

Coaxial High Power Combiner

ZB4PD-52-20W+

4 Way-0° 50Ω 10 to 500 MHz



Generic photo used for illustration purposes only

CASE STYLE: Z54

Maximum Ratings

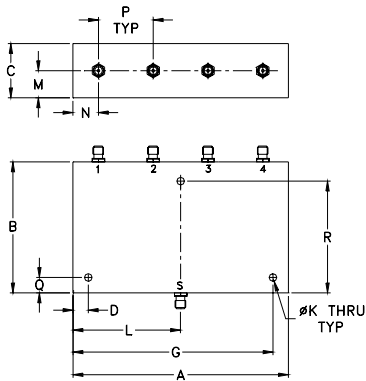
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	20W
Internal Dissipation	3W

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	G	K	
3.50	2.13	.88	250	3.250	.125	
88.90	54.10	22.35	6.35	82.55	3.18	
L	M	N	P	Q	R	wt
1.750	.44	.415	.89	.250	1.813	grams
44.45	11.18	10.54	22.61	6.35	46.05	250

Electrical Schematic



Features

- high input power, 20W as splitter
- wideband, 10 to 500 MHz
- high isolation, 32 dB typ.
- excellent amplitude unbalance, 0.1 dB typ.
- excellent phase unbalance, 1 deg. typ.
- excellent matching VSWR, 1.1:1 typ.
- rugged, shielded case

Applications

- VHF/UHF
- receivers/transmitters

Connectors	Model
BNC	ZB4PD-52-20W+
SMA	ZB4PD-52-20W-S+
N-TYPE	ZB4PD-52-20W-N+

+RoHS Compliant

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

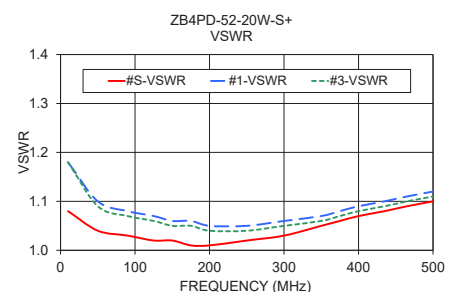
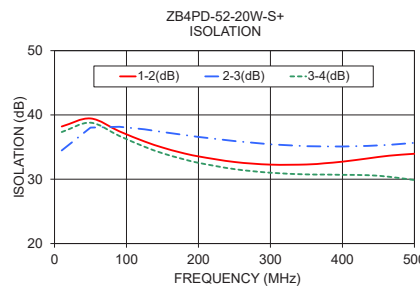
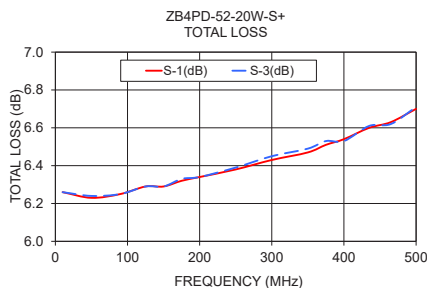
Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		10		500	MHz
Insertion Loss (above theoretical 6.0 dB)	10 - 100	—	0.3	0.6	dB
	100 - 250	—	0.4	0.7	
	250 - 500	—	0.8	1.2	
Isolation	10 - 100	24	34	—	dB
	100 - 250	24	29	—	
	250 - 500	20	26	—	
Phase Unbalance	10 - 100	—	1	3	Degree
	100 - 250	—	2	4	
	250 - 500	—	3	6	
Amplitude Unbalance	10 - 100	—	0.05	0.2	dB
	100 - 250	—	0.1	0.3	
	250 - 500	—	0.3	0.6	
VSWR (Port S)	10 - 100	—	1.1	1.3	:1
	100 - 250	—	1.1	1.2	
	250 - 500	—	1.2	1.4	
VSWR (Port 1-4)	10 - 100	—	1.2	1.4	:1
	100 - 250	—	1.1	1.3	
	250 - 500	—	1.1	1.4	

Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)				Amp. Unb. (dB)	Isolation (dB)			Phase Unb. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3	VSWR 4
	S-1	S-2	S-3	S-4		1-2	2-3	3-4						
10.00	6.26	6.26	6.26	6.25	0.01	38.20	34.47	37.34	0.04	1.08	1.18	1.18	1.18	1.18
50.00	6.23	6.24	6.24	6.23	0.01	39.45	38.03	38.79	0.11	1.04	1.10	1.10	1.09	1.10
90.00	6.25	6.26	6.25	6.24	0.01	37.45	38.16	36.73	0.22	1.03	1.08	1.08	1.07	1.08
125.00	6.29	6.30	6.29	6.28	0.02	35.87	37.76	35.05	0.28	1.02	1.07	1.07	1.06	1.07
150.00	6.29	6.31	6.29	6.28	0.02	34.93	37.34	34.04	0.40	1.02	1.06	1.06	1.05	1.06
175.00	6.32	6.33	6.33	6.31	0.02	34.16	36.96	33.24	0.41	1.01	1.06	1.06	1.05	1.06
200.00	6.34	6.36	6.34	6.32	0.04	33.55	36.58	32.55	0.47	1.01	1.05	1.05	1.04	1.05
250.00	6.38	6.41	6.39	6.36	0.05	32.68	35.94	31.57	0.58	1.02	1.05	1.04	1.04	1.04
300.00	6.43	6.46	6.45	6.39	0.07	32.27	35.43	31.01	0.70	1.03	1.06	1.05	1.05	1.05
350.00	6.47	6.52	6.49	6.42	0.10	32.29	35.14	30.75	0.84	1.05	1.07	1.06	1.06	1.06
375.00	6.51	6.56	6.53	6.45	0.11	32.48	35.10	30.73	0.83	1.06	1.08	1.07	1.07	1.06
400.00	6.54	6.60	6.53	6.46	0.14	32.73	35.09	30.68	0.93	1.07	1.09	1.08	1.08	1.07
435.00	6.60	6.66	6.61	6.50	0.16	33.23	35.18	30.63	0.93	1.08	1.10	1.09	1.09	1.08
465.00	6.63	6.71	6.62	6.51	0.20	33.66	35.35	30.38	1.06	1.09	1.11	1.10	1.10	1.09
500.00	6.70	6.78	6.71	6.56	0.22	33.96	35.66	29.87	1.02	1.10	1.12	1.11	1.11	1.09

1. Total Loss = Insertion Loss + 6.0 dB splitter theoretical loss.



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-Circuits' applicable established test performance criteria and measurement instructions.
- 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/WCLStore/terms.jsp



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ZB4PD-52-20W+
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4 Way-0° Power Splitter/Combiner

