

DC Pass

Power Splitter/Combiner

ZN12PD-63-S+

12 Way-0° 50Ω 600 to 6000 MHz 20Watt

The Big Deal

- Wideband, 600 - 6000 MHz
- High power, 20W as a splitter
- Good isolation, 19 dB
- Ultra-slim case, 8.5 x 9.5 x 0.50"
- SMA connectors



CASE STYLE: UU2061-1

Product Overview

Mini-Circuits' ZN12PD-63-S+ is a connectorized, wideband 12-way 0° splitter/combiner supporting a wide variety of applications from 600 to 6000 MHz. This model is capable of handling up to 20W RF input power as a splitter and provides low insertion loss and good isolation. It comes housed in an aluminum alloy case (8.5 x 9.5 x 0.50") with SMA connectors, saving space in crowded system layouts. This model covers all cellular bands including LTE through WiFi in a single unit.

Key Features

| Feature | Advantages |
|---|--|
| Wideband, 600 to 6000 MHz | ZN12PD-63-S+ supports bandwidth requirements for a wide variety of applications. |
| Power handling up to 20W as a splitter (1.5W as a combiner) | Supports a wide range of power requirements. |
| Low insertion loss, 1.4 – 3.0 dB | Provides good transmission of signal power, making this model an excellent candidate for signal distribution applications where low loss is a requirement. |
| DC passing up to 1.2A (100 mA each port) | Supports applications where DC power is needed through the RF line. |
| High isolation, 19 dB | Minimizes interference between input ports. |
| Case design, 8.5 x 9.5 x 0.50" | Saves space in crowded system layouts. |

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



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ZN12PD-63-S+



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Connectors SMA Model ZN12PD-63-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 |
| DC Current | 1.2 A (100mA for each port) |

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

Coaxial Connections

| | |
|---------------------|----------------|
| SUM PORT | S(COM) |
| PORT 1,2,3,.....,12 | 1,2,3,.....,12 |

Features

- Wideband 600 to 6000 MHz
- High isolation, 19 dB typ.
- Good output VSWR, 1.4:1 typ.
- Good amplitude unbalance, 0.7 dB typ.

Applications

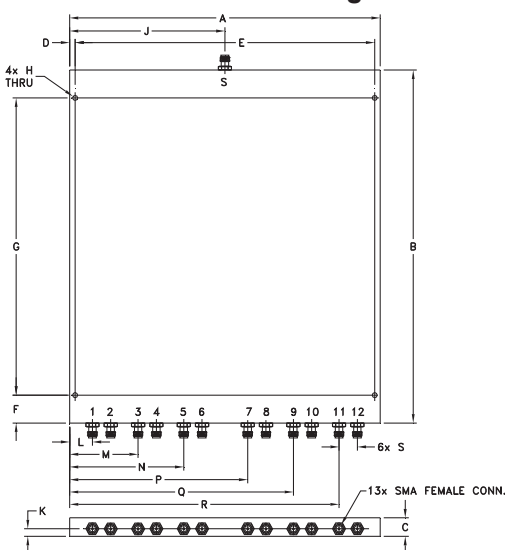
- All cellular bands including LTE
- WiFi
- Bluetooth
- Lab
- Test and measurement

Electrical Specifications at 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|------------------------------|--------------------------|------------|------|------|--------|
| Frequency Range | | 600 | | 6000 | MHz |
| Insertion Loss Above 10.8 dB | 600 - 3000 | — | 1.4 | 2.4 | dB |
| | 3000 - 6000 | — | 3.0 | 4.5 | |
| Isolation | 600 - 3000 | 14 | 20 | — | dB |
| | 3000 - 6000 | 13 | 18 | — | |
| Phase Unbalance | 600 - 3000 | — | 8.0 | — | Degree |
| | 3000 - 6000 | — | 10.0 | — | |
| Amplitude Unbalance | 600 - 3000 | — | 0.4 | 0.9 | dB |
| | 3000 - 6000 | — | 0.9 | 1.6 | |
| VSWR (Port S) | 600 - 6000 | — | 1.5 | 2.4 | :1 |
| VSWR (Port 1-2) | 600 - 3000 | — | 1.6 | — | :1 |
| | 3000 - 6000 | — | 1.5 | — | |
| Power Handling ¹ | As Splitter | 600 - 6000 | — | 20 | Watt |
| | As Combiner ² | 600 - 6000 | | 1.5 | |

1. Over 25°C to 100°C. Derate linearly to 50% of rating at 100°C.
2. As a combiner of non-coherent signals, max. power per port is 1.5 watt power rating divided by number of ports.

