

DC Pass Bi-Directional Coupler

ZABDC20-182H-S+

50Ω Up to 100W 700 to 1800 MHz

Maximum Ratings

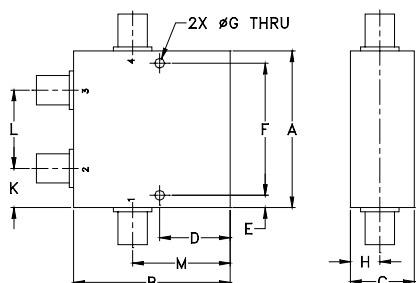
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	2.0 A

* 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

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	

Features

- excellent mainline loss, 0.2 dB typ.
- excellent directivity, 25 dB typ.
- high power, up to 100W
- rugged shielded case
- DC current through input to output 2.0A Max. at 50 watt RF input power

Applications

- PCS/DCS/UMTS
- power leveling & monitoring
- VSWR measurement

Bi-Directional Coupler Electrical Specifications

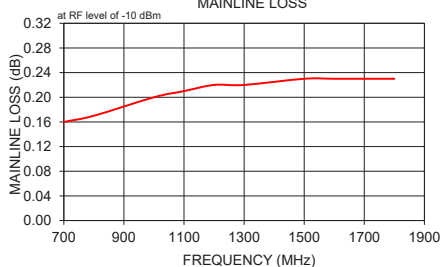
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
	Nom.	Flatness	Typ.	Max.	Typ.	Min.		
f_L - f_U								
700-1800			0.20	0.35	25	19	1.08	50
800-1000	20.5±1.0	±0.75	0.20	0.30	23	20	1.08	100
1000-1600	19.5±0.8	±0.6	0.25	0.35	27	20	1.08	50
1600-1800	20.0±1.0	±0.6	0.25	0.35	25	19	1.08	50

1. Mainline loss includes theoretical power loss at coupled port.

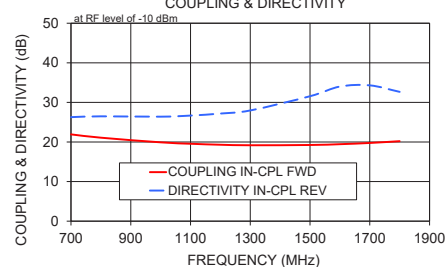
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	In-Cpl Rev	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
700.00	0.16	21.92	21.94	26.35	26.27	31.61	32.26	30.98	30.09	28.43
800.00	0.17	21.08	21.10	26.19	26.48	30.98	31.61	29.43	28.43	26.13
1000.00	0.20	19.91	19.93	25.90	26.39	30.35	30.95	27.18	26.13	25.28
1100.00	0.21	19.55	19.57	25.96	26.67	30.39	30.81	26.42	25.28	24.71
1200.00	0.22	19.30	19.32	26.55	27.18	30.40	30.67	25.87	24.71	24.35
1300.00	0.22	19.17	19.19	27.47	27.96	30.69	30.65	25.48	24.35	24.02
1500.00	0.23	19.24	19.25	29.96	31.56	32.22	31.59	25.11	24.02	24.09
1600.00	0.23	19.44	19.46	31.28	34.00	34.08	32.70	25.11	24.09	24.21
1700.00	0.23	19.75	19.77	30.63	34.30	36.77	34.05	25.28	24.21	24.47
1800.00	0.23	20.20	20.22	29.13	32.66	41.59	35.13	25.53	24.47	

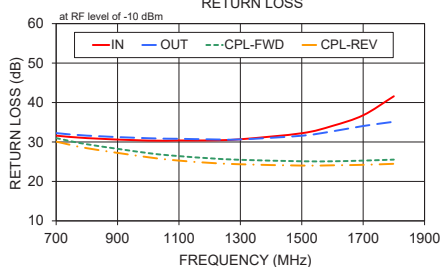
ZABDC20-182H-S+ MAINLINE LOSS



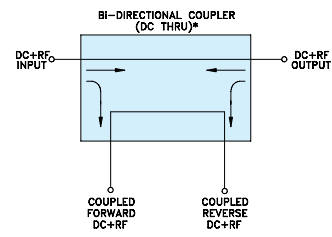
ZABDC20-182H-S+ COUPLING & DIRECTIVITY



ZABDC20-182H-S+ RETURN LOSS



Electrical Schematic



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

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.
- The parts covered by this specification document are subject to Mini-Circuit's 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-Circuit's website at www.minicircuits.com/WCLStore/terms.jsp



