

# Coaxial Bi-Directional Coupler

## ZFBDC20-900HP

50Ω Up to 10W 800 to 900 MHz



Generic photo used for illustration purposes only  
CASE STYLE: J17

### 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	2
OUTPUT	3
COUPLED (forward)	1
COUPLED (reverse)	S

### Features

- very low mainline loss, 0.1 dB typ.
- excellent directivity, 28 dB typ.
- excellent VSWR, 1.1: typ.
- high power operation, 10W

### Applications

- VSWR measurement
- power monitoring of cellular transmitters
- power levelling

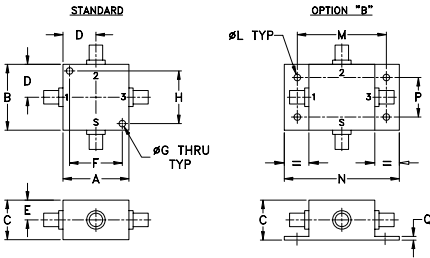
Connectors	Model
SMA	ZFBDC20-900HP
BRACKET (OPTION "B")	

### Bi-Directional Coupler Electrical Specifications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)	
	Nom.	Flatness	Typ.	Max.	Typ.	Min.		Typ.	Max.
$f_c$ - $f_u$									
800-900	20.7±0.6	±0.6	0.1	0.4	28	20	1.1	10	

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

### Outline Drawing



### Outline Dimensions (inch/mm)

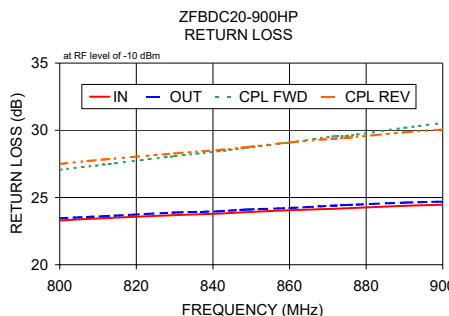
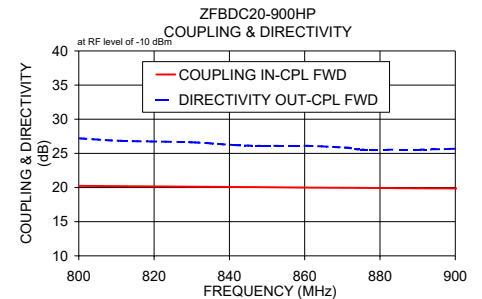
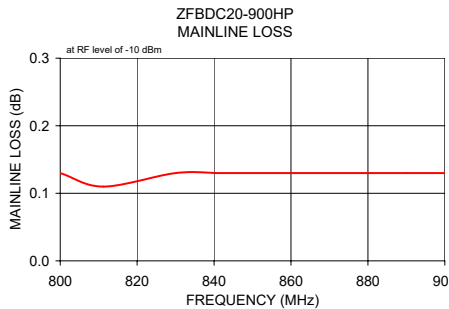
A	B	C	D	E	F	G
1.25	1.25	.75	.63	.38	1.000	.125 1.0
31.75	31.75	19.05	16.00	9.65	25.40	3.18 25.

J	K	L	M	N	P	Q
--	--	.125	1.688	2.18	.75	.07 gra
--	--	3.18	42.88	55.37	19.05	1.78 7!

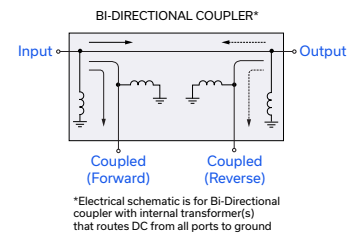
For option B with N-Type connectors, dimension "C" increases to 0.94 inches.

