

DC Pass, High Power Power Splitter/Combiner ZN2PD-183W-S+

2-Way 0° 50Ω 500 to 18000 MHz

The Big Deal

- Super wideband, 0.5 to 18 GHz
- Low insertion loss, 0.8 dB typ.
- High Isolation, 24 dB typ.
- 20 W power handling
- Low amplitude unbalance, 0.05 dB typ.



CASE STYLE: UU2624-5

Product Overview

Mini-Circuits' ZN2PD-183W-S+ is a super wideband 2-way 0° splitter/combiner providing coverage from 0.5 to 18 GHz, supporting a wide range of applications including L-Band, S-Band, C-Band, X-Band and many more. This model provides 20 W power handling as a splitter and very low insertion loss across the entire operating frequency range, minimizing power dissipation and delivering excellent signal power transmission from input to output. The ZN2PD-183W-S+ comes housed in a case measuring 4.75 × 1.00 × 0.5" with SMA connectors.

Key Features

Feature	Advantages
Ultra-wideband, 0.5 to 18 GHz	Extremely wide frequency range supports many broadband applications in a single model.
Low insertion loss, 0.8 dB typ. at 13 GHz	The combination of 20 W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
High isolation, 24 dB typ. at 13 GHz	Minimizes interference between ports.
High power handling: • 20 W as a splitter at +25 °C • 1.5 W as a combiner	The ZC2PD-183W-S+ is suitable for systems with a wide range of power requirements.
Low amplitude unbalance, 0.05 dB at 13 GHz	Produces nearly equal output signals, ideal for parallel path and multichannel systems.
DC Passing, 630 mA	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, High Power Power Splitter/Combiner

2-Way 0° 50Ω 500 to 18000 MHz

ZN2PD-183W-S+

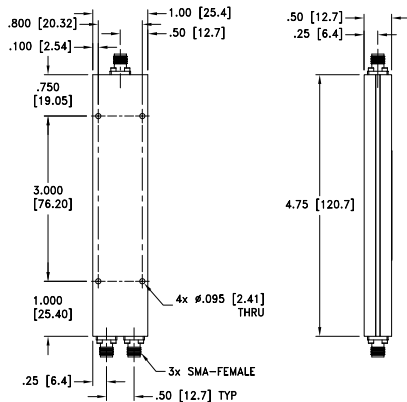
Maximum Ratings

Operating Temperature	-55 °C to +100 °C
Storage Temperature	-55 °C to +100 °C
Power Input (as a splitter)	20 W max.
Internal Dissipation	1.5 W max.
DC Current	630 mA
Permanent damage may occur if any of these limits are exceeded.	

Coaxial Connections

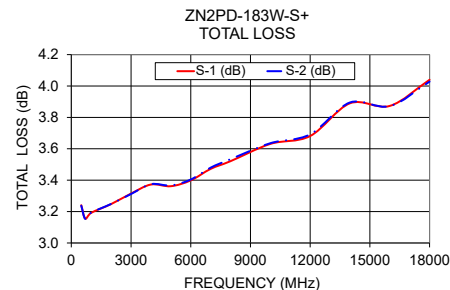
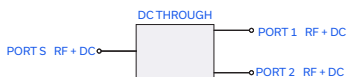
Sum Port	S
Port 1	1
Port 2	2

Outline Drawing



Weight: 105 grams
Dimensions are in inches (mm). Tolerances: 2 Pl. ±.03; 3 Pl. ±.015

Electrical Schematic



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Features

- Super wideband, 500 - 18000 MHz
- Low insertion loss, 0.8 dB typ.
- Low amplitude unbalance, 0.05 dB typ.
- Excellent VSWR, 1.11:1 typ.
- High isolation, 24 dB typ.

