

# Coaxial Directional Coupler

50Ω

20 to 2000 MHz

ZFDC-6-23-S+



Generic photo used for illustration purposes only

CASE STYLE: K18

Connectors	Model
SMA	ZFDC-6-23-S+
BRACKET (OPTION "B")	

**+RoHS Compliant**

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

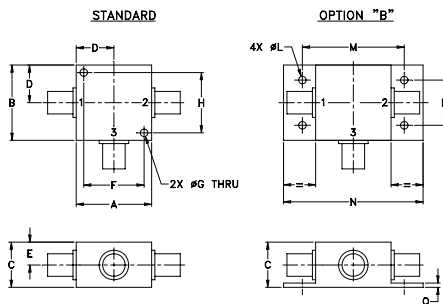
## Maximum Ratings

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

## Coaxial Connections

INPUT	3
OUTPUT	1
COUPLED	2

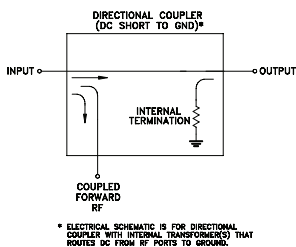
## Outline Drawing



## 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



## Features

- very wideband, 20 to 2000 MHz
- good directivity, 17 dB typ.
- can be used for unbalance 2 way splitter
- rugged shielded case

## Applications

- cellular
- instrumentation
- communication receivers & transmitters
- GPS

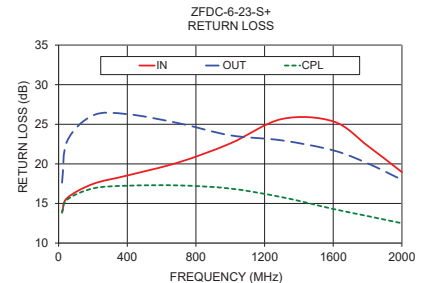
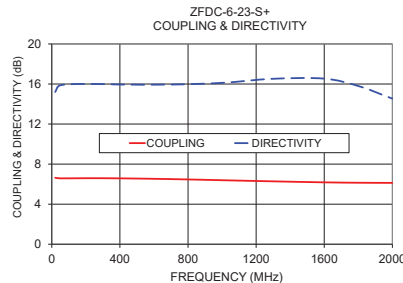
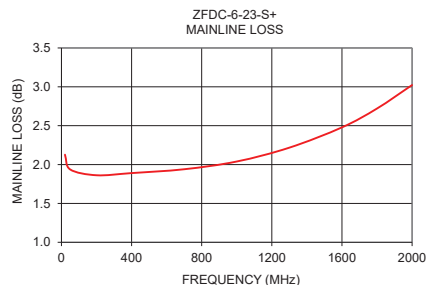
## Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
<b>Frequency Range</b>		20		2000	MHz
<b>Mainline Loss<sup>1</sup></b>	20-1300	—	2.0	2.8	dB
	1300-2000	—	2.7	3.5	
<b>Nominal Coupling</b>	20-2000	—	6.4±0.5	—	dB
<b>Coupling Flatness(±)</b>	20-2000	—	0.3	0.7	dB
<b>Directivity</b>	20-2000	11	18	—	dB
<b>Return Loss (Input)</b>	20-700	11	16	—	dB
	700-1600	15	22	—	
	1600-2000	12	18	—	
<b>Return Loss (Output)</b>	20-700	14	22	—	dB
	700-1600	17	24	—	
	1600-2000	14	22	—	
<b>Return Loss (Coupling)</b>	20-700	11	16	—	dB
	700-1600	10	15	—	
	1600-2000	10	14	V	
<b>Input Power</b>	20-2000			0.5	W

1. Include coupling loss.

## Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
20	2.13	6.64	15.21	13.94	17.62	13.81
50	1.94	6.58	15.87	15.69	22.88	15.49
200	1.86	6.59	16.01	17.46	26.12	16.89
400	1.89	6.58	15.95	18.53	26.28	17.24
700	1.94	6.50	15.95	20.19	25.13	17.28
1000	2.04	6.39	16.12	22.58	23.61	16.88
1300	2.22	6.28	16.52	25.66	22.97	15.80
1600	2.48	6.18	16.54	25.36	21.71	14.31
1800	2.72	6.14	15.80	22.29	20.07	13.41
2000	3.02	6.12	14.54	18.96	17.99	12.50



