

DC Pass, Ultra-Thin

Power Splitter/Combiner

ZB3PD-63SMP+

3 Way-0° 50Ω 150 to 6000 MHz

The Big Deal

- Wideband, 150 - 6000 MHz
- Low insertion loss, 1.0 dB
- Good isolation, 20 dB
- Ultra-thin case, 0.43" height (10.92 mm)
- SMP snap-on connectors



CASE STYLE: UU1332-1

Product Overview

Mini-Circuits' ZB3PD-63SMP+ is a connectorized wideband 3-way 0° splitter/combiner supporting a wide variety of applications from 150 to 6000 MHz. This model is capable of handling up to 5W RF input power as a splitter and provides low insertion loss, good isolation and low phase and amplitude unbalance. It comes housed in an ultra-thin aluminum alloy case (2.99 x 5.07 x 0.43") with SMP snap-on connectors, saving space in crowded system layouts.

Key Features

Feature	Advantages
Wideband, 150 to 6000 MHz	ZB3PD-63SMP+ supports bandwidth requirements for a wide variety of applications.
Ultra-thin case design, 2.99 x 5.07 x 0.43"	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 overall height.
Power handling up to 5W as a splitter	Supports a wide variety of power requirements.
Low insertion loss, 1.0 dB	Provides excellent transmission of signal power, making this model an excellent candidate for signal distribution applications where low loss is a requirement.
Low unbalance: • Phase unbalance, 4° • Amplitude unbalance, 0.5 dB	Produces nearly equal output signals, ideal for parallel path / multichannel systems.
DC passing up to 750mA (250 mA each port, ports 1 – 3)	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

3 Way-0° 50Ω 150 to 6000 MHz

Maximum Ratings

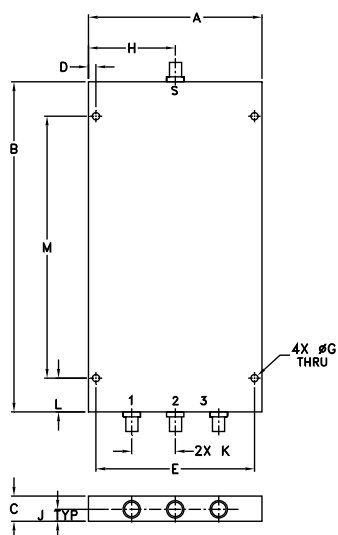
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	5W max.
Internal Dissipation	1.8W max.
DC Current	750 mA (250 mA for each port)

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

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
2.99	5.67	.43	.13	2.73	—	.125
75.95	144.02	10.92	3.30	69.34	—	3.18
H	J	K	L	M	wt	
1.495	.205	.75	0.58	4.5	grams	
37.97	5.21	19.05	14.732	114.3	260	

Features

- Ultra-thin package
- Snap-on blind mate SMP connectors
- Wideband, 150 to 6000 MHz
- Low insertion loss, 1 dB typ.
- Good isolation, 20 dB typ.
- Good amplitude unbalance, 0.5 dB typ.

Applications

- Dense Packaging Environment
- Automated Test Systems
- Cellular/ISM/SMG/GSM
- Satellite Distribution
- GPS/L BAND

ZB3PD-63SMP+



Generic photo used for illustration purposes only

CASE STYLE: UU1332-1

Connectors Model
SMP(Snap-on) ZB3PD-63SMP+

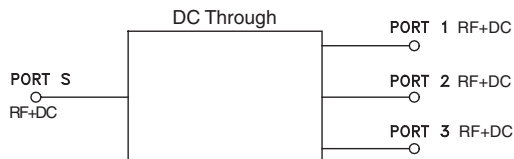
+RoHS Compliant

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		150		6000	MHz
Insertion Loss Above 4.8 dB	150 - 600	—	1.0	1.5	dB
	600 - 5000	—	1.2	1.8	
	5000 - 6000	—	1.4	1.9	
Isolation	150 - 600	8	12	—	dB
	600 - 5000	16	20	—	
	5000 - 6000	13	15	—	
Phase Unbalance	150-600	—	1	3	Degree
	600 - 5000	—	4	9	
	5000-6000	—	5	9	
Amplitude Unbalance	150-600	—	0.3	0.7	dB
	600 - 5000	—	0.4	0.8	
	5000 - 6000	—	0.5	0.9	
VSWR (Port S)	150 - 600	—	2.0	2.8	:1
	600 - 6000	—	1.4	2.0	
VSWR (Port 1-2)	150 - 600	—	1.6	2.0	:1
	600 - 6000	—	1.6	1.75	