Applications

- Fixed satellite
- Mobile
- Space research



Generic photo used for illustration purposes only

CASE STYLE: UU2624-5

Connectors Model

SMA-Fem ZN2PD-183W-S+

+RoHS Compliant

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

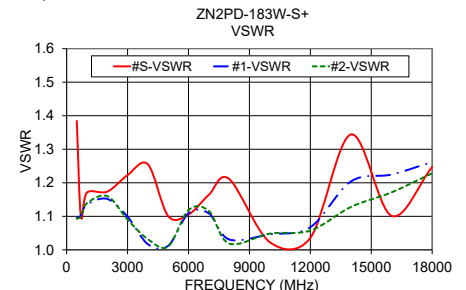
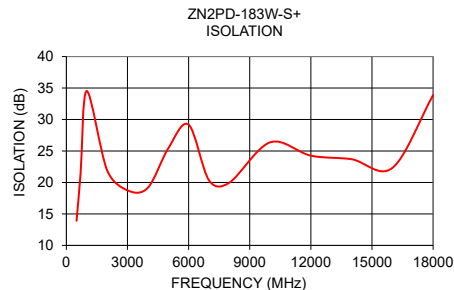
Electrical Specifications at +25 °C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		500		18000	MHz
Insertion Loss Above 3 dB	500-5000		0.3	1.0	dB
	5000-10000		0.5	1.2	
	10000-15000		0.8	1.6	
	10000-18000		1.0	1.9	
Amplitude Unbalance	500-5000		0.02	0.7	dB
	5000-10000		0.02	0.7	
	10000-15000		0.05	0.7	
	10000-18000		0.07	0.7	
Phase Unbalance	500-5000		0.3	6	Degree
	5000-10000		0.8	6	
	10000-15000		1.1	6	
	10000-18000		1.4	6	
Isolation	500-600	12.5	16		dB
	600-5000	14	24		
	5000-10000	14	24		
	10000-15000	14	24		
VSWR (Port S)	500-5000		1.14	1.8	:1
	5000-10000		1.11	1.8	
	10000-15000		1.12	1.8	
	10000-18000		1.10	1.8	
VSWR (Port 1-2)	500-5000		1.09	1.6	:1
	5000-10000		1.06	1.6	
	10000-15000		1.10	1.6	
	10000-18000		1.15	1.6	

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	3.24	3.24	0.00	13.91	0.06	1.38	1.09	1.09
700	3.15	3.15	0.00	21.44	0.06	1.10	1.10	1.10
1000	3.19	3.19	0.00	34.53	0.09	1.17	1.13	1.14
2000	3.25	3.25	0.00	21.94	0.12	1.17	1.15	1.16
3000	3.31	3.31	0.00	18.75	0.24	1.22	1.10	1.09
4000	3.37	3.37	0.00	19.15	0.35	1.26	1.02	1.03
5000	3.36	3.37	0.00	25.41	0.35	1.10	1.01	1.01
6000	3.40	3.40	0.01	29.18	0.47	1.11	1.11	1.12
7000	3.47	3.48	0.01	20.35	0.53	1.16	1.11	1.12
8000	3.52	3.53	0.01	19.97	0.57	1.21	1.03	1.02
10000	3.63	3.64	0.00	26.37	0.68	1.02	1.05	1.05
12000	3.68	3.69	0.01	24.25	0.89	1.04	1.07	1.06
14000	3.89	3.90	0.01	23.69	0.86	1.34	1.20	1.13
16000	3.87	3.87	0.00	22.31	0.85	1.10	1.22	1.17
18000	4.04	4.03	0.01	33.88	0.93	1.25	1.26	1.23

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



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2 Way-0° Power Splitter/Combiner

ZN2PD-183W-S+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0 dBm @ Temperature = +25°C

