High Power, DC Pass

Power Splitter/Combiner ZX10-2-183+

2 Way-0° 50Ω 30W 1500 to 18000 MHz

The Big Deal

- Ultra-Wideband, 1500 to 18000 MHz
- Low insertion loss, 0.8 dB
- High power handling, up to 30W as a splitter
- Low unbalance, 0.1 dB, 2˚
- Rugged unibody case, 1.90 x 0.96 x 0.46”

CASE STYLE: KB1450

Product Overview

Mini-Circuits’ ZX10-2-183+ is a coaxial, ultra-wideband 2-way 0˚ splitter combiner providing RF input power handling up to 30W as a splitter (from 1500 to 8000 MHz) and 0.8 dB insertion loss for an extremely wide range of applications from 1500 to 18000 MHz. Its outstanding combination of high power handling and low loss make this model an excellent choice for distributing signals in systems where efficient transmission of signal power is needed. The splitter/combiner comes housed in a rugged, compact case (1.90 x 0.96 x 0.46”) with SMA connectors.

Key Features

Feature	Advantages
Ultra-wideband, 1500 to 18000 MHz	ZX10-2-183+ supports bandwidth requirements for a wide variety of applications including broadband applications such as instrumentation and defense.
High power handling: • 30W to 8000 MHz • 10W to 18000 MHz	Supports a wide variety of system power requirements.
Low insertion loss, 0.8 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, 2˚ • Amplitude unbalance, 0.1 dB	Produces nearly equal output signals, ideal for parallel path / multichannel systems.
DC passing up to 600mA (300mA each port)	Supports applications where DC power is needed through the RF line.
Rugged, unibody construction	Mini-Circuits’ unibody construction integrates the RF connector into the case body, providing high reliability and excellent survivability in critical applications.

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Connectors	Model
SMA	ZX10-2-183-S+

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

Maximum Ratings

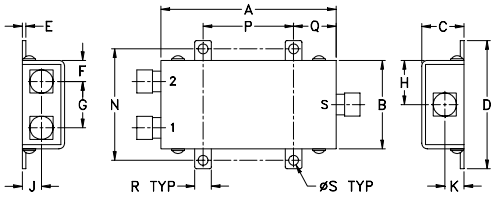
Operating Temperature (@<30W)	-55°C to 60°C
Operating Temperature (@<10W)	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	600 mA (300mA for each port)

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

Coaxial Connections

SUM PORT	S
PORT 1	1
PORT 2	2

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J
1.90	.96	.46	1.39	.04	.23	.50	.48	.21
48.26	24.38	11.68	35.31	1.02	5.84	12.70	12.19	5.33

K	L	M	N	P	Q	R	S	wt
.21	--	--	1.205	.980	.46	.18	.106	grams
5.33	--	--	30.61	24.89	11.68	4.57	2.69	50

Features

- very wideband, 1500 to 18000 MHz
- low insertion loss, 0.8 dB typ.
- good isolation, 22 dB typ.
- up to 30W power input as splitter
- excellent amplitude unbalance, 0.1 dB typ.
- excellent phase unbalance, 2 deg. typ.
- rugged shielded case

Applications

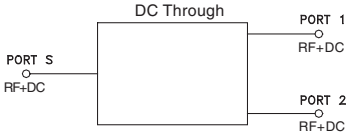
- PCS/DCS
- defense & federal communications
- instrumentation

Electrical Specifications at 25°C

Parameter		Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency			1500		18000	MHz
Insertion Loss (above theoretical 3.0 dB)		1500 - 8000	—	0.4	0.8	dB
		8000 - 13000	—	0.8	1.2	
		13000 - 17000	—	1.0	1.5	
		17000 - 18000	—	1.7	2.5	
Isolation		1500 - 8000	18	22	—	dB
		8000 - 13000	16	20	—	
		13000 - 17000	16	20	—	
		17000 - 18000	—	14	—	
Phase Unbalance		1500 - 8000	—	1.0	4	Degree
		8000 - 13000	—	2.0	5	
		13000 - 17000	—	4.0	9	
		17000 - 18000	—	4.0	9	
Amplitude Unbalance		1500 - 8000	—	0.1	0.3	dB
		8000 - 13000	—	0.15	0.4	
		13000 - 17000	—	0.2	0.6	
		17000 - 18000	—	0.4	0.9	
VSWR (Port S)		1500 - 8000	—	1.22	1.5	:1
		8000 - 13000	—	1.43	1.7	
		13000 - 17000	—	1.60	—	
		17000 - 18000	—	2.00	—	
VSWR (Port 1-2)		1500 - 8000	—	1.25	1.6	:1
		8000 - 13000	—	1.50	1.7	
		13000 - 17000	—	1.50	—	
		17000 - 18000	—	1.70	—	
Power Handling[3]	**As Splitter[1]**	1500 - 8000	—	—	30	W
		8000 - 13000	—	—	16	
		13000 - 17000	—	—	12.5	
		17000 - 18000	—	—	10	
	As Combiner[2]	1500-18000	—	—	1.0	