Bi-Directional Coupler

ZABDC20-182H-S+

Typical Performance Data

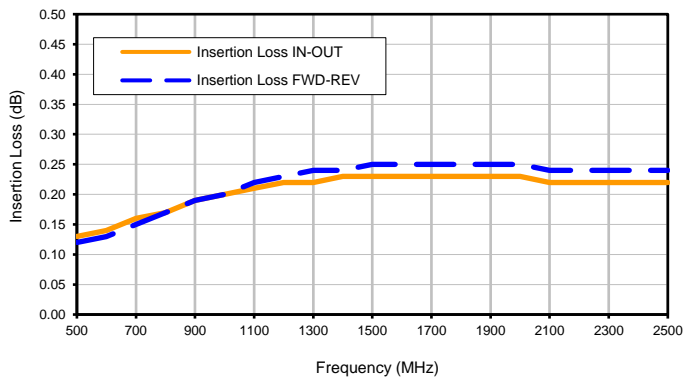
FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB)		(dB)		(dB)		(dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
500	0.13	0.12	24.35	24.36	26.01	26.12	34.59	35.75	34.77	34.15
600	0.14	0.13	22.99	23.01	26.23	26.25	32.88	33.81	32.63	32.00
700	0.16	0.15	21.92	21.94	26.27	26.35	31.61	32.26	30.98	30.09
800	0.17	0.17	21.08	21.1	26.48	26.19	30.98	31.61	29.43	28.43
900	0.19	0.19	20.42	20.44	26.46	25.78	30.6	31.1	28.26	27.24
1000	0.2	0.2	19.91	19.93	26.39	25.9	30.35	30.95	27.18	26.13
1100	0.21	0.22	19.55	19.57	26.67	25.96	30.39	30.81	26.42	25.28
1200	0.22	0.23	19.3	19.32	27.18	26.55	30.4	30.67	25.87	24.71
1300	0.22	0.24	19.17	19.19	27.96	27.47	30.69	30.65	25.48	24.35
1400	0.23	0.24	19.15	19.17	29.44	28.79	31.13	30.8	25.2	24.09
1500	0.23	0.25	19.24	19.25	31.56	29.96	32.22	31.59	25.11	24.02
1600	0.23	0.25	19.44	19.46	34.00	31.28	34.08	32.70	25.11	24.09
1700	0.23	0.25	19.75	19.77	34.30	30.63	36.77	34.05	25.28	24.21
1800	0.23	0.25	20.20	20.22	32.66	29.13	41.59	35.13	25.53	24.47
1900	0.23	0.25	20.80	20.82	30.27	27.70	47.55	35.92	25.93	24.76
2000	0.23	0.25	21.57	21.59	28.19	26.21	43.27	36.15	26.57	25.27
2100	0.22	0.24	22.55	22.57	26.26	24.44	38.36	34.71	27.27	25.95
2200	0.22	0.24	23.81	23.83	24.33	22.63	34.93	33.32	28.12	26.71
2300	0.22	0.24	25.44	25.47	21.60	20.27	33.02	32.36	28.76	27.39
2400	0.22	0.24	27.67	27.68	17.92	16.88	32.21	32.13	29.47	28.04
2500	0.22	0.24	30.98	30.99	12.55	11.88	31.20	32.13	29.91	28.26

