

DC Pass, Ultra-Thin

Power Splitter/Combiner ZN4PD-33SMP+

4 Way-0° 50Ω 500 to 3000 MHz

The Big Deal

- Wideband, 500 - 3000 MHz
- Low insertion loss, 0.9 dB
- High power handling, 10W as a splitter
- Ultra-thin case, 0.3" height (7.92mm)
- SMP snap-on connectors



CASE STYLE: UU2046-2

Product Overview

Mini-Circuits' ZN4PD-33SMP+ is a connectorized wideband 4-way 0° power splitter/combiner supporting a wide variety of applications from 500 to 3000 MHz. This model is capable of handling up to 10W RF input power as a splitter and provides low insertion loss, good isolation, excellent amplitude unbalance, high isolation and low insertion loss. It comes housed in an ultra-thin, aluminum alloy case (3.1 x 3.3 x 0.3") with SMP snap-on connectors, saving space in crowded system layouts.

Key Features

Feature	Advantages
Wideband, 500 to 3000 MHz	ZN4PD-33SMP+ supports bandwidth requirements for a wide variety of applications.
Ultra-thin case design, 3.1 x 3.3 x 0.3"	Saves space in crowded system layouts.
Blind mate, snap-on SMP connectors	Blind mate SMP connectors enable direct connection to adjacent modules while facilitating thin case height.
Power handling up to 10W as a splitter	Supports a wide variety of high-power requirements.
Low insertion loss, 0.9 dB	Provides excellent signal power transmission, making this model ideal for signal distribution applications where low loss is a requirement.
Low unbalance: • Phase unbalance, 3° • Amplitude unbalance, 0.2 dB	Produces nearly equal output signals, ideal for parallel path / multichannel systems.
High isolation, 22 dB	Minimizes interference between input ports.
DC Passing, 1.0A (250mA 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



DC Pass Ultra-Thin

Power Splitter/Combiner

4 Way-0° 50Ω 500 to 3000 MHz

Maximum Ratings

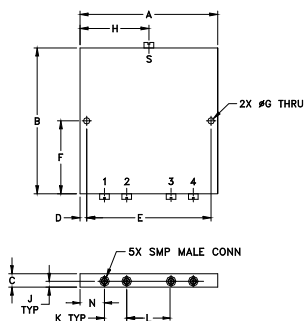
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	10W max.
Internal Dissipation	1.2W max.
DC Current	1.0 A (250mA for each port)

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

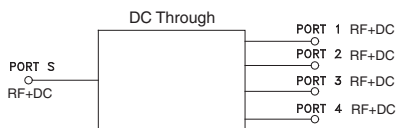


Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
3.10	3.28	.30	.150	2.8	1.64	0.14
78.74	83.31	7.62	3.81	71.12	41.66	3.6576

H	J	K	L	N	wt
1.55	0.13	0.500	1	.55	grams
39.37	3.302	12.7	25.4	13.97	85

Electrical Schematic



Features

- wideband, 500 to 3000 MHz
- ultra-thin package
- power input up to 10W
- excellent amplitude unbalance, 0.2 dB typ.
- high isolation, 22 dB typ.
- low insertion loss, 0.9 dB typ.