### 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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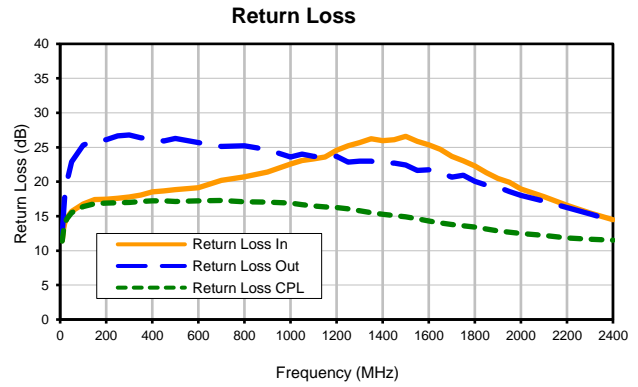
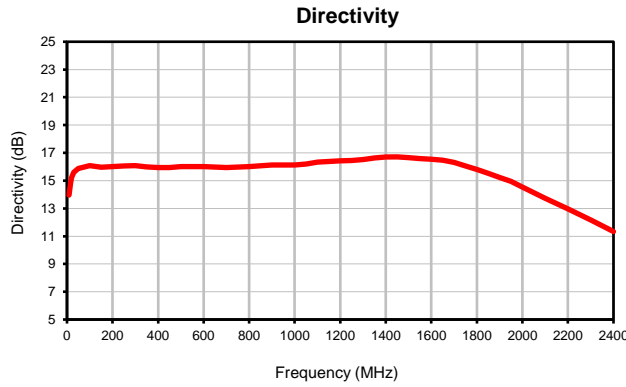
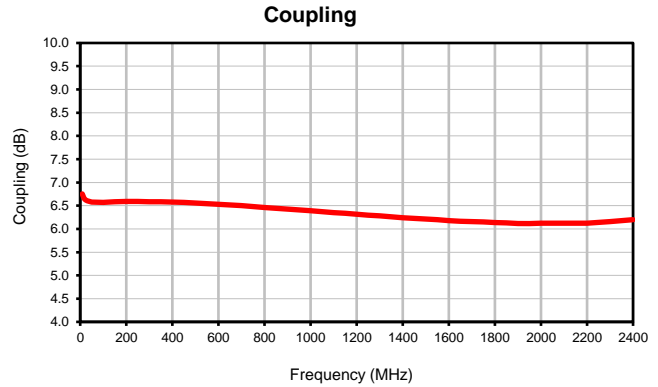
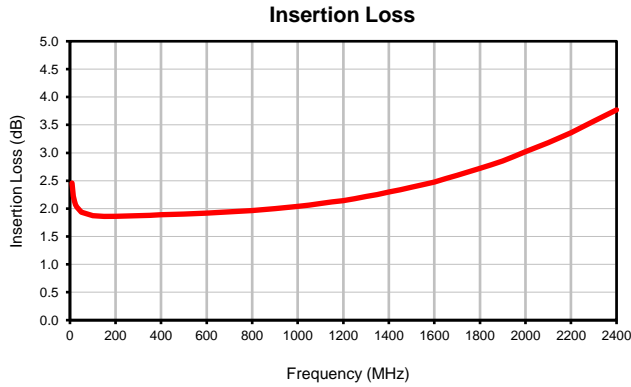
## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS (dB)		
				IN	OUT	CPL
9	2.46	6.75	13.96	11.45	12.32	11.38
15	2.22	6.67	14.82	13.19	15.71	13.07
20	2.13	6.64	15.21	13.94	17.62	13.81
25	2.07	6.62	15.45	14.42	19.05	14.30
30	2.03	6.60	15.59	14.80	20.15	14.65
50	1.94	6.58	15.87	15.69	22.88	15.49
100	1.87	6.57	16.08	16.76	25.28	16.37
150	1.86	6.58	15.97	17.41	25.98	16.79
200	1.86	6.59	16.01	17.46	26.12	16.89
250	1.87	6.59	16.05	17.60	26.66	16.93
300	1.87	6.59	16.07	17.79	26.78	16.98
350	1.88	6.59	16.00	18.05	26.39	17.12
400	1.89	6.58	15.95	18.53	26.28	17.24
450	1.90	6.57	15.94	18.65	25.90	17.24
500	1.90	6.56	16.00	18.83	26.28	17.15
600	1.92	6.53	16.01	19.12	25.68	17.21
700	1.94	6.50	15.95	20.19	25.13	17.28
800	1.97	6.46	16.02	20.72	25.21	17.09
900	2.00	6.43	16.13	21.38	24.64	17.02
1000	2.04	6.39	16.12	22.58	23.61	16.88
1050	2.06	6.37	16.20	23.07	23.99	16.65
1100	2.09	6.35	16.34	23.30	23.67	16.46
1150	2.12	6.34	16.38	23.57	23.60	16.36
1200	2.15	6.32	16.41	24.55	23.67	16.23
1250	2.18	6.30	16.46	25.19	22.84	16.05
1300	2.22	6.28	16.52	25.66	22.97	15.80
1350	2.25	6.26	16.63	26.24	22.98	15.49
1400	2.30	6.24	16.70	25.97	22.63	15.25
1450	2.34	6.23	16.71	26.10	22.70	15.08
1500	2.38	6.21	16.65	26.59	22.42	14.88
1550	2.43	6.20	16.58	25.87	21.64	14.61
1600	2.48	6.18	16.54	25.36	21.71	14.31
1650	2.54	6.17	16.46	24.71	21.34	14.01
1700	2.60	6.16	16.32	23.67	20.68	13.79
1750	2.66	6.15	16.05	23.03	20.93	13.62
1800	2.72	6.14	15.80	22.29	20.07	13.41
1850	2.79	6.13	15.52	21.30	19.49	13.12
1900	2.86	6.12	15.23	20.49	19.23	12.86
1950	2.94	6.12	14.95	19.94	18.57	12.66
2000	3.02	6.12	14.54	18.96	17.99	12.50
2100	3.18	6.13	13.74	17.82	17.17	12.21
2200	3.36	6.13	12.98	16.56	16.24	11.84
2300	3.56	6.16	12.16	15.47	15.34	11.66
2400	3.77	6.20	11.34	14.47	14.33	11.52

# Directional Coupler

## Typical Performance Curves

ZFDC-6-23-S+



# Case Style

# K

## K18

### 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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<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
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