



COAXIAL

# Bi-Directional Coupler ZFBDC20-13HP+

Mini-Circuits

50Ω Up to 20W 40 to 1000 MHz

## FEATURES

- Excellent mainline loss, 0.4 dB typ.
- Excellent directivity, 23 dB typ.
- High power, up to 20W
- Rugged shielded case

## APPLICATIONS

- Power leveling & monitoring
- GPS
- Cellular/PCS



Generic photo used for illustration purposes only

Case Style: JD1252

Connectors	Model
BNC	ZFBDC-13HP+
SMA	ZFBDC-13HP-S+

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

## ELECTRICAL SPECIFICATIONS

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		40		1000	MHz
Mainline Loss <sup>1</sup>	40-1000		0.6	1.1	dB
	800-1000		0.6	1.1	
	40-500		0.3	0.7	
Coupling Nominal	40-1000		20±0.5		dB
	800-1000		20.5±0.7		
	40-500		19.5±0.5		
Coupling Flatness (±)	40-1000		±1.2		dB
	800-1000		±0.5		
	40-500		±0.5		
Directivity	40-1000	15	22		dB
	800-1000	15	23		
	40-500	15	25		
VSWR	40-1000		1.20		:1
	800-1000		1.30		
	40-500		1.10		
Input Power <sup>2</sup>	40-1000			10	W
	800-1000			10	
	40-500			20	

1. Mainline loss includes theoretical power loss at coupled port.

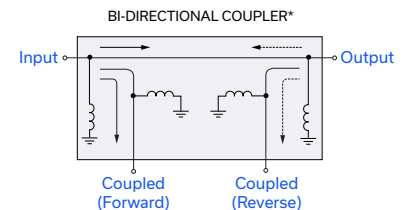
2. Power rating is specified up to +55°C. Power Input Specifications at +100°C is 50% value at +55°C. For specifications limits between +55°C and +100°C, derate linearly.

## MAXIMUM RATINGS

Parameter	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.

## ELECTRICAL SCHEMATIC



\*Electrical schematic is for Bi-Directional coupler with internal transformer(s) that routes DC from all ports to ground

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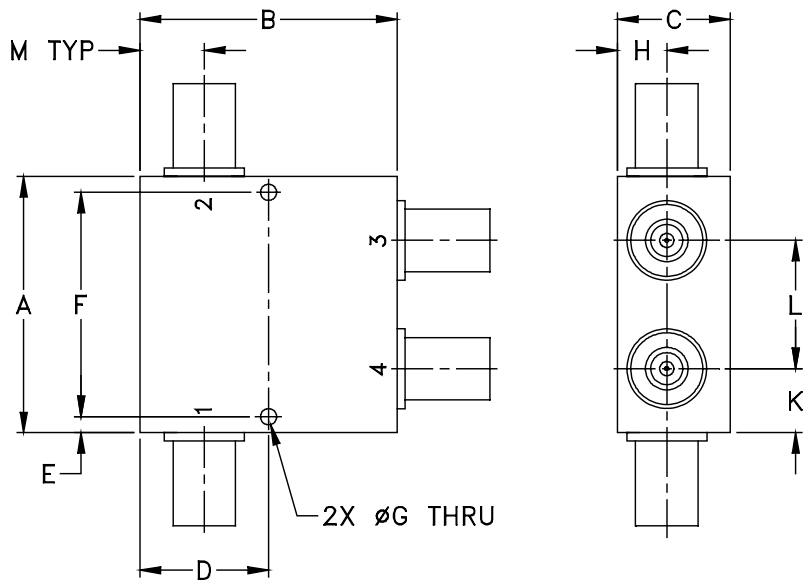
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## COAXIAL CONNECTIONS

