

High Power, DC Pass

Power Splitter/Combiner

ZN2PD2-14W+

2 Way-0° 50Ω Up to 35W 500 to 10500 MHz

The Big Deal

- Wideband, 500 to 10500 MHz
- High power, up to 35W as a splitter
- Low insertion loss, 1.0 dB
- Low unbalance, 0.1 dB, 2°
- High isolation, 20 dB
- Excellent VSWR, 1.15:1 typ.



CASE STYLE: VVV845

Product Overview

Mini-Circuits' ZN2PD2-14W+ is a 2-way 0° high-power splitter/combiner providing up to 35W power handling as a splitter (1.0W as a combiner) and low insertion loss across the entire 500 to 10500 MHz frequency range. Its outstanding combination of high power handling and low loss minimize power dissipation and provide excellent signal power transmission from input to output. The ZN2PD2-14W+ comes housed in a rugged aluminum alloy case measuring 4.5 x 2.5 x 0.67" with SMA connectors.

Key Features

Feature	Advantages
Wideband, 500 to 10500 MHz	This model supports bandwidth requirements for a wide variety of applications.
High power handling: • 35W to 6800 MHz • 20W to 9800 MHz • 10W to 10500 MHz	The ZN2PD2-14W+ is suitable for systems with a wide range of power requirements.
Low insertion loss, 1.0 dB	The combination of 35W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
Low unbalance: • 0.1 dB amplitude unbalance • 2° phase unbalance	Produces nearly equal output signals, ideal for parallel path and multichannel systems.
High isolation, 20 dB	Minimizes interference between ports.
DC Passing, 600mA (300mA each port)	Supports applications where DC power is needed through the RF line.

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



Power Splitter/Combiner

ZN2PD2-14W+

2 Way-0° 50Ω 35W 500 to 10500 MHz

Maximum Ratings

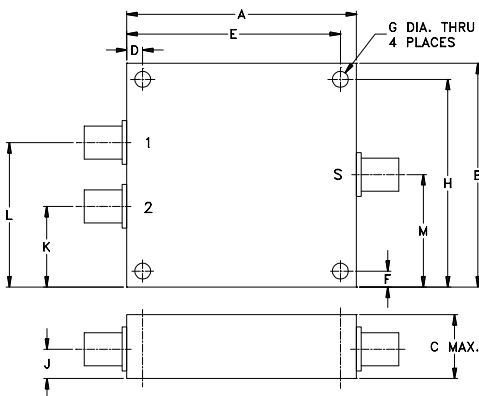
Operating Temperature(@ <35W)	-55°C to 60°C
Operating Temperature(@ <20W)	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	600 mA (300mA for each port)

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

Coaxial Connections

SUMPORT	S
PORT 1	1
PORT 2	2

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
4.50	2.50	.67	.400	4.100	.125	.125
114.30	63.50	17.02	10.16	104.14	3.18	3.18
H	J	K	L	M	wt	
2.375	.33	.75	1.75	1.25	grams	
60.33	8.38	19.05	44.45	31.75	247	

Features

- wideband, 500-10500 MHz
- excellent amplitude unbalance, 0.1 dB typ.
- excellent phase unbalance, 2 deg. typ.
- up to 35W power input as splitter

Applications

- UHF TV
- cellular/ISM/SMG/GSM
- GPS/L BAND (MARSAT)
- PCS/DCS/UMTS
- MMDC
- SATCOM
- defense and federal communications
- X band and S band



CASE STYLE: VVV845

Connectors	Model
SMA	ZN2PD2-14W-S+

+RoHS Compliant

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

Electrical Specifications at 25°C

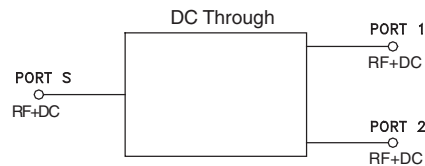
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency		500		10500	MHz
Insertion Loss (above theoretical 3.0 dB)	500-10500	—	1.0	1.7	
	690-9800	—	0.9	1.5	dB
	850-6800	—	0.7	1.2	
Isolation	500-10500	11	17	—	
	690-9800	14	20	—	dB
	850-6800	20	24	—	
Phase Unbalance	500-10500	—	2.5	6	
	690-9800	—	2	5	Degree
	850-6800	—	1	4	
Amplitude Unbalance	500-10500	—	0.15	0.5	
	690-9800	—	0.1	0.4	dB
	850-6800	—	0.1	0.3	
VSWR (Port S)	500-10500	—	1.4	1.95	
	690-9800	—	1.2	1.60	:1
	850-6800	—	1.15	1.40	
VSWR (Port 1-2)	500-10500	—	1.4	1.98	
	690-9800	—	1.15	1.45	:1
	850-6800	—	1.10	1.35	
Power Handling³	As Splitter¹	500-10500	—	—	10
		500-9800	—	—	20
		500-6800	—	—	35
	As Combiner²	200-10500	—	—	1.0