Applications

- UHF
- cellular, GPS, PCS
- receivers/transmitters
- instrumentation
- CATV

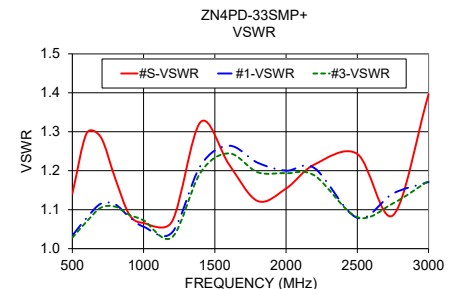
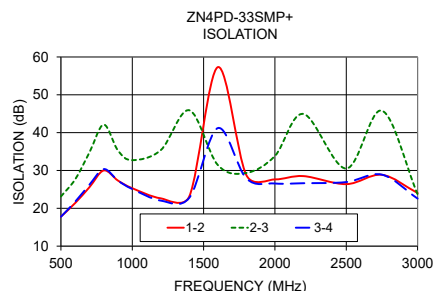
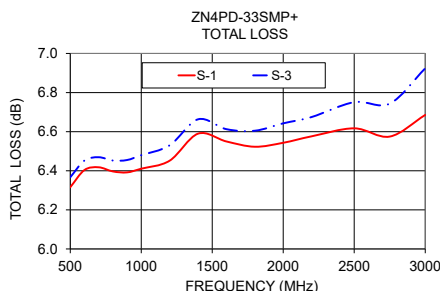
Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		500	—	3000	MHz
Insertion Loss (above theoretical 6.0 dB)	500-3000	—	0.9	1.5	dB
	690-2750	—	0.8	1.3	
Isolation	500-3000	15	20	—	dB
	690-2750	19	22	—	
Phase Unbalance	500-3000	—	3.0	7	Degree
	690-2750	—	2.5	6	
Amplitude Unbalance	500-3000	—	0.3	0.8	dB
	690-2750	—	0.2	0.5	
VSWR (Port S)	500-3000	—	1.3	1.65	:1
VSWR Output (Port 1-4)	500-3000	—	1.2	1.5	:1

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					
500	6.32	6.31	6.37	6.37	0.06	17.81	23.13	17.78	1.14	1.03	1.04	1.03	1.03
600	6.40	6.40	6.45	6.45	0.05	21.40	27.66	21.76	1.30	1.08	1.09	1.07	1.07
700	6.42	6.41	6.47	6.46	0.06	25.59	34.78	26.25	1.29	1.12	1.12	1.11	1.10
800	6.40	6.39	6.45	6.44	0.06	30.01	42.11	30.36	1.18	1.11	1.12	1.11	1.10
900	6.39	6.38	6.45	6.44	0.08	27.32	35.26	27.31	1.09	1.08	1.09	1.09	1.08
1000	6.41	6.40	6.48	6.46	0.08	25.32	32.73	25.10	1.07	1.06	1.07	1.07	1.05
1200	6.45	6.44	6.53	6.50	0.09	22.64	35.38	22.04	1.07	1.04	1.03	1.03	1.02
1400	6.59	6.59	6.66	6.63	0.08	23.18	45.91	22.80	1.32	1.21	1.18	1.20	1.20
1600	6.55	6.56	6.61	6.58	0.06	57.31	31.43	41.21	1.22	1.26	1.22	1.24	1.22
1800	6.52	6.55	6.60	6.55	0.08	28.76	29.35	27.90	1.12	1.22	1.19	1.20	1.16
2000	6.54	6.59	6.64	6.57	0.10	27.65	33.84	26.57	1.15	1.20	1.18	1.19	1.14
2200	6.58	6.63	6.67	6.59	0.10	28.51	44.94	26.64	1.22	1.21	1.20	1.19	1.15
2500	6.62	6.69	6.75	6.66	0.13	26.39	30.50	26.94	1.24	1.08	1.07	1.08	1.04
2750	6.57	6.67	6.74	6.64	0.17	28.85	45.82	28.90	1.09	1.14	1.12	1.12	1.11
3000	6.69	6.82	6.92	6.78	0.24	24.05	23.69	22.57	1.40	1.17	1.19	1.17	1.16