Electrical Schematic



Notes

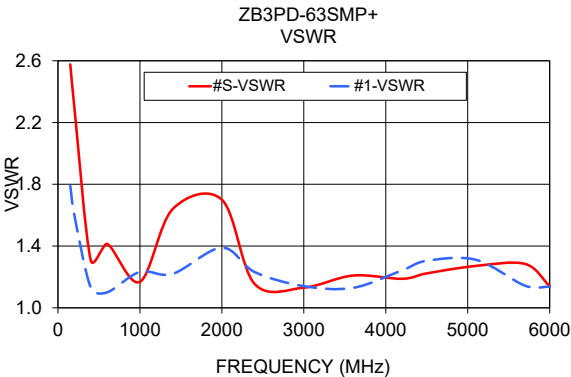
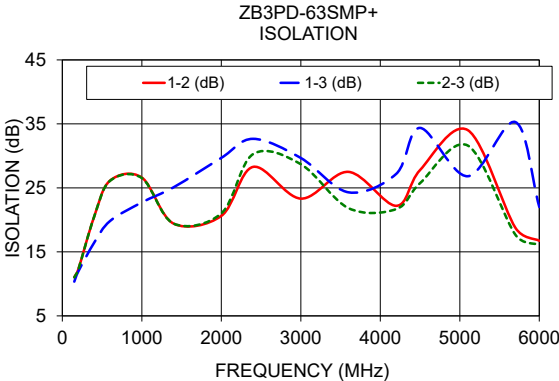
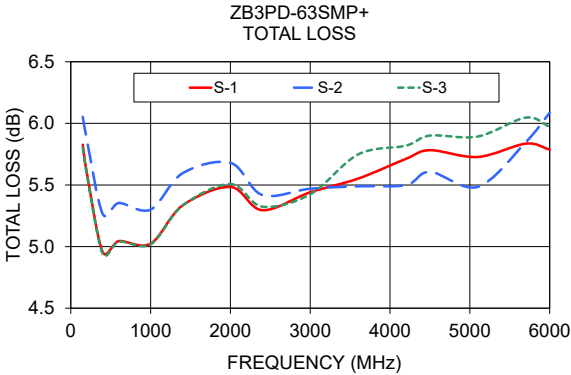
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Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)			Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3
	S-1	S-2	S-3		1-2	1-3	2-3					
150	5.83	6.05	5.80	0.25	11.05	10.35	11.01	0.88	2.58	1.79	1.37	1.79
200	5.60	5.87	5.59	0.28	12.23	11.92	12.20	0.74	2.30	1.60	1.25	1.60
400	4.96	5.27	4.94	0.32	20.48	16.43	20.49	0.41	1.31	1.13	1.23	1.13
600	5.04	5.35	5.04	0.31	26.14	19.82	26.10	0.20	1.41	1.10	1.20	1.10
1000	5.02	5.30	5.02	0.28	26.61	22.73	26.53	0.34	1.17	1.23	1.20	1.22
1400	5.33	5.60	5.33	0.26	19.41	25.09	19.41	0.46	1.64	1.22	1.06	1.22
2000	5.48	5.68	5.51	0.20	20.62	29.69	21.01	0.66	1.70	1.39	1.23	1.38
2400	5.30	5.42	5.32	0.12	28.28	32.66	30.28	0.88	1.15	1.23	1.27	1.23
3000	5.44	5.47	5.42	0.05	23.32	29.67	28.70	1.03	1.13	1.14	1.33	1.13
3600	5.55	5.49	5.75	0.26	27.50	24.30	21.83	1.30	1.21	1.13	1.23	1.18
4200	5.71	5.50	5.82	0.32	22.19	27.18	21.68	2.14	1.19	1.24	1.17	1.27
4500	5.78	5.61	5.90	0.29	27.78	34.37	25.73	2.37	1.22	1.30	1.20	1.31
5100	5.73	5.48	5.89	0.41	34.02	26.82	31.61	4.00	1.27	1.31	1.12	1.28
5700	5.84	5.85	6.05	0.21	18.75	35.27	17.66	4.51	1.28	1.14	1.31	1.19
6000	5.79	6.09	5.97	0.30	16.73	22.01	16.11	3.26	1.14	1.14	1.62	1.17