1. All outputs must terminate 50 ohm (VSWR 1.5:1 or better)

2. As a combiner of non-coherent signals, max. power per port is 1.0 watt power rating divided by number of ports.

3. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 60°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 10°C/W.

Electrical Schematic



Notes

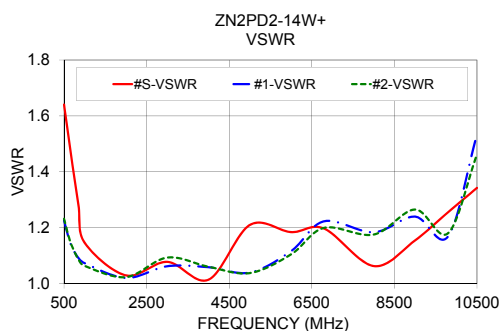
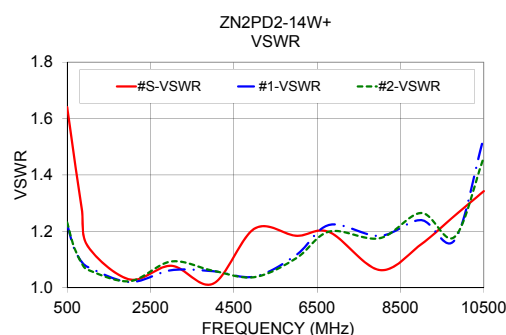
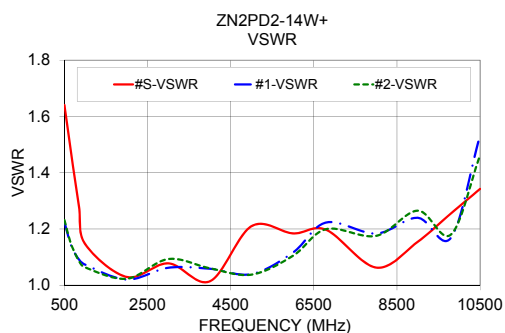
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Typical Performance Data

Frequency (MHz)	Total Loss ¹ (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
500	3.40	3.40	0.00	12.78	0.00	1.64	1.23	1.23
600	3.34	3.34	0.00	15.01	0.04	1.53	1.17	1.17
690	3.28	3.29	0.00	17.28	0.05	1.44	1.13	1.13
850	3.22	3.22	0.00	22.59	0.11	1.28	1.09	1.09
1000	3.18	3.19	0.00	31.06	0.13	1.15	1.07	1.06
2000	3.26	3.25	0.01	42.35	0.16	1.03	1.02	1.02
3000	3.47	3.47	0.00	32.55	0.23	1.08	1.06	1.09
4000	3.56	3.57	0.01	26.12	0.47	1.01	1.06	1.06
5000	3.82	3.79	0.04	24.38	0.45	1.21	1.04	1.04
6000	3.76	3.79	0.03	26.98	0.29	1.18	1.12	1.10
6800	3.77	3.83	0.06	33.21	0.85	1.20	1.22	1.20
8000	3.83	3.81	0.02	21.51	0.94	1.06	1.18	1.18
9000	3.78	3.88	0.10	21.49	0.76	1.15	1.24	1.27
9800	4.06	4.12	0.06	17.23	1.54	1.26	1.17	1.18
10500	4.32	4.27	0.05	13.99	1.43	1.34	1.53	1.46

1. Total Loss = Insertion Loss + 3dB splitter loss.



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2 Way-0° Power Splitter/Combiner

