

# Coaxial Bi-Directional Coupler

## ZFBDC16-63HP+

50Ω Up to 75W 700 to 6000 MHz

### The Big Deal

- Wideband, 700 to 6000 MHz
- High power handling, up to 75W
- Low mainline loss, 0.55 dB
- High directivity, 25 dB
- Excellent return loss, 20 dB typ.



CASE STYLE: JD1252

### Product Overview

Mini-Circuits' ZFBDC16-63HP+ is a coaxial high-power, wideband bi-directional coupler supporting applications from 700 to 6000 MHz. This model is capable of handling up to 75W RF input power and provides high directivity, low mainline loss, and excellent return loss. The coupler comes housed in a rugged aluminum alloy case (2.00 x 2.00 x 0.88") with your choice of SMA or N-Type connectors.

### Key Features

Feature	Advantages
Wideband, 700 to 6000 MHz	One device supports a broad range of applications.
Very high input power handling: <ul style="list-style-type: none"><li>• 75W, 700 to 2700 MHz</li><li>• 50W, 2700 to 3500 MHz</li><li>• 40W, 3500 to 6000 MHz</li></ul>	Produces nearly equal output signals, ideal for parallel path / multichannel systems.
Low mainline loss, 0.55 dB typ.	Provides excellent through-path signal power transmission.
Good directivity, 25 dB	High directivity allows accurate signal sampling through the coupled port with minimal measurement error.
Good return loss, 20 dB typ.	Well-matched for 50Ω systems with minimal signal reflection.

#### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



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## ZFBDC16-63HP+

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Generic photo used for illustration purposes only  
SMA version shown  
CASE STYLE: JD1252

Connectors	Model
N-Type	ZFBDC16-63HP-N+
SMA	ZFBDC16-63HP-S+

### +RoHS Compliant

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

### Maximum Ratings

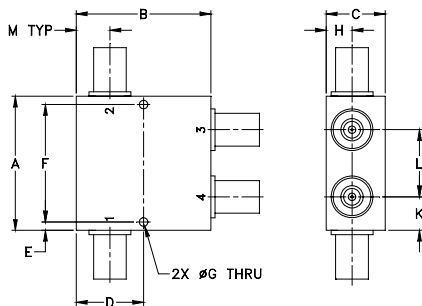
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C

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

### Coaxial Connections

INPUT	1
OUTPUT	2
COUPLED (forward)	4
COUPLED (reverse)	3

### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
2.00	2.00	.88	1.000	0.13	1.750	0.125
50.80	50.80	22.35	25.40	3.30	44.45	3.18

H	J	K	L	M	wt
0.38	--	0.50	1.00	0.50	grams
9.65	--	12.70	25.40	12.70	250.0

### Features

- excellent mainline loss, 0.55 dB typ.
- excellent directivity, 25 dB typ.
- high power, up to 75W
- rugged shielded case

### Applications

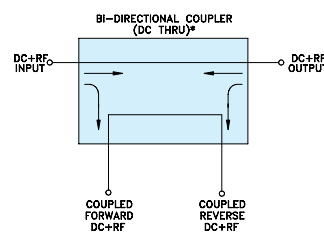
- power leveling & monitoring
- military mobile
- cellular
- WiMax
- PCN
- GSM
- WIFI

### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
<b>Frequency Range</b>		700		6000	
<b>Mainline Loss<sup>1</sup></b>	700 - 3500	—	0.4	0.7	dB
	3500 - 6000	—	0.6	0.9	
<b>Coupling</b>	700 - 1000	—	26.6±1.8	—	dB
	1000 - 1700	—	23±2.4	—	
	1700 - 2000	—	20.5±1	—	
	2000 - 2700	—	19±1.4	—	
	2700 - 3500	—	17.5±1	—	
<b>Coupling Flatness(±)</b>	3500 - 6000	—	16.5±0.8	—	dB
	1700 - 2000	—	0.6	0.9	
	2700 - 3500	—	0.6	1.0	
<b>Directivity</b>	3500 - 6000	—	0.5	0.9	dB
	700 - 2000	20	25	—	
	2000 - 3500	18	23	—	
<b>Return Loss (Input)</b>	3500 - 4200	15	22	—	dB
	4200 - 6000	11	18	—	
	700 - 3500	19	25	—	
<b>Return Loss (Output)</b>	3500 - 6000	14	20	—	dB
	700 - 3500	19	25	—	
<b>Return Loss (Coupling)</b>	3500 - 6000	17	25	—	dB
	700 - 3500	12	18	—	
<b>Input Power</b>	700 - 2700	—	—	75	W
	2700 - 3500	—	—	50	
	3500 - 6000	—	—	40	

1. Mainline loss includes theoretical power loss at coupled

### Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS.

