DC Pass
Bi-Directional Coupler

ZABDC20-252H+

50Ω Up to 100W 800 to 2500 MHz

Generic photo used for illustration purposes only

CASE STYLE: DD477-1

Connectors	Model
SMA	ZABDC20-252H-S+
N-TYPE	ZABDC20-252H-N+

+RoHS Compliant

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

Maximum Ratings

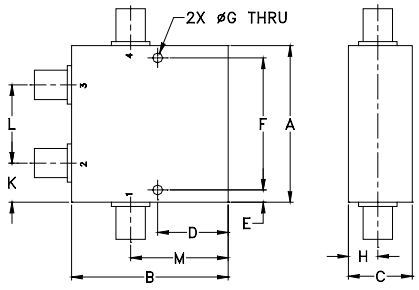
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	2.0 A

* 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

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, 0.17 dB typ.
- excellent directivity, 28 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

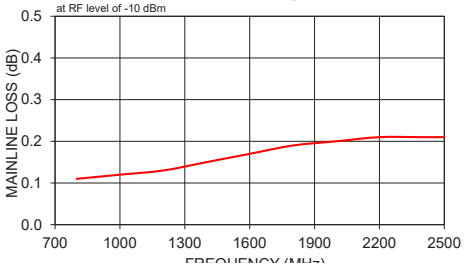
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS[1] (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
f_L-f_U	Nom.	Flatness	Typ.	Max.	Typ.	Min.	Typ.	Max.
800-2500			**0.20**	**0.35**	**28**	**20**	**1.05**	**50**
800-1000	23±1.0	±0.9	0.15	0.25	30	23	1.05	100
1300-2500	19.7±0.7	±0.75	0.20	0.35	28	20	1.05	50

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

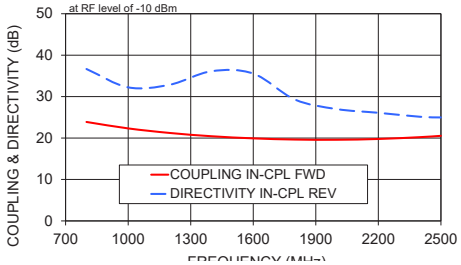
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
800.00	0.11	23.88	23.85	32.78	36.66	39.78	35.40	47.06	42.20
1000.00	0.12	22.32	22.28	30.17	32.23	39.27	35.77	38.27	37.38
1200.00	0.13	21.22	21.15	31.42	32.87	35.59	36.09	34.59	34.96
1400.00	0.15	20.43	20.38	35.46	36.13	32.74	34.79	33.78	35.02
1600.00	0.17	19.92	19.86	42.35	35.55	30.21	33.34	31.94	33.00
1800.00	0.19	19.63	19.58	32.79	29.28	29.43	33.84	33.22	32.26
2000.00	0.20	19.58	19.54	28.91	26.99	30.64	33.90	36.72	35.98
2200.00	0.21	19.77	19.73	28.11	26.09	31.14	35.70	41.69	36.37
2400.00	0.21	20.21	20.16	27.14	25.13	35.33	36.16	49.29	35.25
2500.00	0.21	20.53	20.48	27.45	24.97	37.60	37.56	38.44	34.58