FREQUENCY (MHz)	TOTAL LOSS ¹ (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB)	PHASE UNBALANCE (Deg)	FREQUENCY (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
500	3.24	3.24	0.00	13.91	0.06	500	1.38	1.09	1.09
600	3.18	3.18	0.00	17.14	0.06	600	1.23	1.09	1.09
700	3.15	3.15	0.00	21.44	0.06	700	1.10	1.10	1.10
800	3.15	3.15	0.00	27.95	0.07	800	1.03	1.12	1.12
900	3.17	3.17	0.00	40.15	0.09	900	1.10	1.13	1.13
1000	3.19	3.19	0.00	34.53	0.09	1000	1.17	1.13	1.14
1500	3.20	3.21	0.00	37.31	0.12	1500	1.10	1.12	1.13
2000	3.25	3.25	0.00	21.94	0.12	2000	1.17	1.15	1.16
2500	3.27	3.26	0.00	21.54	0.18	2500	1.13	1.18	1.17
3000	3.31	3.31	0.00	18.75	0.24	3000	1.22	1.10	1.09
3500	3.31	3.31	0.00	21.48	0.30	3500	1.09	1.09	1.09
4000	3.37	3.37	0.00	19.15	0.35	4000	1.26	1.02	1.03
4500	3.37	3.37	0.00	24.51	0.34	4500	1.20	1.13	1.14
5000	3.36	3.37	0.00	25.41	0.35	5000	1.10	1.01	1.01
5500	3.44	3.44	0.00	21.88	0.42	5500	1.28	1.10	1.09
6000	3.40	3.40	0.01	29.18	0.47	6000	1.11	1.11	1.12
6500	3.45	3.45	0.01	20.83	0.50	6500	1.20	1.11	1.10
7000	3.47	3.48	0.01	20.35	0.53	7000	1.16	1.11	1.12
7500	3.46	3.46	0.01	23.18	0.57	7500	1.12	1.15	1.16
8000	3.52	3.53	0.01	19.97	0.57	8000	1.21	1.03	1.02
8500	3.53	3.54	0.01	25.83	0.54	8500	1.08	1.09	1.08
9000	3.54	3.54	0.00	24.13	0.61	9000	1.14	1.03	1.01
9500	3.57	3.57	0.00	25.65	0.64	9500	1.15	1.06	1.04
10000	3.63	3.64	0.00	26.37	0.68	10000	1.02	1.05	1.05
10500	3.61	3.60	0.00	22.59	0.71	10500	1.09	1.06	1.05
11000	3.61	3.60	0.00	24.76	0.79	11000	1.04	1.17	1.12
11500	3.66	3.67	0.00	20.46	0.87	11500	1.17	1.10	1.07
12000	3.68	3.69	0.01	24.25	0.89	12000	1.04	1.07	1.06
12500	3.75	3.77	0.02	21.75	0.96	12500	1.27	1.12	1.06
13000	3.78	3.81	0.03	23.01	0.91	13000	1.32	1.16	1.17
13500	3.74	3.76	0.02	38.21	0.81	13500	1.06	1.11	1.10
14000	3.89	3.90	0.01	23.69	0.86	14000	1.34	1.20	1.13
14500	3.86	3.88	0.02	23.99	0.99	14500	1.31	1.18	1.16
15000	3.80	3.83	0.03	26.85	0.87	15000	1.02	1.10	1.12
15500	3.90	3.92	0.02	20.01	0.75	15500	1.14	1.14	1.12
16000	3.87	3.87	0.00	22.31	0.85	16000	1.10	1.22	1.17
16500	3.90	3.90	0.00	25.10	0.97	16500	1.10	1.16	1.12
17000	4.03	4.04	0.02	22.72	0.95	17000	1.22	1.09	1.15
17500	3.98	4.00	0.02	29.73	0.84	17500	1.13	1.12	1.15
18000	4.04	4.03	0.01	33.88	0.93	18000	1.25	1.26	1.23
18500	4.33	4.32	0.01	19.19	0.97	18500	1.59	1.33	1.35
19000	4.11	4.11	0.00	27.37	1.01	19000	1.17	1.07	1.13
19500	4.15	4.16	0.01	18.77	0.91	19500	1.32	1.08	1.10
20000	4.28	4.26	0.02	20.69	0.81	20000	1.42	1.41	1.41

¹Total Loss = Insertion Loss + 3dB Splitter Loss



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2 Way-0° Power Splitter/Combiner