Outline Drawing



Outline Dimensions (inch/mm)

| | | | | | | | | |
|--------|--------|-------|-------|--------|--------|--------|-------|--------|
| A | B | C | D | E | F | G | H | J |
| 8.50 | 9.50 | .50 | .15 | 8.200 | .75 | 8.00 | .136 | 4.25 |
| 215.90 | 241.30 | 12.70 | 3.81 | 208.28 | 19.05 | 203.20 | 3.45 | 107.95 |
| K | L | M | N | P | Q | R | S | wt |
| .205 | .63 | 1.88 | 3.13 | 4.88 | 6.13 | 7.38 | 0.5 | grams |
| 5.21 | 16.00 | 47.75 | 79.50 | 123.95 | 155.70 | 187.45 | 12.70 | 1320 |

Electrical Schematic



Notes

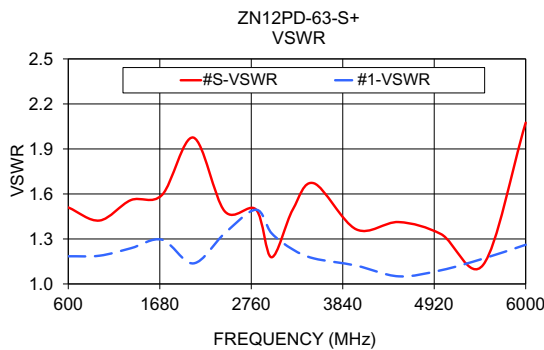
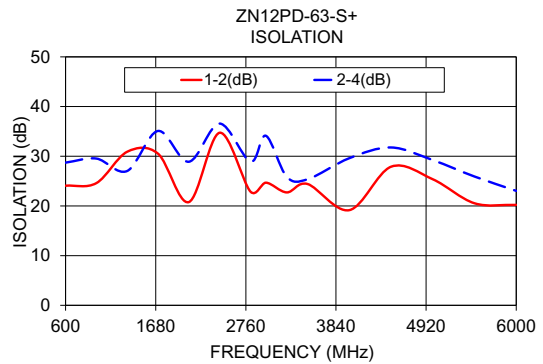
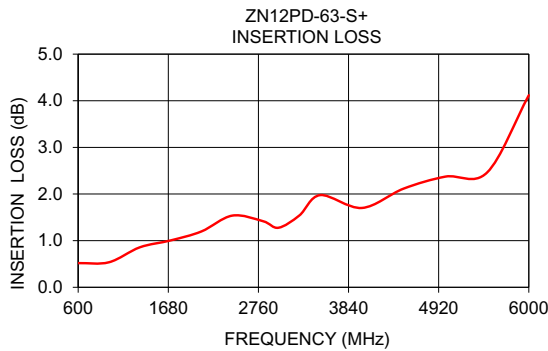
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Typical Performance Data

| Freq. (MHz) | Insertion Loss ¹ (dB) | Amplitude Unbalance (dB) | Isolation (dB) | | Phase Unbalance (deg.) | VSWR S | VSWR 12 |
|----------------|--|--------------------------------|-------------------|----------|------------------------------|-----------|------------|
| | | | Adjacent | Opposite | | | |
| 600 | 0.52 | 0.22 | 24.07 | 28.72 | 0.98 | 1.51 | 1.18 |
| 969 | 0.54 | 0.56 | 24.60 | 29.53 | 2.47 | 1.42 | 1.19 |
| 1338 | 0.86 | 0.21 | 30.91 | 27.04 | 3.01 | 1.56 | 1.24 |
| 1708 | 1.01 | 0.20 | 30.52 | 35.09 | 5.56 | 1.59 | 1.29 |
| 2077 | 1.20 | 0.15 | 20.77 | 28.89 | 4.07 | 1.98 | 1.14 |
| 2446 | 1.54 | 0.24 | 34.73 | 36.57 | 6.15 | 1.48 | 1.34 |
| 2815 | 1.42 | 0.32 | 22.89 | 28.90 | 4.88 | 1.50 | 1.49 |
| 3000 | 1.28 | 0.35 | 24.68 | 34.12 | 6.13 | 1.18 | 1.34 |
| 3250 | 1.54 | 0.48 | 22.72 | 25.87 | 5.07 | 1.50 | 1.23 |
| 3500 | 1.98 | 0.62 | 24.41 | 25.37 | 6.10 | 1.67 | 1.17 |
| 4000 | 1.70 | 0.63 | 19.15 | 29.61 | 6.30 | 1.36 | 1.12 |
| 4500 | 2.12 | 0.62 | 27.89 | 31.77 | 4.46 | 1.41 | 1.05 |
| 5000 | 2.37 | 0.77 | 25.37 | 29.22 | 5.26 | 1.33 | 1.09 |
| 5500 | 2.46 | 1.29 | 20.53 | 25.92 | 6.43 | 1.13 | 1.17 |
| 6000 | 4.12 | 0.72 | 20.21 | 23.03 | 10.65 | 2.07 | 1.26 |

