Coaxial
Bi-Directional Coupler

ZFBDC20-970HP

50Ω Up to 10W 860 to 970 MHz

Generic photo used for illustration purposes only

CASE STYLE: J17

Connectors	Model
SMA	ZFBDC20-970HP
BRACKET (OPTION "B")	

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

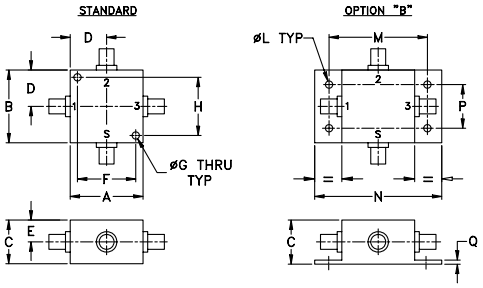
Features

- 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

Outline Drawing



Outline Dimensions (inch / mm)

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

J	K	L	M	N	P	Q	wt
--	--	.125	1.688	2.18	.75	.07	grams
--	--	3.18	42.88	55.37	19.05	1.78	75.0

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

Bi-Directional Coupler Electrical Specifications

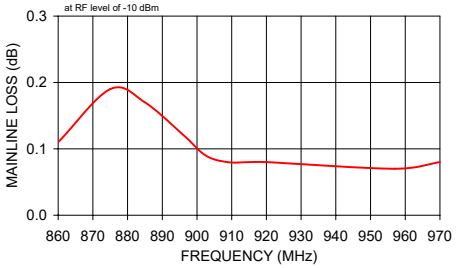
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS[1] (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)	
								L	MU
f_L-f_U	Nom.	Flatness	Typ.	Max.	Typ.	Min.	Typ.	Max.	Max.
860-970	20.4±0.6	±0.6	0.1	0.4	28	20	1.1	10	10

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

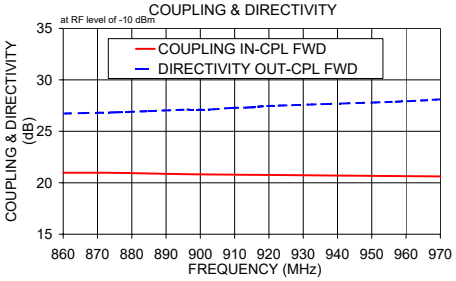
Typical Performance Data

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
860.00	0.11	20.97	21.06	26.72	22.08	25.04	25.31	28.46	27.67
875.00	0.19	20.96	21.06	26.84	21.99	24.74	24.96	27.84	27.16
885.00	0.17	20.90	21.01	26.96	21.92	24.57	24.75	27.46	26.85
896.25	0.12	20.83	20.95	27.11	21.92	24.37	24.52	27.06	26.50
902.50	0.09	20.81	20.93	27.12	21.84	24.27	24.42	26.87	26.34
908.75	0.08	20.79	20.90	27.26	21.83	24.15	24.29	26.65	26.15
915.00	0.08	20.77	20.89	27.33	21.78	24.06	24.17	26.44	25.96
920.00	0.08	20.76	20.87	27.46	21.77	24.00	24.08	26.29	25.84
957.00	0.07	20.65	20.76	27.87	21.87	23.46	23.47	25.28	24.93
970.00	0.08	20.62	20.73	28.10	21.55	23.30	23.36	24.99	24.66

