

Engineering Development Model

Power Splitter/Combiner

ZB4PD1-ED17182/1

4 Way-0°

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : UU188

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C				
Parameter		Min.	Typ.	Max. Units
Frequency		0.1		400 MHz
Isolation	0.1-120 MHz		40	dB
	120-400 MHz		30	dB
Insertion Loss Above 6 dB	0.1-120 MHz		0.25	dB
	120-400 MHz		0.60	dB
Phase Unbalance	0.1-120 MHz		0.03	deg.
	120-400 MHz		0.09	deg.
Amplitude Unbalance	0.1-120 MHz		0.01	dB
	120-400 MHz		0.05	dB
VSWR	SUM PORT		1.30	(:1)
	OUTPUT PORTS		1.15	(:1)

MAXIMUM RATINGS	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C

COAXIAL CONNECTIONS	
SUM PORT	S
PORT 1	1
PORT 2	2
PORT 3	3
PORT 4	4

Functional Diagram



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com



IF/RF MICROWAVE COMPONENTS



REV. X1
ZB4PD1-ED17182/1
11/14/2014
Page 1 of 1

4 Way-0° Power Splitter/Combiner

ZB4PD1-ED17182/1

Typical Performance Data

FREQ.	TOTAL LOSS ¹				AMP. UNBAL.	ISOLATION			PHASE UNBAL.	FREQ.	VSWR				
(MHz)	(dB)				(dB)	(dB)			(deg.)	(MHz)	(:1)				
	S-1	S-2	S-3	S-4		1-2	2-3	3-4			S	1	2	3	4
0.1	6.29	6.28	6.28	6.28	0.01	27.11	58.82	28.03	0.04	0.1	1.17	1.28	1.28	1.27	1.27
0.2	6.24	6.24	6.24	6.24	0.00	29.50	61.03	30.61	0.03	0.2	1.12	1.20	1.20	1.19	1.19
0.2	6.22	6.22	6.22	6.22	0.00	31.22	61.88	32.40	0.03	0.2	1.10	1.16	1.16	1.15	1.15
0.3	6.21	6.21	6.21	6.21	0.00	32.48	63.51	33.73	0.01	0.3	1.08	1.13	1.13	1.13	1.13
0.3	6.20	6.20	6.20	6.20	0.00	33.54	63.19	34.74	0.03	0.3	1.07	1.12	1.12	1.11	1.11
0.5	6.17	6.17	6.17	6.17	0.00	36.59	63.41	37.62	0.02	0.5	1.05	1.08	1.08	1.08	1.08
0.8	6.16	6.15	6.15	6.16	0.00	38.74	62.03	39.77	0.02	0.8	1.04	1.06	1.06	1.06	1.06
1.0	6.15	6.15	6.15	6.14	0.00	40.20	60.64	41.36	0.02	1.0	1.03	1.05	1.05	1.05	1.05
1.5	6.14	6.13	6.14	6.13	0.00	42.12	59.62	43.46	0.02	1.5	1.02	1.04	1.04	1.04	1.04
2.0	6.13	6.13	6.13	6.13	0.00	43.17	59.35	44.53	0.01	2.0	1.02	1.04	1.04	1.03	1.03
2.5	6.13	6.13	6.13	6.13	0.00	43.91	57.94	45.45	0.01	2.5	1.02	1.03	1.03	1.03	1.03
3.0	6.13	6.13	6.13	6.13	0.00	44.44	56.62	45.71	0.02	3.0	1.02	1.03	1.03	1.03	1.03
5.0	6.14	6.14	6.13	6.13	0.01	44.72	54.36	45.80	0.03	5.0	1.02	1.03	1.03	1.02	1.03
10.0	6.16	6.15	6.15	6.15	0.01	43.24	49.99	43.61	0.05	10.0	1.02	1.02	1.02	1.02	1.02
