

# Power Splitter/Combiner

## ZN8PD-642W-S+

8 Way-0° 50Ω 1800 to 6400 MHz

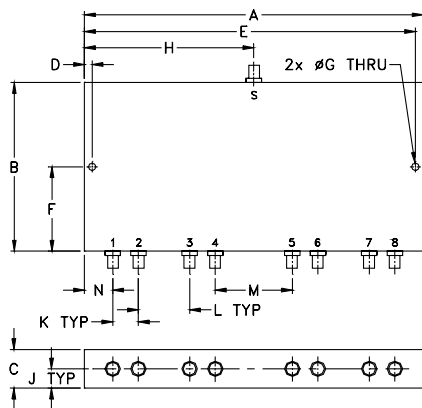
### Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -55°C to 100°C |
| Storage Temperature                                             | -55°C to 100°C |
| Power Input (as a splitter)                                     | 10W max.       |
| Internal Dissipation                                            | 0.875W max.    |
| Permanent damage may occur if any of these limits are exceeded. |                |

### Coaxial Connections

|                    |               |
|--------------------|---------------|
| SUM PORT           | S(COM)        |
| PORT 1,2,3,.....,8 | 1,2,3,.....,8 |

### Outline Drawing



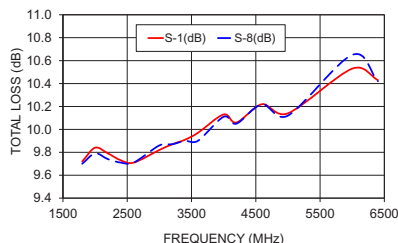
### Outline Dimensions (inch/mm)

| A      | B     | C     | D     | E      | F     | G     |
|--------|-------|-------|-------|--------|-------|-------|
| 6.60   | 3.28  | .75   | .150  | 6.45   | 1.64  | .144  |
| 167.64 | 83.31 | 19.05 | 3.81  | 163.83 | 41.66 | 3.66  |
| H      | J     | K     | L     | M      | N     | wt    |
| 3.30   | .38   | .500  | 1.000 | 1.500  | 0.550 | grams |
| 83.82  | 9.65  | 12.70 | 25.4  | 38.1   | 13.97 | 360   |

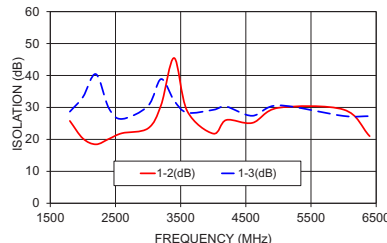
### Electrical Schematic



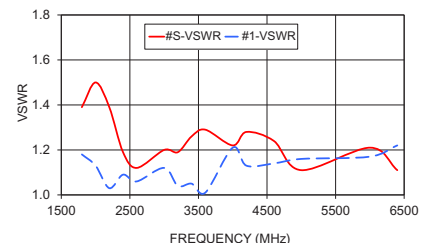
ZN8PD-642W-S+  
TOTAL LOSS



ZN8PD-642W-S+  
ISOLATION



ZN8PD-642W-S+  
VSWR



### Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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### Features

- wideband, 1800 to 6400 MHz
- low insertion loss, 1.5 dB typ.
- low amplitude unbalance, 0.2 dB typ.
- excellent output VSWR, 1.15:1 typ.
- DC PASS from sum port to output ports

### Applications

- high band PCS
- UNII
- WIMAX
- WiFi
- bluetooth

### Electrical Specifications at 25°C

| Parameter                                        | Frequency (MHz) | Min. | Typ. | Max. | Unit   |
|--------------------------------------------------|-----------------|------|------|------|--------|
| <b>Frequency Range</b>                           |                 | 1800 |      | 6400 | MHz    |
| <b>Insertion Loss</b> (above theoretical 9.0 dB) | 1800-3200       | —    | 0.9  | 1.4  | dB     |
|                                                  | 3200-6400       | —    | 1.5  | 2.3  |        |
| <b>Isolation</b>                                 | 1800-3200       | 15   | 20   | —    | dB     |
|                                                  | 3200-6400       | 18   | 25   | —    |        |
| <b>Phase Unbalance</b>                           | 1800-3200       | —    | 2    | 8    | Degree |
|                                                  | 3200-6400       | —    | 5    | 12   |        |
| <b>Amplitude Unbalance</b>                       | 1800-3200       | —    | 0.15 | 0.5  | dB     |
|                                                  | 3200-6400       | —    | 0.30 | 0.7  |        |
| <b>VSWR (Port S)</b>                             | 1800-3200       | —    | 1.4  | —    | :1     |
|                                                  | 3200-6400       | —    | 1.2  | —    |        |
| <b>VSWR (Port 1-8)</b>                           | 1800-3200       | —    | 1.15 | —    | :1     |
|                                                  | 3200-6400       | —    | 1.15 | —    |        |

