1 typ.	Well-matched for $50\Omega$ systems.
Small size, 2.5 x 1.4 x 0.88"	Saves space in crowded spaces and dense system layouts.

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

Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance cristeria 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp



# Coaxial High Directivity Directional Coupler

#### 50 to 6000 MHz 16 dB Coupling 50Ω

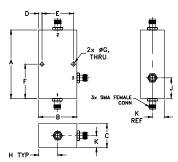
#### **Maximum Ratings**

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

#### **Coaxial Connections**

INPUT	1
OUTPUT	2
COUPLED	3

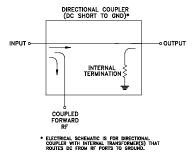
#### **Outline Drawing**

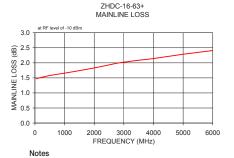


#### Outline Dimensions (inch)

				``	mm 🖌
Α	В	С	D	E	F
2.50	1.4	0.88	0.13	1.15	1.25
63.50	35.56	22.35	3.30	29.21	31.75
G	н	J	К		wt
0.14	0.7	0.75	0.44		grams
3.56	17.78	19.05	11.18		100.0

#### **Electrical Schematic**





#### Features

- wideband, 50 to 6000 MHz
- high directivity, 32 dB typ. • flat coupling, ±0.45 dB typ.
- good VSWR, 1.20:1 typ.

#### Applications

- military defense • test and measurement

laboratory use

## **ZHDC-16-63+**



CASE STYLE: FM1918 Connectors Model SMA ZHDC-16-63-S+

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

#### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Тур.	Max.	Unit	
Frequency Range		50	_	6000	MHz	
Mainline Loss	50 - 6000	—	2.0	3.0	dB	
Coupling	50 - 6000	15.5	16.7	17.5	dB	
Coupling Flatness(±)	50 - 6000	_	0.45	0.9	dB	
Directivity	50-3000 3000-6000	26 24	32 30	_	dB	
Return Loss (Input)	50 - 3000 3000-6000	_	24 22	_	dB	
Return Loss (Output)	50 - 3000 3000-6000	_	21 18	_	dB	
Return Loss (Coupling)	50 - 3000 3000-6000	_	18 17	_	dB	
Input Power	50 - 6000	—	_	0.5	w	

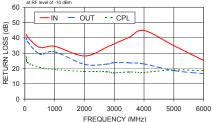
#### **Typical Performance Data**

Frequency (MHz)	Mainline Loss (dB)		Directivity (dB)	Return Loss (dB)		
()		In-Cpl			Òuť	Cpl
50	1.47	16.54	33.07	42.34	39.93	27.52
100	1.49	16.78	37.54	40.29	37.22	23.79
500	1.58	17.13	39.79	33.74	29.44	20.72
1000	1.66	17.14	36.11	34.49	30.93	19.34
2000	1.83	16.94	38.05	28.16	22.70	18.07
2750	1.98	16.77	33.34	33.94	22.85	17.86
3000	2.02	16.69	32.84	36.11	23.85	17.17
3500	2.09	16.65	32.79	40.38	23.72	17.73
4000	2.14	16.61	31.16	44.83	22.99	17.44
5000	2.29	16.43	29.68	34.91	18.62	19.10
6000	2.41	16.31	35.60	25.26	16.64	18.5

#### COUPLING & DIRECTIVITY 60 COUPLING & DIRECTIVITY 50 COUPLING DIRECTIVITY 40 <del>ଞ୍</del> ି 30 20 10 0 0 1000 2000 3000 400 FREQUENCY (MHz) 4000 5000 6000

ZHDC-16-63+

ZHDC-16-63+ RETURN LOSS



FREQUENC 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 oritoria and entertion document. C. The parts covered by this specification document are subject to Mini-Circuit's applicable established test performance oritoria and entertion document are based on Mini-Circuit's applicable established test performance oritoria and entertion document are subject to Mini-Circuit's applicable established test performance oritoria and entertion document are based on Mini-Circuit's applicable established test performance oritoria and entertion document are based on Mini-Circuit's applicable established test performance oritoria and entertion document are based on Mini-Circuit's applicable established test performance oritoria and entertion document are subjected to the document are based on Mini-Circuit's applicable established test performance oritoria and entertion document are subjected to the documen 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

REV. C M151107 ED-16356/1 ZHDC-16-63+ DJ/CP/AM 151007 Page 2 of 2

## Mini-Circuits

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