

DC Pass, Ultra-Thin

Power Splitter/Combiner

ZN12PD-63SMP+

12 Way-0° 50Ω 600 to 6000 MHz 20Watt

The Big Deal

- Wideband, 600 - 6000 MHz
- High power, 20W as a splitter
- Good isolation, 19 dB
- Ultra-slim case, 8.5 x 9.5 x 0.43"
- SMP snap-on connectors



Product Overview

Mini-Circuits' ZN12PD-63SMP+ is a connectorized, wideband 12-way 0° splitter/combiner supporting a wide variety of applications from 600 to 6000 MHz. This model is capable of handling up to 20W RF input power as a splitter and provides low insertion loss and good isolation. It comes housed in an ultra-slim aluminum alloy case (8.5 x 9.5 x 0.43") with SMP snap-on connectors, saving space in crowded system layouts.

Key Features

Feature	Advantages
Wideband, 600 to 6000 MHz	ZN12PD-63SMP+ supports bandwidth requirements for a wide variety of applications.
Power handling up to 20W as a splitter (1.5W as a combiner)	Supports a wide range of power requirements.
Low insertion loss, 1.4 – 3.0 dB	Provides good transmission of signal power, making this model an excellent candidate for signal distribution applications where low loss is a requirement.
DC passing up to 1.2A (100 mA each port)	Supports applications where DC power is needed through the RF line.
High isolation, 19 dB	Minimizes interference between input ports.
Ultra-slim case design, 8.5 x 9.5 x 0.43"	Saves space in crowded system layouts.

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

ZN12PD-63SMP+

12 Way-0° 50Ω 600 to 6000 MHz 20Watt

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	1.2 A (100mA for each port)
Permanent damage may occur if any of these limits are exceeded.	

Coaxial Connections

SUM PORT	S(COM)
PORT 1,2,3,.....,12	1,2,3,.....,12

Features

- Ultra-thin package
- Snap-on blind mate SMP connectors
- Wideband 600 to 6000 MHz
- High isolation, 19 dB typ.
- Good output VSWR, 1.4:1 typ.
- Good amplitude unbalance, 0.7 dB typ.

Applications

- Instrumentation
- PCS/DCS/UMTS
- Cellular/ISM/SMG/GSM
- MMDC
- SATCOM



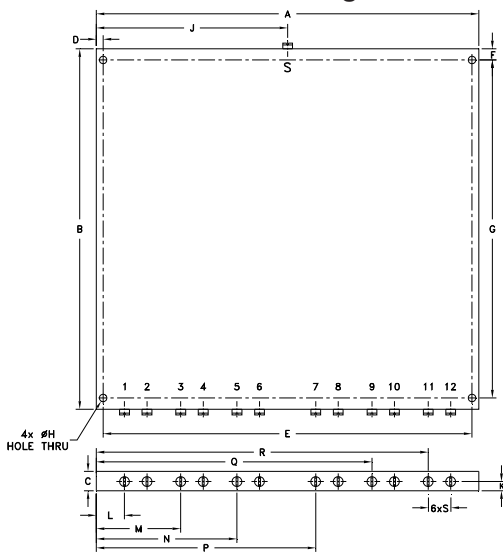
CASE STYLE: UU2061

Connectors	Model
SMP(Snap-on)	ZN12PD-63SMP+

+RoHS Compliant

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

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J
8.50	9.50	.43	.15	8.20	.75	8.00	0.136	4.25
215.90	241.30	10.92	3.81	208.28	19.05	203.2	3.454	107.95
K	L	M	N	P	Q	R	S	wt
0.205	0.63	1.88	3.13	4.88	6.13	7.38	0.500	grams
5.207	16.002	47.752	79.502	123.95	155.7	187.45	12.7	1.150