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	In-Cpl Rev	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
800.00	0.13	20.24	20.31	26.84	27.20	24.84	23.29	23.46	27.07	27.50
811.25	0.11	20.20	20.24	26.84	25.58	23.46	23.61	27.44	27.82	27.82
830.00	0.13	20.13	20.19	26.62	25.41	23.69	23.88	28.08	28.28	28.28
841.25	0.13	20.08	20.15	26.22	25.63	23.80	23.97	28.43	28.53	28.53
848.75	0.13	20.05	20.11	26.10	25.73	23.91	24.10	28.69	28.74	28.74
860.00	0.13	20.00	20.07	26.12	26.00	24.05	24.22	29.09	29.10	29.10
871.25	0.13	19.96	20.03	25.83	26.34	24.16	24.39	29.54	29.37	29.37
875.00	0.13	19.95	20.00	25.57	26.37	24.20	24.44	29.58	29.44	29.44
890.00	0.13	19.89	19.96	25.56	26.84	24.38	24.62	30.18	29.85	29.85
901.25	0.13	19.86	19.91	25.69	26.80	24.47	24.70	30.59	30.08	30.08



### Electrical Schematic



### Notes

- 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 criteria and measurement instructions.
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# Bi-Directional Coupler

# ZFBDC20-900HP

## Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB) IN-OUT	COUPLING (dB)		DIRECTIVITY (dB)		RETURN LOSS (dB)			
		IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
800.00	0.13	20.24	20.31	24.84	27.20	23.29	23.46	27.07	27.50
811.25	0.11	20.20	20.24	25.58	26.84	23.46	23.61	27.44	27.82
830.00	0.13	20.13	20.19	25.41	26.62	23.69	23.88	28.08	28.28
841.25	0.13	20.08	20.15	25.63	26.22	23.80	23.97	28.43	28.53
848.75	0.13	20.05	20.11	25.73	26.10	23.91	24.10	28.69	28.74
860.00	0.13	20.00	20.07	26.00	26.12	24.05	24.22	29.09	29.10
871.25	0.13	19.96	20.03	26.34	25.83	24.16	24.39	29.54	29.37
875.00	0.13	19.95	20.00	26.37	25.57	24.20	24.44	29.58	29.44
890.00	0.13	19.89	19.96	26.84	25.56	24.38	24.62	30.18	29.85
901.25	0.13	19.86	19.91	26.80	25.69	24.47	24.70	30.59	30.08

