

DC Pass

Power Splitter/Combiner

ZN4PD1-63W+

4 Way-0° 50Ω 250 to 6000 MHz



CASE STYLE: UU846

The Big Deal

- Wideband performance
- Low amplitude and phase unbalance
- Good insertion loss

Product Overview

This four-way, in-phase splitter and combiner covers a wide frequency range between 250-6000MHz, making this splitter now suitable for GPS, GSM, DCS and PCS frequency bands, in addition to WiFi, Bluetooth and 802.11a uses. This model also features good insertion loss and amplitude and phase unbalance, and is packaged in a 3.5"x 4.5" enclosure with built-in SMA connectors for ease of use.

Feature	Advantages
Operating over a very wide bandwidth from 250MHz to 6000MHz	The very wide bandwidth performance of the ZN4PD1-63W+ enables this splitter/combiner to be used in a wide range of applications including broadband systems such as test, measurement and defense/aerospace. However this model covers a variety of narrow band applications including GSM, GPS, DCS and PCS applications, in addition to WiFi, Bluetooth, 802.11a, U-NII and ISM applications.
Good insertion loss	With typical insertion loss of only 1.0dB above the splitter loss up to 4GHz, this splitter supports medium power signal distribution applications where loss is critical.
Good amplitude and phase performance	Typical amplitude unbalance of 0.2dB and phase unbalance of 2° make this splitter ideal for parallel path/multichannel systems.

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



4 Way-0° 50Ω 250 to 6000 MHz

Maximum Ratings

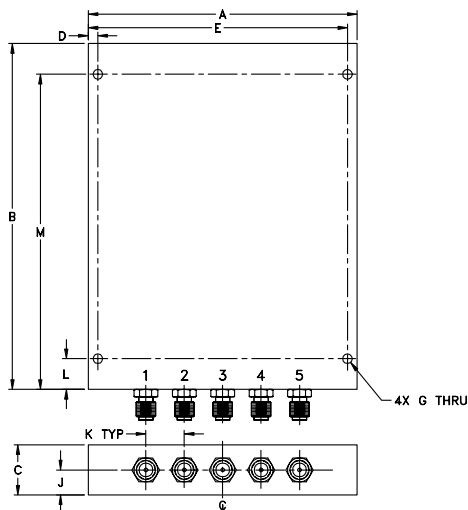
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	10W max.
Internal Dissipation	3W max.
DC Current	1.0 A (250mA for each port)

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

DC Pass Connections

SUM PORT	3
PORT 1	1
PORT 2	2
PORT 3	4
PORT 4	5

Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F	G
3.50	4.50	.65	.125	3.375	--	.125
88.90	114.30	16.51	3.18	85.73	--	3.18
H	J	K	L	M	wt	
--	.33	.50	.400	4.100	grams	
--	8.38	12.70	10.16	104.14	288	

Features

- wide frequency band, 250 to 6000 MHz
- low insertion loss, 1.0 dB typ.
- low amplitude unbalance 0.2 dB typ.
- low phase unbalance 2 deg. typ.

Applications

- high band PCS
- UNII
- ISM 802.11A
- WiFi
- Bluetooth

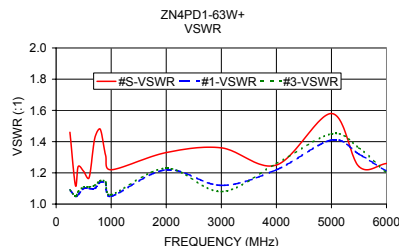
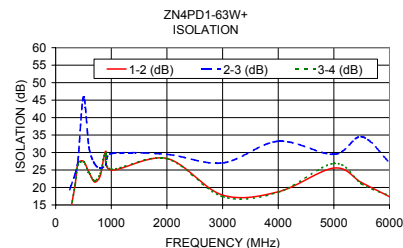
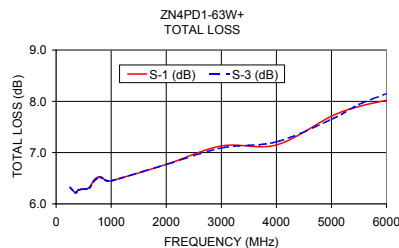
Electrical Specifications