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		600		6000	MHz
Insertion Loss Above 10.8 dB	600 - 3000	—	1.4	2.4	dB
	3000 - 6000	—	3.0	4.5	
Isolation	600 - 3000	14	20	—	dB
	3000 - 6000	13	18	—	
Phase Unbalance	600 - 3000	—	8.0	—	Degree
	3000 - 6000	—	10.0	—	
Amplitude Unbalance	600 - 3000	—	0.4	0.9	dB
	3000 - 6000	—	0.8	1.5	
VSWR (Port S)	600 - 6000	—	1.5	2.4	:1
VSWR (Port 1-2)	600 - 3000	—	1.3	1.8	:1
	3000 - 6000	—	1.4	1.9	
Power Handling ¹	As Splitter	600 - 6000	—	20	Watt
	As Combiner ²	600 - 6000		1.5	

1. Over 25°C to 100°C. Derate linearly to 50% of rating at 100°C.

2. As a combiner of non-coherent signals, max. power per port is 1.5 watt power rating divided by number of ports.

Electrical Schematic



Notes

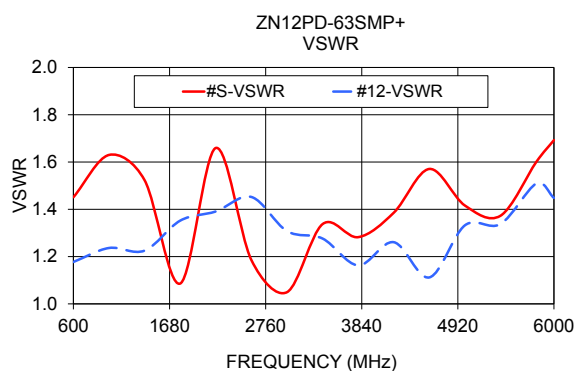
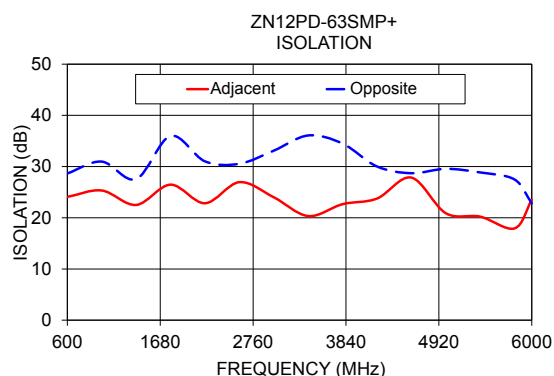
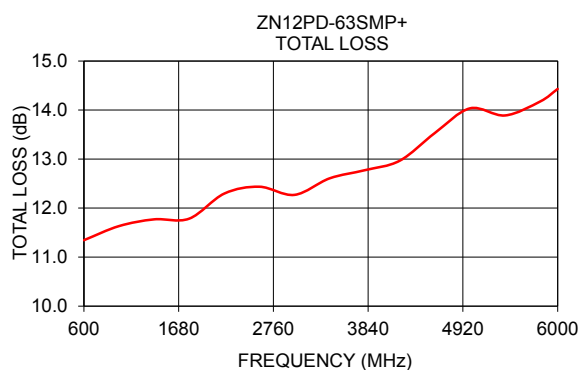
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Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)	Amplitude Unbalance (dB)	Isolation (dB)		Phase Unbalance (deg.)	VSWR S	VSWR 12
			Adjacent	Opposite			
600.00	11.35	0.23	24.07	28.65	1.68	1.45	1.18
1000.00	11.63	0.51	25.33	30.97	3.88	1.63	1.24
1400.00	11.77	0.22	22.50	27.54	4.58	1.52	1.23
1800.00	11.78	0.15	26.47	35.98	6.92	1.09	1.35
2200.00	12.30	0.11	22.83	31.02	6.32	1.66	1.39
2600.00	12.44	0.32	26.96	30.54	9.11	1.19	1.45
3000.00	12.27	0.29	24.00	33.10	8.29	1.05	1.31
3400.00	12.61	0.45	20.34	36.07	8.19	1.34	1.28
3800.00	12.77	0.44	22.65	34.49	8.64	1.28	1.16
4200.00	12.97	0.63	23.75	30.02	9.54	1.39	1.26
4600.00	13.53	0.79	27.84	28.70	8.80	1.57	1.11
5000.00	14.03	1.22	20.89	29.55	11.07	1.42	1.33
5400.00	13.89	1.24	20.22	28.85	8.08	1.37	1.34
5800.00	14.17	0.82	17.93	27.47	12.45	1.60	1.51
6000.00	14.43	0.86	23.51	22.82	12.23	1.69	1.45

