

DC to 10 MHz Pass

# Bi-Directional Coupler

ZABDC20-232H+

50Ω Up to 50W 800 to 2300 MHz

## The Big Deal

- Excellent mainline loss, 0.25 dB typ.
- Excellent directivity, 23 dB typ.
- DC pass through, 2.0 A max @ 50 W RF power
- 10 MHz pass through



CASE STYLE: DD477-1

## Product Overview

Mini-Circuits ZABDC20-232H+ is a 20-dB bi-directional coupler ideal for power leveling and monitoring L-band applications. The rugged aluminum alloy case measures 2.0" x 2.0" x 0.88" high, with gold-plated SMA or N-type connectors.

## Key Features

Feature	Advantages
Mainline loss 0.25 dB typ.	Extremely low mainline loss for applications where signal strength is key, such as GPS, CDMA, UMTS, and LTE base station transmitters
Directivity 23 dB typ.	Enables more accurate sampling for VSWR measurements
DC pass through 2.0 A max.	Allows flexible deployment between active components and their DC power supplies
10 MHz pass through	Pass through at 10 MHz supports reference clock frequency communication to remote systems
Full L band coverage	Extended frequency range makes this coupler ideal for use in satcom systems, such as LNB/BUC installations

### Notes

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B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
C. 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](http://www.minicircuits.com/MCLStore/terms.jsp)



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## ZABDC20-232H+

50Ω Up to 50W 800 to 2300 MHz



CASE STYLE: DD477-1

Connectors	Model
SMA	ZABDC20-232H-S+
N-Type	ZABDC20-232H-N+

**+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	2.0 A

\* Case temperature is defined as temperature on ground leads. Permanent damage may occur if any of these limits are exceeded.

### Coaxial Connections

INPUT	1
OUTPUT	4
COUPLED (forward)	2
COUPLED (reverse)	3

### Features

- excellent mainline loss, 0.25 dB typ.
- excellent directivity, 23 dB typ.
- high power, up to 50W
- rugged shielded case
- DC current through input to output 2.0A Max. at 50 watt RF input power
- 10 MHz pass through

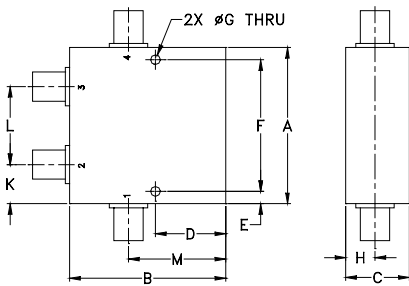
### Applications

- L Band
- PCS/DCS/UMTS
- power leveling & monitoring
- VSWR measurement
- satellite communication

### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
<b>Frequency Range</b>		800		2300	MHz
<b>Mainline Loss (above theoretical 0.05 dB)</b>	800-2300	—	0.23	0.35	dB
	950-1250	—	0.17	0.30	
	1700-2050	—	0.21	0.35	
	950-2150	—	0.22	0.35	
<b>Coupling</b>	800-2300	—	20.5±1.5	—	dB
	950-1250	—	20.5±1.0	—	
	1700-2050	—	19.5±0.8	—	
	950-2150	—	20.5±1.2	—	
<b>Coupling Flatness (±)</b>	800-2300	—	1.5	1.9	dB
	950-1250	—	0.7	0.9	
	1700-2050	—	0.5	0.7	
	950-2150	—	1.0	1.3	
<b>Directivity</b>	800-2300	17	20	—	dB
	950-1250	18	20	—	
	1700-2050	19	23	—	
	950-2150	18	20	—	
<b>Return Loss (Input)</b>	800-2300	18	23	—	dB
	950-1250	18	23	—	
	1700-2050	20	24	—	
	950-2150	18	23	—	
<b>Return Loss (Output)</b>	800-2300	18	23	—	dB
	950-1250	18	23	—	
	1700-2050	20	25	—	
	950-2150	18	23	—	
<b>Return Loss (Coupling)</b>	800-2300	16	19	—	dB
	950-1250	17	19	—	
	1700-2050	16	20	—	
	950-2150	16	19	—	
<b>Input Power</b>	800-2300	—	—	50	W

