20dB DC Pass

High Power Directional Coupler ZDC20-20403-K+

50Ω Up to 20W 18 to 40 GHz

The Big Deal

- High Power Handling: 20W
- Low Insertion Loss: 0.9 dB* typ.
- Good Coupling Flatness, ±0.8 dB typ.



CASE STYLE: HT2536

Product Overview

Mini-Circuits' ZDC20-20403-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 ZDC20-20403-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 , 0.9 dB Typ*	With extremely low insertion loss, this coupler is ideal for critical high power applications.
Ultra High Return Loss, 19 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	18-40 GHz coverage includes many popular 5G, Ku-Band, K-Band and instrumentaions, Ka-Band SatCom, Microwave point to point backhaul and many more.
Good Coupling Flatness	±0.8 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
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ZDC20-20403-K+

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Generic photo used for illustration purposes only

CASE STYLE: HT2536

Connectors	Model
2.92mm-Female	ZDC20-20403-K+

+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
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

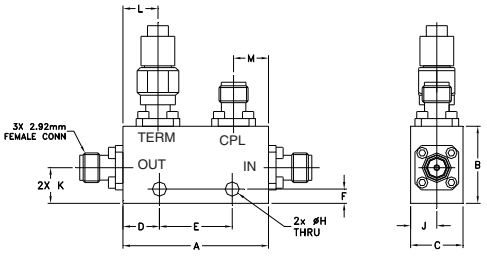
Features

- wide frequency range, 18-40 GHz
- good coupling flatness, ±0.8 dB typ. full band
- good VSWR, 1.25:1 typ.
- high power, up to 20W
- DC current pass through input to output

Applications

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

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	-

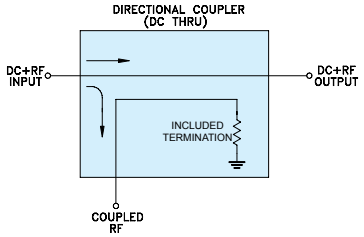
H	J	K	L	M	wt
0.12	0.23	0.3	0.3	0.3	grams
3.048	5.715	7.62	7.62	7.62	52.5

Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		**18**		**40**	GHz
Coupling	18 - 40	—	20±1.0	—	dB
Coupling Flatness	18 - 40	—	—	±1.3	dB
	20 - 40	—	—	±1.2	
Mainline Loss[1]	18 - 26.5	—	0.7	1.0	dB
	26.5 - 40	—	0.9	1.3	
Directivity	18 - 23.5	11	14	—	dB
	23.5 - 30	10	12	—	
	30 - 35	8	11	—	
	35 - 40	7	9	—	
Return Loss	18 - 40	14	19	—	dB
Input Power [2]	18 - 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

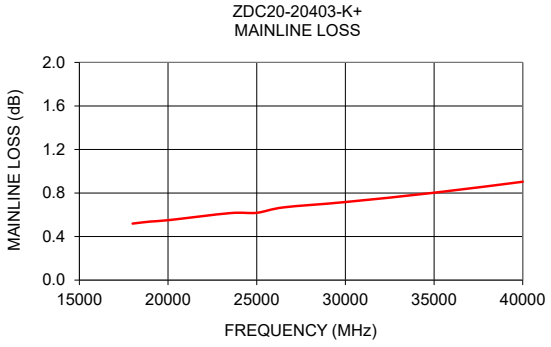


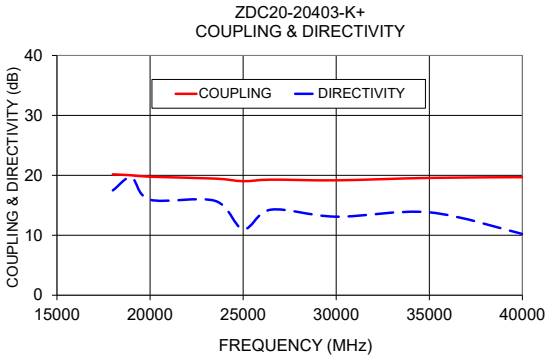
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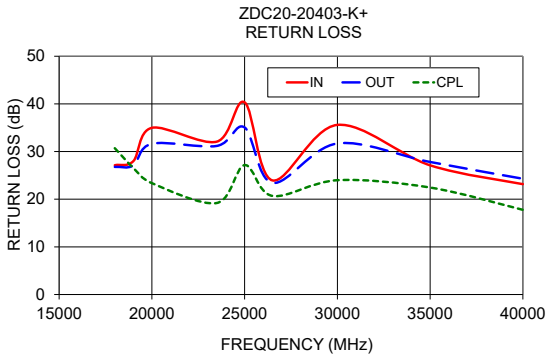
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Typical Performance Data

