DC Pass, High Power

Power Splitter/Combiner ZC16PD-02183-S+

16 Way-0° 50Ω 2000 to 18000 MHz

CASE STYLE: UU179-1

The Big Deal

- Super wideband, 2 to 18 GHz
- Low insertion loss, 2.3 dB typ. at 10 GHz
- High Isolation, 33 dB typ. at 10 GHz
- 20W power handling
- Low amplitude unbalance, 0.12 dB typ. at 10 GHz

Product Overview

Mini-Circuits' ZC16PD-02183-S+ is a super wideband 16-way 0˚ splitter/combiner providing coverage from 2 to 18 GHz, supporting a wide range of applications including S-Band, C-Band, X-Band, Ku-Band and instrumentation and many more. This model provides 20W 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 ZC16PD-02183-S+ comes housed in a case measuring 8.27 x 3.62 x 0.5" with SMA connectors.

Key Features

Feature	Advantages
Super wideband, 2 to 18 GHz	Extremely wide frequency range supports many broadband applications in a single model.
Low insertion loss, 2.3 dB typ. at 10 GHz	The combination of 20W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
High isolation, 33 dB typ. at 10 GHz	Minimizes interference between ports.
High power handling: • 20W as a splitter at 25°C • 1.6W as a combiner	The ZC16PD-02183-S+ is suitable for systems with a wide range of power requirements.
Low amplitude unbalance, 0.12 dB at 10 GHz	Produces nearly equal output signals, ideal for parallel path and multichannel systems.
DC Passing, 510mA input to output	Supports applications where DC power is needed through the RF line.

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Power Splitter/Combiner

ZC16PD-02183-S+

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Generic photo used for illustration purposes only

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Connectors	Model
SMA-Fem	ZC16PD-02183-S+

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	20W* max.
Internal Dissipation	1.6W max.
DC Current	510 mA

Permanent damage may occur if any of these limits are exceeded.
* Derate linearly to13W at 100°C

Coaxial Connections

Sum Port	S
Port 1-16	1-16

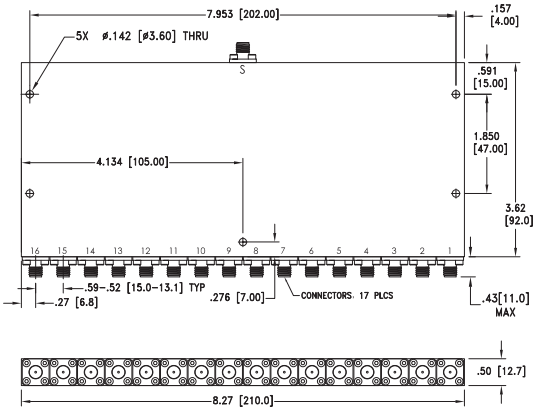
Features

- Super wideband, 2000 - 18000 MHz
- Low insertion loss, 2.3 dB typ at 10 GHz
- Low amplitude unbalance, 0.12 dB typ at 10 GHz
- Excellent VSWR, 1.19:1 typ at 10 GHz
- High isolation, 33 dB typ at 10 GHz

Applications

- Fixed satellite
- Mobile
- Space research

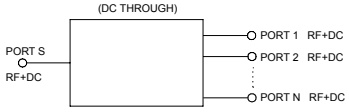
Outline Drawing



Weight: 750 grams;

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

Electrical Schematic



Electrical Specifications at 25°C

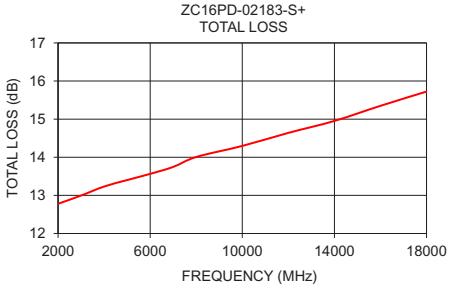
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		2000		18000	MHz
Insertion Loss Above 12.0 dB	2000-8000		1.4	3.0	dB
	8000-18000		2.9	5.6	
Isolation	2000-8000	16	27		dB
	8000-18000	18	33		
Phase Unbalance (±)[1]	2000-8000		1.7	6	Degree
	8000-18000		4.5	9	
Amplitude Unbalance (±)[1]	2000-8000		0.10	0.5	dB
	8000-18000		0.16	0.6	
VSWR (Port S)	2000-8000		1.11	1.5	:1
	8000-18000		1.13	1.6	
VSWR (Port 1-16)	2000-8000		1.11	1.6	:1
	8000-18000		1.08	1.6	

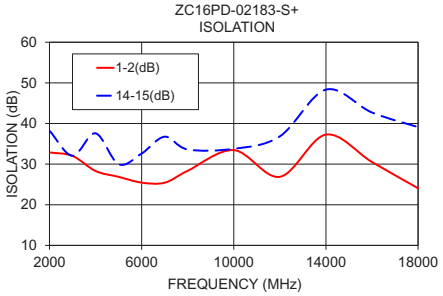
1. With reference to average.