1. Total Loss = Insertion Loss + 10.8dB splitter loss.



Notes

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12 Way-0° Power Splitter/Combiner

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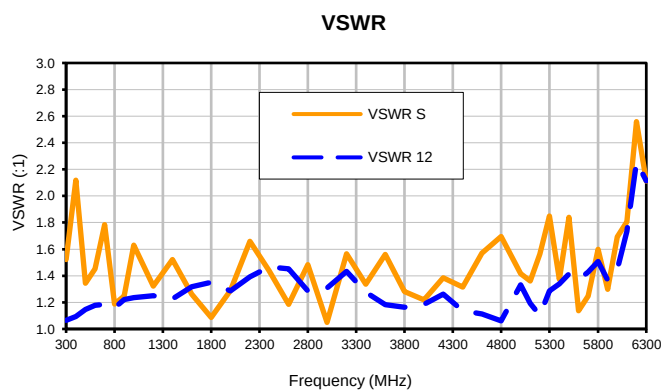
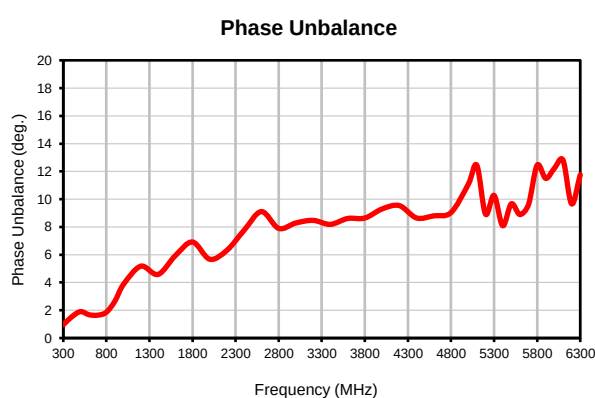
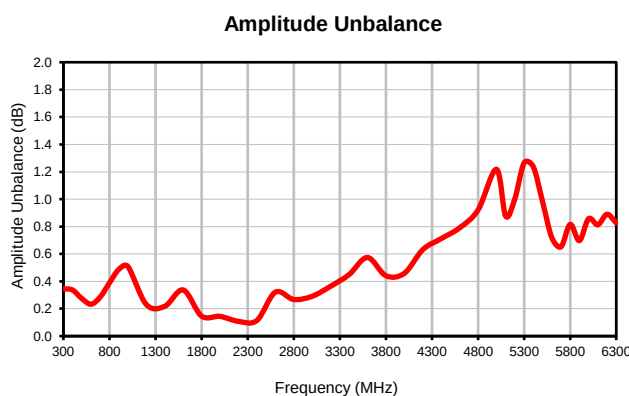
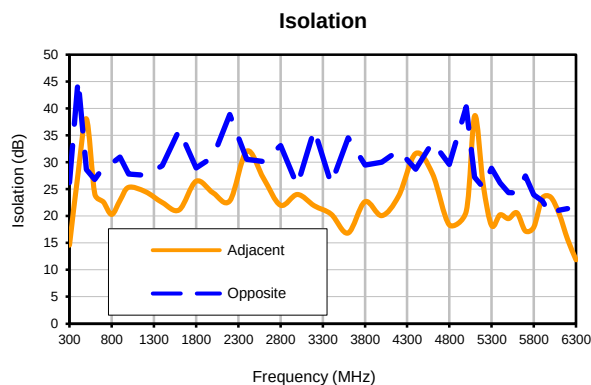
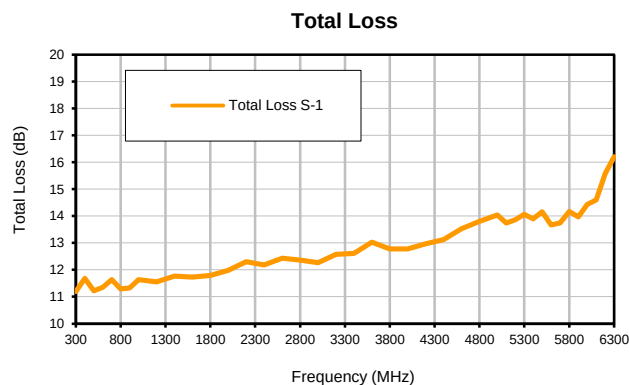
FREQ. (MHz)	TOTAL LOSS ¹ (dB) S-1	AMP. UNBAL. (dB)	ISOLATION (dB)		PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)	
			Adjacent	Opposite			S	12
300	11.19	0.35	14.58	22.36	0.96	300	1.52	1.06
400	11.68	0.34	27.65	26.17	1.54	400	2.12	1.09
500	11.22	0.27	38.06	45.31	1.90	500	1.34	1.15
600	11.35	0.23	24.07	28.65	1.68	600	1.45	1.18
700	11.63	0.29	22.65	26.78	1.65	700	1.79	1.18
800	11.29	0.39	20.30	29.08	1.86	800	1.19	1.16
900	11.32	0.49	22.93	29.75	2.66	900	1.25	1.22
1000	11.63	0.51	25.33	30.97	3.88	1000	1.63	1.24
1200	11.56	0.23	24.51	27.78	5.18	1200	1.32	1.25
1400	11.77	0.22	22.50	27.54	4.58	1400	1.52	1.23
1600	11.73	0.34	21.14	29.33	5.93	1600	1.26	1.32
1800	11.78	0.15	26.47	35.98	6.92	1800	1.09	1.35
2000	11.97	0.14	24.31	28.91	5.68	2000	1.29	1.29
2200	12.30	0.11	22.83	31.02	6.32	2200	1.66	1.39
2400	12.19	0.11	32.05	38.86	7.77	2400	1.44	1.47