ZN2PD2-14W-S+

Typical Performance Data

FREQUENCY (MHz)	TOTAL LOSS ¹ (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB) 1-2	PHASE UNBALANCE (deg.)	FREQUENCY (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
200	3.54	3.54	0.00	6.47	0.13	200	1.90	1.60	1.60
300	3.50	3.51	0.01	8.61	0.06	300	1.83	1.42	1.42
350	3.48	3.49	0.01	9.65	0.04	350	1.78	1.36	1.36
400	3.45	3.46	0.00	10.69	0.03	400	1.74	1.31	1.31
450	3.42	3.43	0.01	11.72	0.00	450	1.69	1.26	1.27
500	3.40	3.40	0.00	12.78	0.00	500	1.64	1.23	1.23
600	3.34	3.34	0.00	15.01	0.04	600	1.53	1.17	1.17
690	3.28	3.29	0.00	17.28	0.05	690	1.44	1.13	1.13
750	3.26	3.26	0.00	19.03	0.09	750	1.38	1.11	1.11
800	3.24	3.24	0.00	20.68	0.09	800	1.33	1.10	1.10
850	3.22	3.22	0.00	22.59	0.11	850	1.28	1.09	1.09
900	3.20	3.20	0.00	24.78	0.10	900	1.23	1.09	1.08
1000	3.18	3.19	0.00	31.06	0.13	1000	1.15	1.07	1.06
1100	3.18	3.18	0.00	38.19	0.13	1100	1.07	1.06	1.05
1200	3.18	3.18	0.00	31.99	0.13	1200	1.01	1.05	1.05
1300	3.20	3.19	0.00	28.26	0.13	1300	1.04	1.04	1.04
1400	3.21	3.21	0.00	26.55	0.13	1400	1.08	1.02	1.03
1500	3.22	3.22	0.00	26.07	0.14	1500	1.11	1.01	1.02
1600	3.23	3.23	0.01	26.45	0.14	1600	1.12	1.01	1.01
1700	3.24	3.24	0.01	27.78	0.15	1700	1.11	1.01	1.00
1800	3.25	3.24	0.01	30.23	0.15	1800	1.09	1.02	1.01
1900	3.26	3.24	0.01	34.73	0.15	1900	1.06	1.02	1.02
2000	3.26	3.25	0.01	42.35	0.16	2000	1.03	1.02	1.02
2100	3.28	3.27	0.01	38.26	0.18	2100	1.01	1.02	1.03
2200	3.30	3.29	0.01	32.52	0.18	2200	1.04	1.02	1.03
2300	3.31	3.30	0.01	29.49	0.19	2300	1.06	1.02	1.03
2400	3.33	3.32	0.00	27.94	0.19	2400	1.07	1.02	1.03
2500	3.34	3.34	0.00	27.13	0.19	2500	1.08	1.02	1.03
2600	3.35	3.35	0.00	26.98	0.20	2600	1.07	1.02	1.04
2700	3.38	3.38	0.00	27.39	0.20	2700	1.07	1.03	1.05
2800	3.42	3.42	0.01	28.20	0.22	2800	1.06	1.04	1.06
2900	3.45	3.46	0.01	29.63	0.22	2900	1.07	1.05	1.07
3000	3.47	3.47	0.00	32.55	0.23	3000	1.08	1.06	1.09
3200	3.47	3.47	0.00	42.65	0.26	3200	1.09	1.08	1.12
3400	3.49	3.49	0.00	30.59	0.28	3400	1.08	1.10	1.12
3600	3.54	3.55	0.01	26.27	0.34	3600	1.06	1.09	1.10
3800	3.57	3.58	0.01	24.97	0.42	3800	1.04	1.07	1.07
4000	3.56	3.57	0.01	26.12	0.47	4000	1.01	1.06	1.06
4200	3.55	3.56	0.01	29.64	0.50	4200	1.00	1.08	1.08
4400	3.58	3.58	0.00	35.83	0.51	4400	1.02	1.09	1.09
4600	3.66	3.65	0.01	31.74	0.52	4600	1.07	1.09	1.09
4800	3.77	3.75	0.03	26.94	0.54	4800	1.15	1.07	1.07
5000	3.82	3.79	0.04	24.38	0.45	5000	1.21	1.04	1.04
5200	3.76	3.73	0.02	24.09	0.43	5200	1.19	1.01	1.01
5400	3.72	3.71	0.01	26.44	0.39	5400	1.11	1.05	1.05
5600	3.74	3.74	0.01	34.83	0.40	5600	1.01	1.10	1.09
5800	3.77	3.79	0.02	35.62	0.35	5800	1.11	1.12	1.11
6000	3.76	3.79	0.03	26.98	0.29	6000	1.18	1.12	1.10
6200	3.72	3.77	0.04	24.90	0.41	6200	1.16	1.08	1.08
6400	3.68	3.73	0.05	26.21	0.53	6400	1.08	1.09	1.09
6600	3.70	3.75	0.05	33.09	0.77	6600	1.09	1.17	1.15
6800	3.77	3.83	0.06	33.21	0.85	6800	1.20	1.22	1.20
7000	3.83	3.89	0.05	24.52	0.95	7000	1.25	1.20	1.18
7200	3.84	3.90	0.06	21.50	1.11	7200	1.17	1.10	1.08
7400	3.84	3.88	0.04	21.69	0.93	7400	1.03	1.10	1.06
7600	3.89	3.86	0.04	24.60	0.86	7600	1.10	1.20	1.17
7800	3.91	3.87	0.04	25.49	1.00	7800	1.14	1.23	1.21
8000	3.83	3.81	0.02	21.51	0.94	8000	1.06	1.18	1.18
8200	3.78	3.79	0.00	18.59	1.00	8200	1.12	1.16	1.14
8400	3.86	3.92	0.06	17.77	0.85	8400	1.28	1.24	1.21
8600	3.95	4.00	0.06	18.84	0.58	8600	1.35	1.30	1.30
8800	3.90	3.98	0.08	20.86	0.90	8800	1.29	1.29	1.32
9000	3.78	3.88	0.10	21.49	0.76	9000	1.15	1.24	1.27
9200	3.77	3.81	0.04	19.06	1.04	9200	1.11	1.14	1.17
9400	3.88	3.92	0.04	17.15	1.26	9400	1.21	1.09	1.12
9600	4.04	4.10	0.06	16.84	1.35	9600	1.27	1.11	1.15
9700	4.06	4.14	0.07	17.12	1.58	9700	1.27	1.13	1.16
9800	4.06	4.12	0.06	17.23	1.54	9800	1.26	1.17	1.18
9900	4.02	4.07	0.05	17.26	1.58	9900	1.24	1.21	1.20
10000	4.00	4.01	0.01	16.87	1.51	10000	1.21	1.24	1.22
10100	3.94	3.97	0.03	16.45	1.55	10100	1.17	1.28	1.25
10200	3.96	3.94	0.02	15.81	1.67	10200	1.11	1.34	1.29
10300	3.98	3.99	0.02	15.25	1.65	10300	1.07	1.40	1.34
10400	4.12	4.08	0.04	14.61	1.59	10400	1.17	1.46	1.39
10500	4.32	4.27	0.05	13.99	1.43	10500	1.34	1.53	1.46
10550	4.48	4.37	0.11	13.71	1.56	10550	1.46	1.56	1.50
10600	4.62	4.47	0.15	13.37	1.63	10600	1.58	1.60	1.54
10650	4.75	4.63	0.11	13.02	1.75	10650	1.71	1.63	1.58
10700	4.84	4.73	0.11	12.62	1.77	10700	1.84	1.67	1.62
10750	4.96	4.87	0.09	12.25	1.67	10750	1.97	1.70	1.66



