

Coaxial Directional Coupler

50Ω

10 to 1800 MHz

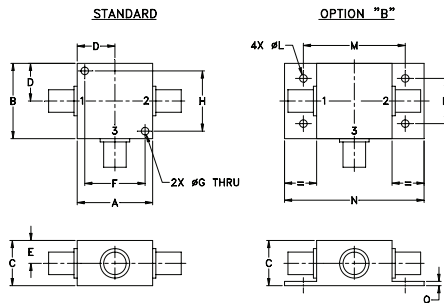
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C

Coaxial Connections

INPUT	1
OUTPUT	2
COUPLED	3

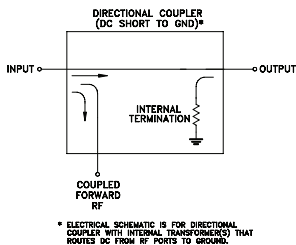
Outline Drawing



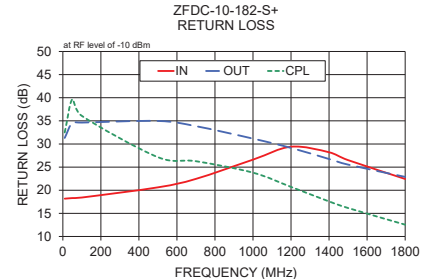
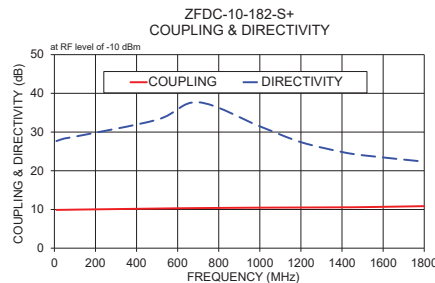
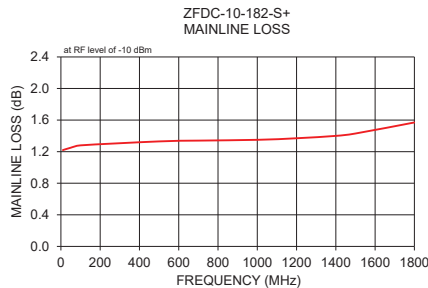
Outline Dimensions (inch/mm)

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

Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) 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.
- 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



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ZFDC-10-182+



Generic photo used for illustration purposes only

CASE STYLE: K18

Connectors	Model
BNC	ZFDC-10-182+
SMA	ZFDC-10-182-S+
N-TYPE	ZFDC-10-182-N+
BRACKET (OPTION "B")	

+RoHS Compliant

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

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		10	—	1800	MHz
Mainline Loss (above theoretical 0.46 dB)	10	—	0.8	1.4	dB
	700	—	1.0	1.7	
	1800	—	1.4	2.4	
Coupling	10-1800		10.4		dB
	10	9.7	9.9	10.2	
	700	9.8	10.5	11.2	
	1800	9.4	10.8	11.9	
Coupling Flatness(±)	10-700	—	0.3	0.5	dB
	700-1800	—	0.3	0.5	
Directivity	10	22.0	27.0	—	dB
	700	22.0	31.7	—	
	1800	18.0	24.1	—	
Return Loss (Input)	10	15.0	18.2	—	dB
	700	18.0	22.6	—	
	1800	15.0	20.0	—	
Return Loss (Output)	10	22.0	29.7	—	dB
	700	20.0	29.1	—	
	1800	15.0	19.3	—	
Return Loss (Coupling)	10	22.0	30.0	—	dB
	700	18.0	22.4	—	
	1800	10.0	12.5	—	
Input Power	10-1800	—	—	0.5	W

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
10.00	1.22	9.89	27.67	18.18	31.31	32.50
50.00	1.25	9.92	28.35	18.31	34.64	39.67
100.00	1.28	9.96	28.81	18.43	34.63	36.08
500.00	1.33	10.24	33.19	20.63	34.98	27.15
700.00	1.34	10.36	37.70	22.46	33.85	26.28
1000.00	1.35	10.47	31.47	26.62	31.16	23.80
1200.00	1.37	10.51	27.39	29.41	29.15	20.72
1400.00	1.40	10.56	24.85	28.21	26.75	17.58
1500.00	1.43	10.60	24.01	26.51	25.54	16.16
1800.00	1.57	10.86	22.35	22.44	22.89	12.56