1. All outputs must terminate 50 ohm (VSWR 1.5:1 or better)
2. As a combiner of non-coherent signals, max. power per port is 1.0 watt power rating divided by number of ports.
3. Alternative heat sinking and heat removal must be provided by the user to limit maxmum base-plate temperature to 60°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 10°C/W.

Electrical Schematic

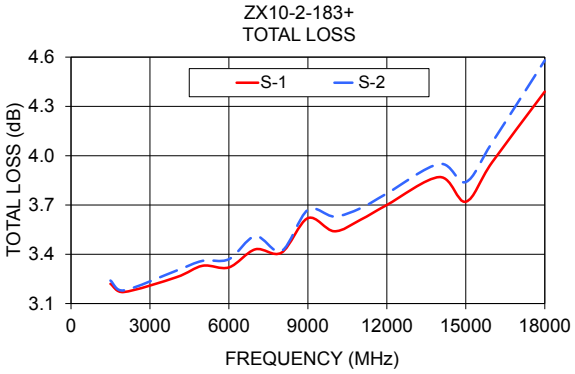


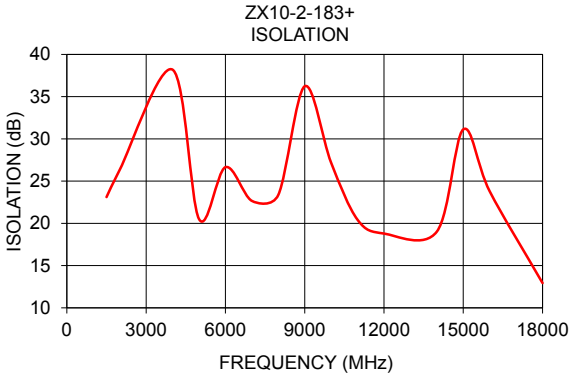
Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

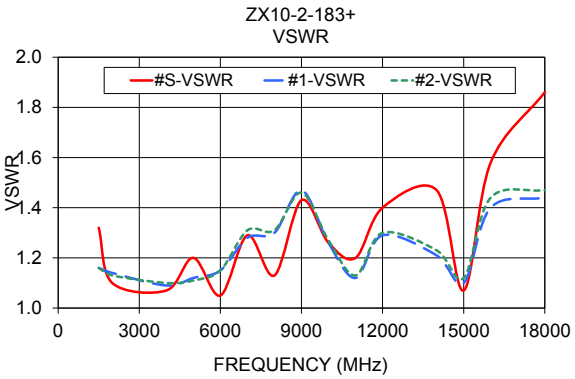
Typical Performance Data

Frequency (MHz)	Total Loss[1] (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
1500	3.22	3.24	0.02	23.11	0.07	1.32	1.16	1.16
2000	3.17	3.18	0.01	26.34	0.09	1.10	1.14	1.13
4000	3.26	3.30	0.04	38.19	0.33	1.07	1.09	1.10
5000	3.33	3.36	0.03	20.51	0.31	1.20	1.12	1.11
6000	3.32	3.37	0.05	26.65	0.28	1.05	1.15	1.15
7000	3.43	3.51	0.08	22.66	0.59	1.29	1.28	1.31
8000	3.41	3.42	0.01	23.36	0.76	1.13	1.30	1.31
9000	3.62	3.67	0.05	36.23	0.34	1.43	1.47	1.46
10000	3.54	3.63	0.09	27.17	0.66	1.26	1.26	1.27
11000	3.61	3.68	0.06	20.42	0.88	1.20	1.12	1.13
12000	3.70	3.77	0.07	18.79	1.37	1.40	1.29	1.30
14000	3.87	3.95	0.08	19.02	1.33	1.47	1.21	1.23
15000	3.72	3.84	0.12	31.12	1.27	1.07	1.10	1.12
16000	3.96	4.08	0.12	23.79	1.25	1.58	1.40	1.44
18000	4.39	4.58	0.19	12.93	1.24	1.86	1.44	1.47

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







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