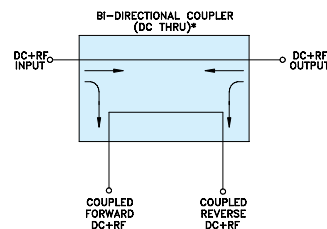
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	
2.00	2.00	.88	.90	.156	1.688	.125	
50.80	50.80	22.35	22.86	3.96	42.88	3.18	
H	J	K	L	M			wt
.38	---	.50	1.00	1.25			grams
9.65	---	12.70	25.40	31.75			225

### Electrical Schematic



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

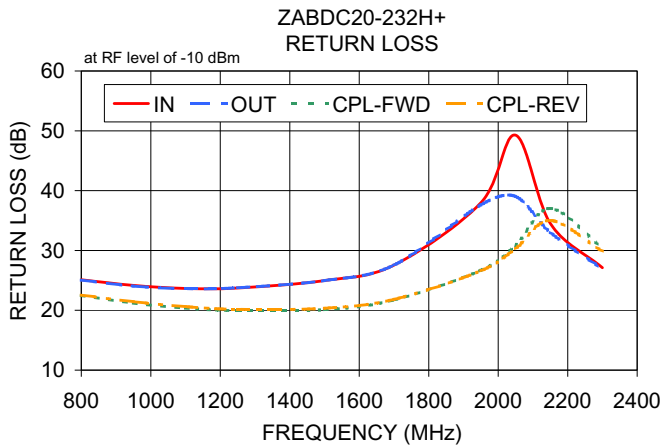
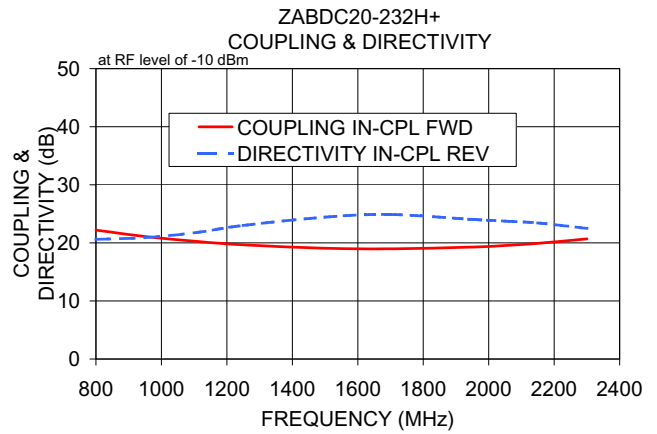
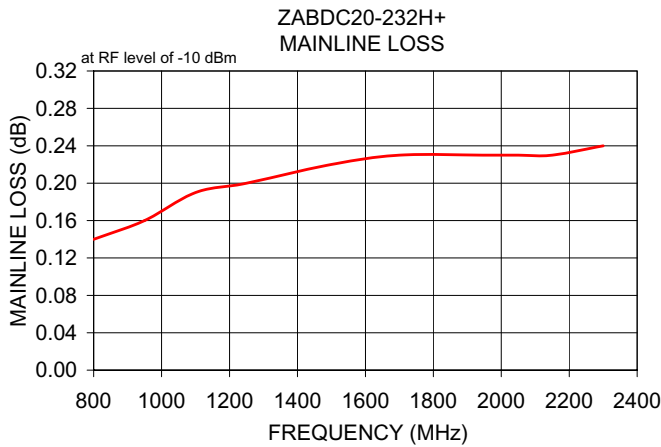
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## Typical Performance Data

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
800.00	0.14	22.19	22.18	20.87	20.60	25.12	25.06	22.48	22.54
950.00	0.16	21.10	21.09	21.04	20.91	24.16	24.04	21.21	21.44
1100.00	0.19	20.29	20.27	21.70	21.72	23.65	23.62	20.37	20.62
1250.00	0.20	19.67	19.66	22.84	23.00	23.74	23.78	19.94	20.17
1500.00	0.22	19.08	19.09	24.24	24.44	24.98	24.97	20.11	20.35
1700.00	0.23	18.98	18.97	24.82	24.88	27.55	27.56	21.72	21.83
1950.00	0.23	19.27	19.27	24.65	24.03	37.97	37.62	26.69	26.61
2050.00	0.23	19.54	19.53	24.19	23.74	49.29	39.04	30.82	30.31
2150.00	0.23	19.92	19.90	24.15	23.44	34.53	33.03	37.03	35.01
2300.00	0.24	20.69	20.68	23.47	22.50	27.11	26.92	30.45	29.88



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