

DC Pass

# Power Splitter/Combiner

ZN4PD1-183W+

4 Way-0° 50Ω 4000 to 18000 MHz

## The Big Deal

- Ultra-wideband, 4000 to 18000 MHz
- High power handling, 30W as a splitter
- Low insertion loss, 0.7 dB



CASE STYLE: UU2303

## Product Overview

Mini-Circuits' ZN4PD1-183W+ is a 4-way 0° splitter/combiner covering a wide range of applications from 4000 to 18000 MHz including test and measurement, EW, SatCom and more. This model is capable of handling up to 30W RF input power as a splitter and passing up to 4A DC current from the sum port to all output ports (100mA each port). Its outstanding combination of high power and low loss minimize intrinsic losses and provide excellent signal fidelity from input to output. It also provides high port-to-port isolation, excellent VSWR and low amplitude and phase unbalance. It comes housed in a rugged aluminum alloy case with SMA connectors at all ports.

## Key Features

| Feature   | Advantages  |
|---|---|
| Ultra-wideband, 4000 to 18000 MHz   | ZN4PD1-183W+ covers a wide range of applications with a single device.  |
| High power handling, 30W as a splitter  | Suitable for many high power applications.  |
| Low insertion loss, 0.7 dB  | Very low insertion loss minimizes intrinsic losses, making this model a suitable candidate for high power signal distribution applications where low loss is a requirement. |
| Low unbalance: <ul style="list-style-type: none"><li>• 0.25 dB amplitude unbalance</li><li>• 3° phase unbalance</li></ul> | ZN4PD1-183W+ produces nearly equal output signals, ideal for parallel path / multichannel systems.  |
| DC Passing, 0.4A (100mA each port)  | Supports applications where DC power is needed at later stages in the system.   |

### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Power Splitter/Combiner

## ZN4PD1-183W+

4 Way-0° 50Ω 4000 to 18000 MHz

### Maximum Ratings

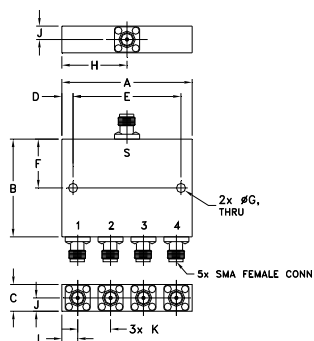
|                             |               |
|-----------------------------|---------------|
| Operating Temperature       | -55°C to 85°C |
| Storage Temperature         | -55°C to 85°C |
| Power Input (as a splitter) | 30W max.      |
| Internal Dissipation        | 0.45W max.    |

DC Current 0.4 A (100mA 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 |
| PORT 4   | 4 |

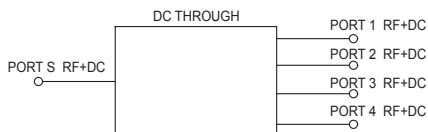
### Outline Drawing



### Outline Dimensions (inch/mm)

|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| A     | B     | C     | D     | E     | F     |
| 1.98  | 1.46  | .40   | .17   | 1.640 | .73   |
| 50.29 | 37.08 | 10.16 | 4.32  | 41.66 | 18.54 |
| G     | H     | J     | K     | L     | wt    |
| .137  | .99   | .20   | .500  | .24   | grams |
| 3.48  | 25.15 | 5.08  | 12.70 | 6.10  | 62    |

### Electrical Schematic



### Features

- wideband, 4000 to 18000 MHz
- low insertion loss, 0.7 dB typ.
- low amplitude unbalance, 0.25 dB typ.
- low phase unbalance, 3 deg. typ.
- excellent output VSWR, 1.2:1
- DC Pass from sum port to all output ports

### Applications

- wideband test and measurement
- electronic warfare
- satellite instrumentation



Generic photo used for illustration purposes only

CASE STYLE: UU2303

| Connectors | Model          |
|------------|----------------|
| SMA        | ZN4PD1-183W-S+ |

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

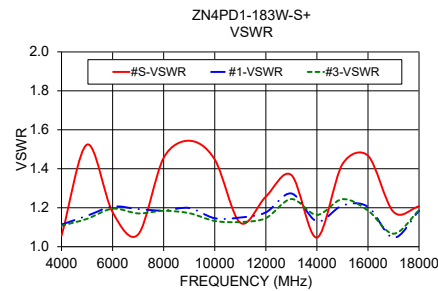
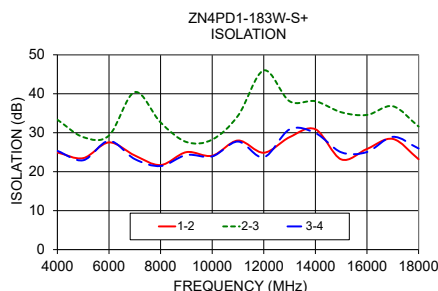
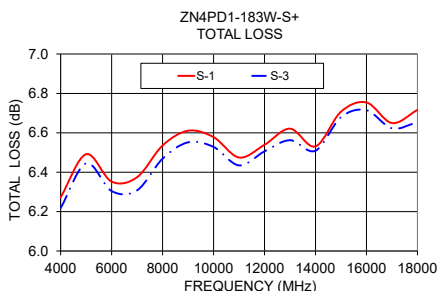
### Electrical Specifications at 25°C