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
18000	0.52	20.17	17.49	27.13	26.78	30.70
19000	0.54	20.01	19.60	27.99	27.09	26.56
20000	0.55	19.76	15.93	34.98	31.65	23.37
23500	0.62	19.46	15.74	32.08	31.18	19.20
25000	0.62	19.02	11.04	40.32	35.05	27.15
26500	0.67	19.28	14.27	23.95	23.42	20.69
30000	0.72	19.17	13.10	35.59	31.70	23.99
35000	0.80	19.57	13.83	27.11	27.81	22.45
40000	0.90	19.69	10.21	23.16	24.29	17.77







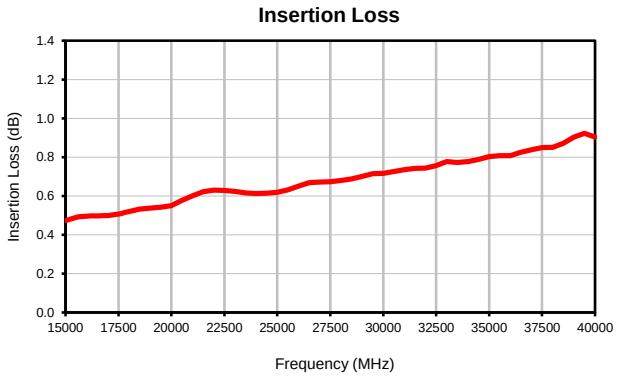
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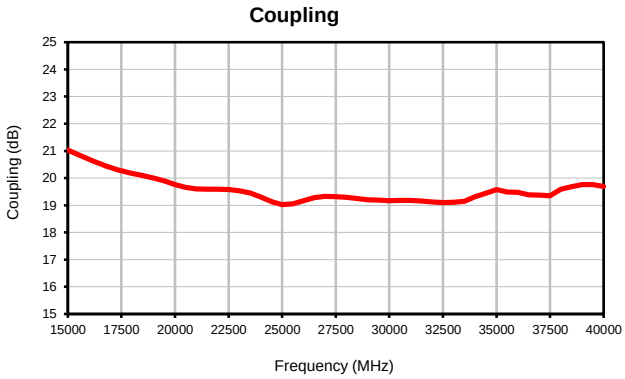
Directional Coupler ZDC20-20403-K+