2600	12.44	0.32	26.96	30.54	9.11	2600	1.19	1.45
2800	12.36	0.27	22.00	30.10	7.90	2800	1.48	1.29
3000	12.27	0.29	24.00	33.10	8.29	3000	1.05	1.31
3200	12.57	0.36	21.90	25.66	8.47	3200	1.56	1.43
3400	12.61	0.45	20.34	36.07	8.19	3400	1.34	1.28
3600	13.03	0.57	16.84	25.94	8.61	3600	1.56	1.18
3800	12.77	0.44	22.65	34.49	8.64	3800	1.28	1.16
4000	12.78	0.46	20.07	29.49	9.30	4000	1.22	1.18
4200	12.97	0.63	23.75	30.02	9.54	4200	1.39	1.26
4400	13.12	0.71	31.61	32.18	8.65	4400	1.32	1.14
4600	13.53	0.79	27.84	28.70	8.80	4600	1.57	1.11
4800	13.80	0.92	18.33	33.76	9.04	4800	1.69	1.06
5000	14.03	1.22	20.89	29.55	11.07	5000	1.42	1.33
5100	13.74	0.88	38.63	40.28	12.44	5100	1.36	1.19
5200	13.86	1.00	25.88	27.18	8.93	5200	1.56	1.10
5300	14.07	1.27	18.23	25.31	10.27	5300	1.85	1.29
5400	13.89	1.24	20.22	28.85	8.08	5400	1.37	1.34
5500	14.16	0.98	19.52	26.12	9.67	5500	1.84	1.41
5600	13.66	0.72	20.59	24.36	8.89	5600	1.14	1.37
5700	13.74	0.65	17.22	24.30	9.62	5700	1.25	1.43
5800	14.17	0.82	17.93	27.47	12.45	5800	1.60	1.51
5900	13.97	0.70	23.31	23.94	11.50	5900	1.30	1.37
6000	14.43	0.86	23.51	22.82	12.23	6000	1.69	1.45
6100	14.59	0.81	20.43	20.19	12.81	6100	1.81	1.73
6200	15.57	0.89	15.68	21.10	9.66	6200	2.56	2.26
6300	16.20	0.83	11.86	21.39	11.75	6300	2.11	2.11