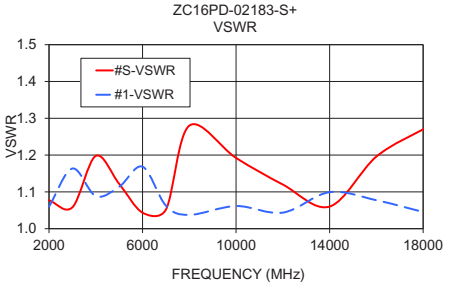
Typical Performance Data

Freq. (MHz)	Total Loss[1] (dB)	Amplitude Unbalance (dB)	Isolation (dB)		Phase Unbalance (deg.)	VSWR S	VSWR 1
	S-1		1-2	14-15			
2000	12.78	0.08	32.88	38.22	0.56	1.08	1.06
3000	13.00	0.08	32.03	32.06	0.70	1.06	1.16
4000	13.23	0.08	28.31	37.58	0.95	1.20	1.09
5000	13.40	0.09	26.87	29.97	1.57	1.12	1.11
6000	13.56	0.06	25.45	32.60	1.97	1.04	1.17
7000	13.75	0.09	25.43	36.75	2.06	1.05	1.06
8000	14.01	0.10	28.36	33.60	2.22	1.28	1.04
10000	14.30	0.12	33.45	33.77	3.14	1.19	1.06
12000	14.64	0.13	26.88	36.83	3.82	1.12	1.04
14000	14.95	0.16	37.27	48.34	4.49	1.06	1.10
16000	15.35	0.14	30.51	42.70	5.36	1.20	1.08
18000	15.72	0.24	24.06	39.12	5.90	1.27	1.05

1. Total Loss = Insertion Loss +12dB splitter loss.







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

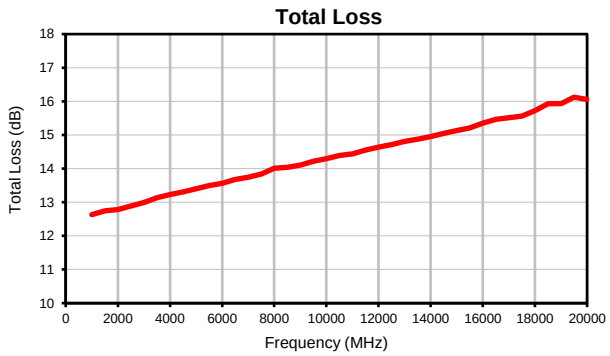
16 Way-0° Power Splitter/Combiner ZC16PD-02183-S+