1. Total Loss = Insertion Loss + 4.8dB splitter loss.



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3 Way-0° Power Splitter/Combiner

ZB3PD-63SMP+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹			AMP UNBAL. (dB)	ISOLATION			PHASE UNBAL. (Deg)	FREQ. (MHz)	VSWR			
	S1	S2	S3		1-2	1-3	2-3			S	1	2	3
100	5.98	6.18	5.97	0.21	9.74	8.52	9.70	0.93	100	2.79	2.07	1.61	2.07
150	5.83	6.05	5.80	0.25	11.05	10.35	11.01	0.88	150	2.58	1.79	1.37	1.79
200	5.60	5.87	5.59	0.28	12.23	11.92	12.20	0.74	200	2.30	1.60	1.25	1.60
250	5.39	5.67	5.38	0.29	13.55	13.25	13.52	0.63	250	2.01	1.45	1.19	1.45
300	5.19	5.49	5.18	0.31	15.21	14.38	15.19	0.54	300	1.73	1.33	1.18	1.32
350	5.04	5.35	5.03	0.32	17.41	15.41	17.40	0.46	350	1.49	1.22	1.20	1.22
400	4.96	5.27	4.94	0.32	20.48	16.43	20.49	0.41	400	1.31	1.13	1.23	1.13
450	4.93	5.24	4.91	0.32	25.19	17.39	25.23	0.32	450	1.22	1.06	1.25	1.05
500	4.95	5.26	4.94	0.32	33.76	18.31	34.18	0.24	500	1.24	1.03	1.25	1.03
600	5.04	5.35	5.04	0.31	26.14	19.82	26.10	0.20	600	1.41	1.10	1.20	1.10
800	5.08	5.37	5.08	0.29	20.06	21.34	20.00	0.27	800	1.41	1.14	1.04	1.14
1000	5.02	5.30	5.02	0.28	26.61	22.73	26.53	0.34	1000	1.17	1.23	1.20	1.22
1200	5.27	5.54	5.26	0.27	25.71	24.38	25.75	0.43	1200	1.57	1.34	1.21	1.32
1400	5.33	5.60	5.33	0.26	19.41	25.09	19.41	0.46	1400	1.64	1.22	1.06	1.22
1600	5.14	5.38	5.14	0.24	22.12	26.61	22.06	0.48	1600	1.22	1.09	1.11	1.07
1800	5.28	5.50	5.30	0.22	33.28	29.66	34.58	0.56	1800	1.43	1.33	1.24	1.31
2000	5.48	5.68	5.51	0.20	20.62	29.69	21.01	0.66	2000	1.70	1.39	1.23	1.38
2200	5.32	5.48	5.34	0.16	20.06	29.29	20.56	0.79	2200	1.35	1.21	1.11	1.22
2400	5.30	5.42	5.32	0.12	28.28	32.66	30.28	0.88	2400	1.15	1.23	1.27	1.23
2600	5.50	5.60	5.53	0.10	23.59	34.08	25.05	0.90	2600	1.47	1.41	1.32	1.40
2700	5.54	5.63	5.57	0.09	20.84	31.82	22.33	0.89	2700	1.48	1.41	1.25	1.40
3000	5.44	5.47	5.42	0.05	23.32	29.67	28.70	1.03	3000	1.13	1.14	1.33	1.13
3300	5.63	5.60	5.69	0.09	25.37	27.57	21.09	1.73	3300	1.39	1.23	1.32	1.32
3600	5.55	5.49	5.75	0.26	27.50	24.30	21.83	1.30	3600	1.21	1.13	1.23	1.18
3900	5.74	5.59	5.84	0.25	24.38	25.85	23.43	1.32	3900	1.37	1.18	1.23	1.16
4200	5.71	5.50	5.82	0.32	22.19	27.18	21.68	2.14	4200	1.19	1.24	1.17	1.27
4500	5.78	5.61	5.90	0.29	27.78	34.37	25.73	2.37	4500	1.22	1.30	1.20	1.31
4800	5.71	5.46	5.83	0.37	26.36	27.13	25.79	3.30	4800	1.14	1.32	1.09	1.31
5100	5.73	5.48	5.89	0.41	34.02	26.82	31.61	4.00	5100	1.27	1.31	1.12	1.28
5400	5.85	5.71	6.08	0.38	23.44	32.29	21.72	4.35	5400	1.29	1.17	1.18	1.16
5700	5.84	5.85	6.05	0.21	18.75	35.27	17.66	4.51	5700	1.28	1.14	1.31	1.19
5800	5.81	5.92	6.02	0.21	18.69	28.93	17.63	4.34	5800	1.21	1.14	1.42	1.19
5900	5.79	6.00	5.99	0.20	18.36	24.86	17.42	3.95	5900	1.11	1.14	1.54	1.18
6000	5.79	6.09	5.97	0.30	16.73	22.01	16.11	3.26	6000	1.14	1.14	1.62	1.17
6100	5.86	6.22	6.01	0.37	14.79	19.85	14.35	2.40	6100	1.30	1.17	1.65	1.19
6200	5.95	6.38	6.09	0.43	13.26	18.29	12.81	1.36	6200	1.50	1.25	1.67	1.27
6300	6.07	6.53	6.22	0.45	12.39	17.43	11.95	0.39	6300	1.69	1.41	1.76	1.42
6400	6.22	6.65	6.37	0.43	12.18	17.21	11.78	1.97	6400	1.85	1.65	1.96	1.69
6500	6.42	6.78	6.59	0.36	12.58	17.38	12.21	3.65	6500	1.99	2.02	2.29	2.09