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

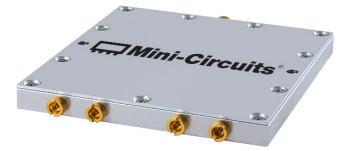


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ZN4PD-33SMP+



Generic photo used for illustration purposes only

CASE STYLE: UU2046-2

Connectors	Model
SMP (Snap-on)	ZN4PD-33SMP+

+RoHS Compliant

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

 REV. OR
 M154537
 ZN4PD-33SMP+
 ED-15060905
 SW/CP/AM
 200924

4 Way-0° Power Splitter/Combiner

ZN4PD-33SMP+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹				AMP UNBAL. (dB)	ISOLATION			PHASE UNBAL. (Deg)	FREQ. (MHz)	VSWR				
	S1	S2	S3	S4		1-2	2-3	3-4			S	1	2	3	4
280	6.68	6.66	6.75	6.76	0.09	8.73	17.58	8.66	0.24	280	1.88	1.14	1.14	1.15	1.15
320	6.49	6.47	6.56	6.56	0.09	10.12	18.39	10.02	0.29	320	1.59	1.08	1.08	1.08	1.08
360	6.36	6.34	6.42	6.42	0.08	11.70	19.21	11.57	0.31	360	1.35	1.05	1.04	1.05	1.05
400	6.29	6.27	6.35	6.35	0.08	13.43	20.12	13.29	0.31	400	1.16	1.03	1.03	1.03	1.03
450	6.28	6.27	6.33	6.33	0.07	15.68	21.46	15.55	0.34	450	1.01	1.02	1.03	1.02	1.02
500	6.32	6.31	6.37	6.37	0.06	17.81	23.13	17.78	0.33	500	1.14	1.03	1.04	1.03	1.03
600	6.40	6.40	6.45	6.45	0.05	21.40	27.66	21.76	0.30	600	1.30	1.08	1.09	1.07	1.07
700	6.42	6.41	6.47	6.46	0.06	25.59	34.78	26.25	0.30	700	1.29	1.12	1.12	1.11	1.10
800	6.40	6.39	6.45	6.44	0.06	30.01	42.11	30.36	0.33	800	1.18	1.11	1.12	1.11	1.10
900	6.39	6.38	6.45	6.44	0.08	27.32	35.26	27.31	0.37	900	1.09	1.08	1.09	1.09	1.08
1000	6.41	6.40	6.48	6.46	0.08	25.32	32.73	25.10	0.40	1000	1.07	1.06	1.07	1.07	1.05
1100	6.43	6.41	6.50	6.47	0.09	24.21	32.82	23.66	0.48	1100	1.03	1.05	1.06	1.06	1.03
1200	6.45	6.44	6.53	6.50	0.09	22.64	35.38	22.04	0.56	1200	1.07	1.04	1.03	1.03	1.02
1300	6.52	6.51	6.60	6.55	0.09	21.85	42.16	21.37	0.66	1300	1.21	1.12	1.09	1.10	1.11
1400	6.59	6.59	6.66	6.63	0.08	23.18	45.91	22.80	0.72	1400	1.32	1.21	1.18	1.20	1.20
1500	6.60	6.61	6.67	6.64	0.07	28.20	35.68	27.83	0.76	1500	1.33	1.27	1.23	1.25	1.24
1600	6.55	6.56	6.61	6.58	0.06	57.31	31.43	41.21	0.74	1600	1.22	1.26	1.22	1.24	1.22
1700	6.51	6.52	6.57	6.53	0.07	31.15	29.59	30.10	0.70	1700	1.05	1.23	1.19	1.20	1.17
1800	6.52	6.55	6.60	6.55	0.08	28.76	29.35	27.90	0.70	1800	1.12	1.22	1.19	1.20	1.16
1900	6.56	6.59	6.65	6.59	0.10	29.18	30.59	28.22	0.77	1900	1.20	1.23	1.21	1.21	1.17
2000	6.54	6.59	6.64	6.57	0.10	27.65	33.84	26.57	0.87	2000	1.15	1.20	1.18	1.19	1.14
2100	6.53	6.58	6.63	6.55	0.10	26.46	41.89	25.14	0.94	2100	1.09	1.17	1.16	1.16	1.11
2200	6.58	6.63	6.67	6.59	0.10	28.51	44.94	26.64	0.93	2200	1.22	1.21	1.20	1.19	1.15
2300	6.64	6.70	6.75	6.66	0.11	32.65	35.04	31.47	0.93	2300	1.33	1.24	1.23	1.23	1.18
2400	6.65	6.71	6.77	6.68	0.12	28.18	31.43	29.35	0.95	2400	1.33	1.19	1.19	1.19	1.14
2500	6.62	6.69	6.75	6.66	0.13	26.39	30.50	26.94	0.99	2500	1.24	1.08	1.07	1.08	1.04
2550	6.60	6.67	6.74	6.65	0.14	27.49	30.82	27.73	1.01	2550	1.20	1.04	1.02	1.02	1.02
2600	6.59	6.67	6.74	6.65	0.15	30.68	31.87	30.53	1.05	2600	1.17	1.07	1.05	1.04	1.07
2650	6.59	6.67	6.74	6.65	0.15	37.93	33.76	36.95	1.05	2650	1.15	1.11	1.09	1.08	1.10
2700	6.58	6.67	6.74	6.64	0.16	36.12	37.60	36.30	1.10	2700	1.12	1.14	1.11	1.11	1.12
2750	6.57	6.67	6.74	6.64	0.17	28.85	45.82	28.90	1.10	2750	1.09	1.14	1.12	1.12	1.11
2800	6.56	6.67	6.74	6.63	0.18	25.26	40.71	25.05	1.12	2800	1.04	1.12	1.11	1.10	1.09
2900	6.59	6.70	6.78	6.66	0.20	23.25	29.15	22.39	1.15	2900	1.15	1.09	1.11	1.10	1.08
3000	6.69	6.82	6.92	6.78	0.24	24.05	23.69	22.57	1.24	3000	1.40	1.17	1.19	1.17	1.16
3100	6.85	7.01	7.14	6.97	0.29	20.15	20.43	20.04	1.48	3100	1.69	1.20	1.21	1.20	1.18
3200	7.07	7.25	7.39	7.19	0.33	16.13	18.22	16.49	1.89	3200	2.01	1.15	1.14	1.15	1.15