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Directional Coupler

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Typical Performance Data

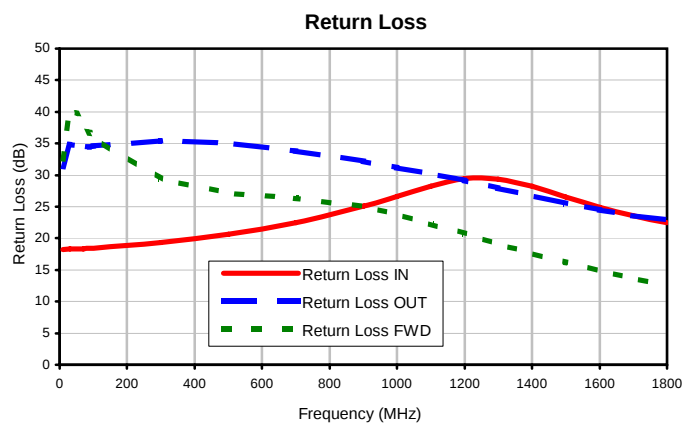
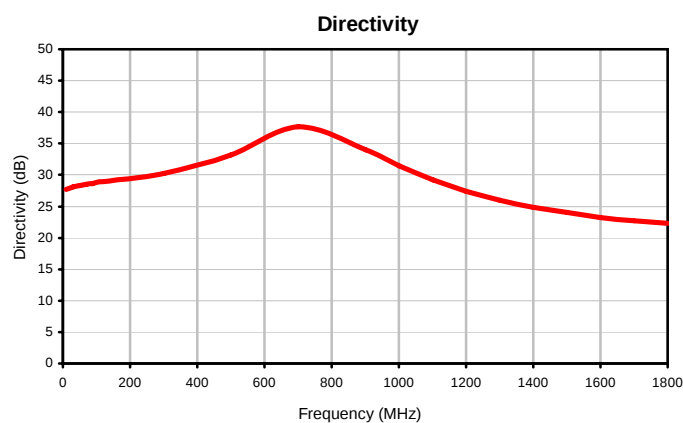
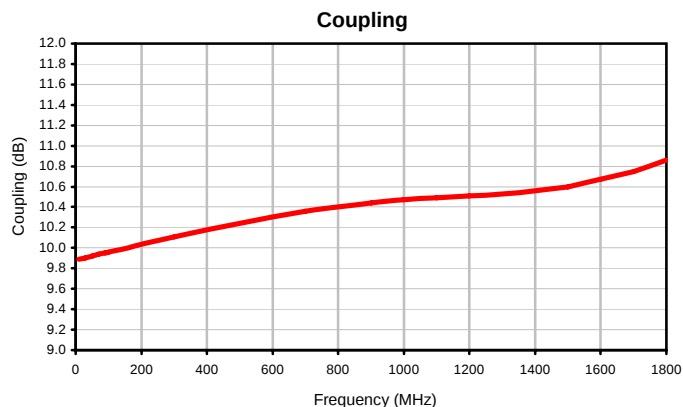
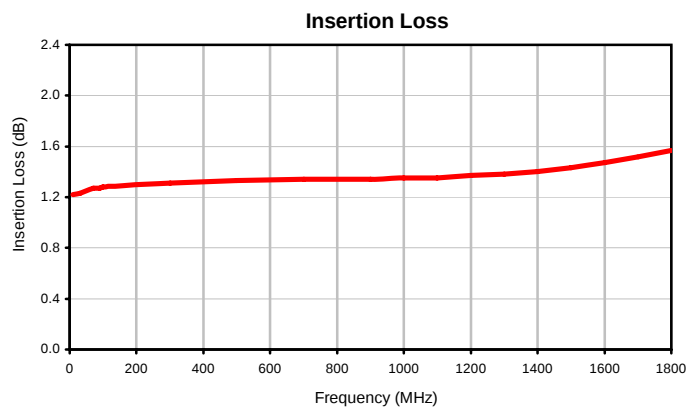
FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT	CPL
10.0	1.22	9.89	27.67	18.18	31.31	32.50
30.0	1.23	9.90	28.06	18.34	34.84	40.16
50.0	1.25	9.92	28.35	18.31	34.64	39.67
70.0	1.27	9.94	28.54	18.35	34.49	38.04
90.0	1.27	9.95	28.64	18.40	34.45	36.66
100.0	1.28	9.96	28.81	18.43	34.63	36.08
300.0	1.31	10.11	30.29	19.34	35.44	29.47
500.0	1.33	10.24	33.19	20.63	34.98	27.15
700.0	1.34	10.36	37.70	22.46	33.85	26.28
900.0	1.34	10.44	34.01	25.09	32.16	24.97
1000.0	1.35	10.47	31.47	26.62	31.16	23.80
1100.0	1.35	10.49	29.19	28.26	30.19	22.28
1200.0	1.37	10.51	27.39	29.41	29.15	20.72
1300.0	1.38	10.53	26.01	29.36	27.93	19.11
1400.0	1.40	10.56	24.85	28.21	26.75	17.58
1500.0	1.43	10.60	24.01	26.51	25.54	16.16
1600.0	1.47	10.67	23.25	24.89	24.48	14.84
1700.0	1.52	10.75	22.72	23.54	23.60	13.64
1800.0	1.57	10.86	22.35	22.44	22.89	12.56



Directional Coupler

ZFDC-10-182+

Typical Performance Curves



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The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com



IF/RF MICROWAVE COMPONENTS



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ZFDC-10-182+
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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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Mini-Circuits ISO 9001 & ISO 14001 Certified



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