¹Total Loss = Insertion Loss + 10.8dB Splitter Loss

12 Way-0° Power Splitter/Combiner

ZN12PD-63SMP+

Typical Performance Curves



Mini-Circuits®
ISO 9001 ISO 14001 AS 9100 CERTIFIED

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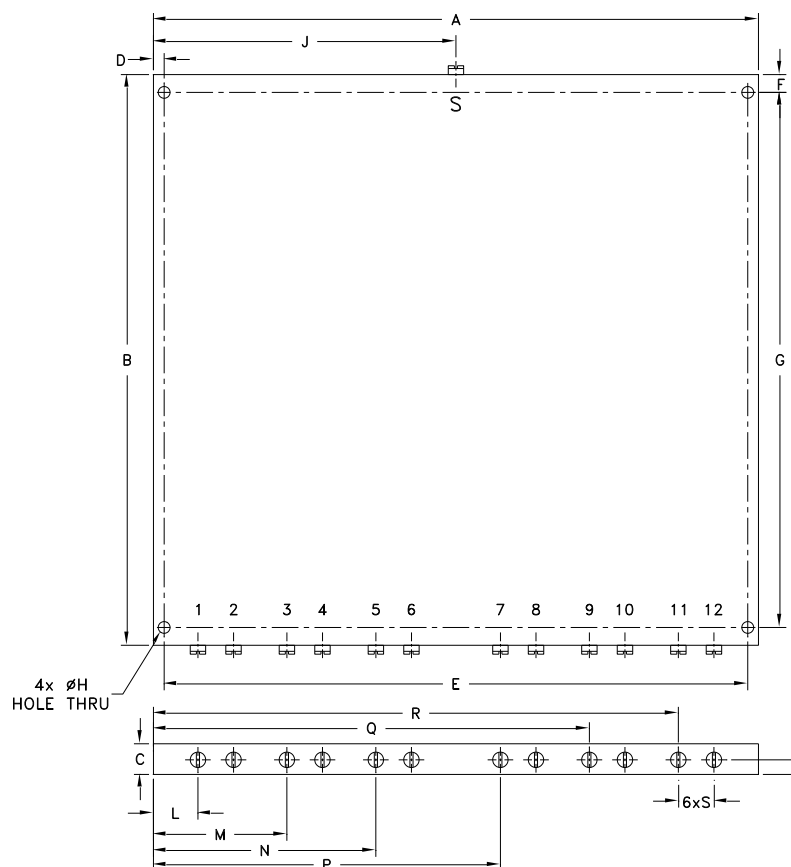
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IF/RF MICROWAVE COMPONENTS

REV. OR
ZN12PD-63SMP+
3/23/2016
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CASE#	A	B	C	D	E	F	G	H	J	K	L
UU2061	8.50 (215.90)	9.50 (241.30)	.43 (10.92)	.15 (3.81)	8.200 (208.28)	.75 (19.05)	8.000 (203.2)	.136 (3.45)	4.25 (107.95)	.205 (5.21)	.63 (15.88)

CASE#	M	N	P	Q	R	S	WT. GRAMS
UU2061	1.88 (47.63)	3.13 (79.38)	4.88 (123.83)	6.13 (155.58)	7.38 (187.33)	.500 (12.70)	1.150

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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3. 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