¹ Total Loss = Insertion Loss + 6dB Splitter Loss



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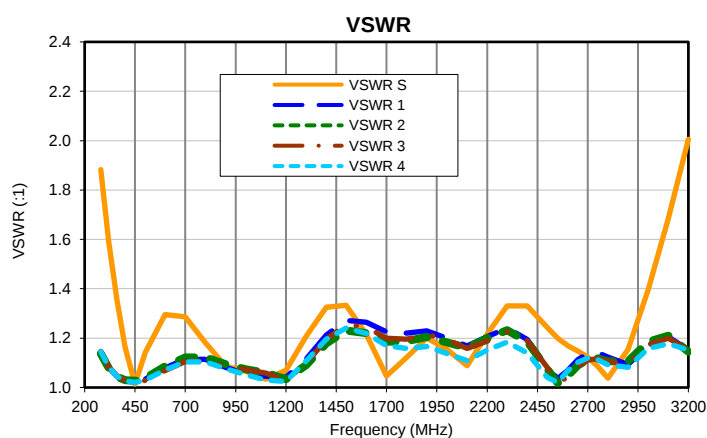
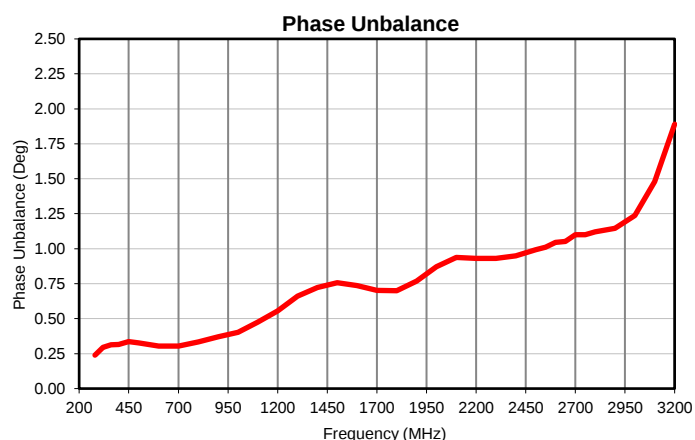
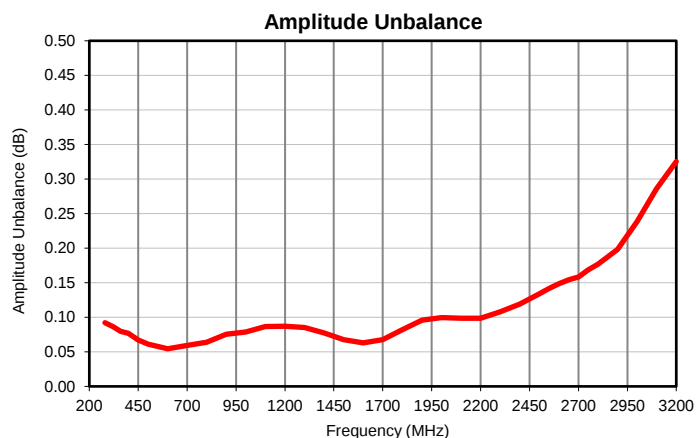
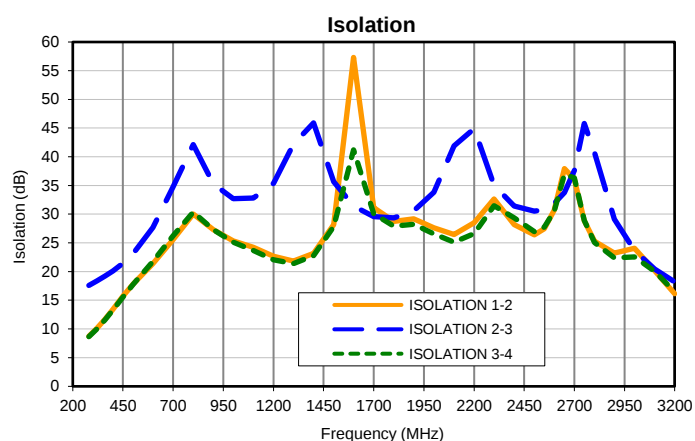
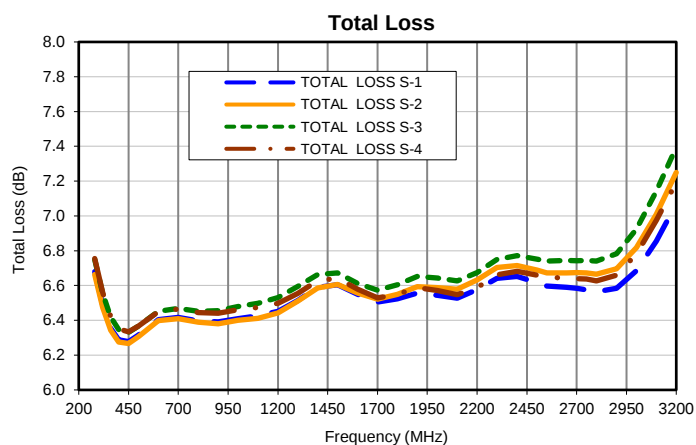
IF/RF MICROWAVE COMPONENTS

