

10dB DC Pass

# High Power Directional Coupler ZDC10-20403-K+

50Ω Up to 20W 20 to 40 GHz

## The Big Deal

- High Power Handling: 20W
- Low Insertion Loss: 1.2 dB\* typ.
- Good Coupling Flatness,  $\pm 0.5$  dB typ.



CASE STYLE: HT2536

## Product Overview

Mini-Circuits' ZDC10-20403-K+ broadband high power directional coupler offers excellent performance across a wide range of popular frequency bands. Built using low loss suspended substrate construction, the ZDC10-20403-K+ can pass up to 3A of DC current from input to output and handle up to 20W CW. Rugged sealed construction makes this coupler ideal for use in field applications or remote monitoring sites; however, it is also ideal for high power lab testing.

## Key Features

Feature	Advantages
Excellent Insertion Loss , 1.2 dB Typ*	With low insertion loss, this coupler is ideal for critical high power applications.
Ultra High Return Loss, 20 dB Typ	Outstanding Return loss makes this coupler ideal for sensitive power measurement and other signal distribution applications.
High Power Handling, 20W	Up to 20W CW power handling, combined with low insertion loss and excellent VSWR support operation in high power applications such as transmitters, base stations and high power device characterization.
Wide bandwidth	20-40 GHz coverage includes many popular 5G, K-Band and instrumentations, Ka-Band SatCom, Microwave point to point backhaul and many more.
Good Coupling Flatness	$\pm 0.5$ dB of Coupling flatness provides accurate signal sampling of forward or reflected power.
Passes DC Current, 3A	Capable of passing 3A current, input to output; this coupler is suited for application using remote antenna control or other remote motorized requirements.

\*Does not include coupling loss

### 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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## Maximum Ratings

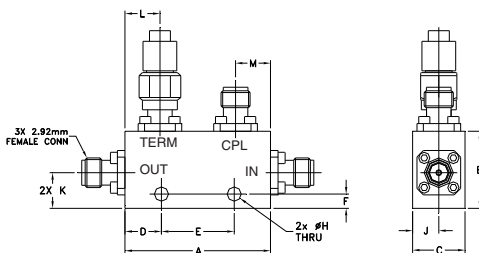
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	3A

Permanent damage may occur if any of these limits are exceeded

## Coaxial Connections

INPUT	IN
OUTPUT	OUT
COUPLED IN	CPL
50Ω TERMINATION INCLUDED	TERM

## Outline Drawing



## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
1.25	0.65	0.45	0.31	0.63	0.12	-
31.75	16.51	11.43	7.95	15.88	3.05	-
H	J	K	L	M	wt	
0.12	0.23	0.3	0.3	0.3	grams	
3.048	5.715	7.62	7.62	7.62	52.5	

## Features

- wide frequency range, 20-40 GHz
- good coupling flatness, ±0.5 dB typ. full band
- good VSWR, 1.22:1 typ.
- high power, up to 20W
- DC current pass through input to output

## Applications

- 5G
- K-Band
- instrumentations
- Satcom
- point to point backhaul



Generic photo used for illustration purposes only

CASE STYLE: HT2536

Connectors	Model
2.92mm-Female	ZDC10-20403-K+

## +RoHS Compliant

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

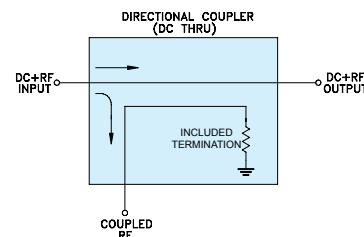
## Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		20		40	GHz
Coupling	20 - 40	—	10±1.1	—	dB
Coupling Flatness	20 - 40	—	—	±1.2	dB
Mainline Loss <sup>1</sup>	20 - 40	—	1.2	1.9	dB
Directivity	20 - 26.5	11	14	—	dB
	26.5 - 30	10	13	—	
	30 - 35	8	12	—	
	35 - 40	7	10	—	
Return Loss	20 - 40	14	20	—	dB
Input Power <sup>2</sup>	20 - 40	—	—	20	W

1. Does not include coupling loss.

2. At 25°C with no DC current. Derate linearly to 10W from 25°C to 85°C. Output load VSWR 2.0:1 max.

## Electrical Schematic



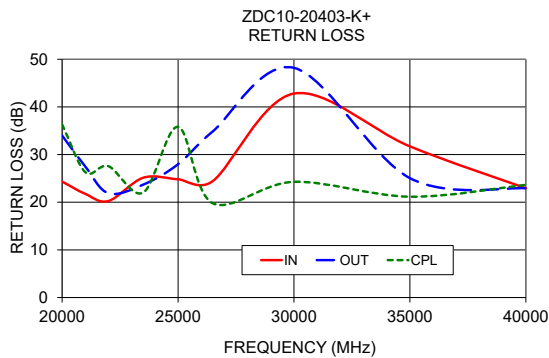
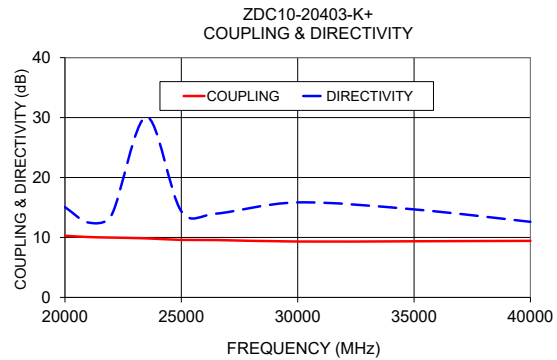
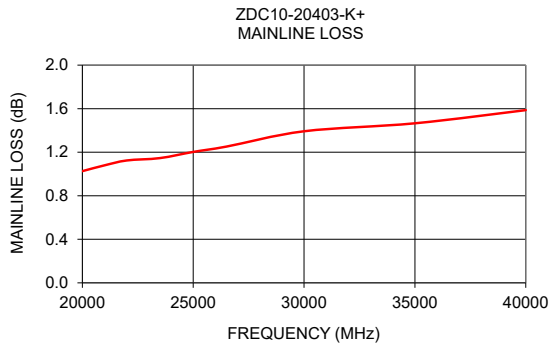
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## Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
20000	1.03	10.29	15.07	24.34	33.99	36.32
21000	1.08	10.07	12.49	21.75	27.48	26.31
22000	1.12	9.98	13.73	20.26	21.87	27.56
23500	1.15	9.85	30.11	25.14	23.70	22.03
25000	1.20	9.59	14.37	24.82	27.97	35.82
26500	1.25	9.57	13.98	24.45	34.87	19.77
30000	1.39	9.32	15.85	42.80	48.20	24.29
35000	1.47	9.37	14.68	31.72	25.05	21.16
40000	1.59	9.44	12.61	22.94	22.92	23.66



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