ZB4PD-52-20W+

Typical Performance Data

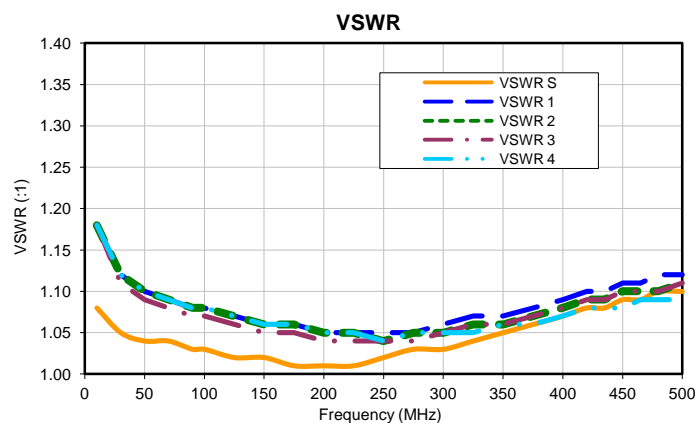
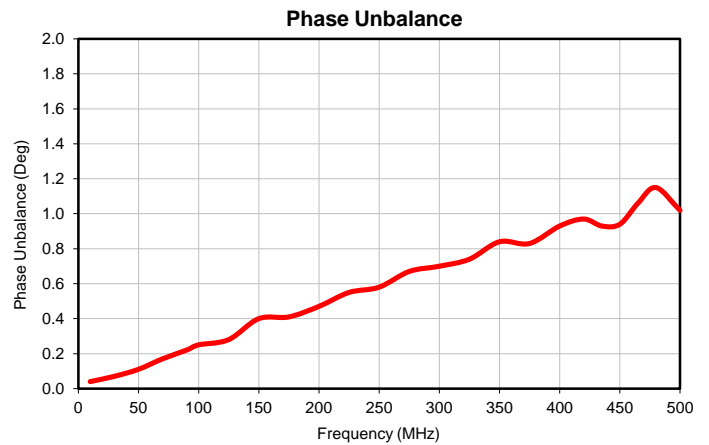
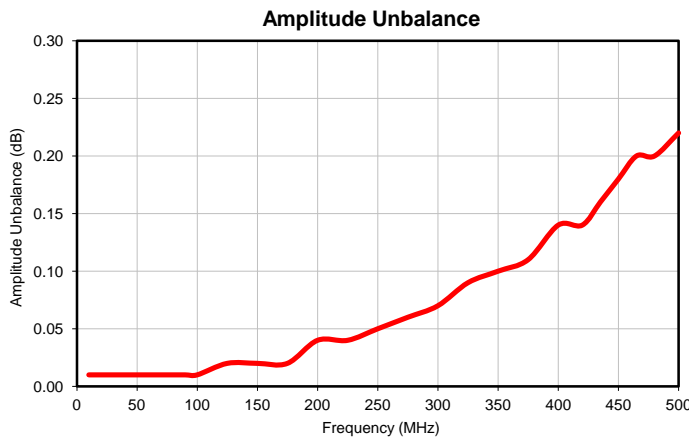
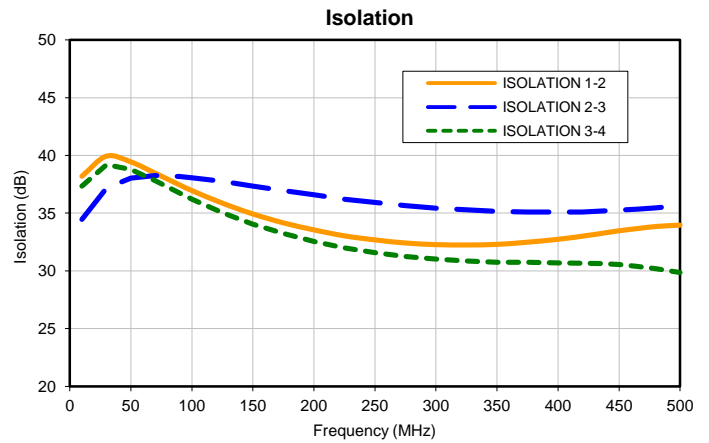
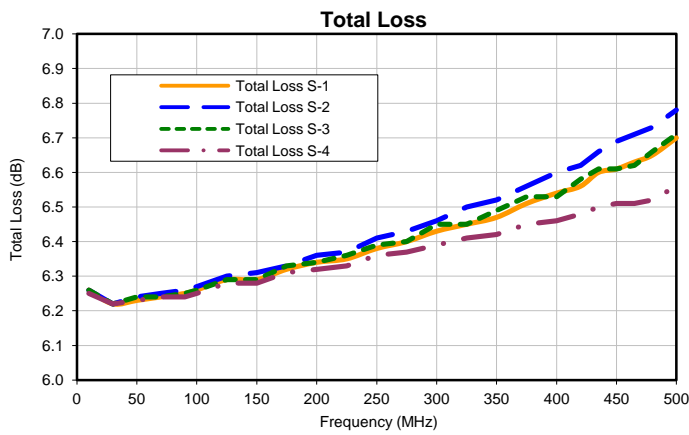
FREQ. (MHz)	TOTAL LOSS ¹ (dB)				AMP UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (Deg)	FREQ. (MHz)	VSWR (:1)				
	S1	S2	S3	S4		1-2	2-3	3-4			S	1	2	3	4
10.0	6.26	6.26	6.26	6.25	0.01	38.20	34.47	37.34	0.04	10.0	1.08	1.18	1.18	1.18	1.18
30.0	6.22	6.22	6.22	6.22	0.01	39.94	37.18	39.20	0.07	30.0	1.05	1.12	1.12	1.11	1.12
50.0	6.23	6.24	6.24	6.23	0.01	39.45	38.03	38.79	0.11	50.0	1.04	1.10	1.10	1.09	1.10
70.0	6.24	6.25	6.24	6.24	0.01	38.47	38.26	37.81	0.17	70.0	1.04	1.09	1.09	1.08	1.09
90.0	6.25	6.26	6.25	6.24	0.01	37.45	38.16	36.73	0.22	90.0	1.03	1.08	1.08	1.07	1.08
100.0	6.26	6.27	6.26	6.25	0.01	36.96	38.06	36.21	0.25	100.0	1.03	1.08	1.08	1.07	1.08
125.0	6.29	6.30	6.29	6.28	0.02	35.87	37.76	35.05	0.28	125.0	1.02	1.07	1.07	1.06	1.07
150.0	6.29	6.31	6.29	6.28	0.02	34.93	37.34	34.04	0.40	150.0	1.02	1.06	1.06	1.05	1.06
175.0	6.32	6.33	6.33	6.31	0.02	34.16	36.96	33.24	0.41	175.0	1.01	1.06	1.06	1.05	1.06
200.0	6.34	6.36	6.34	6.32	0.04	33.55	36.58	32.55	0.47	200.0	1.01	1.05	1.05	1.04	1.05
225.0	6.35	6.37	6.36	6.33	0.04	33.03	36.21	32.00	0.55	225.0	1.01	1.05	1.05	1.04	1.05
250.0	6.38	6.41	6.39	6.36	0.05	32.68	35.94	31.57	0.58	250.0	1.02	1.05	1.04	1.04	1.04
275.0	6.40	6.43	6.40	6.37	0.06	32.41	35.65	31.23	0.67	275.0	1.03	1.05	1.05	1.04	1.05
300.0	6.43	6.46	6.45	6.39	0.07	32.27	35.43	31.01	0.70	300.0	1.03	1.06	1.05	1.05	1.05
325.0	6.45	6.50	6.45	6.41	0.09	32.24	35.29	30.86	0.74	325.0	1.04	1.07	1.06	1.06	1.05
350.0	6.47	6.52	6.49	6.42	0.10	32.29	35.14	30.75	0.84	350.0	1.05	1.07	1.06	1.06	1.06
375.0	6.51	6.56	6.53	6.45	0.11	32.48	35.10	30.73	0.83	375.0	1.06	1.08	1.07	1.07	1.06
400.0	6.54	6.60	6.53	6.46	0.14	32.73	35.09	30.68	0.93	400.0	1.07	1.09	1.08	1.08	1.07
420.0	6.56	6.62	6.58	6.48	0.14	33.00	35.11	30.66	0.97	420.0	1.08	1.10	1.09	1.09	1.08
435.0	6.60	6.66	6.61	6.50	0.16	33.23	35.18	30.63	0.93	435.0	1.08	1.10	1.09	1.09	1.08
450.0	6.61	6.69	6.61	6.51	0.18	33.47	35.27	30.54	0.94	450.0	1.09	1.11	1.10	1.10	1.08
465.0	6.63	6.71	6.62	6.51	0.20	33.66	35.35	30.38	1.06	465.0	1.09	1.11	1.10	1.10	1.09
480.0	6.65	6.73	6.66	6.52	0.20	33.84	35.45	30.20	1.15	480.0	1.10	1.12	1.10	1.10	1.09
500.0	6.70	6.78	6.71	6.56	0.22	33.96	35.66	29.87	1.02	500.0	1.10	1.12	1.11	1.11	1.09