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		250		6000	MHz
Insertion Loss Above 6.0 dB	250-350 350-6000	— —	0.3 1.2	0.8 3.0	dB
Isolation	250-350 350-5500 5500-6000	8 14 12	14 20 20	— — —	dB
Phase Unbalance	250-350 350-6000	— —	— —	3 6	Degree
Amplitude Unbalance	250-350 350-6000	— —	— —	0.3 0.6	dB
VSWR Input	250-350 350-6000	— —	1.2 1.3	— —	:1
VSWR Output	250-350 350-6000	— —	1.1 1.3	— —	:1

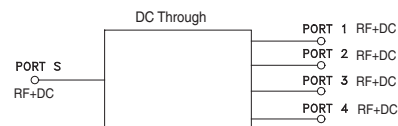
Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)				Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (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						
250.00	6.32	6.31	6.32	6.33	0.02	11.87	19.38	11.99	0.27	1.46	1.09	1.09	1.09	1.10
350.00	6.22	6.21	6.22	6.22	0.02	20.88	23.90	20.88	0.30	1.12	1.05	1.05	1.05	1.05
400.00	6.27	6.26	6.27	6.28	0.02	26.84	27.53	26.56	0.30	1.24	1.06	1.07	1.08	1.07
500.00	6.29	6.28	6.29	6.31	0.03	27.50	45.87	27.33	0.38	1.21	1.10	1.10	1.11	1.10
600.00	6.32	6.30	6.31	6.34	0.04	24.35	31.29	24.14	0.50	1.17	1.10	1.11	1.11	1.10
700.00	6.48	6.45	6.46	6.49	0.04	21.55	26.77	21.98	0.60	1.42	1.10	1.11	1.12	1.10
800.00	6.53	6.51	6.52	6.54	0.02	23.25	25.64	23.96	0.66	1.48	1.14	1.15	1.15	1.14
900.00	6.46	6.45	6.46	6.47	0.02	30.37	26.45	29.80	0.69	1.31	1.13	1.15	1.14	1.13
1000.00	6.45	6.44	6.45	6.46	0.02	25.00	29.71	25.26	0.70	1.22	1.05	1.06	1.06	1.06
2000.00	6.77	6.78	6.77	6.79	0.02	28.30	29.48	28.24	1.45	1.33	1.22	1.24	1.23	1.23
3000.00	7.13	7.20	7.09	7.15	0.10	17.84	27.02	17.39	1.70	1.36	1.12	1.11	1.08	1.12
4000.00	7.15	7.31	7.21	7.22	0.17	18.76	33.24	18.64	2.48	1.25	1.22	1.27	1.26	1.24
5000.00	7.71	7.79	7.65	7.82	0.17	25.57	29.50	26.88	3.27	1.58	1.41	1.44	1.45	1.42
5500.00	7.90	8.09	7.94	8.07	0.20	21.38	34.53	21.02	3.47	1.24	1.32	1.37	1.36	1.37
6000.00	8.02	8.27	8.15	8.27	0.25	17.38	27.14	17.61	4.04	1.26	1.21	1.22	1.20	1.24

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



Electrical Schematic



Notes

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4 Way-0° Power Splitter/Combiner