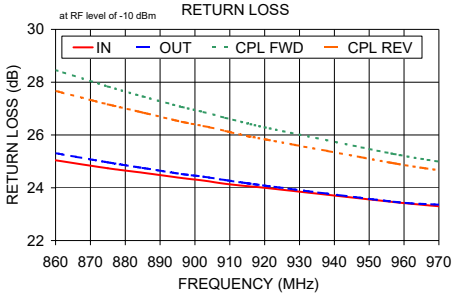
ZFBDC20-970HP
MAINLINE LOSS



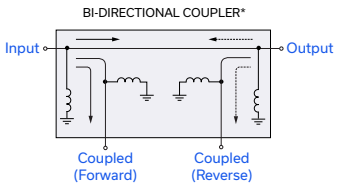
ZFBDC20-970HP
COUPLING & DIRECTIVITY



ZFBDC20-970HP
RETURN LOSS



Electrical Schematic



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

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

Bi-Directional Coupler ZFBDC20-970HP

Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)	COUPLING (dB)		DIRECTIVITY (dB)		RETURN LOSS (dB)			
	IN-OUT	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
860.00	0.11	20.97	21.06	22.08	26.72	25.04	25.31	28.46	27.67
875.00	0.19	20.96	21.06	21.99	26.84	24.74	24.96	27.84	27.16
885.00	0.17	20.90	21.01	21.92	26.96	24.57	24.75	27.46	26.85
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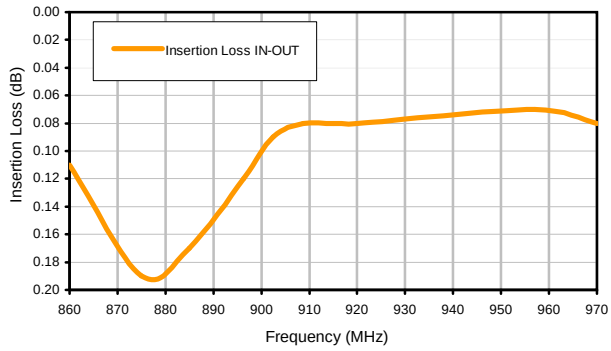
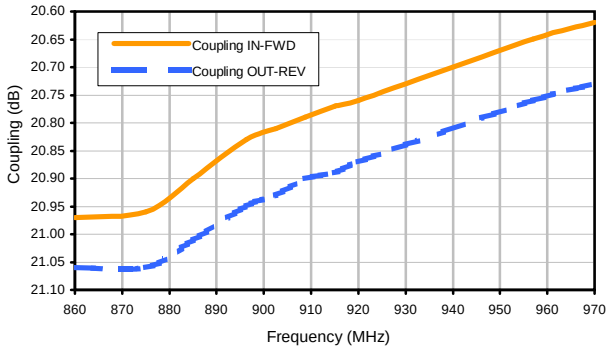
Typical Performance Curves

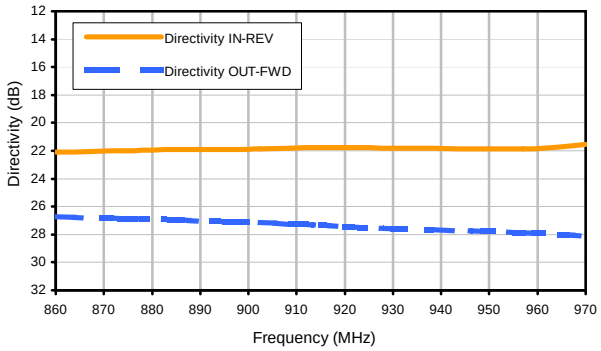
Insertion Loss



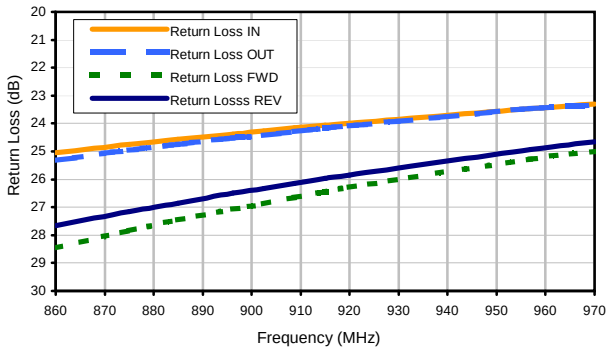
Coupling



Directivity



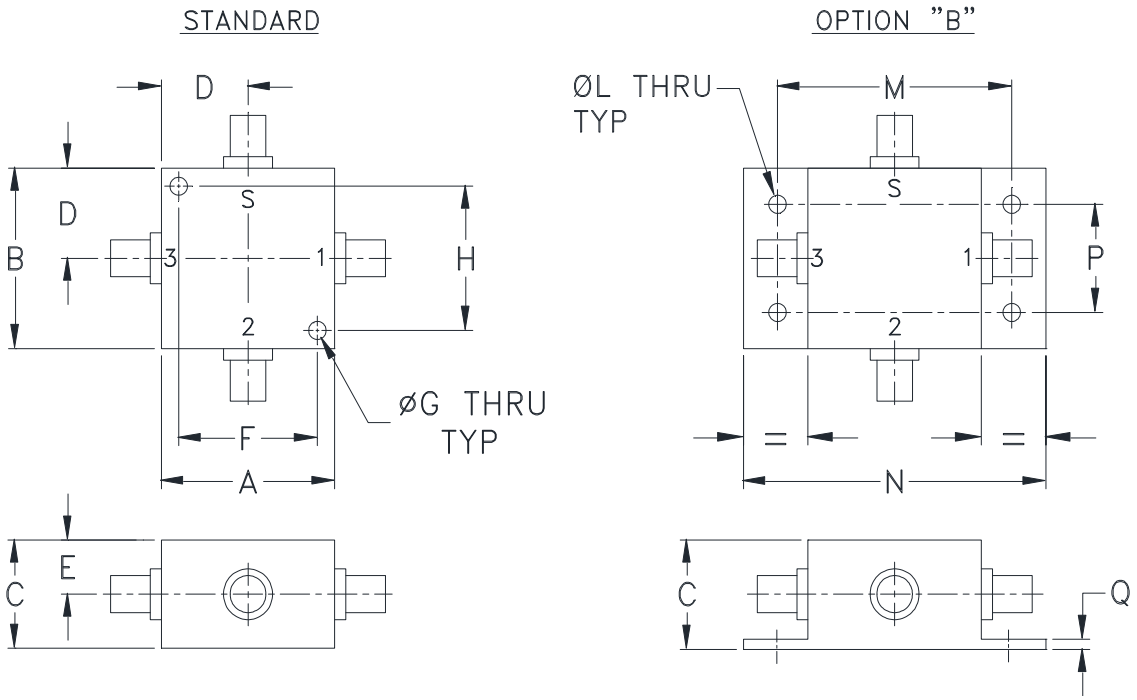
Return Loss



Case Style J

J17

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. ± .03; 3 Pl. ± .015

Notes:

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

Mini-Circuits

Environmental Specifications ENV28

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
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