

Directional Coupler

50Ω

1 to 1000 MHz

ZFDC-20-4+



Generic photo used for illustration purposes only

CASE STYLE: K18

Connectors	Model
BNC	ZFDC-20-4+
SMA	ZFDC-20-4-S+
N-TYPE	ZFDC-20-4-N+
BRACKET (OPTION "B")	

+RoHS Compliant

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

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	3
OUTPUT	1
COUPLED	2

Features

- wideband, 1 to 1000 MHz
- excellent directivity, 27 dB typ.
- excellent mainline loss, 0.4 dB typ.
- excellent VSWR, 1.1:1 typ.
- rugged shielded case

Applications

- VHF/UHF
- cellular
- instrumentation
- communication receivers & transmitters

Electrical Specifications

FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS¹ (dB)						DIRECTIVITY (dB)						VSWR (:1)	POWER INPUT (W)	
			L		M		U		L		M		U				
	f _L -f _U	Nom.	Flatness	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	L
1-1000	19.5±0.5	±0.5	0.4	1.2	0.4	0.8	0.8	1.5	36	28	27	20	23	18	1.1	0.5	2.0

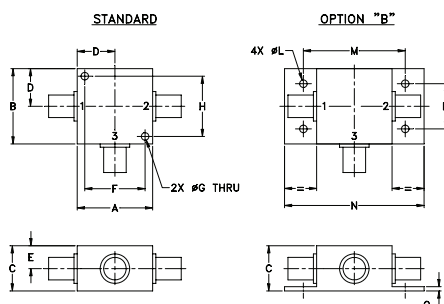
L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U]

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

Typical Performance Data

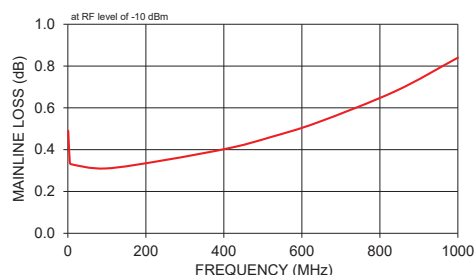
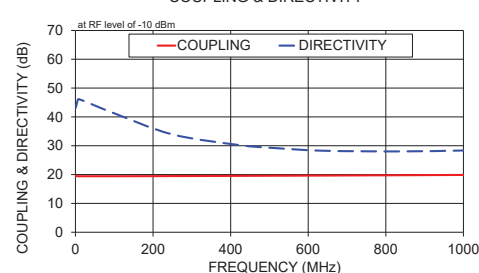
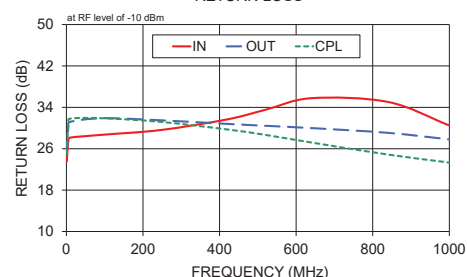
Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Cpl
1.00	0.49	19.58	43.20	23.54	24.84	24.95
5.00	0.34	19.44	45.40	27.48	30.16	30.85
9.00	0.33	19.42	46.16	28.13	31.18	31.81
96.00	0.31	19.42	41.47	28.71	31.90	31.89
248.00	0.35	19.47	34.00	29.63	31.49	31.18
420.00	0.41	19.55	30.27	31.67	30.80	29.73
520.00	0.46	19.60	29.14	33.53	30.43	28.67
640.00	0.53	19.66	28.26	35.77	29.99	27.20
840.00	0.68	19.77	28.03	35.04	29.07	24.87
1000.00	0.84	19.87	28.35	30.50	27.81	23.33

Outline Drawing

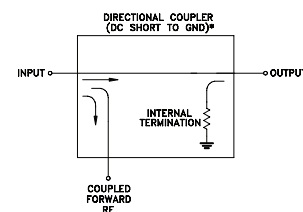


Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.00	.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	70.0

ZFDC-20-4-S+
MAINLINE LOSSZFDC-20-4-S+
COUPLING & DIRECTIVITYZFDC-20-4-S+
RETURN LOSS

Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMERS THAT ROUTES DC FROM RF PORTS TO GROUND.

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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Directional Coupler