¹Total Loss = Insertion Loss + 4.8dB Splitter Loss



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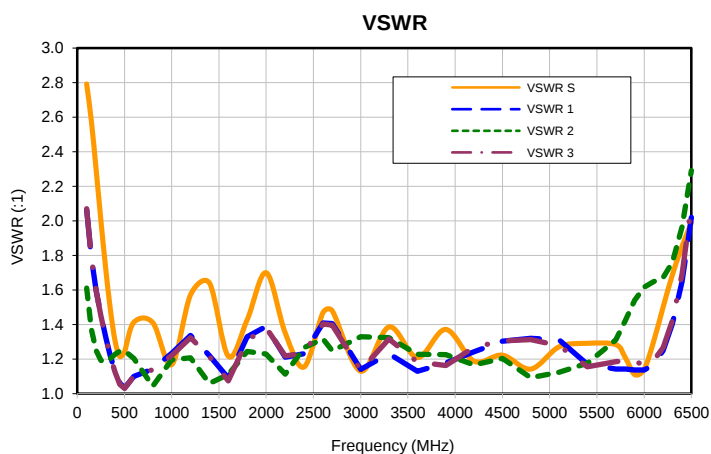
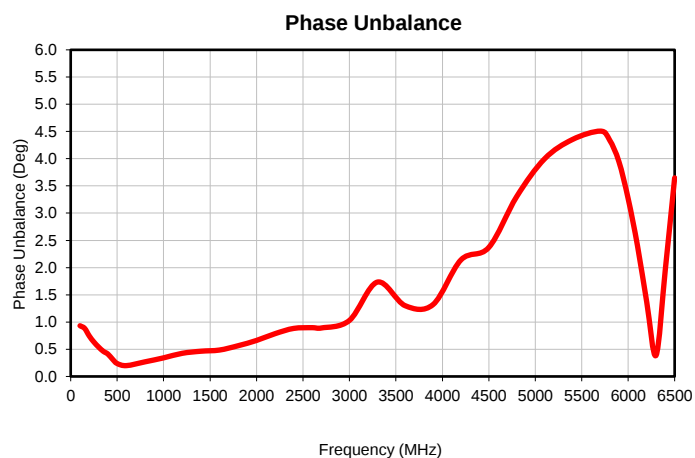
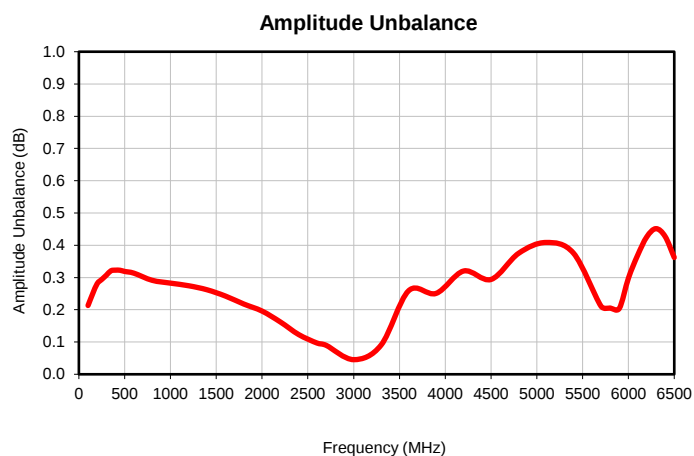
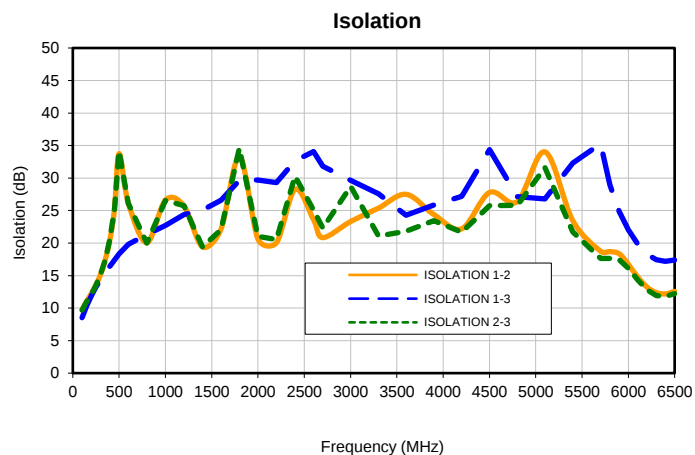
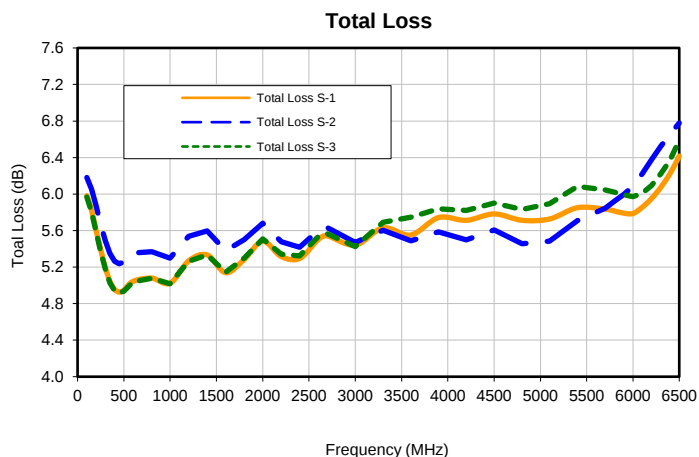
IF/RF MICROWAVE COMPONENTS