20.0	6.19	6.18	6.18	6.18	0.01	40.63	45.74	40.58	0.08	20.0	1.03	1.02	1.02	1.02	1.02
30.0	6.21	6.20	6.20	6.20	0.01	38.76	43.15	38.49	0.12	30.0	1.04	1.02	1.02	1.02	1.02
40.0	6.23	6.22	6.22	6.22	0.01	37.32	41.32	36.91	0.15	40.0	1.05	1.01	1.01	1.01	1.01
50.0	6.25	6.24	6.24	6.24	0.01	36.20	39.94	35.67	0.17	50.0	1.06	1.01	1.01	1.01	1.01
60.0	6.27	6.26	6.25	6.25	0.02	35.28	38.79	34.64	0.20	60.0	1.07	1.01	1.01	1.01	1.01
70.0	6.29	6.28	6.27	6.27	0.02	34.49	37.84	33.78	0.23	70.0	1.08	1.00	1.01	1.00	1.00
80.0	6.31	6.30	6.29	6.29	0.02	33.85	37.06	33.06	0.25	80.0	1.08	1.00	1.00	1.00	1.00
90.0	6.32	6.32	6.31	6.30	0.02	33.25	36.27	32.41	0.28	90.0	1.09	1.00	1.01	1.01	1.01
100.0	6.34	6.33	6.32	6.32	0.02	32.80	35.69	31.91	0.32	100.0	1.10	1.01	1.01	1.01	1.01
110.0	6.36	6.35	6.34	6.33	0.02	32.43	35.16	31.49	0.34	110.0	1.10	1.01	1.02	1.02	1.01
120.0	6.37	6.37	6.35	6.35	0.03	32.18	34.78	31.18	0.37	120.0	1.11	1.02	1.02	1.02	1.02
130.0	6.39	6.38	6.37	6.36	0.03	32.01	34.46	30.94	0.40	130.0	1.11	1.02	1.03	1.02	1.02
140.0	6.41	6.40	6.38	6.38	0.03	31.93	34.21	30.77	0.44	140.0	1.12	1.03	1.03	1.03	1.03
150.0	6.42	6.41	6.40	6.39	0.03	31.91	34.02	30.66	0.48	150.0	1.12	1.03	1.04	1.03	1.03
160.0	6.44	6.43	6.41	6.40	0.04	31.94	33.88	30.59	0.51	160.0	1.12	1.03	1.04	1.04	1.04
180.0	6.47	6.47	6.44	6.43	0.04	32.21	33.75	30.67	0.57	180.0	1.12	1.04	1.05	1.05	1.04
200.0	6.50	6.50	6.47	6.46	0.04	32.80	33.92	31.05	0.64	200.0	1.12	1.05	1.06	1.06	1.05
220.0	6.53	6.53	6.50	6.49	0.05	33.71	34.51	31.72	0.71	220.0	1.11	1.06	1.07	1.06	1.06
240.0	6.56	6.56	6.53	6.51	0.05	34.51	35.49	32.43	0.78	240.0	1.10	1.07	1.07	1.07	1.06
260.0	6.60	6.60	6.56	6.54	0.06	34.54	36.80	32.80	0.84	260.0	1.09	1.07	1.07	1.07	1.07
280.0	6.63	6.64	6.59	6.57	0.07	33.40	38.19	32.49	0.92	280.0	1.07	1.07	1.07	1.08	1.07
300.0	6.67	6.68	6.63	6.61	0.07	31.36	38.60	31.28	1.01	300.0	1.08	1.06	1.07	1.07	1.06
320.0	6.73	6.74	6.68	6.65	0.08	28.99	36.40	29.35	1.11	320.0	1.11	1.05	1.06	1.06	1.06
340.0	6.79	6.81	6.75	6.72	0.09	26.79	32.95	27.25	1.20	340.0	1.17	1.04	1.05	1.05	1.05
360.0	6.88	6.90	6.84	6.80	0.10	24.86	29.72	25.31	1.31	360.0	1.26	1.03	1.03	1.05	1.04
380.0	7.01	7.03	6.97	6.93	0.10	23.21	26.92	23.61	1.43	380.0	1.39	1.04	1.03	1.05	1.05
400.0	7.19	7.22	7.15	7.11	0.11	21.78	24.46	22.12	1.56	400.0	1.55	1.07	1.06	1.07	1.07