ZFDC-20-4+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT	CPL
1.0	0.49	19.58	43.20	23.54	24.84	24.95
2.0	0.41	19.50	43.50	25.63	27.51	28.01
3.0	0.38	19.46	44.14	26.59	28.84	29.48
4.0	0.36	19.45	44.55	27.14	29.64	30.33
5.0	0.34	19.44	45.40	27.48	30.16	30.85
6.0	0.34	19.43	45.14	27.72	30.53	31.21
7.0	0.34	19.43	45.60	27.91	30.81	31.50
8.0	0.33	19.42	46.18	28.02	31.01	31.67
9.0	0.33	19.42	46.16	28.13	31.18	31.81
10.0	0.33	19.42	46.68	28.20	31.30	31.91
20.0	0.31	19.40	49.12	28.50	31.79	32.18
58.0	0.31	19.41	44.46	28.61	31.93	32.00
96.0	0.31	19.42	41.47	28.71	31.90	31.89
134.0	0.32	19.43	38.83	28.84	31.77	31.73
172.0	0.33	19.44	36.74	29.08	31.69	31.59
210.0	0.33	19.45	35.18	29.35	31.61	31.45
248.0	0.35	19.47	34.00	29.63	31.49	31.18
286.0	0.35	19.48	32.93	29.94	31.40	30.86
324.0	0.36	19.50	31.94	30.35	31.20	30.61
362.0	0.38	19.51	31.32	30.82	31.06	30.31
400.0	0.39	19.53	30.59	31.33	30.85	29.96
420.0	0.41	19.55	30.27	31.67	30.80	29.73
440.0	0.42	19.56	30.07	32.04	30.75	29.53
460.0	0.42	19.55	29.70	32.38	30.67	29.30
480.0	0.43	19.56	29.56	32.70	30.57	29.09
500.0	0.44	19.59	29.29	33.08	30.45	28.88
520.0	0.46	19.60	29.14	33.53	30.43	28.67
540.0	0.47	19.60	28.91	33.87	30.32	28.43
560.0	0.48	19.61	28.74	34.22	30.21	28.19
580.0	0.49	19.63	28.56	34.58	30.12	27.97
600.0	0.51	19.65	28.46	34.99	30.08	27.69
640.0	0.53	19.66	28.26	35.77	29.99	27.20
680.0	0.56	19.70	28.08	36.34	29.85	26.72
720.0	0.59	19.72	28.01	36.71	29.73	26.21
760.0	0.62	19.73	27.94	36.56	29.52	25.74
800.0	0.66	19.77	27.98	35.85	29.27	25.30
840.0	0.68	19.77	28.03	35.04	29.07	24.87
880.0	0.72	19.83	28.13	33.94	28.74	24.46
920.0	0.76	19.81	28.32	32.82	28.49	24.09
960.0	0.79	19.83	28.37	31.67	28.15	23.69
1000.0	0.84	19.87	28.35	30.50	27.81	23.33

REV. X1
ZFDC-20-4+
060718
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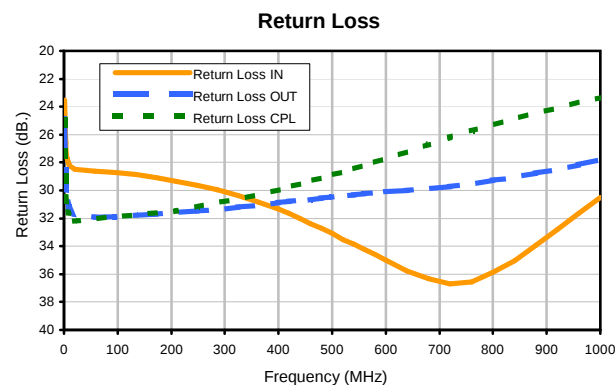
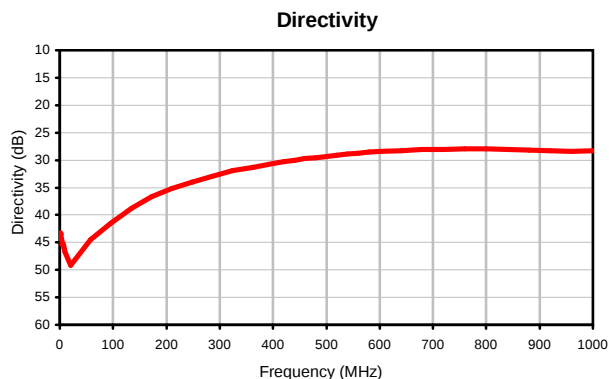
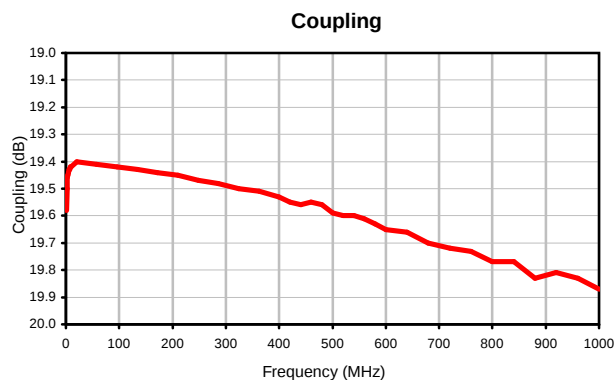
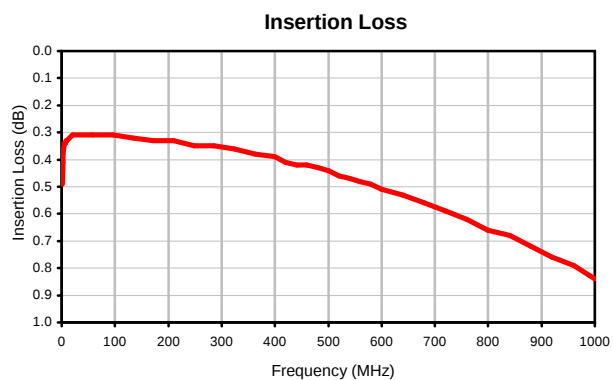
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Directional Coupler

Typical Performance Curves

ZFDC-20-4+



REV. X1
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060718
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Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
K18	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
K18	.75 (19.05)	.07 (1.78)	70.0

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 port marking 1, 2, and 3 see specifications data sheet.
- For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
- Refer to the individual model data sheet for the type of connectors available.



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