ZN2PD-183W-S+

Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = -55°C

FREQUENCY (MHz)	TOTAL LOSS ¹ (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB)	PHASE UNBALANCE (Deg)	FREQUENCY (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
500	3.22	3.23	0.00	13.90	0.04	500	1.38	1.09	1.09
600	3.16	3.17	0.01	17.12	0.06	600	1.23	1.08	1.08
700	3.13	3.14	0.01	21.45	0.07	700	1.10	1.10	1.10
800	3.13	3.14	0.01	28.06	0.08	800	1.02	1.12	1.12
900	3.14	3.15	0.01	40.72	0.09	900	1.10	1.13	1.13
1000	3.17	3.18	0.01	34.15	0.08	1000	1.17	1.14	1.14
1500	3.18	3.19	0.01	36.72	0.08	1500	1.11	1.11	1.12
2000	3.22	3.23	0.01	21.94	0.09	2000	1.18	1.15	1.16
2500	3.23	3.24	0.01	21.70	0.11	2500	1.13	1.18	1.17
3000	3.28	3.29	0.01	18.67	0.13	3000	1.22	1.10	1.09
3500	3.27	3.28	0.01	21.43	0.18	3500	1.09	1.09	1.09
4000	3.33	3.34	0.02	19.21	0.22	4000	1.25	1.01	1.02
4500	3.33	3.35	0.02	24.46	0.20	4500	1.20	1.13	1.13
5000	3.32	3.34	0.02	25.61	0.20	5000	1.10	1.01	1.01
5500	3.40	3.41	0.01	21.97	0.24	5500	1.27	1.09	1.09
6000	3.36	3.37	0.02	28.77	0.30	6000	1.09	1.10	1.11
6500	3.40	3.42	0.02	20.93	0.31	6500	1.19	1.10	1.09
7000	3.43	3.45	0.02	20.53	0.32	7000	1.17	1.11	1.12
7500	3.42	3.44	0.02	23.00	0.35	7500	1.11	1.14	1.16
8000	3.47	3.50	0.03	20.04	0.33	8000	1.20	1.04	1.03
8500	3.48	3.50	0.02	25.94	0.30	8500	1.07	1.10	1.08
9000	3.49	3.51	0.02	23.90	0.34	9000	1.13	1.03	1.01
9500	3.52	3.54	0.02	25.87	0.34	9500	1.13	1.06	1.03
10000	3.58	3.60	0.02	26.40	0.36	10000	1.02	1.05	1.06
10500	3.57	3.58	0.02	22.34	0.37	10500	1.10	1.06	1.04
11000	3.57	3.58	0.01	25.15	0.44	11000	1.05	1.17	1.12
11500	3.63	3.65	0.02	20.35	0.50	11500	1.19	1.10	1.07
12000	3.64	3.67	0.03	24.06	0.54	12000	1.06	1.05	1.05
12500	3.70	3.74	0.04	21.93	0.61	12500	1.27	1.11	1.07
13000	3.74	3.79	0.05	22.78	0.50	13000	1.33	1.16	1.18
13500	3.69	3.74	0.05	39.30	0.39	13500	1.06	1.11	1.11
14000	3.83	3.86	0.03	23.82	0.42	14000	1.33	1.20	1.13
14500	3.80	3.85	0.05	23.98	0.52	14500	1.30	1.17	1.17
15000	3.75	3.81	0.06	26.86	0.38	15000	1.02	1.09	1.13
15500	3.84	3.89	0.05	20.11	0.24	15500	1.13	1.14	1.13
16000	3.82	3.84	0.03	22.33	0.30	16000	1.10	1.22	1.18
16500	3.85	3.87	0.02	25.12	0.40	16500	1.09	1.16	1.13
17000	3.96	4.01	0.04	22.84	0.39	17000	1.21	1.08	1.15
17500	3.92	3.96	0.04	29.96	0.26	17500	1.12	1.11	1.14
18000	3.98	4.00	0.01	33.93	0.32	18000	1.26	1.26	1.25
18500	4.26	4.28	0.02	19.19	0.34	18500	1.58	1.33	1.36
19000	4.03	4.05	0.03	27.79	0.34	19000	1.15	1.06	1.11
19500	4.09	4.12	0.03	18.64	0.27	19500	1.34	1.09	1.12
20000	4.23	4.23	0.00	20.81	0.19	20000	1.44	1.42	1.43

¹Total Loss = Insertion Loss + 3dB Splitter Loss



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2 Way-0° Power Splitter/Combiner