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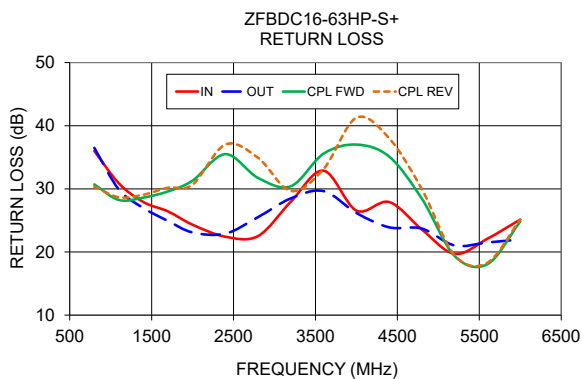
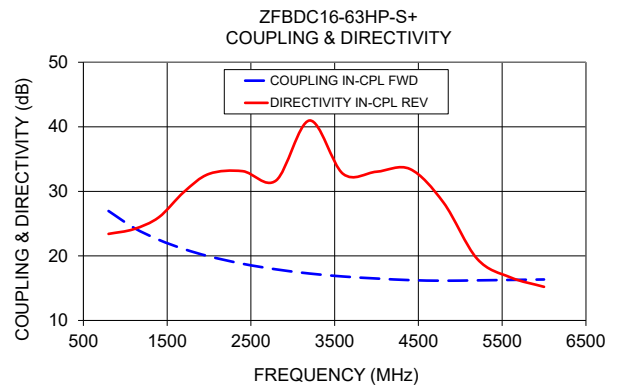
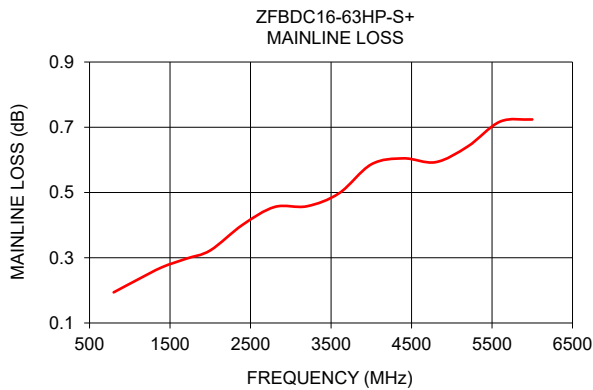


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## Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
700.0	0.18	28.06	28.07	23.61	23.37	39.26	41.15	30.78	31.66
800.0	0.19	26.96	26.97	23.89	23.41	35.99	36.49	30.71	30.35
1100.0	0.23	24.37	24.39	24.76	24.14	30.87	29.89	28.24	28.67
1400.0	0.27	22.50	22.52	27.32	25.98	27.91	26.97	28.62	29.08
1700.0	0.30	21.07	21.10	31.35	29.90	26.43	24.92	29.60	30.19
2000.0	0.32	19.93	19.98	32.08	32.71	24.32	23.10	31.31	30.68
2400.0	0.40	18.78	18.83	30.36	33.13	22.42	22.91	35.50	37.03
2700.0	0.46	17.92	17.96	30.79	31.68	22.53	25.53	31.72	34.91
3200.0	0.46	17.27	17.30	25.75	40.97	27.98	28.50	30.42	29.66
3600.0	0.50	16.81	16.82	25.61	32.71	32.88	29.64	35.58	33.16
4000.0	0.59	16.50	16.48	28.21	33.04	26.55	26.18	37.01	41.27
4400.0	0.60	16.25	16.25	24.15	33.46	27.91	23.91	35.11	38.00
4700.0	0.59	16.16	16.14	27.38	28.26	23.55	23.71	28.43	29.92
5200.0	0.64	16.22	16.17	21.83	19.57	19.71	21.03	19.36	19.46
5600.0	0.72	16.28	16.22	17.64	16.67	22.10	21.50	18.08	18.31
6000.0	0.72	16.35	16.32	17.58	15.21	25.13	21.99	24.82	25.14



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