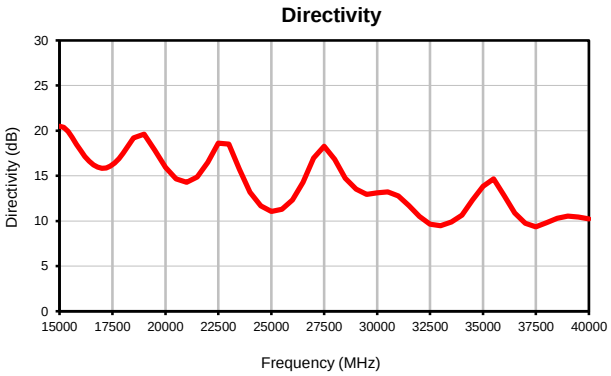
Typical Performance Data

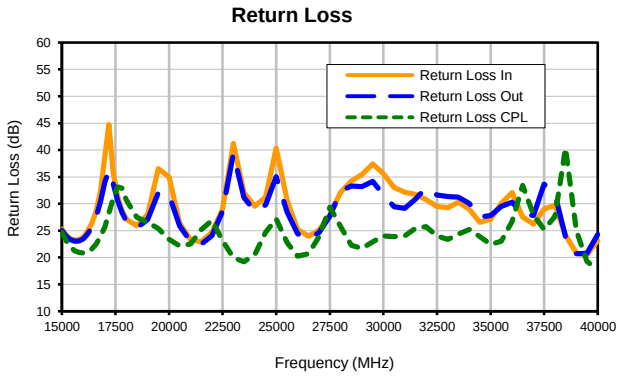
FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS (dB)		
				IN	OUT	CPL
15000	0.47	21.03	20.49	25.28	25.05	24.71
15200	0.48	20.96	20.38	24.16	24.00	23.13
15400	0.49	20.90	19.92	23.46	23.30	22.00
15600	0.49	20.83	19.27	23.24	23.03	21.25
15800	0.49	20.76	18.48	23.34	23.10	20.94
16000	0.50	20.69	17.78	23.85	23.48	20.84
16200	0.50	20.62	17.15	24.89	24.38	21.00
16400	0.50	20.56	16.64	26.35	25.63	21.56
16600	0.50	20.50	16.23	28.67	27.52	22.50
16800	0.50	20.44	15.98	32.35	30.39	23.95
17000	0.50	20.38	15.84	38.83	34.04	25.71
17200	0.50	20.33	15.88	44.73	36.15	28.30
17400	0.51	20.29	16.08	35.73	33.73	31.04
17600	0.51	20.25	16.43	31.37	30.68	33.12
17800	0.51	20.21	16.90	28.77	28.38	32.90
18000	0.52	20.17	17.49	27.13	26.78	30.70
18500	0.53	20.09	19.22	25.94	25.49	27.47
19000	0.54	20.01	19.60	27.99	27.09	26.56
19500	0.54	19.90	17.88	36.57	32.01	25.42
20000	0.55	19.76	15.93	34.98	31.65	23.37
20500	0.58	19.66	14.65	26.36	25.83	22.15
21000	0.60	19.61	14.27	23.32	22.96	22.49
21500	0.62	19.59	14.86	22.90	22.42	25.18
22000	0.63	19.59	16.49	24.71	24.08	26.88
22500	0.63	19.57	18.61	28.97	28.60	23.14
23000	0.62	19.54	18.53	41.23	39.32	19.95
23500	0.62	19.46	15.74	32.08	31.18	19.20
24000	0.61	19.31	13.18	29.56	28.61	20.57
24500	0.61	19.14	11.67	31.23	29.79	24.69
25000	0.62	19.02	11.04	40.32	35.05	27.15
25500	0.63	19.05	11.29	30.64	28.46	22.79
26000	0.65	19.17	12.32	25.21	24.41	20.25
26500	0.67	19.28	14.27	23.95	23.42	20.69
27000	0.67	19.33	16.97	25.08	24.63	23.92
27500	0.67	19.32	18.28	27.99	27.72	29.36
28000	0.68	19.29	16.82	32.07	32.32	25.80
28500	0.69	19.25	14.75	34.23	33.32	22.27
29000	0.70	19.20	13.52	35.46	33.18	21.70
29500	0.71	19.19	12.96	37.41	34.19	22.94
30000	0.72	19.17	13.10	35.59	31.70	23.99
30500	0.73	19.18	13.22	33.04	29.42	23.88
31000	0.74	19.18	12.76	32.13	29.14	24.02
31500	0.74	19.15	11.70	31.75	30.89	25.42
32000	0.74	19.13	10.50	30.75	33.03	25.75
32500	0.76	19.10	9.65	29.49	31.64	23.98
33000	0.78	19.11	9.47	29.24	31.32	23.39
33500	0.77	19.15	9.88	30.31	31.21	24.33
34000	0.78	19.31	10.65	28.99	30.09	25.23
34500	0.79	19.44	12.32	26.55	27.53	23.90
35000	0.80	19.57	13.83	27.11	27.81	22.45
35500	0.81	19.48	14.66	30.09	29.52	23.02
36000	0.81	19.47	12.80	32.08	30.31	26.72
36500	0.83	19.39	10.89	27.51	27.99	33.44
37000	0.84	19.37	9.76	26.19	27.81	27.93
37500	0.85	19.35	9.35	29.03	33.63	25.21
38000	0.85	19.60	9.80	29.72	31.81	27.66
38500	0.87	19.68	10.28	24.16	23.88	40.34
39000	0.90	19.77	10.55	20.82	20.70	24.98
39500	0.92	19.77	10.42	20.46	20.78	19.30
40000	0.90	19.69	10.21	23.16	24.29	17.77

