

Coaxial Power Splitter/Combiner

ZB4PD1-500+

4 Way-0° 50Ω 5 to 500 MHz



Maximum Ratings

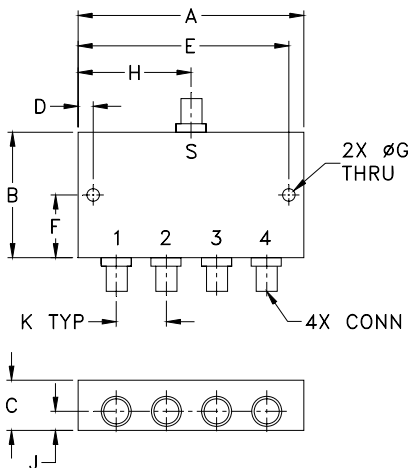
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	1W max.
Internal Dissipation	0.250W max.

Permanent damage may occur if any of these limits are exceeded.

Coaxial Connections

SUM PORT	S
PORT 1	1
PORT 2	2
PORT 3	3
PORT 4	4

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F
3.50	2.13	.88	.150	3.350	1.06
88.90	54.10	22.35	3.81	85.09	26.92
G	H	J	K	wt	
.125	1.75	.44	.89	grams	
3.18	44.45	11.18	22.61	260	

Features

- wideband, 5 to 500 MHz
- high isolation, 34 dB typ.
- rugged, shielded case

Applications

- VHF/UHF
- receivers/transmitters

SMA version shown
CASE STYLE: UU188

Connectors	Model
BNC	ZB4PD1-500+
SMA	ZB4PD1-500-S+
N-TYPE	ZB4PD1-500-N+

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

Electrical Specifications

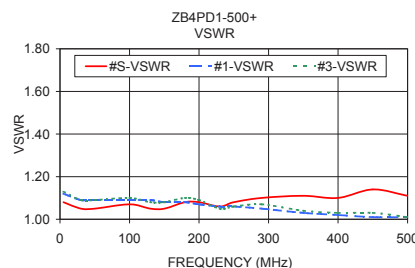
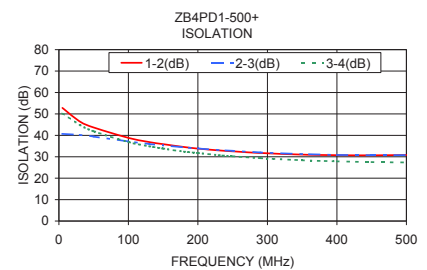
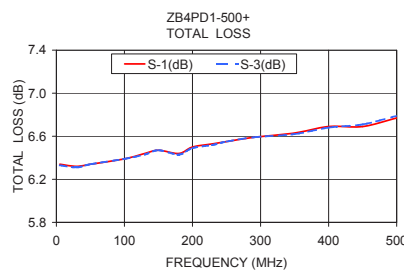
FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 6.0 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L	M	U	L	M	U
	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
5-500	34	20	34	20	28	20	0.4	1.0	0.5	0.9	0.9	1.5	1	3	6	0.2	0.2	0.4

L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

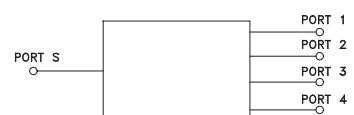
Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)				Amp. Unbal. (dB)	Isolation (dB)			VSWR S	VSWR 1	VSWR 2	VSWR 3	VSWR 4
	S-1	S-2	S-3	S-4		1-2	2-3	3-4					
	5.00	6.34	6.35	6.33		6.33	0.01	52.83					
30.00	6.32	6.32	6.31	6.32	0.01	46.48	40.23	44.89	1.05	1.09	1.09	1.09	1.09
50.00	6.34	6.34	6.34	6.35	0.01	43.68	39.45	41.92	1.05	1.09	1.09	1.09	1.10
100.00	6.39	6.39	6.39	6.38	0.01	38.83	37.13	36.88	1.07	1.09	1.10	1.10	1.10
130.00	6.44	6.43	6.43	6.43	0.01	36.86	35.97	34.90	1.05	1.09	1.08	1.08	1.08
150.00	6.47	6.46	6.47	6.46	0.01	35.87	35.35	33.83	1.05	1.08	1.08	1.08	1.08
180.00	6.44	6.44	6.43	6.43	0.01	34.55	34.35	32.40	1.08	1.08	1.09	1.10	1.10
200.00	6.50	6.51	6.49	6.48	0.03	33.82	33.88	31.75	1.08	1.07	1.07	1.09	1.09
230.00	6.53	6.54	6.52	6.51	0.03	32.96	33.12	30.74	1.06	1.06	1.04	1.05	1.05
250.00	6.55	6.56	6.55	6.53	0.03	32.54	32.76	30.22	1.08	1.06	1.06	1.06	1.06
290.00	6.59	6.59	6.59	6.58	0.02	31.75	32.00	29.34	1.10	1.05	1.05	1.07	1.07
350.00	6.63	6.64	6.62	6.60	0.04	31.02	31.24	28.37	1.11	1.03	1.04	1.04	1.04
400.00	6.69	6.72	6.68	6.67	0.05	30.73	30.84	27.85	1.10	1.02	1.01	1.03	1.03
450.00	6.69	6.72	6.71	6.67	0.05	30.66	30.70	27.53	1.14	1.01	1.01	1.03	1.03
500.00	6.77	6.81	6.79	6.75	0.06	30.85	30.77	27.37	1.11	1.01	1.02	1.01	1.02