| Parameter                                 | Frequency (MHz) | Min. | Typ. | Max.  | Unit   |
|---|-----------------|------|------|-------|--------|
| Frequency Range                           |                 | 4000 | —    | 18000 | MHz    |
| Insertion Loss (above theoretical 6.0 dB) | 4000-18000      | —    | 0.7  | 0.9   | dB     |
| Isolation                                 | 4000-18000      | 18   | 22   | —     | dB     |
| Phase Unbalance                           | 4000-18000      | —    | 3    | 6     | Degree |
| Amplitude Unbalance                       | 4000-18000      | —    | 0.25 | 0.5   | dB     |
| VSWR (Port S)                             | 4000-18000      | —    | 1.4  | 1.6   | :1     |
| VSWR Output (Port 1-4)                    | 4000-18000      | —    | 1.2  | 1.4   | :1     |

### Typical Performance Data

| Freq. (MHz) | Total Loss <sup>1</sup> (dB) |      |      |      | Amp. Unbal. (dB) | Isolation (dB) |       |       | VSWR S | VSWR 1 | VSWR 2 | VSWR 3 | VSWR 4 |
|-------------|------------------------------|------|------|------|------------------|----------------|-------|-------|--------|--------|--------|--------|--------|
|             | S-1                          | S-2  | S-3  | S-4  |                  | 1-2            | 2-3   | 3-4   |        |        |        |        |        |
| 4000        | 6.27                         | 6.22 | 6.22 | 6.19 | 0.08             | 24.92          | 33.34 | 25.34 | 1.06   | 1.11   | 1.09   | 1.11   | 1.11   |
| 5000        | 6.49                         | 6.45 | 6.45 | 6.41 | 0.08             | 23.48          | 28.88 | 22.94 | 1.52   | 1.16   | 1.13   | 1.14   | 1.16   |
| 6000        | 6.35                         | 6.31 | 6.30 | 6.27 | 0.08             | 27.51          | 29.27 | 27.90 | 1.18   | 1.21   | 1.17   | 1.19   | 1.20   |
| 7000        | 6.37                         | 6.32 | 6.31 | 6.27 | 0.10             | 24.16          | 40.43 | 23.23 | 1.06   | 1.19   | 1.16   | 1.17   | 1.19   |
| 8000        | 6.54                         | 6.50 | 6.47 | 6.43 | 0.11             | 21.71          | 32.64 | 21.45 | 1.46   | 1.19   | 1.19   | 1.18   | 1.21   |
| 9000        | 6.61                         | 6.59 | 6.55 | 6.49 | 0.12             | 25.02          | 27.62 | 24.28 | 1.54   | 1.20   | 1.15   | 1.17   | 1.19   |
| 10000       | 6.58                         | 6.56 | 6.53 | 6.46 | 0.12             | 24.10          | 28.24 | 23.92 | 1.45   | 1.15   | 1.16   | 1.13   | 1.09   |
| 11000       | 6.47                         | 6.46 | 6.43 | 6.35 | 0.13             | 28.00          | 34.36 | 27.73 | 1.12   | 1.15   | 1.13   | 1.13   | 1.10   |
| 12000       | 6.54                         | 6.52 | 6.51 | 6.41 | 0.13             | 24.87          | 45.99 | 23.70 | 1.26   | 1.18   | 1.12   | 1.15   | 1.15   |
| 13000       | 6.62                         | 6.61 | 6.56 | 6.46 | 0.17             | 28.86          | 38.07 | 30.86 | 1.37   | 1.27   | 1.24   | 1.24   | 1.24   |
| 14000       | 6.53                         | 6.53 | 6.51 | 6.37 | 0.16             | 30.89          | 38.09 | 29.92 | 1.05   | 1.13   | 1.10   | 1.16   | 1.15   |
| 15000       | 6.71                         | 6.71 | 6.68 | 6.53 | 0.18             | 23.16          | 35.26 | 24.98 | 1.42   | 1.21   | 1.17   | 1.24   | 1.23   |
| 16000       | 6.75                         | 6.77 | 6.71 | 6.54 | 0.24             | 25.84          | 34.57 | 25.05 | 1.47   | 1.20   | 1.24   | 1.19   | 1.17   |
| 17000       | 6.65                         | 6.67 | 6.62 | 6.42 | 0.25             | 28.41          | 36.80 | 28.95 | 1.18   | 1.05   | 1.05   | 1.07   | 1.04   |
| 18000       | 6.72                         | 6.74 | 6.65 | 6.42 | 0.32             | 23.20          | 31.59 | 25.96 | 1.21   | 1.18   | 1.11   | 1.19   | 1.17   |

1. Total Loss = Insertion Loss + 6dB splitter loss.



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