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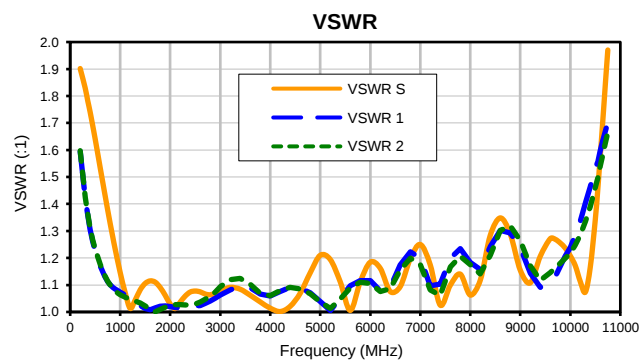
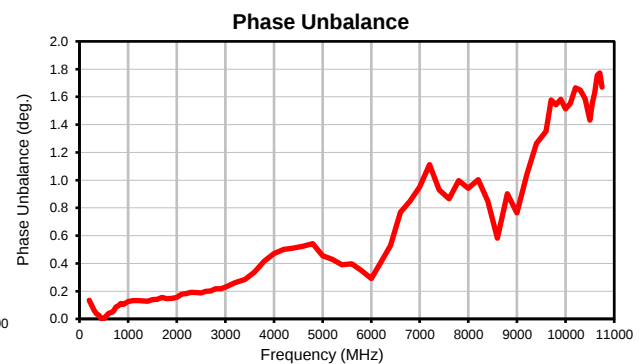
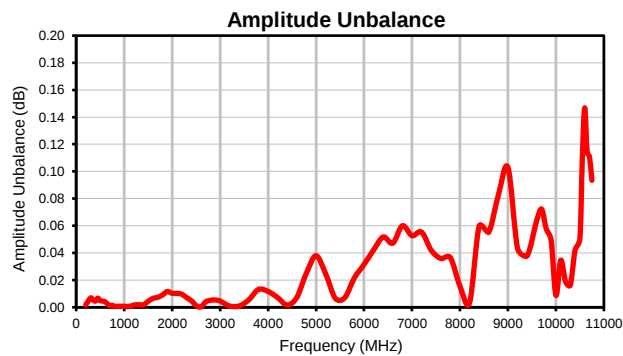
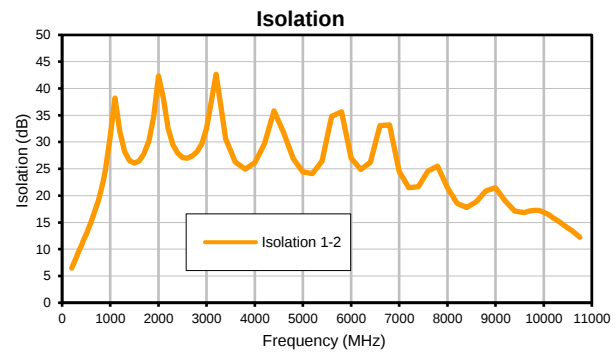
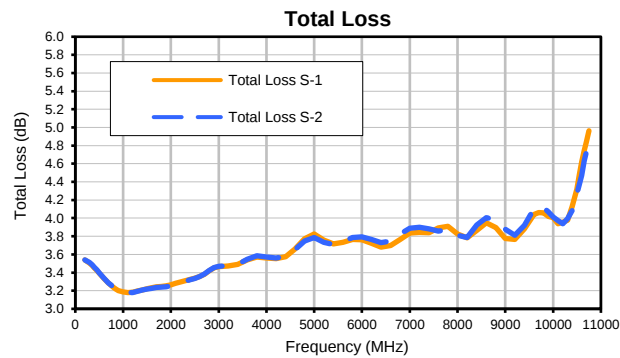
IF/RF MICROWAVE COMPONENTS