1. Total Loss = Insertion Loss + 6dB splitter loss.



electrical schematic



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



4 Way-0° Power Splitter/Combiner

ZB4PD1-500+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)				AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)				
	S-1	S-2	S-3	S-4		1-2	2-3	3-4			S	1	2	3	4
5.0	6.34	6.35	6.33	6.33	0.01	52.83	40.68	50.23	0.02	5.0	1.08	1.12	1.12	1.13	1.13
10.0	6.32	6.31	6.33	6.32	0.02	50.46	41.11	48.69	0.05	10.0	1.07	1.10	1.10	1.10	1.10
15.0	6.31	6.31	6.30	6.30	0.01	49.13	40.95	47.42	0.06	15.0	1.06	1.10	1.10	1.10	1.10
20.0	6.32	6.31	6.31	6.31	0.01	48.05	40.83	46.65	0.06	20.0	1.06	1.09	1.09	1.10	1.10
25.0	6.33	6.32	6.31	6.32	0.01	47.46	40.53	45.61	0.09	25.0	1.05	1.09	1.09	1.09	1.09
30.0	6.32	6.32	6.31	6.32	0.01	46.48	40.23	44.89	0.05	30.0	1.05	1.09	1.09	1.09	1.09
35.0	6.33	6.33	6.32	6.33	0.01	45.58	40.13	43.90	0.15	35.0	1.05	1.09	1.09	1.09	1.09
40.0	6.32	6.33	6.32	6.33	0.00	44.91	39.88	43.27	0.11	40.0	1.05	1.09	1.09	1.10	1.10
45.0	6.33	6.33	6.33	6.33	0.01	44.22	39.64	42.55	0.10	45.0	1.05	1.09	1.09	1.10	1.10
50.0	6.34	6.34	6.34	6.35	0.01	43.68	39.45	41.92	0.13	50.0	1.05	1.09	1.09	1.09	1.10
60.0	6.37	6.37	6.36	6.37	0.01	42.53	38.98	40.68	0.14	60.0	1.05	1.09	1.09	1.10	1.10
70.0	6.37	6.38	6.37	6.37	0.01	41.43	38.50	39.59	0.23	70.0	1.05	1.09	1.10	1.10	1.10
80.0	6.38	6.38	6.36	6.37	0.01	40.50	38.01	38.65	0.14	80.0	1.06	1.09	1.10	1.10	1.10
90.0	6.39	6.39	6.38	6.37	0.02	39.61	37.56	37.72	0.21	90.0	1.07	1.09	1.10	1.10	1.10
100.0	6.39	6.39	6.39	6.38	0.01	38.83	37.13	36.88	0.21	100.0	1.07	1.09	1.10	1.10	1.10
110.0	6.40	6.41	6.40	6.40	0.01	38.14	36.76	36.16	0.27	110.0	1.06	1.09	1.09	1.10	1.10
120.0	6.42	6.42	6.42	6.42	0.00	37.44	36.36	35.49	0.32	120.0	1.06	1.09	1.08	1.09	1.09
130.0	6.44	6.43	6.43	6.43	0.01	36.86	35.97	34.90	0.33	130.0	1.05	1.09	1.08	1.08	1.08
140.0	6.45	6.46	6.45	6.45	0.01	36.33	35.64	34.36	0.31	140.0	1.05	1.08	1.08	1.08	1.08
150.0	6.47	6.46	6.47	6.46	0.01	35.87	35.35	33.83	0.43	150.0	1.05	1.08	1.08	1.08	1.08
160.0	6.46	6.46	6.46	6.46	0.00	35.33	34.96	33.34	0.38	160.0	1.06	1.08	1.08	1.09	1.09
170.0	6.44	6.45	6.45	6.44	0.02	34.92	34.63	32.85	0.38	170.0	1.07	1.08	1.09	1.09	1.09
180.0	6.44	6.44	6.43	6.43	0.01	34.55	34.35	32.40	0.33	180.0	1.08	1.08	1.09	1.10	1.10
190.0	6.46	6.46	6.45	6.46	0.01	34.13	34.09	32.03	0.28	190.0	1.08	1.07	1.08	1.09	1.09
200.0	6.50	6.51	6.49	6.48	0.03	33.82	33.88	31.75	0.34	200.0	1.08	1.07	1.07	1.09	1.09
210.0	6.51	6.51	6.51	6.50	0.01	33.49	33.61	31.39	0.44	210.0	1.07	1.07	1.06	1.07	1.07
220.0	6.51	6.52	6.51	6.50	0.02	33.23	33.33	31.07	0.48	220.0	1.06	1.07	1.05	1.06	1.06
230.0	6.53	6.54	6.52	6.51	0.03	32.96	33.12	30.74	0.59	230.0	1.06	1.06	1.04	1.05	1.05
240.0	6.55	6.56	6.54	6.53	0.02	32.72	32.95	30.51	0.59	240.0	1.07	1.06	1.05	1.05	1.05
250.0	6.55	6.56	6.55	6.53	0.03	32.54	32.76	30.22	0.48	250.0	1.08	1.06	1.06	1.06	1.06
270.0	6.50	6.51	6.50	6.49	0.03	32.02	32.27	29.70	0.59	270.0	1.10	1.05	1.06	1.07	1.07
290.0	6.59	6.59	6.59	6.58	0.02	31.75	32.00	29.34	0.61	290.0	1.10	1.05	1.05	1.07	1.07
310.0	6.59	6.61	6.59	6.59	0.02	31.41	31.72	28.95	0.76	310.0	1.08	1.04	1.02	1.04	1.04
330.0	6.62	6.64	6.62	6.60	0.04	31.19	31.48	28.65	0.75	330.0	1.09	1.03	1.02	1.03	1.02
350.0	6.63	6.64	6.62	6.60	0.04	31.02	31.24	28.37	0.78	350.0	1.11	1.03	1.04	1.04	1.04
375.0	6.64	6.67	6.65	6.62	0.05	30.81	31.06	28.08	0.84	375.0	1.12	1.02	1.03	1.05	1.05
400.0	6.69	6.72	6.68	6.67	0.05	30.73	30.84	27.85	0.95	400.0	1.10	1.02	1.01	1.03	1.03
425.0	6.71	6.74	6.71	6.69	0.05	30.69	30.76	27.67	0.99	425.0	1.11	1.01	1.02	1.01	1.01
450.0	6.69	6.72	6.71	6.67	0.05	30.66	30.70	27.53	0.95	450.0	1.14	1.01	1.01	1.03	1.03
475.0	6.77	6.81	6.78	6.75	0.06	30.75	30.75	27.45	1.08	475.0	1.12	1.01	1.01	1.03	1.04
500.0	6.77	6.81	6.79	6.75	0.06	30.85	30.77	27.37	1.10	500.0	1.11	1.01	1.02	1.01	1.02