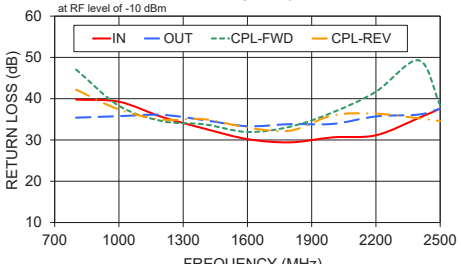
ZABDC20-252H-S+
MAINLINE LOSS



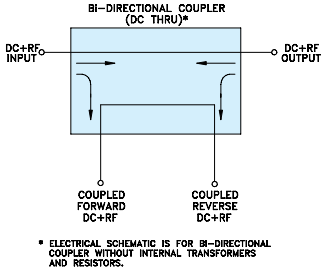
ZABDC20-252H-S+
COUPLING & DIRECTIVITY



ZABDC20-252H-S+
RETURN LOSS



Electrical Schematic



Notes

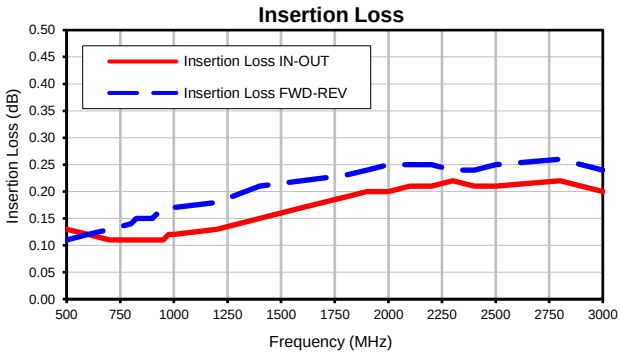
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

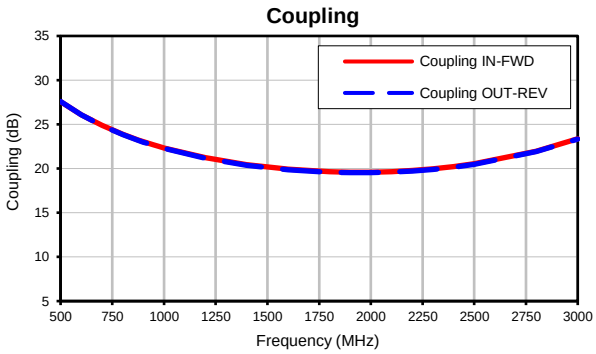
Bi-Directional Coupler ZABDC20-252H-N+

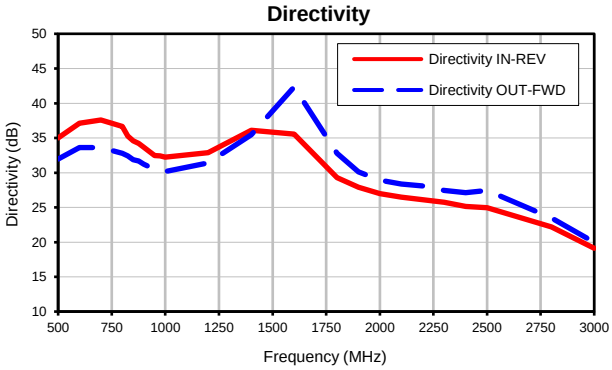
Typical Performance Data

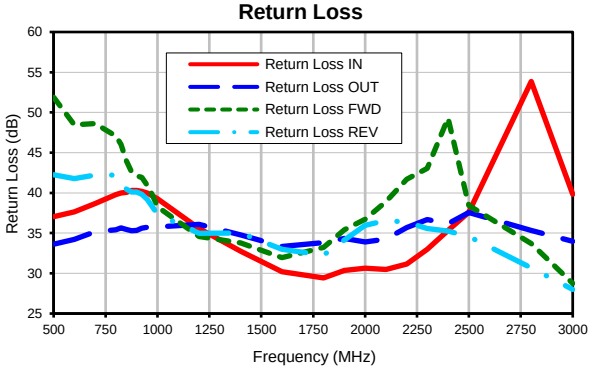
FREQUENCY (MHz)	INSERTION LOSS (dB)		COUPLING (dB)		DIRECTIVITY (dB)		RETURN LOSS (dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
500	0.13	0.11	27.57	27.59	35.01	31.95	37.03	33.63	51.89	42.25
600	0.12	0.12	26.09	26.09	37.11	33.64	37.65	34.20	48.47	41.77
700	0.11	0.13	24.88	24.87	37.59	33.60	38.66	35.17	48.63	42.23
800	0.11	0.14	23.88	23.85	36.66	32.78	39.78	35.40	47.06	42.20
825	0.11	0.15	23.67	23.63	35.30	32.40	40.00	35.66	46.02	41.34
850	0.11	0.15	23.45	23.41	34.60	31.88	40.06	35.47	43.98	40.47
875	0.11	0.15	23.23	23.20	34.23	31.68	40.30	35.28	42.61	40.10
900	0.11	0.15	23.03	22.99	33.68	31.23	40.31	35.34	42.11	40.11
925	0.11	0.16	22.85	22.81	33.05	30.87	40.17	35.62	41.92	39.84
950	0.11	0.16	22.67	22.63	32.46	30.53	39.98	35.75	40.95	39.20
975	0.12	0.17	22.49	22.45	32.43	30.20	39.63	35.81	39.75	38.28
1000	0.12	0.17	22.32	22.28	32.23	30.17	39.27	35.77	38.27	37.38
1200	0.13	0.18	21.22	21.15	32.87	31.42	35.59	36.09	34.59	34.96
1400	0.15	0.21	20.43	20.38	36.13	35.46	32.74	34.79	33.78	35.02
1600	0.17	0.22	19.92	19.86	35.55	42.35	30.21	33.34	31.94	33.00
1800	0.19	0.23	19.63	19.58	29.28	32.79	29.43	33.84	33.22	32.26
1900	0.20	0.24	19.58	19.54	27.91	30.13	30.35	34.34	35.41	34.12
2000	0.20	0.25	19.58	19.54	26.99	28.91	30.64	33.90	36.72	35.98
2100	0.21	0.25	19.65	19.61	26.48	28.36	30.48	34.27	38.92	36.56
2200	0.21	0.25	19.77	19.73	26.09	28.11	31.14	35.70	41.69	36.37
2300	0.22	0.24	19.96	19.91	25.73	27.46	32.97	36.69	43.05	35.56
2400	0.21	0.24	20.21	20.16	25.13	27.14	35.33	36.16	49.29	35.25
2500	0.21	0.25	20.53	20.48	24.97	27.45	37.60	37.56	38.44	34.58
2800	0.22	0.26	21.96	21.93	22.19	23.49	53.85	35.33	33.72	30.68
3000	0.20	0.24	23.38	23.35	19.12	19.98	39.81	33.98	28.75	28.00