REV. OR
ZB3PD-63SMP+
12/30/2015
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3 Way-0° Power Splitter/Combiner

ZB3PD-63SMP+

Typical Performance Curves



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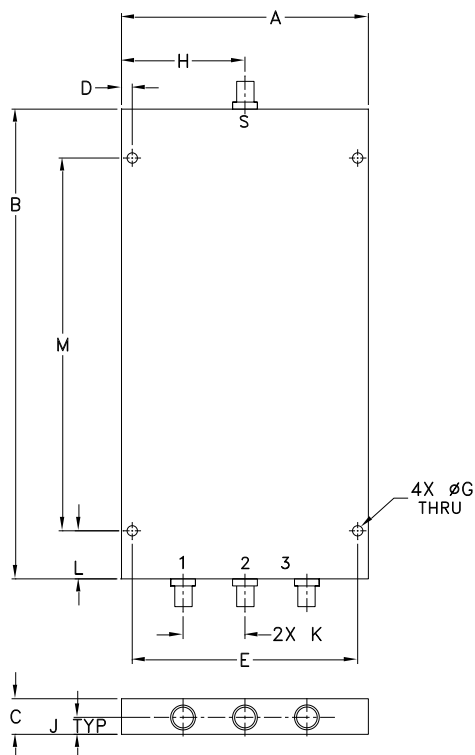
IF/RF MICROWAVE COMPONENTS



REV. OR
ZB3PD-63SMP+
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Page 1 of 1

Outline Dimensions

UU1332-1



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
UU1332-1	2.99 (75.95)	5.67 (144.02)	.43 (10.92)	.13 (3.30)	2.73 (69.34)	--	.125 (3.18)	1.495 (37.97)	.205 (5.21)	.75 (19.05)	.58 (14.73)	4.500 (114.30)	260

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