REV. OR
 ZN4PD-33SMP+
 4/28/2016
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4 Way-0° Power Splitter/Combiner

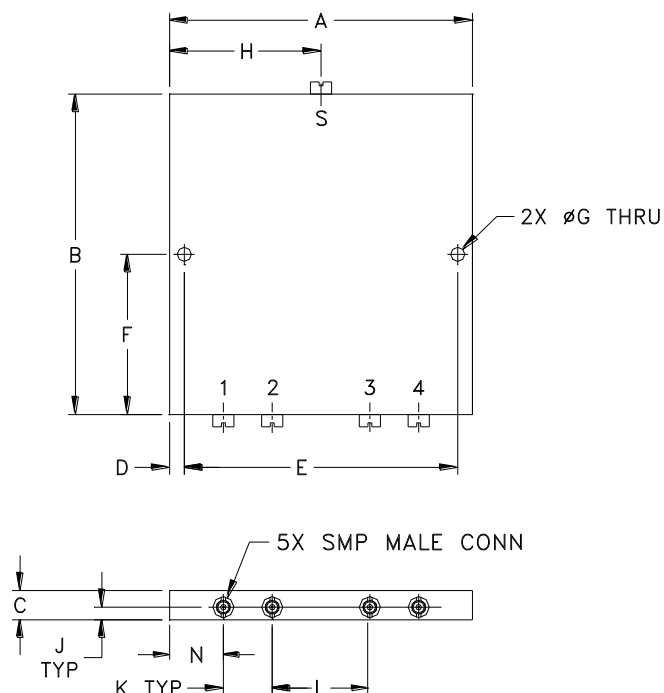
ZN4PD-33SMP+

Typical Performance Curves



Outline Dimensions

UU2046-2



CASE#	A	B	C	D	E	F	G	H	J	K	L
UU2046-2	3.10 (78.74)	3.28 (83.31)	.30 (7.62)	.150 (3.81)	2.800 (71.12)	1.64 (41.66)	.144 (3.66)	1.55 (39.37)	.13 (3.30)	.500 (12.70)	1.000 (25.40)

CASE#	M	N	WT, GRAMS
UU2046-2	-- --	.55 (13.97)	85

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