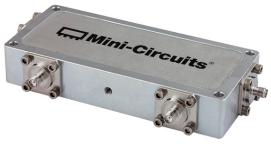
20dB DC Pass

High Power Bi-Directional Coupler ZGBDC20-33H-S+

50Ω Up to 50W 300 to 3000 MHz

The Big Deal

- High Power Handling: 50W
- Low Insertion Loss: 0.15 dB*
- Rugged IP67 Weatherproof case



CASE STYLE: HT1761-2

Product Overview

Mini-Circuits' ZGBDC20-33H-S+ broadband high power bi-directional coupler offers excellent performance across a wide range of popular frequency bands. Built using low loss suspended substrate construction, the ZGBDC20-33H-S+ can pass up to 3A of DC current from input to output and handle up to 50W 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

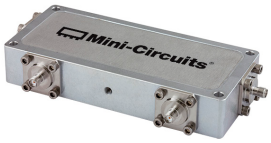
Feature	Advantages
Excellent Insertion Loss , 0.15 dB Typ*	With extremely low insertion loss, this coupler is ideal for critical high power applications.
Ultra High Return Loss, 28 dB Typ	Outstanding Return loss makes this coupler ideal for sensitive power measurement and other signal distribution applications.
High Power Handling, 50W	Up to 50W 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	300-3000 MHz coverage includes many popular cellular, WiMAX, LTE, ISM, satellite, P2P, aviation, maritime, defense,and radar bands
Excellent Directivity and Coupling Flatness	Typical 23 dB directivity and ±0.2 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.
IP67 Weatherproof Case	With an Ingress Protection rating of IP67, the ZGBDC20-33H-S+ is designed to operate in harsh outdoor applications.

*Does not include coupling loss

Notes
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20dB DC Pass
High Power Bi-Directional Coupler ZGBDC20-33H-S+

50Ω Up to 50W 300 to 3000 MHz



CASE STYLE: HT1761-2

Connectors	Model
SMA	ZGBDC20-33H-S+

+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 IN
COUPLED OUT	CPL OUT

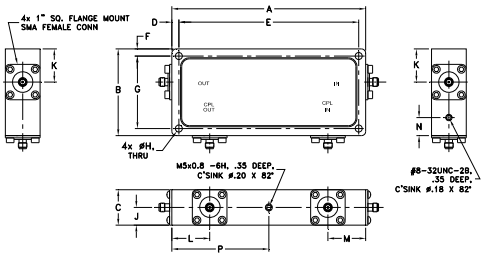
Features

- wide frequency range, 300-3000 MHz
- good coupling flatness, ±0.2 dB typ. full band
- high directivity, 25 dB typ.
- good VSWR, 1.10:1 typ.
- high power, up to 50W
- DC current pass through input to output
- IP67 weather proof case

Applications

- cellular
- PCN
- lab use
- GSM
- WiMAX
- ISM

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
5.58	2.45	1.00	.20	5.175	.20	2.050	.200
141.73	62.23	25.40	5.08	131.45	5.08	52.07	5.08

J	K	L	M	N	P		wt
.50	.94	1.09	1.09	0.51	2.79		grams
12.70	23.88	27.69	27.69	12.95	70.87		700.0

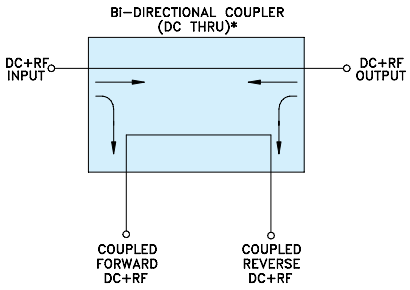
IP protection classification: IP67

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Operating Frequency		**300**		**3000**	MHz
Coupling	300-700	—	22.9±2.7	—	dB
	700-2700	—	20.5±0.6	—	
	2700-3000	—	20.6±0.4	—	
Coupling Flatness	300-700	—	—	±3.0	dB
	700-2700	—	—	±0.75	
	2700-3000	—	—	±0.5	
Mainline Loss[1]	300-700	—	0.08	0.2	dB
	700-2700	—	0.15	0.3	
	2700-3000	—	0.2	0.35	
Directivity	300-700	20	28	—	dB
	700-2700	15	23	—	
	2700-3000	14	21	—	
Return Loss	300-700	—	26.4	—	dB
	700-2700	—	30.7	—	
	2700-3000	—	23.6	—	
Input Power [2]	300-700	—	—	50	W
	700-2700	—	—	50	
	2700-3000	—	—	50	