¹Total Loss = Insertion Loss + 6dB Splitter Loss

4 Way-0° Power Splitter/Combiner

ZB4PD-52-20W+

Typical Performance Curves



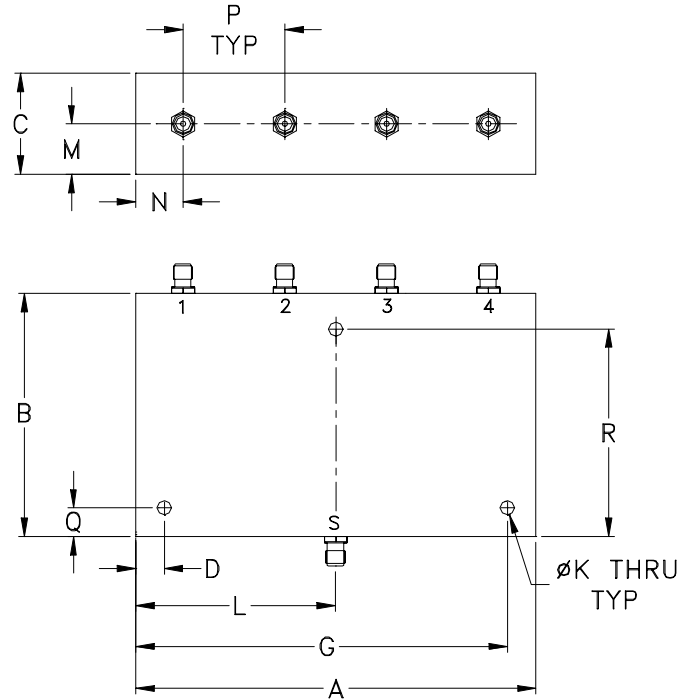
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
 The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com



IF/RF MICROWAVE COMPONENTS

REV. OR
 ZB4PD-52-20W+
 2/24/2014
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Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
Z54	3.50 (88.90)	2.13 (54.10)	.88 (22.35)	.250 (6.35)	--	--	3.250 (82.55)	--	--	.125 (3.17)	1.750 (44.45)	.44 (11.18)	.415 (10.54)

CASE#	P	Q	R	WT.GRAMS
Z54	.89 (22.61)	.250 (6.35)	1.813 (46.05)	250

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.



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Mini-Circuits ISO 9001 & ISO 14001 Certified

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