ZN2PD-183W-S+

Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = +100°C

FREQUENCY (MHz)	TOTAL LOSS ¹ (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB)	PHASE UNBALANCE (Deg)	FREQUENCY (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
500	3.24	3.23	0.01	13.87	0.06	500	1.38	1.09	1.09
600	3.18	3.17	0.01	17.07	0.07	600	1.23	1.09	1.08
700	3.15	3.14	0.01	21.40	0.07	700	1.10	1.10	1.10
800	3.15	3.14	0.01	28.06	0.08	800	1.02	1.12	1.12
900	3.17	3.16	0.01	41.14	0.08	900	1.10	1.13	1.13
1000	3.19	3.19	0.00	34.02	0.11	1000	1.17	1.14	1.14
1500	3.20	3.20	0.00	36.73	0.13	1500	1.10	1.11	1.12
2000	3.24	3.24	0.00	21.98	0.13	2000	1.18	1.15	1.16
2500	3.26	3.26	0.01	21.76	0.19	2500	1.13	1.18	1.18
3000	3.31	3.31	0.00	18.71	0.23	3000	1.22	1.10	1.09
3500	3.31	3.30	0.00	21.42	0.28	3500	1.09	1.09	1.08
4000	3.36	3.37	0.01	19.22	0.33	4000	1.26	1.02	1.03
4500	3.36	3.37	0.01	24.67	0.30	4500	1.21	1.14	1.14
5000	3.36	3.37	0.01	25.42	0.30	5000	1.09	1.01	1.01
5500	3.44	3.45	0.01	21.79	0.33	5500	1.28	1.10	1.09
6000	3.40	3.41	0.01	28.89	0.39	6000	1.11	1.11	1.12
6500	3.44	3.46	0.01	20.93	0.39	6500	1.20	1.12	1.10
7000	3.48	3.49	0.01	20.30	0.41	7000	1.17	1.11	1.12
7500	3.47	3.48	0.01	23.41	0.42	7500	1.12	1.16	1.17
8000	3.53	3.55	0.02	19.88	0.42	8000	1.22	1.03	1.01
8500	3.54	3.55	0.01	25.79	0.40	8500	1.08	1.09	1.07
9000	3.55	3.56	0.01	24.29	0.47	9000	1.13	1.03	1.01
9500	3.59	3.60	0.01	25.47	0.49	9500	1.16	1.06	1.04
10000	3.66	3.66	0.01	26.63	0.52	10000	1.03	1.05	1.04
10500	3.63	3.63	0.00	22.74	0.53	10500	1.08	1.06	1.05
11000	3.63	3.63	0.00	24.44	0.60	11000	1.03	1.16	1.12
11500	3.69	3.69	0.01	20.66	0.65	11500	1.15	1.10	1.07
12000	3.71	3.73	0.01	24.27	0.69	12000	1.03	1.07	1.06
12500	3.78	3.80	0.02	21.78	0.74	12500	1.27	1.11	1.07
13000	3.80	3.84	0.04	23.34	0.69	13000	1.30	1.14	1.17
13500	3.77	3.80	0.03	36.63	0.59	13500	1.07	1.10	1.10
14000	3.93	3.94	0.01	23.63	0.63	14000	1.35	1.21	1.13
14500	3.89	3.92	0.03	24.40	0.76	14500	1.29	1.17	1.16
15000	3.84	3.88	0.04	26.32	0.65	15000	1.02	1.08	1.11
15500	3.94	3.97	0.03	20.16	0.49	15500	1.14	1.14	1.12
16000	3.91	3.92	0.01	22.45	0.56	16000	1.09	1.22	1.18
16500	3.94	3.95	0.00	24.97	0.68	16500	1.09	1.15	1.11
17000	4.07	4.09	0.02	23.14	0.66	17000	1.20	1.07	1.14
17500	4.04	4.06	0.02	30.30	0.55	17500	1.12	1.12	1.15
18000	4.09	4.08	0.01	35.69	0.62	18000	1.23	1.25	1.23
18500	4.36	4.36	0.00	19.49	0.65	18500	1.55	1.32	1.34
19000	4.16	4.17	0.00	27.36	0.67	19000	1.16	1.07	1.12
19500	4.20	4.21	0.01	18.95	0.57	19500	1.30	1.08	1.10
20000	4.33	4.31	0.02	20.79	0.47	20000	1.39	1.40	1.40