1. Does not include coupling loss.
2. At 25°C with no DC current. Derate linearly to 25W (380-2700 MHz) and to 15W (2700-3600 MHz) from 25°C to 100°C. Output load VSWR 2.0:1 max.

Electrical Schematic

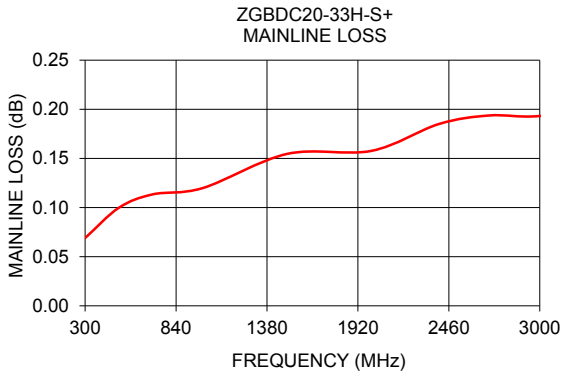


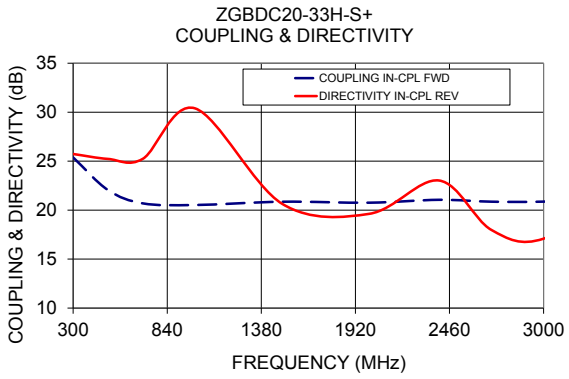
* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS.

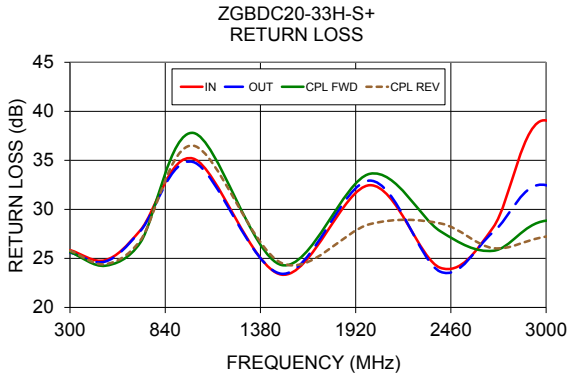
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Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
300.0	0.07	25.4	25.4	26.4	25.7	25.8	25.6	25.7	25.8
500.0	0.10	22.0	22.0	26.9	25.2	24.8	24.7	24.2	24.4
700.0	0.11	20.7	20.6	28.2	25.2	27.9	27.8	26.6	26.9
1000.0	0.12	20.5	20.5	33.9	30.4	35.2	34.8	37.8	36.5
1500.0	0.15	20.9	20.8	24.0	20.6	23.3	23.4	24.3	24.5
2000.0	0.16	20.8	20.7	23.6	19.6	32.5	32.9	33.6	28.5
2400.0	0.18	21.1	21.0	33.6	23.0	24.0	23.6	27.8	28.6
2700.0	0.19	20.9	20.7	20.8	18.0	28.2	27.7	25.8	26.0
3000.0	0.19	20.9	20.7	17.8	17.1	39.1	32.5	28.8	27.2
3500.0	0.21	21.2	21.1	27.2	22.6	25.3	24.3	27.5	28.3







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