1. Total Loss = Insertion Loss + 10.8dB splitter loss.



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ZN12PD-63-S+

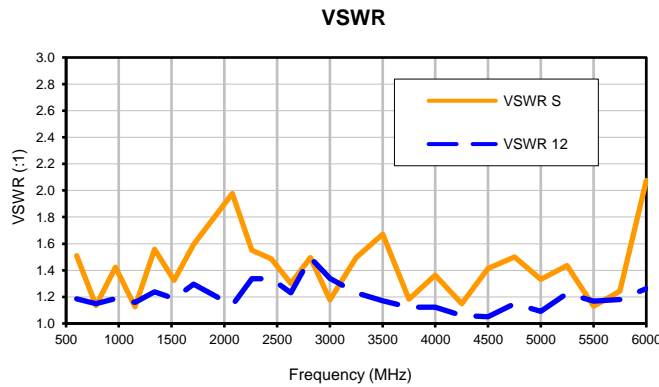
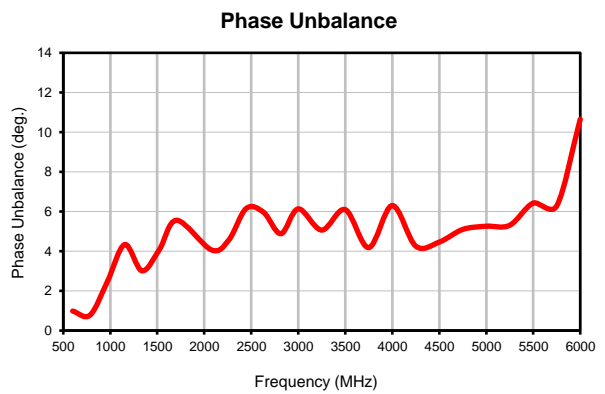
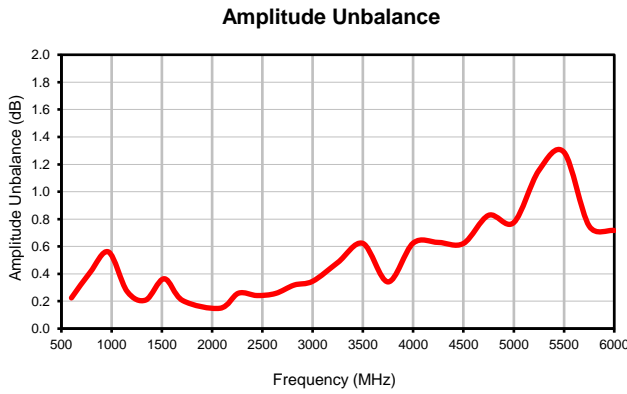
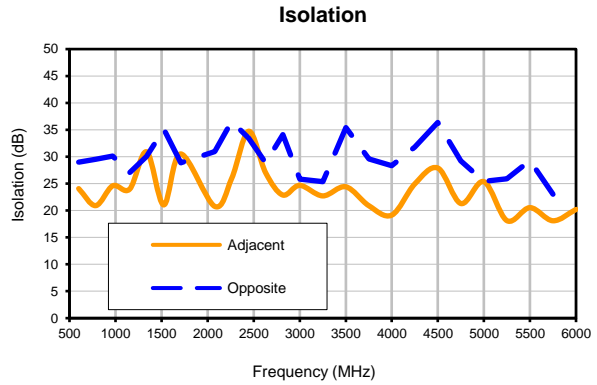
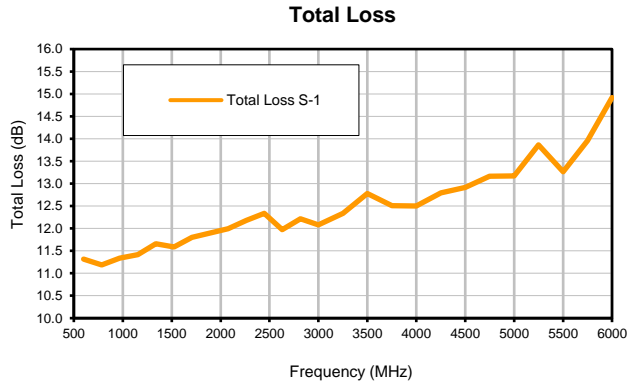
Typical Performance Data