¹Total Loss = Insertion Loss + 3dB Splitter Loss



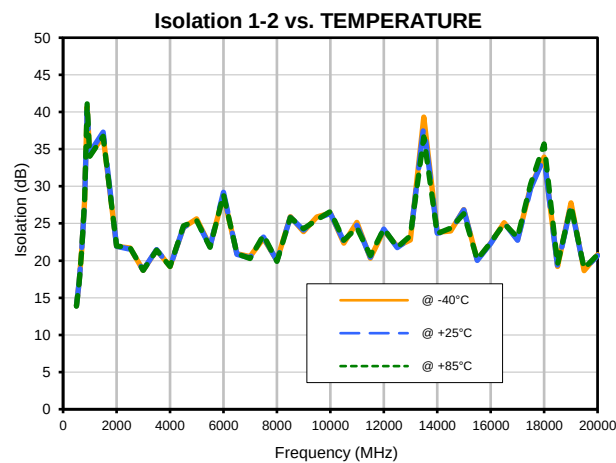
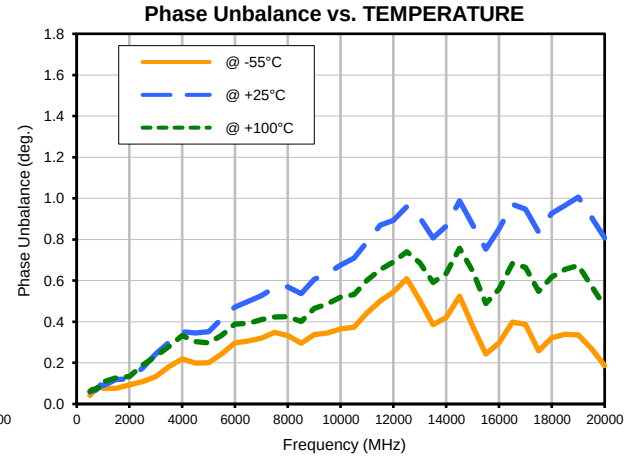
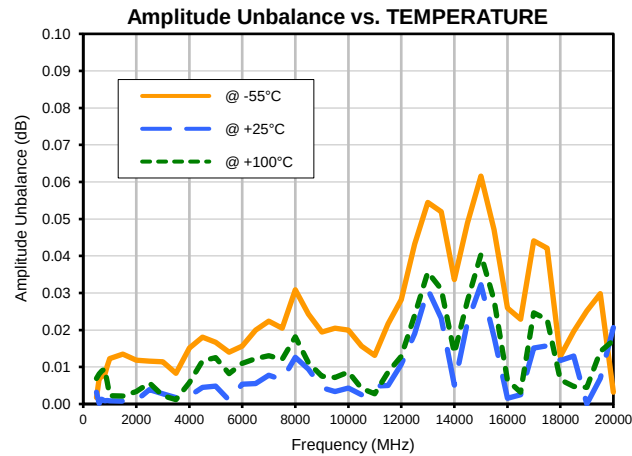
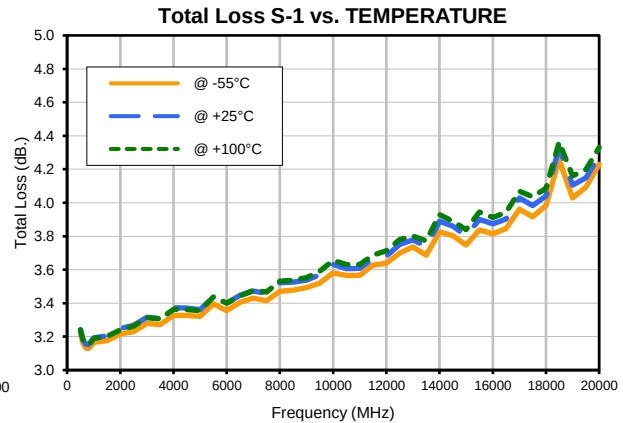
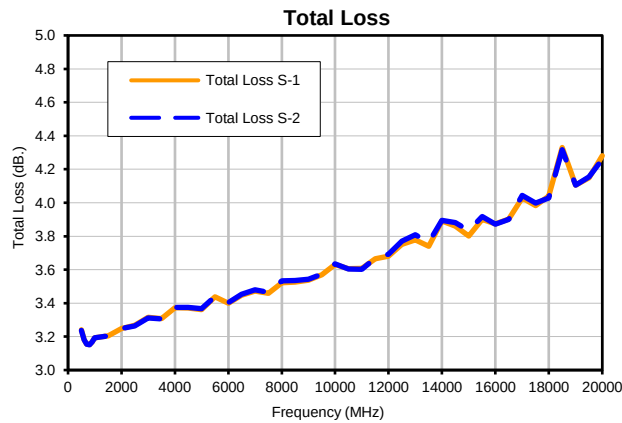
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com



