

Bi-Directional Coupler

ZFBDC26-52HP-S+

50Ω Up to 50W 30 to 540 MHz

The Big Deal

- High power handling, up to 50W
- Low mainline loss, 0.25 dB
- High directivity, 23 dB typ.
- Excellent return loss, 22 dB typ



CASE STYLE: JD1252

Product Overview

Mini-Circuits' ZFBDC26-52HP-S+ is a coaxial high power, bi-directional coupler supporting applications from 30 to 540 MHz. This model is capable of handling up to 50W input power provides high directivity, low mainline loss, and excellent return loss. The coupler comes housed in a aluminum alloy case (2.00 x 2.00 x 0.88") with SMA connectors.

Key Features

Feature	Advantages
High power handling, 50W	Usable in many systems with high-power requirements
Low mainline loss, 0.25 dB typ.	Provides excellent through-path signal power transmission
Good Directivity, 23 dB typ.	High directivity allows accurate signal sampling through the coupled port with minimal measurement error.
Excellent (input/output/coupling) return loss, 22 dB typ.	Provides excellent matching in 50Ω systems with minimal signal reflection.

Coaxial

Bi-Directional Coupler

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50Ω Up to 50W 30 to 540 MHz

Features

- Excellent mainline loss, 0.25 dB typ.
- Excellent directivity 23 dB typ.
- High Power, up to 50W

Applications

- Power leveling & monitoring
- VHF/UHF communication
- Aircraft communication band
- Military VHF/UHF radios
- Medical communication



Generic photo used for illustration purposes only

CASE STYLE: JD1252

Connectors	Model
SMA-Female	ZFBDC26-52HP-S+

+RoHS Compliant

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

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		30		540	MHz
Mainline Loss ¹	30 - 50	—	0.25	0.45	dB
	50 - 540	—	0.12	0.45	
Nominal Coupling	30 - 540	—	26±1.0	—	dB
Coupling Flatness (±)	30 - 260	—	0.4	0.6	dB
	260 - 540	—	0.7	1.0	
Directivity	30 - 50	17	20	—	dB
	50 - 540	16	24	—	
Return Loss (Input)	30 - 100	12	15	—	dB
	100 - 540	18	25	—	
Return Loss (Output)	30 - 100	12	15	—	dB
	100 - 540	18	25	—	
Return Loss (Coupling)	30 - 100	12	15	—	dB
	100 - 540	18	25	—	
Input Power ²	30 - 540	—	—	50	W

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

2. At 25°C case temperature. Derate to 25W linearly at 65°C case temperature.

Maximum Ratings

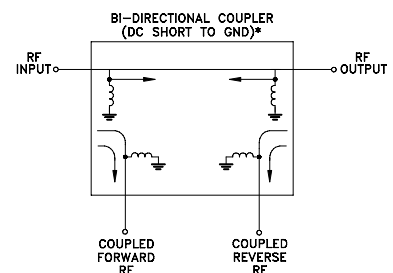
Parameter	Ratings
Operating Temperature	-55°C to 65°C
Storage Temperature	-55°C to 100°C

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

Connections

Port Markings	Function
1	INPUT
2	OUTPUT
4	Coupled In
3	Coupled Out

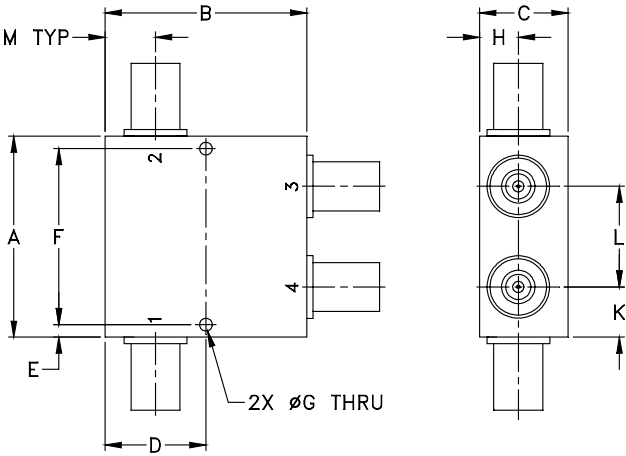
Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.



Outline Drawing



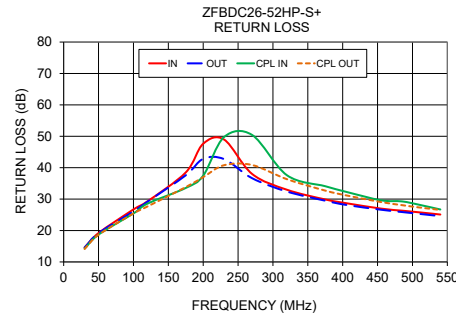
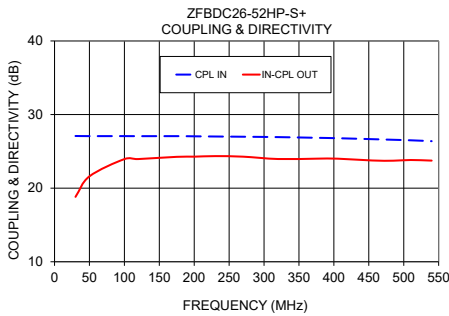
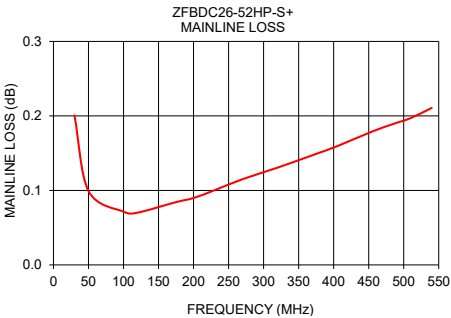
Outline Dimensions (inch/mm)

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	

Typical Performance Data

Frequency (MHz)	Mainline Loss ¹ (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
		In-Out	CPL In	CPL Out	Out-CPL-In	In-CPL-Out	In	Out	CPL In
30	0.20	27.09	27.38	20.05	18.82	14.60	14.57	14.26	14.13
50	0.10	27.07	27.14	22.34	21.61	19.20	19.16	18.71	18.63
100	0.07	27.07	27.02	24.08	23.95	26.71	26.09	25.44	25.43
120	0.07	27.06	27.00	24.12	23.95	29.27	29.17	28.55	27.64
175	0.08	27.07	26.94	23.37	24.26	38.49	37.58	33.55	33.82
200	0.09	27.04	26.92	23.29	24.28	47.63	42.80	37.47	37.01
230	0.10	27.02	26.88	23.19	24.35	48.95	42.74	49.77	40.80
270	0.12	26.99	26.82	22.38	24.28	38.03	36.67	50.44	40.86
320	0.13	26.94	26.73	21.69	23.96	32.99	32.41	37.61	36.34
375	0.15	26.84	26.61	21.22	24.01	29.89	29.49	34.10	32.71
405	0.16	26.79	26.54	20.79	24.01	28.70	28.15	32.31	31.19
455	0.18	26.66	26.40	20.14	23.76	26.97	26.62	29.62	29.06
485	0.19	26.57	26.29	20.15	23.73	26.32	25.89	29.27	28.08
510	0.20	26.50	26.20	19.89	23.83	25.79	25.30	28.18	27.34
540	0.21	26.38	26.07	19.84	23.74	25.09	24.59	26.70	26.56

1. Mainline loss includes coupling loss



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