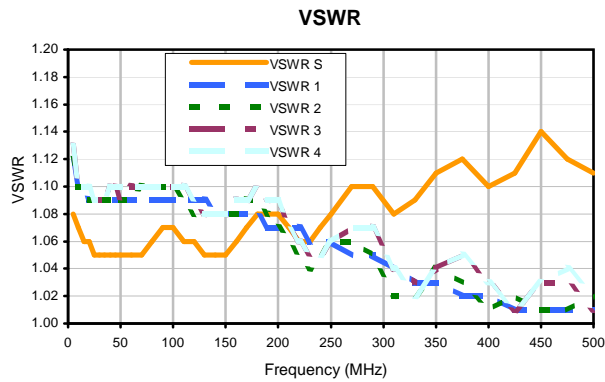
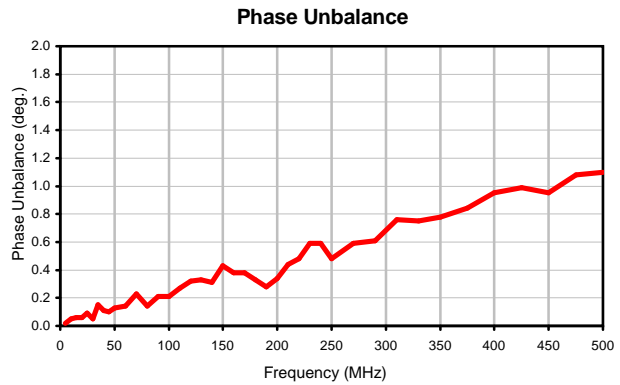
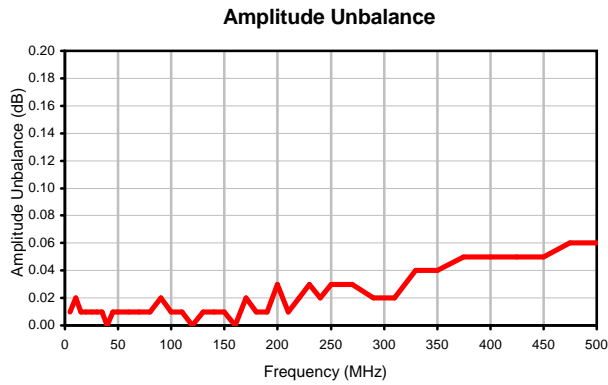
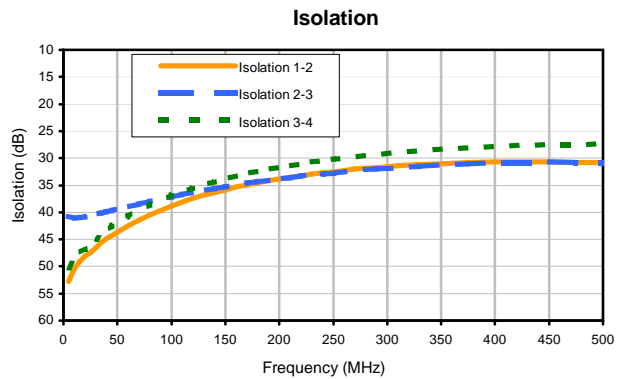
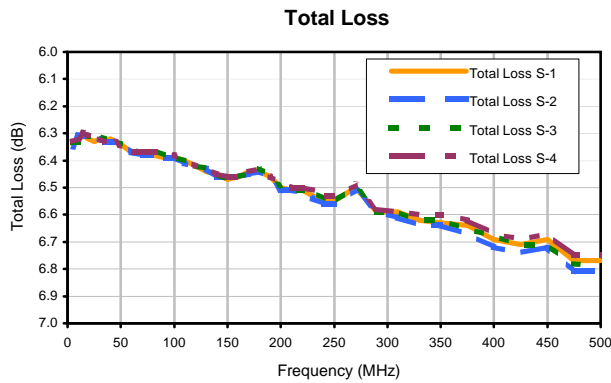
¹ Total Loss = Insertion Loss+ 6dB Splitter Loss