| FREQ. (MHz) | TOTAL LOSS ¹ (dB) S-1 | AMP. UNBAL. (dB) | ISOLATION (dB) | | PHASE UNBAL. (deg.) | FREQ. (MHz) | VSWR (:1) | |
|----------------|---|------------------------|-------------------|----------|---------------------------|----------------|--------------|------|
| | | | Adjacent | Opposite | | | S | 12 |
| 600 | 11.32 | 0.22 | 24.07 | 28.72 | 0.98 | 600 | 1.51 | 1.18 |
| 785 | 11.19 | 0.41 | 20.91 | 28.97 | 0.78 | 785 | 1.13 | 1.15 |
| 969 | 11.34 | 0.56 | 24.60 | 29.53 | 2.47 | 969 | 1.42 | 1.19 |
| 1154 | 11.42 | 0.27 | 23.98 | 30.14 | 4.34 | 1154 | 1.13 | 1.16 |
| 1338 | 11.66 | 0.21 | 30.91 | 27.04 | 3.01 | 1338 | 1.56 | 1.24 |
| 1523 | 11.58 | 0.36 | 21.05 | 30.06 | 4.09 | 1523 | 1.32 | 1.19 |
| 1708 | 11.81 | 0.20 | 30.52 | 35.09 | 5.56 | 1708 | 1.59 | 1.29 |
| 2077 | 12.00 | 0.15 | 20.77 | 28.89 | 4.07 | 2077 | 1.98 | 1.14 |
| 2262 | 12.18 | 0.26 | 25.97 | 30.98 | 4.57 | 2262 | 1.55 | 1.34 |
| 2446 | 12.34 | 0.24 | 34.73 | 36.57 | 6.15 | 2446 | 1.48 | 1.34 |
| 2631 | 11.98 | 0.26 | 26.98 | 33.46 | 5.96 | 2631 | 1.30 | 1.23 |
| 2815 | 12.22 | 0.32 | 22.89 | 28.90 | 4.88 | 2815 | 1.50 | 1.49 |
| 3000 | 12.08 | 0.35 | 24.68 | 34.12 | 6.13 | 3000 | 1.18 | 1.34 |
| 3250 | 12.34 | 0.48 | 22.72 | 25.87 | 5.07 | 3250 | 1.50 | 1.23 |
| 3500 | 12.78 | 0.62 | 24.41 | 25.37 | 6.10 | 3500 | 1.67 | 1.17 |
| 3750 | 12.51 | 0.34 | 20.90 | 35.42 | 4.18 | 3750 | 1.18 | 1.12 |
| 4000 | 12.50 | 0.63 | 19.15 | 29.61 | 6.30 | 4000 | 1.36 | 1.12 |
| 4250 | 12.79 | 0.63 | 24.96 | 28.31 | 4.26 | 4250 | 1.15 | 1.06 |
| 4500 | 12.92 | 0.62 | 27.89 | 31.77 | 4.46 | 4500 | 1.41 | 1.05 |
| 4750 | 13.16 | 0.83 | 21.30 | 36.35 | 5.10 | 4750 | 1.50 | 1.15 |
| 5000 | 13.17 | 0.77 | 25.37 | 29.22 | 5.26 | 5000 | 1.33 | 1.09 |
| 5250 | 13.86 | 1.16 | 18.12 | 25.41 | 5.31 | 5250 | 1.44 | 1.22 |
| 5500 | 13.26 | 1.29 | 20.53 | 25.92 | 6.43 | 5500 | 1.13 | 1.17 |
| 5750 | 13.96 | 0.75 | 18.10 | 29.26 | 6.29 | 5750 | 1.24 | 1.18 |
| 6000 | 14.92 | 0.72 | 20.21 | 23.03 | 10.65 | 6000 | 2.07 | 1.26 |

