

Bi-Directional Coupler

50Ω Up to 100W 1 to 50 MHz

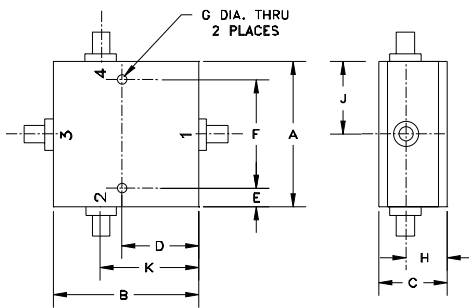
Maximum Ratings

Operating Temperature	-55°C to 75°C
Storage Temperature	-55°C to 100°C
Permanent damage may occur if any of these limits are exceeded.	

Coaxial Connections

INPUT	1 (N-Type)
OUTPUT	4 (N-Type)
COUPLED (forward)	2 (SMA)
COUPLED (reverse)	3 (SMA)

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F
2.00	2.00	.95	1.062	.125	1.75
50.80	50.80	24.13	26.97	3.18	44.45
G	H	J	K	wt	
.125	.575	1.00	1.35	grams	200
3.18	14.61	25.40	34.29		

Features

- high directivity, 25 dB typ.
- excellent VSWR, 1.07:1 typ.
- high power, up to 100W
- extremely low insertion loss, 0.05 dB typ.

Applications

- HF radios
- AM radio, amateur radio, medical ultrasound
- military mobile
- instrumentation
- communication receivers & transmitters

Electrical Specifications at 25°C

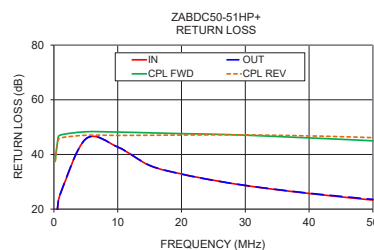
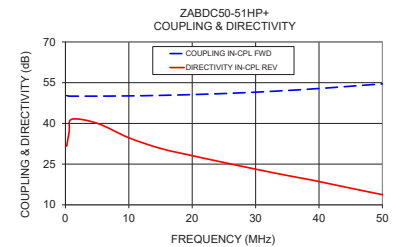
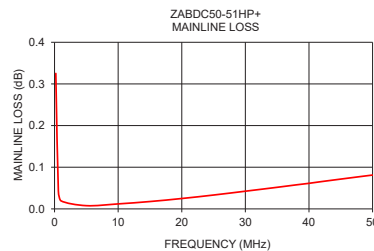
Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1	—	50	MHz
Mainline Loss¹	1-30 30-50	—	0.02 0.06	0.15 0.2	dB
Nominal Coupling	1-30 30-50	—	49.5±1 51.5±1.5	—	dB
Coupling Flatness(±)	1-30 30-50	—	0.8 1.5	1.5 2.0	dB
Directivity	1-30 30-50	17 10	30 20	—	dB
Return Loss (Input)	1-50	17	30	—	dB
Return Loss (Output)	1-50	17	30	—	dB
Return Loss (Coupling)	1-50	30	45	—	dB
Input Power²	1-30 30-50	—	—	100 50	W

1. Include Coupling Loss.

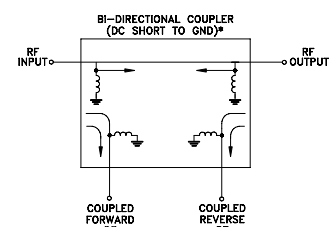
2. At 25°C. Derate linearly to 60W (1-30MHz), 25W (30-50MHz) at 75°C.

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
1.0	0.02	50.02	50.03	37.28	41.53	25.42	25.64	47.09	46.03
10.0	0.01	50.12	50.12	35.61	34.70	42.72	42.73	48.19	46.97
20.0	0.02	50.60	50.60	30.40	28.11	32.87	32.81	47.62	47.09
30.0	0.04	51.50	51.49	25.83	23.15	28.63	28.68	47.05	47.16
35.0	0.05	52.11	52.12	23.86	20.82	27.09	27.16	46.57	47.01
38.0	0.06	52.54	52.57	22.46	19.52	26.25	26.34	46.25	46.90
40.0	0.06	52.85	52.90	21.67	18.60	25.73	25.83	46.07	46.78
42.0	0.07	53.17	53.26	20.80	17.60	25.21	25.34	45.86	46.69
48.0	0.08	54.21	54.51	18.12	14.69	23.76	24.00	45.23	46.31
50.0	0.08	54.55	54.98	17.19	13.75	23.32	23.58	44.99	46.13



Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF 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.
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ZABDC50-51HP+



Generic photo used for illustration purposes only

CASE STYLE: HHH141

Connectors Model
N-Type/SMA ZABDC50-51HP+

+RoHS Compliant

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

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