ZN4PD1-63W-S+

Typical Performance Data

FREQ.	TOTAL LOSS ¹				AMP UNBAL.	ISOLATION			PHASE UNBAL.	FREQ.	VSWR				
(MHz)	(dB)				(dB)	(dB)			(Deg)	(MHz)	(:1)				
	S1	S2	S3	S4		1-2	2-3	3-4			S	1	2	3	4
250	6.32	6.31	6.32	6.33	0.02	11.87	19.38	11.99	0.27	250	1.46	1.09	1.09	1.09	1.10
300	6.20	6.19	6.20	6.21	0.02	15.72	21.32	15.82	0.24	300	1.13	1.04	1.05	1.05	1.05
350	6.22	6.21	6.22	6.22	0.02	20.88	23.90	20.88	0.30	350	1.12	1.05	1.05	1.05	1.05
400	6.27	6.26	6.27	6.28	0.02	26.84	27.53	26.56	0.30	400	1.24	1.06	1.07	1.08	1.07
500	6.29	6.28	6.29	6.31	0.03	27.50	45.87	27.33	0.38	500	1.21	1.10	1.10	1.11	1.10
600	6.32	6.30	6.31	6.34	0.04	24.35	31.29	24.14	0.50	600	1.17	1.10	1.11	1.11	1.10
700	6.48	6.45	6.46	6.49	0.04	21.55	26.77	21.98	0.60	700	1.42	1.10	1.11	1.12	1.10
800	6.53	6.51	6.52	6.54	0.02	23.25	25.64	23.96	0.66	800	1.48	1.14	1.15	1.15	1.14
900	6.46	6.45	6.46	6.47	0.02	30.37	26.45	29.80	0.69	900	1.31	1.13	1.15	1.14	1.13
1000	6.45	6.44	6.45	6.46	0.02	25.00	29.71	25.26	0.70	1000	1.22	1.05	1.06	1.06	1.06
1200	6.48	6.45	6.46	6.49	0.04	26.85	37.13	25.84	0.86	1200	1.04	1.09	1.08	1.07	1.09
1400	6.67	6.66	6.66	6.68	0.02	23.50	26.71	23.99	1.08	1400	1.39	1.10	1.11	1.11	1.10
1600	6.66	6.66	6.65	6.67	0.02	24.48	26.89	24.88	1.10	1600	1.31	1.07	1.08	1.10	1.08
1800	6.73	6.72	6.69	6.74	0.05	20.80	35.72	20.08	1.22	1800	1.35	1.17	1.17	1.15	1.16
2000	6.77	6.78	6.77	6.79	0.02	28.30	29.48	28.24	1.45	2000	1.33	1.22	1.24	1.23	1.23
2200	6.87	6.92	6.90	6.89	0.05	23.68	26.95	24.32	1.52	2200	1.39	1.13	1.16	1.16	1.14
2400	7.01	7.03	6.98	7.04	0.07	18.67	32.89	18.30	1.48	2400	1.47	1.25	1.23	1.23	1.26
2600	6.91	6.94	6.89	6.94	0.05	30.21	32.57	32.50	1.71	2600	1.23	1.33	1.34	1.34	1.35
2800	7.06	7.15	7.09	7.09	0.09	29.01	26.73	30.18	1.91	2800	1.49	1.26	1.31	1.31	1.28
3000	7.13	7.20	7.09	7.15	0.10	17.84	27.02	17.39	1.70	3000	1.36	1.12	1.11	1.08	1.12
3200	7.31	7.38	7.29	7.33	0.09	25.06	28.03	26.29	2.00	3200	1.31	1.41	1.41	1.38	1.42
3400	7.09	7.20	7.09	7.14	0.11	23.10	25.99	22.88	2.14	3400	1.34	1.25	1.29	1.26	1.26
3600	7.16	7.24	7.14	7.20	0.10	18.02	27.45	17.92	2.26	3600	1.43	1.07	1.09	1.09	1.07
3800	7.20	7.26	7.16	7.25	0.10	23.36	34.67	23.35	2.46	3800	1.38	1.28	1.27	1.25	1.27
4000	7.15	7.31	7.21	7.22	0.17	18.76	33.24	18.64	2.48	4000	1.25	1.22	1.27	1.26	1.24
4200	7.20	7.38	7.31	7.30	0.17	19.08	31.57	19.24	2.61	4200	1.22	1.33	1.40	1.39	1.35
4400	7.29	7.39	7.31	7.41	0.12	24.19	40.18	25.09	2.84	4400	1.27	1.31	1.32	1.32	1.32
4600	7.35	7.47	7.34	7.42	0.12	21.47	35.36	20.98	2.97	4600	1.27	1.24	1.27	1.24	1.26
4800	7.39	7.54	7.41	7.46	0.15	19.95	29.74	19.82	3.02	4800	1.08	1.26	1.34	1.32	1.29
5000	7.71	7.79	7.65	7.82	0.17	25.57	29.50	26.88	3.27	5000	1.58	1.41	1.44	1.45	1.42
5500	7.90	8.09	7.94	8.07	0.20	21.38	34.53	21.02	3.47	5500	1.24	1.32	1.37	1.36	1.37
6000	8.02	8.27	8.15	8.27	0.25	17.38	27.14	17.61	4.04	6000	1.26	1.21	1.22	1.20	1.24