¹Total Loss = Insertion Loss + 6dB Splitter Loss



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

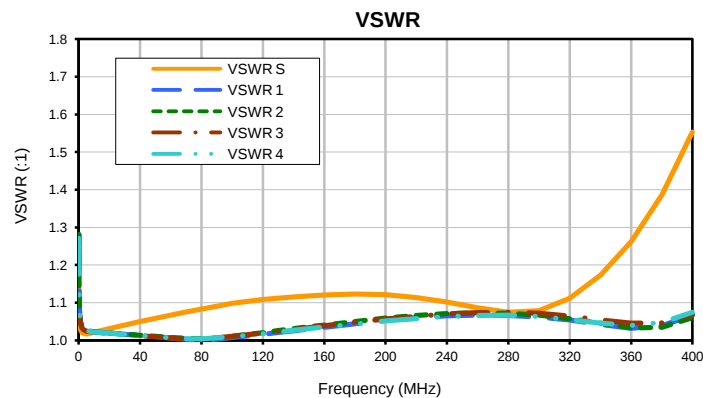
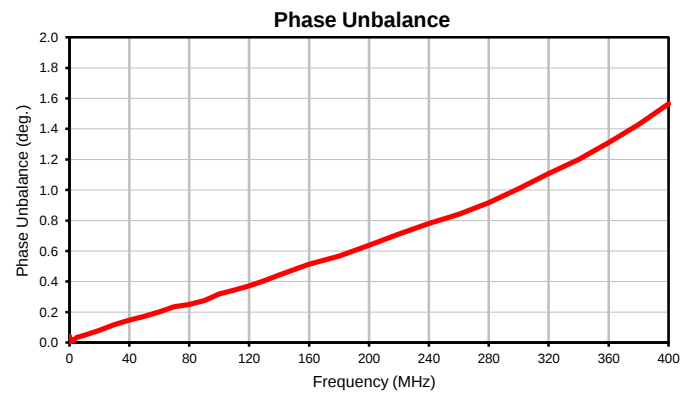
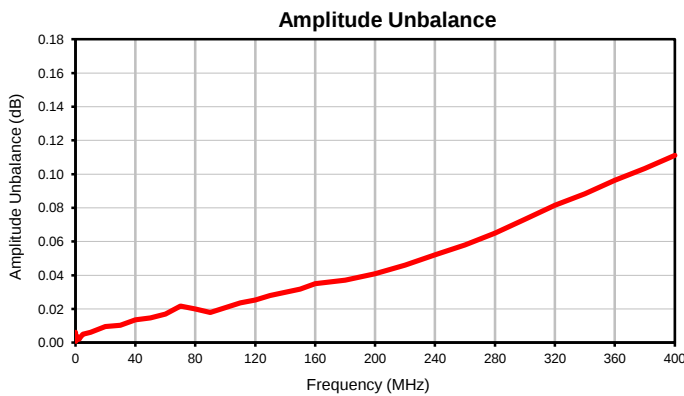
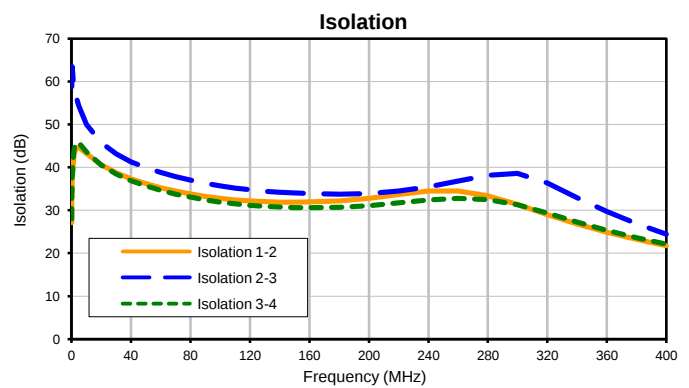
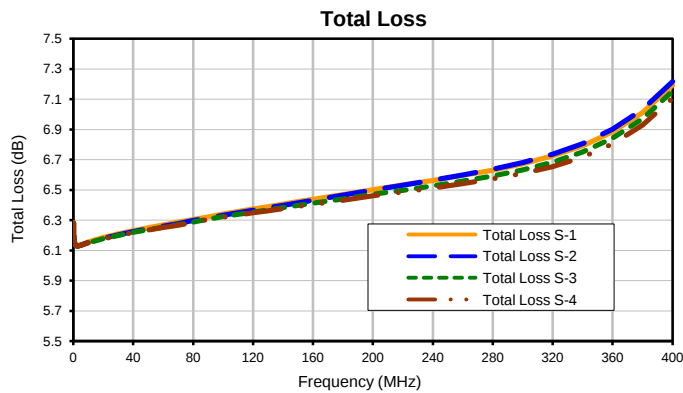
IF/RF MICROWAVE COMPONENTS