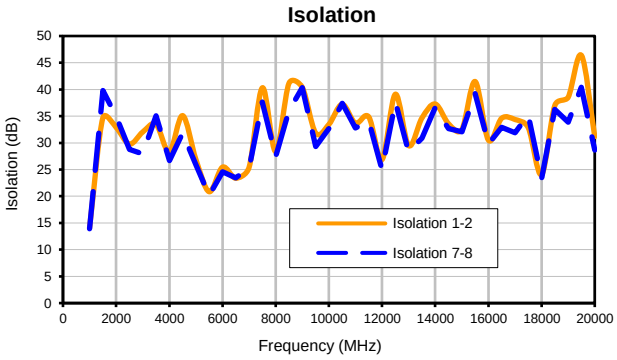
Typical Performance Data

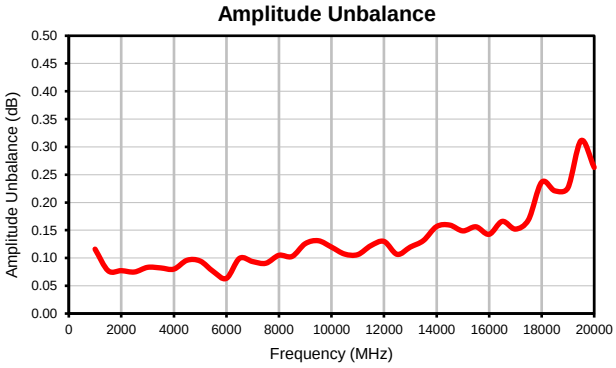
FREQUENCY (MHz)	TOTAL LOSS[1] (dB) S-1	AMPLITUDE UNBALANCE (dB)	ISOLATION (dB) 1-2	ISOLATION (dB) 7-8	PHASE UNBALANCE (deg.)	FREQUENCY (MHz)	VSWR (:1) S	VSWR (:1) 1
1000	12.63	0.12	14.06	13.92	0.97	1000	1.34	1.39
1500	12.75	0.08	34.69	39.77	0.64	1500	1.30	1.25
2000	12.78	0.08	32.88	35.00	0.56	2000	1.08	1.06
2500	12.88	0.07	29.77	28.77	0.62	2500	1.08	1.08
3000	13.00	0.08	32.03	27.94	0.70	3000	1.06	1.16
3500	13.14	0.08	33.47	35.05	0.88	3500	1.18	1.15
4000	13.23	0.08	28.31	26.69	0.95	4000	1.20	1.09
4500	13.31	0.10	35.10	31.81	1.20	4500	1.07	1.13
5000	13.40	0.09	26.87	25.83	1.57	5000	1.12	1.11
5500	13.50	0.08	20.85	20.17	1.73	5500	1.15	1.04
6000	13.56	0.06	25.45	24.56	1.97	6000	1.04	1.17
6500	13.68	0.10	23.36	23.44	2.01	6500	1.13	1.17
7000	13.75	0.09	25.43	25.30	2.06	7000	1.05	1.06
7500	13.84	0.09	40.31	37.61	1.99	7500	1.10	1.07
8000	14.01	0.10	28.36	27.44	2.22	8000	1.28	1.04
8500	14.04	0.10	41.16	35.96	2.37	8500	1.16	1.02
9000	14.10	0.13	40.39	40.34	2.49	9000	1.07	1.04
9500	14.22	0.13	31.87	29.32	2.92	9500	1.18	1.05
10000	14.30	0.12	33.45	32.65	3.14	10000	1.19	1.06
10500	14.39	0.11	37.22	37.41	3.41	10500	1.18	1.07
11000	14.44	0.11	33.67	32.80	3.63	11000	1.09	1.06
11500	14.55	0.12	34.86	34.07	3.64	11500	1.18	1.03
12000	14.64	0.13	26.88	25.02	3.82	12000	1.12	1.04
12500	14.72	0.11	39.10	37.66	3.72	12500	1.10	1.09
13000	14.81	0.12	29.48	28.36	3.92	13000	1.10	1.07
13500	14.88	0.13	34.65	30.90	4.25	13500	1.01	1.10
14000	14.95	0.16	37.27	36.55	4.49	14000	1.06	1.10
14500	15.05	0.16	33.58	32.65	4.83	14500	1.08	1.12
15000	15.13	0.15	32.47	32.06	5.08	15000	1.02	1.07
15500	15.21	0.16	41.49	39.23	5.25	15500	1.11	1.02
16000	15.35	0.14	30.51	29.81	5.36	16000	1.20	1.08
16500	15.47	0.17	34.61	32.90	5.40	16500	1.33	1.06
17000	15.51	0.15	34.37	31.92	5.39	17000	1.24	1.10
17500	15.56	0.17	32.83	35.25	5.83	17500	1.13	1.05
18000	15.72	0.24	24.06	23.30	5.90	18000	1.27	1.05
18500	15.93	0.22	37.03	36.27	6.24	18500	1.36	1.18
19000	15.93	0.23	38.53	33.85	6.65	19000	1.24	1.07
19500	16.12	0.31	46.36	40.41	6.68	19500	1.24	1.09
20000	16.06	0.26	31.16	28.68	7.08	20000	1.10	1.21

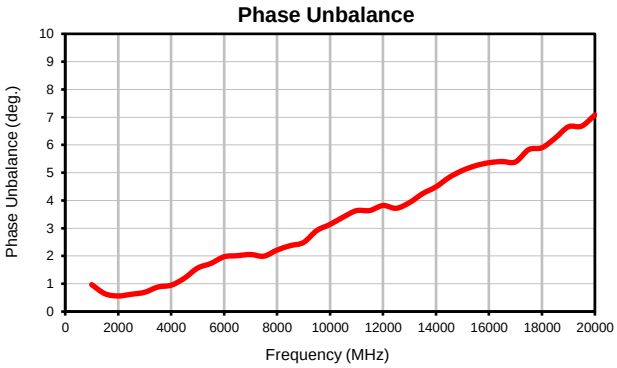
[1]Total Loss = Insertion Loss + 12dB Splitter Loss