¹ Total Loss = Insertion Loss + 6dB Splitter Loss



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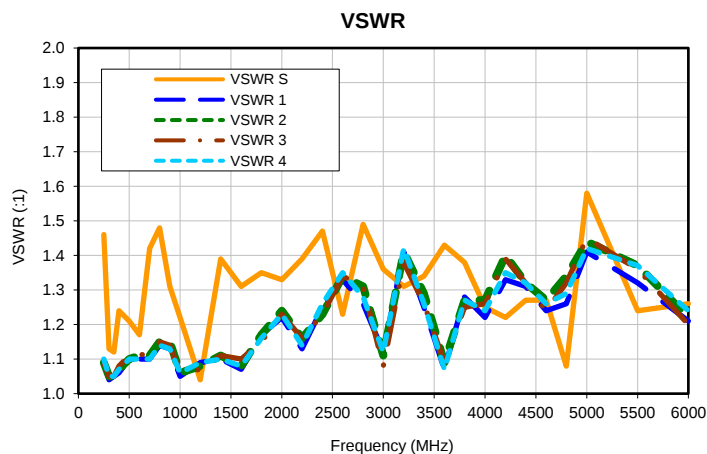
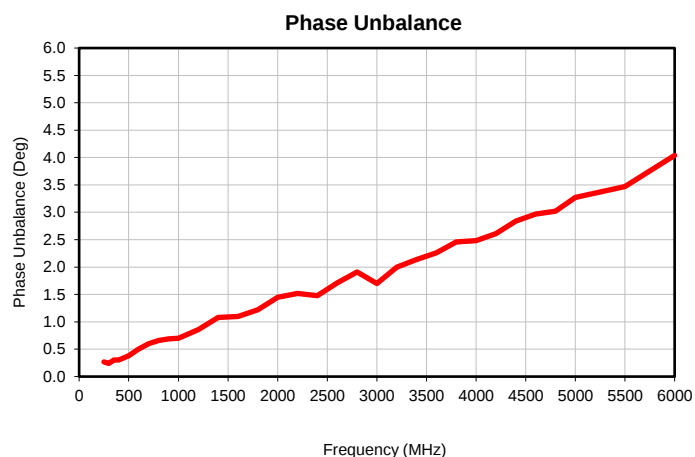
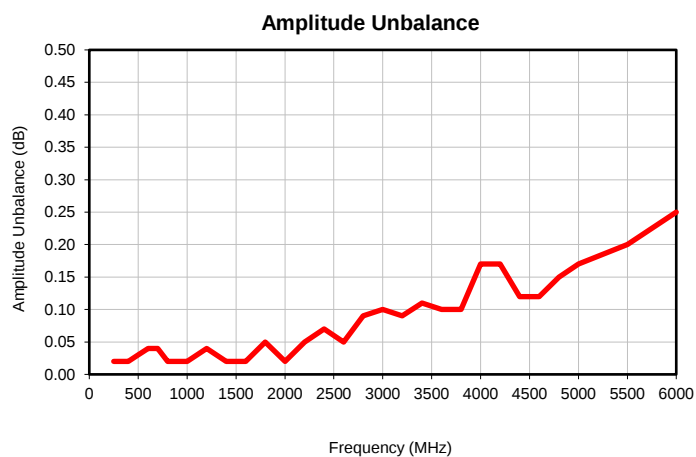
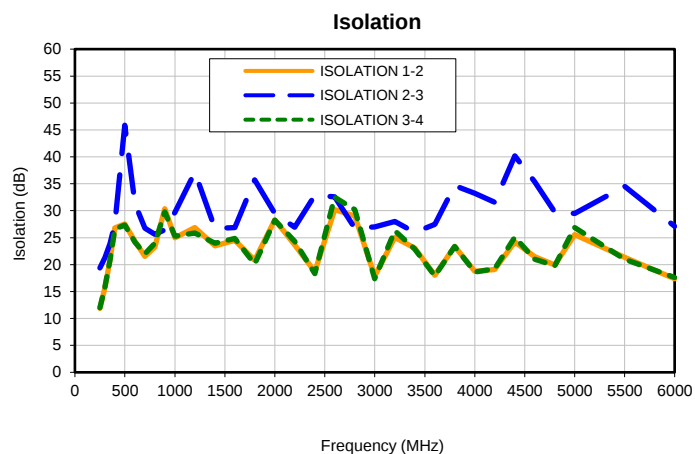
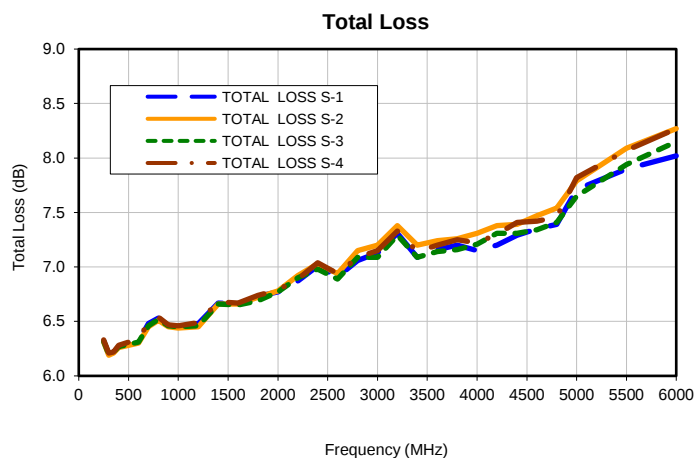
IF/RF MICROWAVE COMPONENTS