4 Way-0° Power Splitter/Combiner

ZB4PD1-500+

Typical Performance Curves



REV. X2
ZB4PD1-500+
100627
Page 1 of 1



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant
P.O. Box 350166, Brooklyn, New York 11235-0006 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see

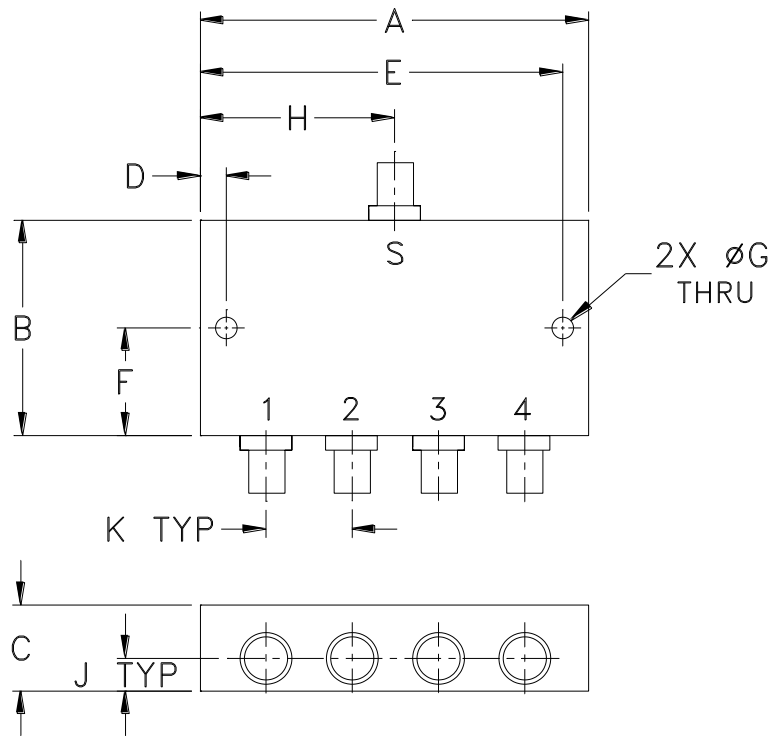


Case Style

UU

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.

Mini-Circuits®
ISO 9001 ISO 14001 CERTIFIED

ALL NEW
minicircuits.com

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