Bi-Directional Coupler

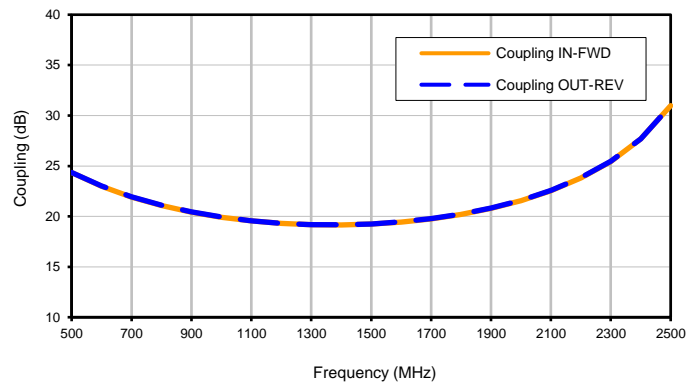
Typical Performance Curves

ZABDC20-182H-S+

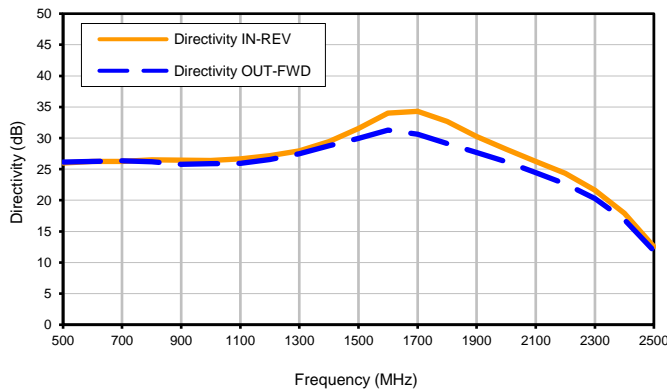
Insertion Loss



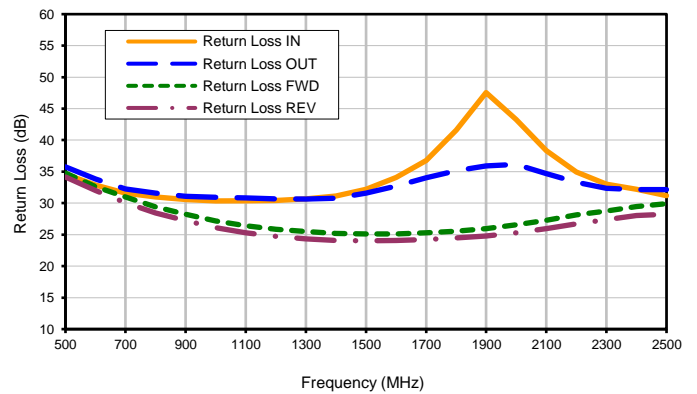
Coupling



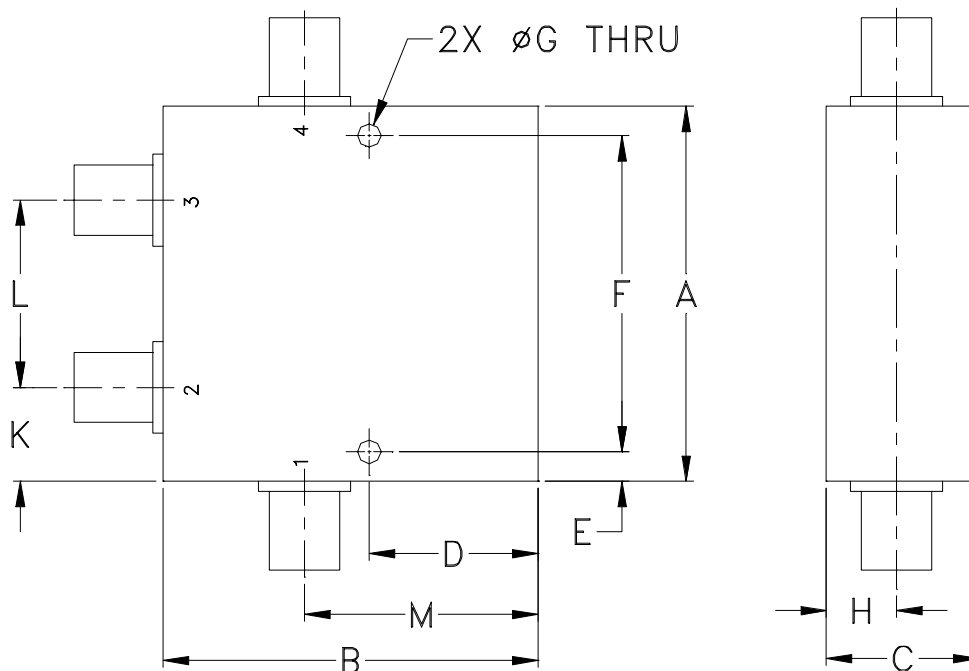
Directivity



Return Loss



Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT, GRAM
DD477-1	2.00 (50.80)	2.00 (50.80)	.88 (22.35)	.90 (22.86)	.156 (3.96)	1.688 (42.88)	.125 (3.18)	.38 (9.65)	-- --	.50 (12.70)	1.00 (25.40)	1.25 (31.75)	225

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.



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
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