1. Over -55°C to +55°C. Derate linearly to 20% of rating at 100°C

### Typical Performance Data

| Freq.<br>(MHz) | Total Loss <sup>1</sup><br>(dB) |       |       |       |       |       | Amp.<br>Unb.<br>(dB) | Isolation<br>(dB) |       |       |       | Phase<br>Unb.<br>(deg.) | VSWR<br>S | VSWR<br>1 | VSWR<br>8 |
|----------------|---------------------------------|-------|-------|-------|-------|-------|----------------------|-------------------|-------|-------|-------|-------------------------|-----------|-----------|-----------|
|                | S-1                             | S-2   | S-3   | S-4   | S-6   | S-8   |                      | 1-2               | 1-3   | 3-4   | 5-6   |                         |           |           |           |
| 1800           | 9.72                            | 9.67  | 9.66  | 9.64  | 9.77  | 9.70  | 0.16                 | 25.78             | 28.68 | 26.43 | 24.46 | 1.73                    | 1.39      | 1.18      | 1.19      |
| 2000           | 9.84                            | 9.80  | 9.83  | 9.81  | 9.92  | 9.79  | 0.13                 | 20.29             | 33.24 | 20.60 | 19.95 | 1.89                    | 1.50      | 1.13      | 1.15      |
| 2200           | 9.79                            | 9.77  | 9.74  | 9.72  | 9.81  | 9.74  | 0.14                 | 18.45             | 40.43 | 18.75 | 18.57 | 1.44                    | 1.39      | 1.03      | 1.09      |
| 2400           | 9.73                            | 9.74  | 9.70  | 9.66  | 9.80  | 9.71  | 0.15                 | 20.16             | 29.69 | 19.86 | 19.97 | 1.49                    | 1.19      | 1.09      | 1.07      |
| 2600           | 9.71                            | 9.75  | 9.73  | 9.71  | 9.83  | 9.71  | 0.12                 | 21.93             | 26.40 | 21.99 | 22.22 | 1.40                    | 1.12      | 1.06      | 1.04      |
| 3000           | 9.82                            | 9.87  | 9.88  | 9.84  | 9.99  | 9.86  | 0.17                 | 23.46             | 30.50 | 23.32 | 23.43 | 1.64                    | 1.20      | 1.12      | 1.11      |
| 3200           | 9.87                            | 9.90  | 9.90  | 9.86  | 9.99  | 9.87  | 0.13                 | 30.75             | 38.89 | 28.89 | 29.31 | 2.00                    | 1.19      | 1.04      | 1.07      |
| 3400           | 9.91                            | 9.91  | 9.90  | 9.88  | 10.03 | 9.90  | 0.16                 | 45.47             | 32.14 | 35.75 | 37.68 | 2.11                    | 1.26      | 1.05      | 1.02      |
| 3600           | 9.97                            | 9.97  | 9.95  | 9.96  | 10.03 | 9.90  | 0.13                 | 28.90             | 28.38 | 27.91 | 28.25 | 2.21                    | 1.29      | 1.01      | 1.03      |
| 4000           | 10.13                           | 10.19 | 10.24 | 10.28 | 10.34 | 10.11 | 0.28                 | 21.81             | 29.25 | 20.71 | 20.89 | 2.25                    | 1.22      | 1.21      | 1.12      |
| 4200           | 10.06                           | 10.14 | 10.15 | 10.13 | 10.23 | 10.05 | 0.20                 | 26.07             | 30.25 | 24.95 | 23.54 | 2.48                    | 1.28      | 1.13      | 1.07      |
| 4600           | 10.22                           | 10.27 | 10.19 | 10.13 | 10.30 | 10.22 | 0.18                 | 25.17             | 27.39 | 23.49 | 25.46 | 3.48                    | 1.24      | 1.14      | 1.05      |
| 5000           | 10.14                           | 10.17 | 10.16 | 10.12 | 10.35 | 10.12 | 0.24                 | 29.89             | 30.66 | 32.53 | 29.80 | 4.17                    | 1.11      | 1.16      | 1.11      |
| 6000           | 10.53                           | 10.56 | 10.49 | 10.39 | 10.78 | 10.65 | 0.38                 | 29.32             | 27.33 | 29.76 | 29.12 | 5.23                    | 1.21      | 1.17      | 1.15      |
| 6400           | 10.43                           | 10.46 | 10.48 | 10.49 | 10.59 | 10.42 | 0.23                 | 21.01             | 27.28 | 20.87 | 21.95 | 5.65                    | 1.11      | 1.22      | 1.11      |

1. Total Loss = Insertion Loss + 9dB theoretical splitter loss.

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