REV. X1
ZB4PD1-ED17182/1
11/14/2014
Page 1 of 1

4 Way-0° Power Splitter/Combiner

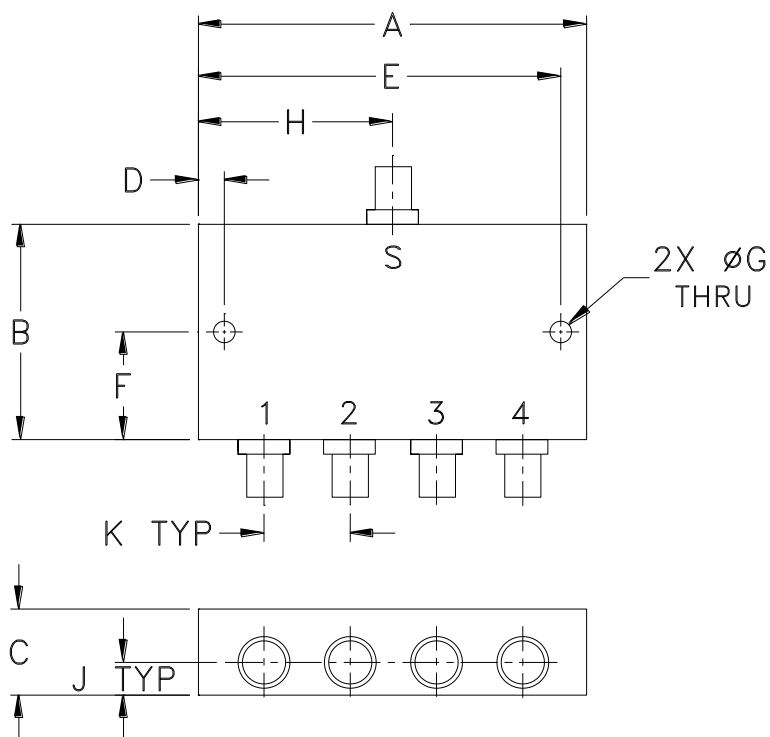
ZB4PD1-ED17182/1

Typical Performance Curves



Outline Dimensions

UU188



CASE#	A	B	C	D	E	F	G	H	J	K	WT. GRAMS
UU188	3.50 (88.90)	2.13 (54.10)	.88 (22.35)	.150 (3.81)	3.350 (85.09)	1.06 (26.92)	.125 (3.18)	1.75 (44.45)	.44 (11.18)	.89 (22.61)	260

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.
- Refer to the individual model data sheet for the type of connectors available.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

UU188 Rev.: AZ (02/25/19) M172688 File: UU188

This document and its contents are the property of Mini-Circuits



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