¹Total Loss = Insertion Loss + 10.8dB Splitter Loss

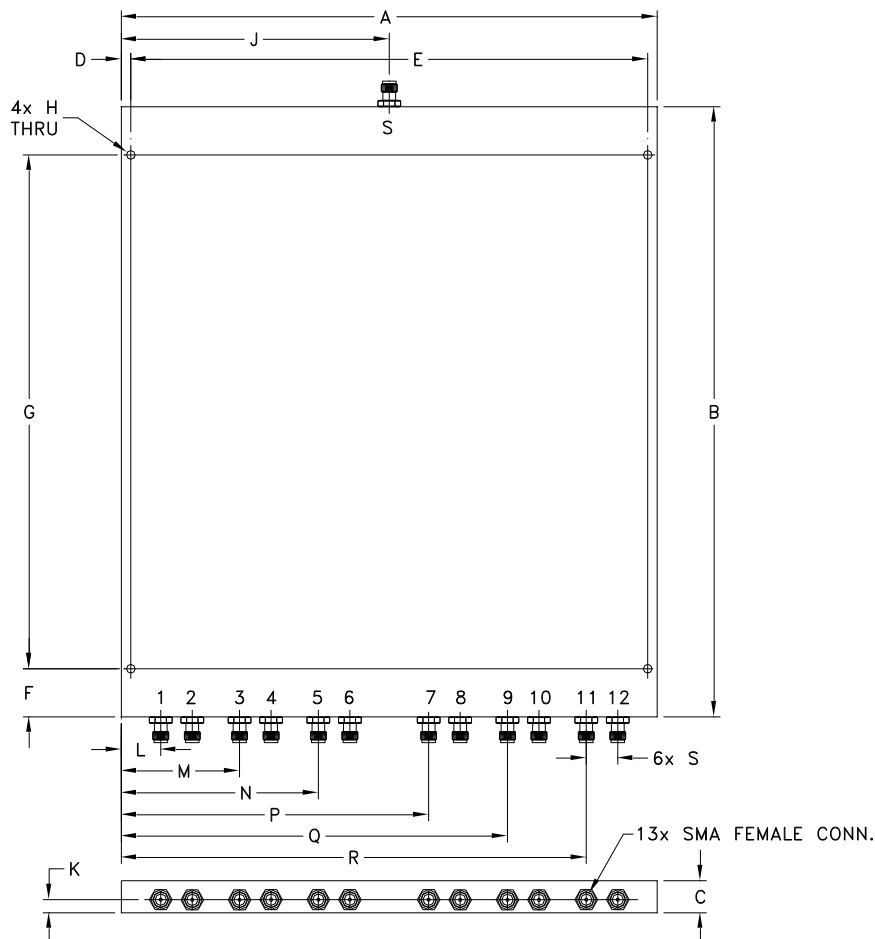


Typical Performance Curves



Outline Dimensions

UU2061-1



| CASE# | A | B | C | D | E | F | G | H | J | K | L |
|----------|------------------|------------------|----------------|---------------|-------------------|----------------|------------------|----------------|------------------|----------------|----------------|
| UU2061-1 | 8.50 (215.90) | 9.50 (241.30) | .50 (12.70) | .15 (3.81) | 8.200 (208.28) | .75 (19.05) | 8.000 (203.2) | .136 (3.45) | 4.25 (107.95) | .205 (5.21) | .63 (15.88) |

| CASE# | M | N | P | Q | R | S | WT. GRAMS |
|----------|-----------------|-----------------|------------------|------------------|------------------|-----------------|-----------|
| UU2061-1 | 1.88 (47.63) | 3.13 (79.38) | 4.88 (123.83) | 6.13 (155.58) | 7.38 (187.33) | .500 (12.70) | 1.190 |

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

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.



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

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 |