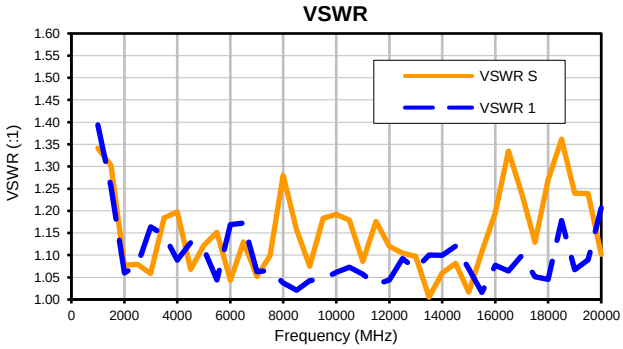
Typical Performance Curves







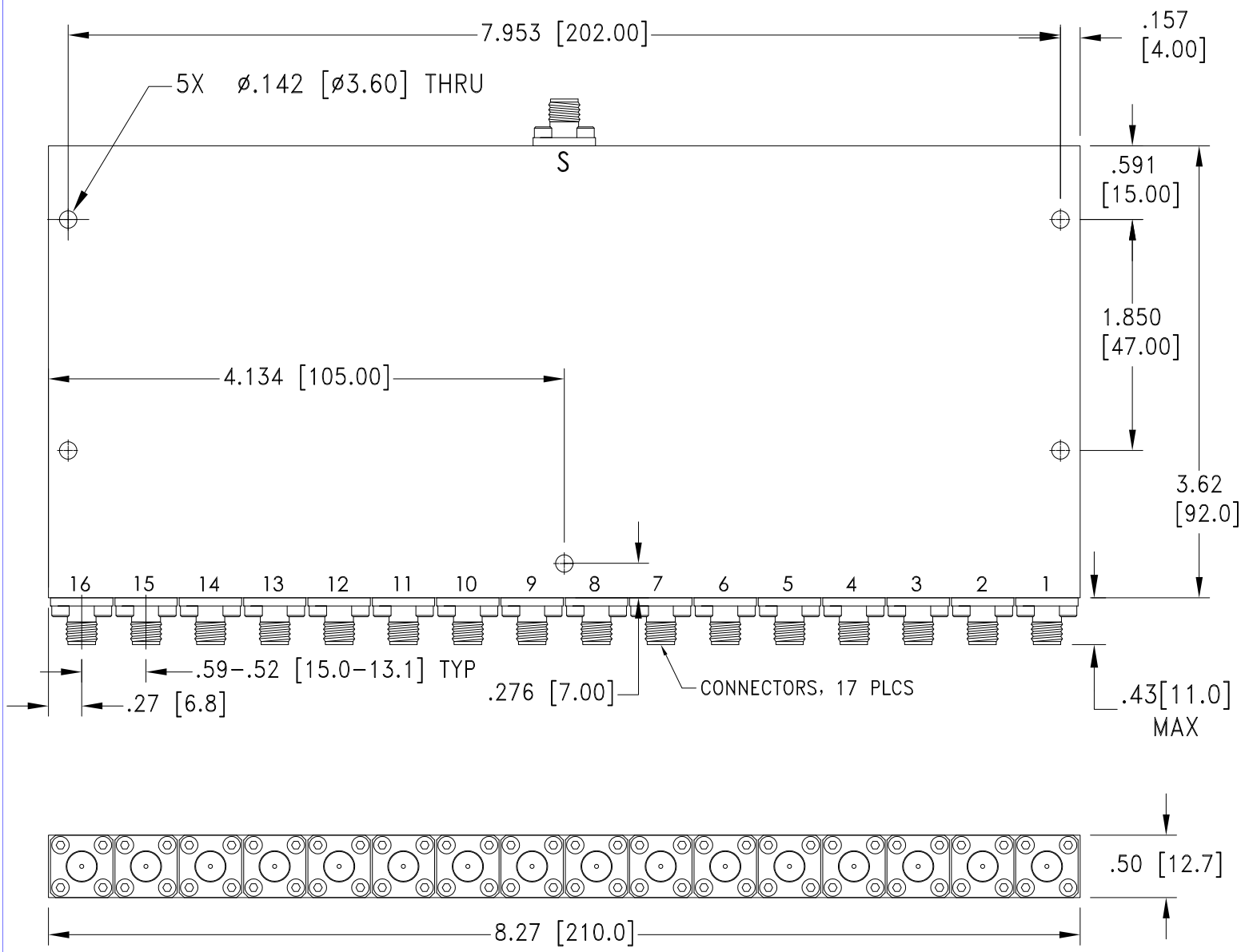




Case Style UU

Outline Dimensions

UU179-1



Weight: 750 grams;

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

Notes:

1. Case Material: Aluminum Alloy
2. Case Finish: Nickel plating.

Mini-Circuits

Environmental Specifications ENV29

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