REV. X1  
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070405  
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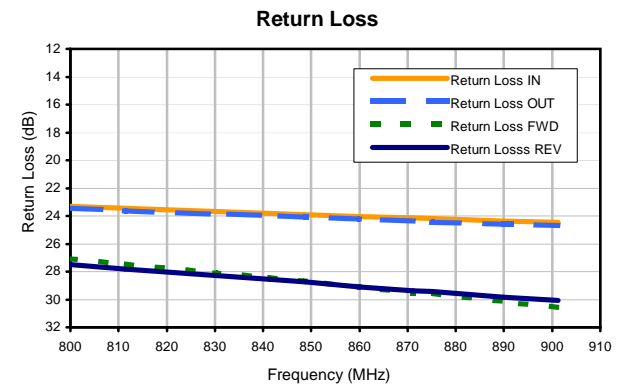
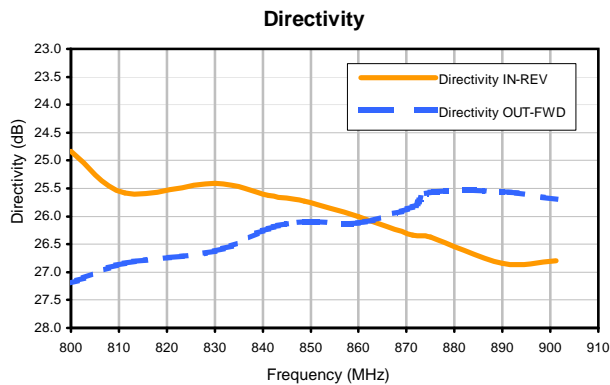
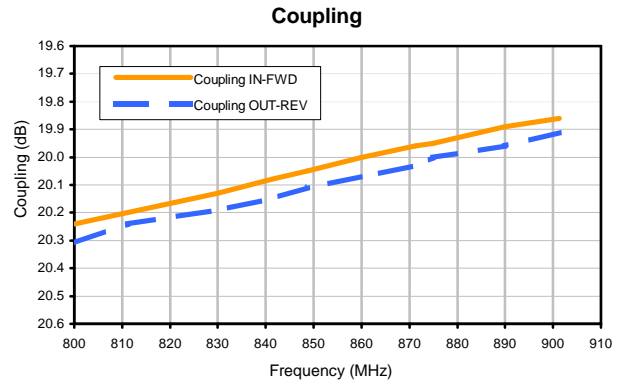
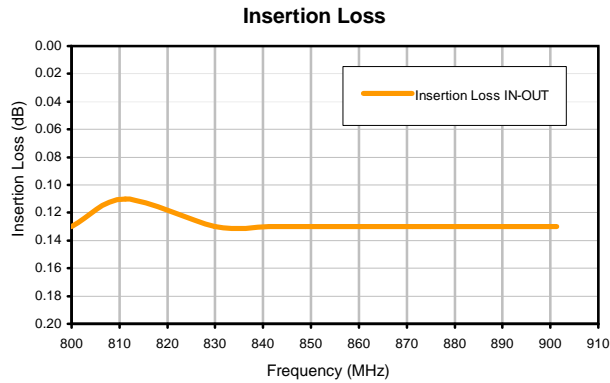
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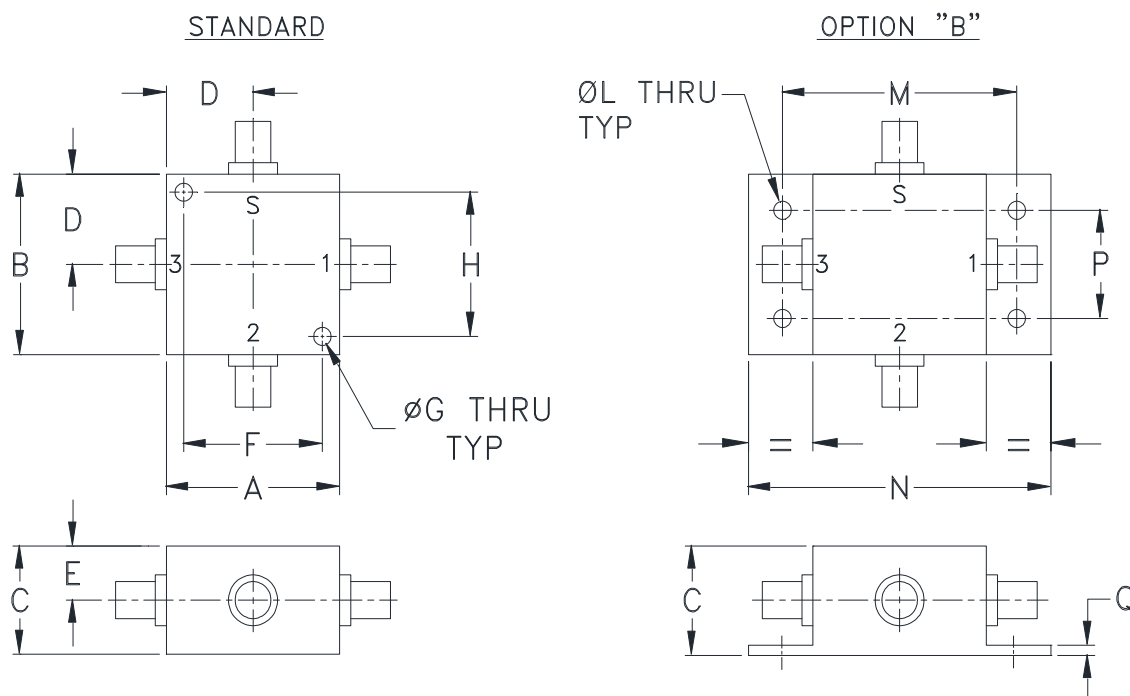
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# ZFBDC20-900HP

## Typical Performance Curves



### Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
J17	1.25 (31.75)	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	--	--	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT. GRAMS
J17	.75 (19.05)	.07 (1.78)	75.0

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

#### Notes:

- Case material: Aluminum alloy.
- Case finish:  
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Mounting bracket available on request. Add suffix B to part number
- For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.



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<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I