REV. OR
 ZN2PD2-14W-S+
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2 Way-0° Power Splitter/Combiner

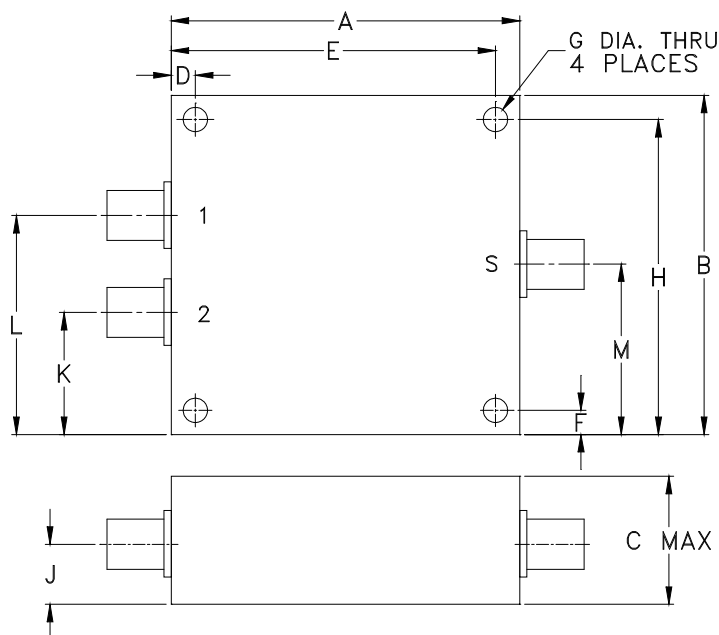
ZN2PD2-14W-S+

Typical Performance Curves



Outline Dimensions

VVV845



CASE#	A	B	C	D	E	F	G	H	J	K	L
VVV845	4.50 (114.30)	2.50 (63.50)	.67 (17.02)	.400 (10.16)	4.100 (104.14)	.125 (3.18)	.125 (3.18)	2.375 (60.33)	.33 (8.38)	.75 (19.05)	1.75 (44.45)

CASE#	M	WT.GRAMS
VVV845	1.25 (31.75)	247

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.



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RF/IF MICROWAVE COMPONENTS



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