Typical Performance Curves



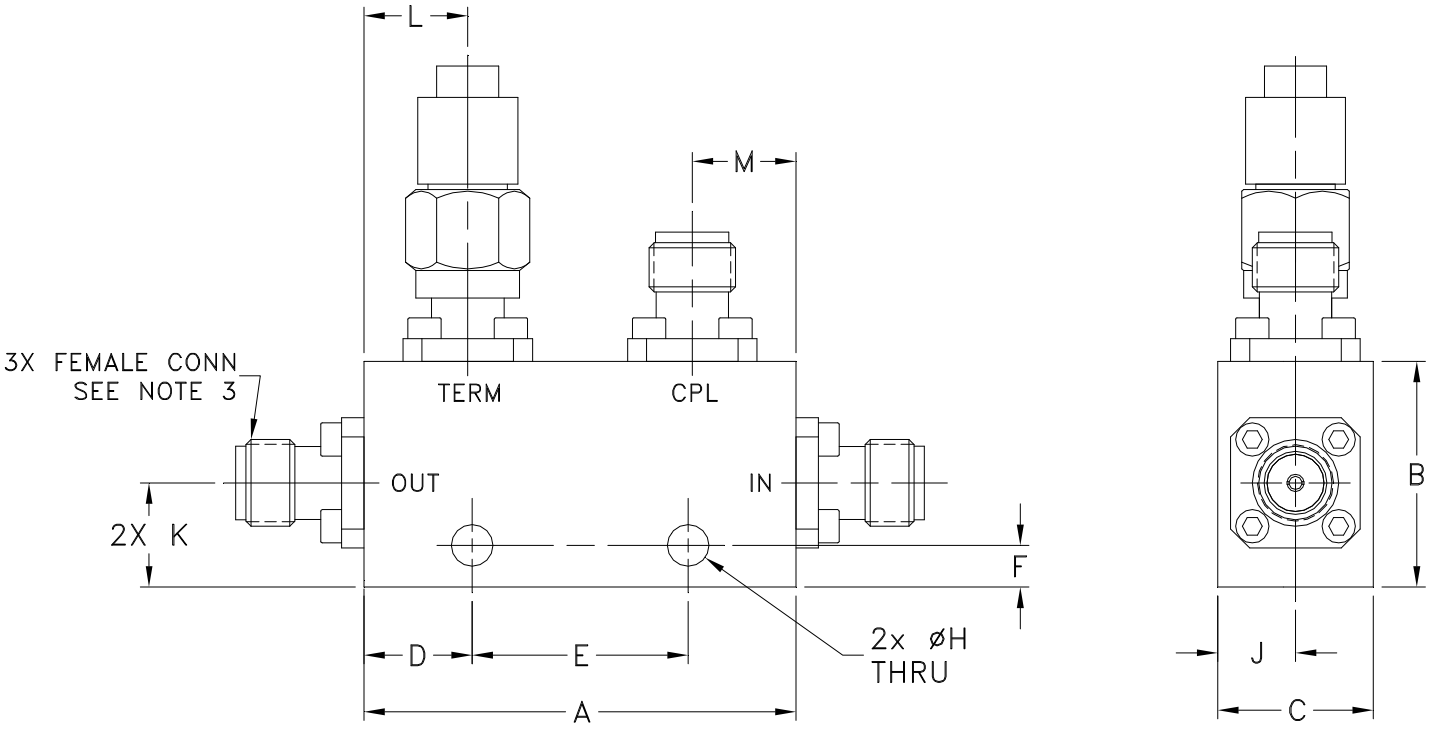






Case Style HT

Outline Dimensions HT2536



CASE #	A	B	C	D	E	F	G	H	J	K
HT2536	1.25 (31.75)	.65 (16.51)	.45 (11.43)	.313 (7.95)	.625 (15.88)	.12 (3.05)	- -	.120 (3.05)	.225 (5.72)	.30 (7.62)

CASE #	L	M	WT. GRAM
HT2536	.30 (7.62)	.30 (7.62)	52.5

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015

Notes:

1. Case material: Aluminum alloy.
2. Case finish: Clear chemical conversion coating, RoHS compliant.
3. Refer to the individual model data sheet for the type of connectors available.

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Mini-Circuits

Environmental Specifications ENV97

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
Thermal Shock	-55° to 85°C, 25 cycles	MIL-STD-202F: Method 107G

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