Typical Performance Curves





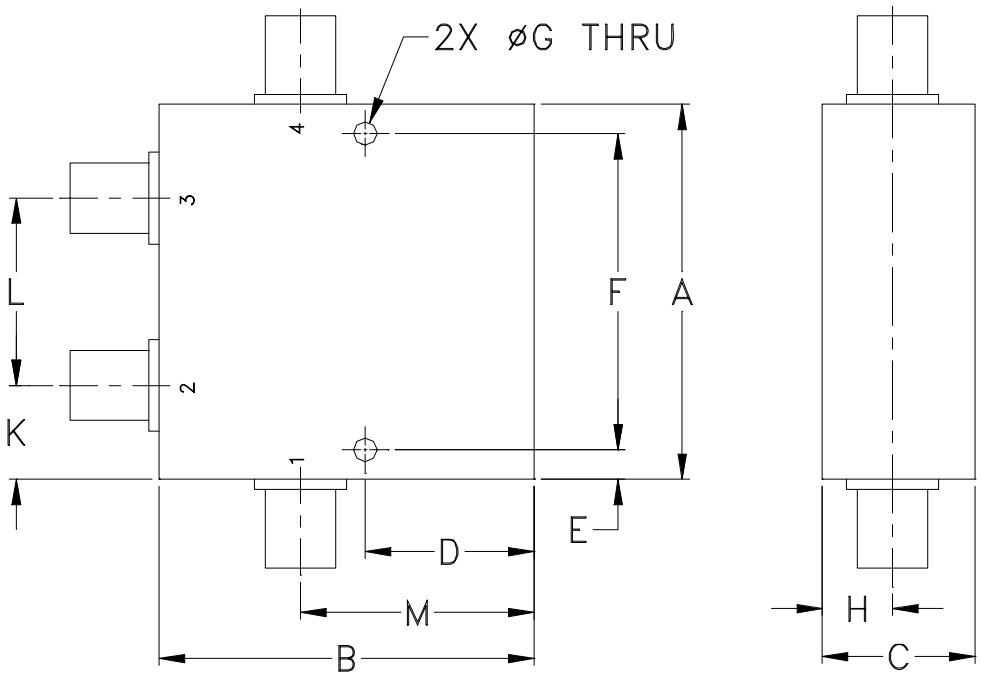




Case Style DD

DD477-1

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. ± .03; 3 Pl. ± .015

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.

Mini-Circuits®
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Environmental Specifications ENV28

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