REV. OR
ZN4PD1-63W-S+
1/18/2019
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4 Way-0° Power Splitter/Combiner

ZN4PD1-63W-S+

Typical Performance Curves



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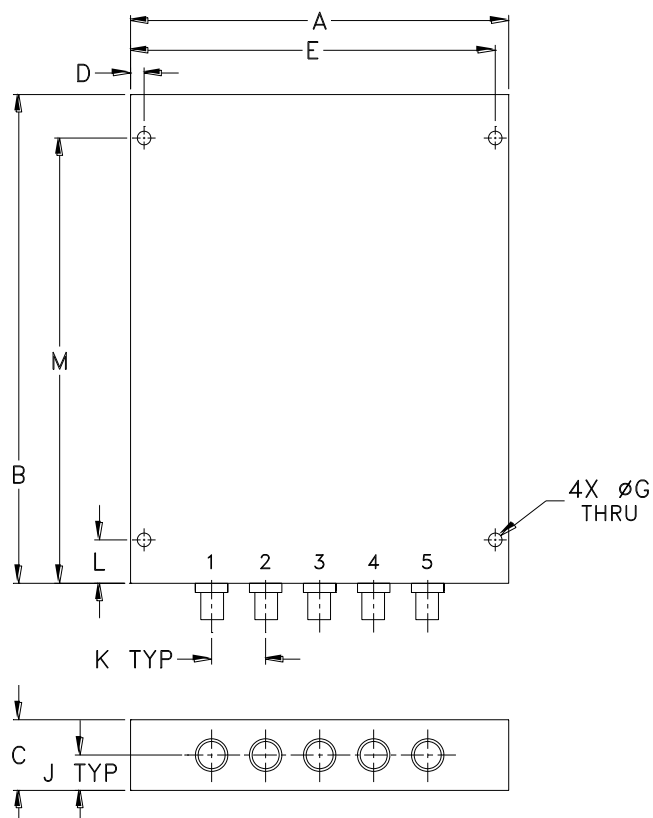
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Outline Dimensions

UU846



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
UU846	3.50 (88.90)	4.50 (114.30)	.65 (16.51)	.125 (3.18)	3.375 (85.73)	-- --	.125 (3.18)	-- --	.33 (8.38)	.50 (12.70)	.400 (10.16)	4.100 (104.14)	288

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