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





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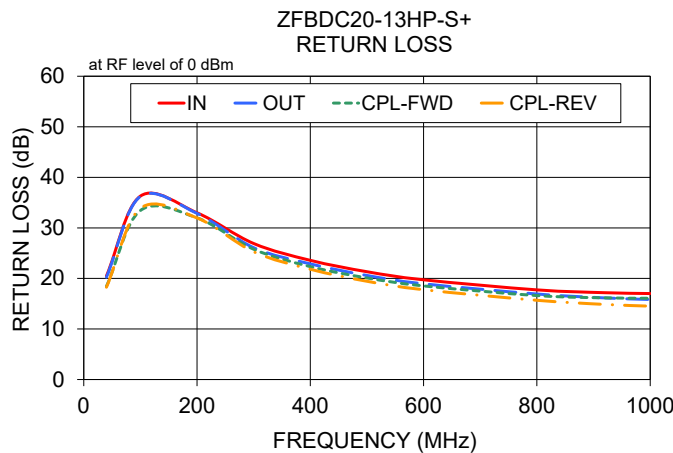
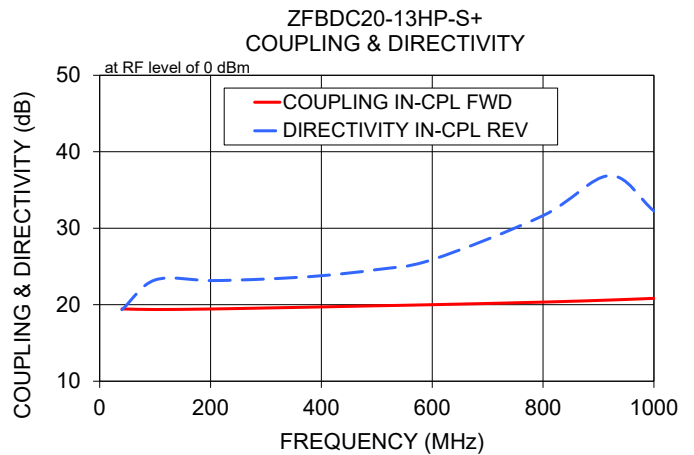
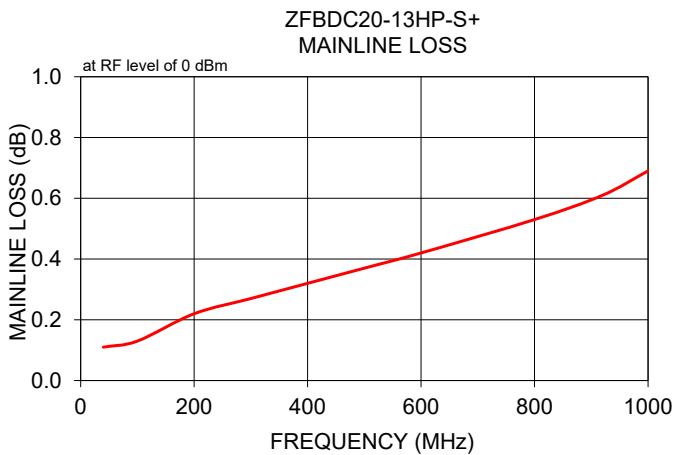
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## TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
		In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
40.00	0.11	19.45	19.63	18.97	19.34	20.48	20.24	18.42	18.26
100.00	0.13	19.37	19.43	25.87	23.24	36.29	36.23	33.44	33.87
200.00	0.22	19.44	19.61	30.40	23.15	32.98	32.87	31.98	31.96
300.00	0.27	19.57	19.77	33.08	23.36	26.91	26.08	25.78	25.27
400.00	0.32	19.71	19.96	37.14	23.79	23.58	22.88	22.34	21.82
500.00	0.37	19.86	20.14	46.58	24.59	21.33	20.59	20.10	19.44
600.00	0.42	20.00	20.32	38.80	25.89	19.73	18.94	18.52	17.77
800.00	0.53	20.34	20.68	26.00	31.65	17.74	16.92	16.61	15.68
920.00	0.61	20.61	20.89	21.83	36.88	17.18	16.15	16.16	14.86
1000.00	0.69	20.83	21.08	19.32	32.27	17.01	15.83	16.08	14.52



- 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-Circuits' applicable established test performance criteria and measurement instructions.
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