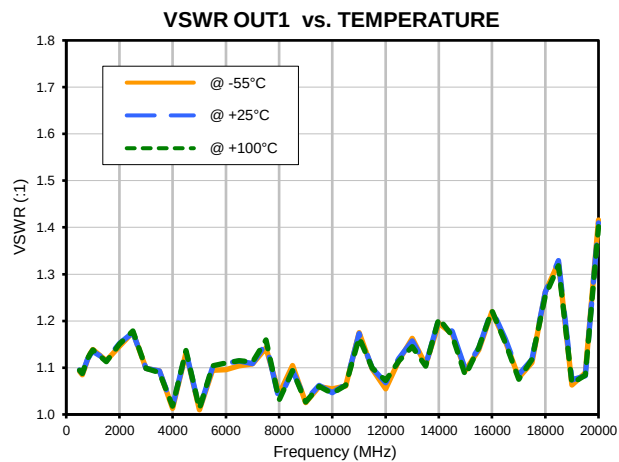
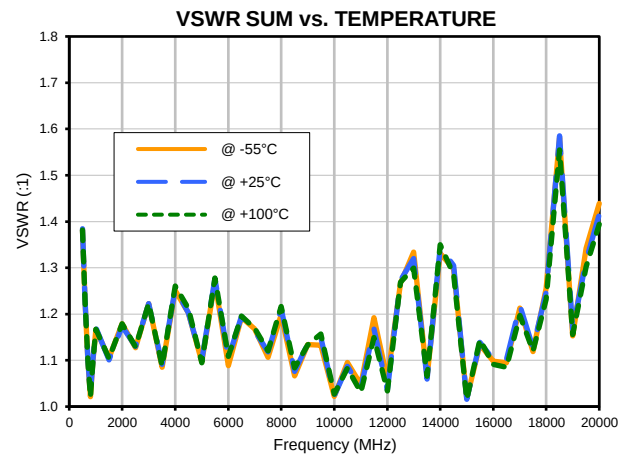
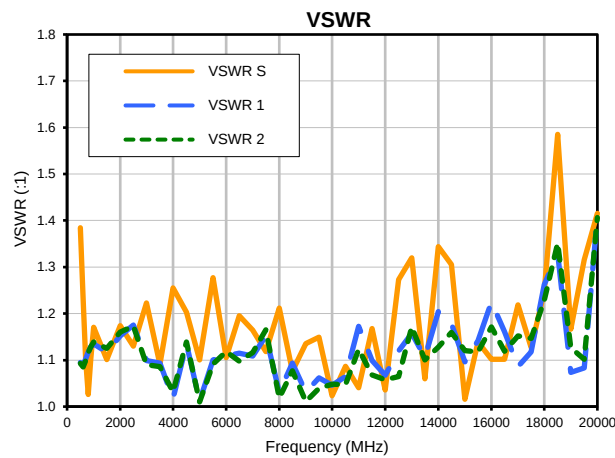
IF/RF MICROWAVE COMPONENTS

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ZN2PD-183W-S+
7/26/2019
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Typical Performance Curves

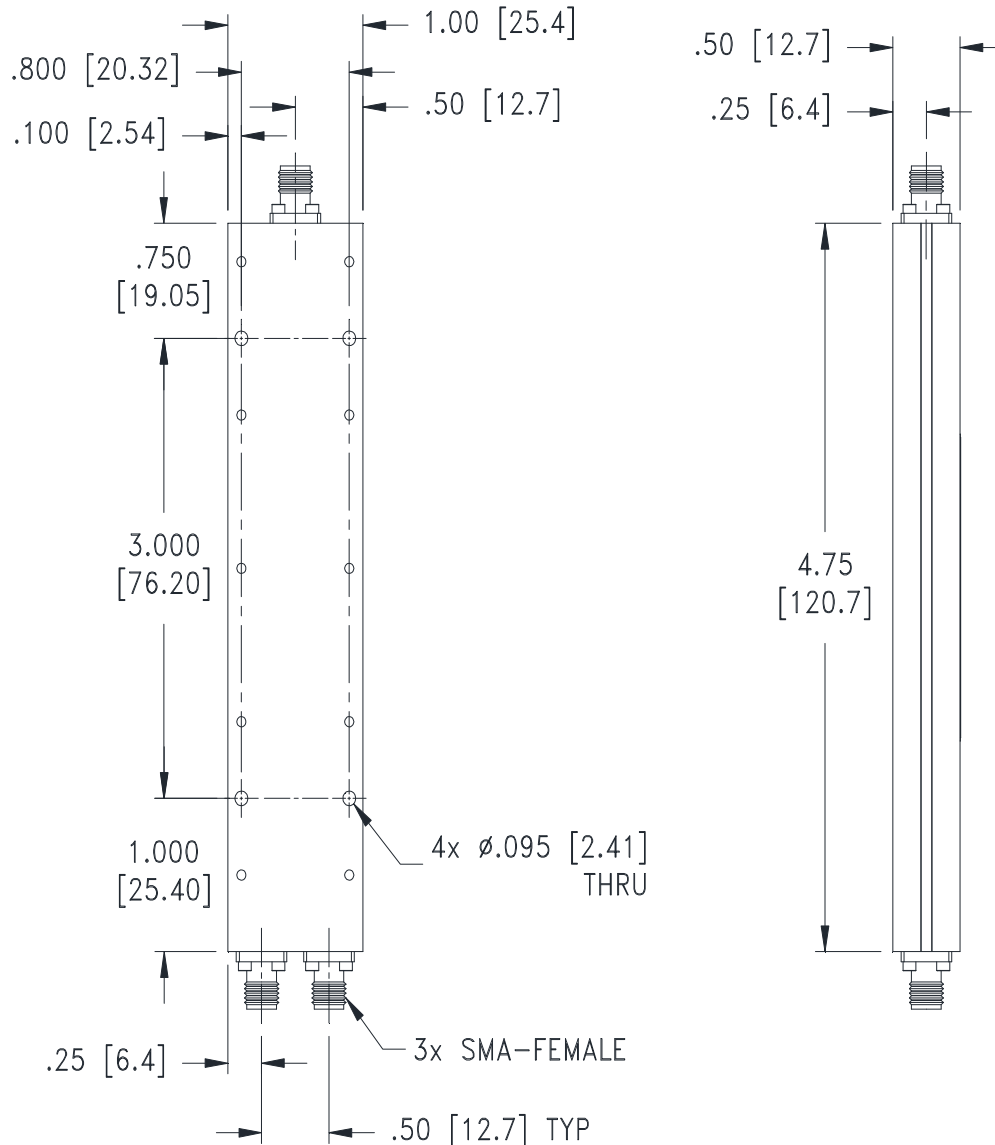


Typical Performance Curves



Outline Dimensions

UU2624-5



Weight: 105 grams

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm$.03; 3Pl. $\pm$.015

Notes:

1. Case material: Aluminum alloy.
2. Case Finish:
For RoHS Case Styles: Clear Chemical conversion coating, non-chrome or trivalent chrome based.
3. Refer to the individual model data sheet for the type of connectors available



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Mini-Circuits ISO 9001 & ISO 14001 Certified



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