

## Engineering Development Model

# Power Splitter/Combiner

# ZB8PD-ED10257/1

## 8 Way-0°

### Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability.  
At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



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CASE STYLE : Z41

| ELECTRICAL SPECIFICATIONS 50Ω @ +25°C |                |      |       |            |
|---------------------------------------|----------------|------|-------|------------|
| Parameter                             |                | Min. | Typ.  | Max. Units |
| Frequency                             |                | 900  |       | 2150 MHz   |
| Isolation                             | 900 - 2150 MHz |      | 23    | dB         |
| Insertion Loss Above 9.0 dB           | 900 - 2150 MHz |      | 0.60  | dB         |
| Phase Unbalance                       | 900 - 2150 MHz |      | 5.211 | deg.       |
| Amplitude Unbalance                   | 900 - 2150 MHz |      | 0.229 | dB         |
| VSWR                                  | SUM Port       |      | 1.40  | (:1)       |
|                                       | OUT Ports      |      | 1.25  | (:1)       |

| MAXIMUM RATINGS       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |

| PIN CONNECTIONS |   |
|-----------------|---|
| SUM PORT        | S |
| PORT 1          | 1 |
| PORT 2          | 2 |
| PORT 3          | 3 |
| PORT 4          | 4 |
| PORT 5          | 5 |
| PORT 6          | 6 |
| PORT 7          | 7 |
| PORT 8          | 8 |

### Functional Diagram



# 8 Way-0° Power Splitter/Combiner ZB8PD-ED10257/1

## Typical Performance Data

| FREQ.<br>(MHz) | TOTAL LOSS <sup>1</sup><br>(dB) |      |       |       |      |      | AMP.<br>UNBAL.<br>(dB) | ISOLATION<br>(dB) |       |       |       | PHASE<br>UNBAL.<br>(deg.) | FREQ.<br>(MHz) | VSWR<br>(:1) |      |      |
|----------------|---------------------------------|------|-------|-------|------|------|------------------------|-------------------|-------|-------|-------|---------------------------|----------------|--------------|------|------|
|                | S-1                             | S-2  | S-3   | S-4   | S-6  | S-8  |                        | 1-2               | 1-3   | 3-4   | 6-7   |                           |                | S            | 1    | 8    |
| 810.0          | 9.48                            | 9.72 | 9.72  | 9.41  | 9.67 | 9.46 | 0.32                   | 24.52             | 23.81 | 24.18 | 24.67 | 2.78                      | 810.0          | 1.79         | 1.21 | 1.35 |
| 820.0          | 9.42                            | 9.68 | 9.67  | 9.35  | 9.61 | 9.40 | 0.34                   | 24.76             | 24.16 | 24.39 | 24.89 | 2.72                      | 820.0          | 1.72         | 1.22 | 1.34 |
| 830.0          | 9.39                            | 9.67 | 9.67  | 9.33  | 9.61 | 9.37 | 0.36                   | 24.98             | 24.57 | 24.57 | 25.10 | 2.78                      | 830.0          | 1.66         | 1.23 | 1.33 |
| 840.0          | 9.40                            | 9.71 | 9.69  | 9.35  | 9.64 | 9.38 | 0.38                   | 25.22             | 25.04 | 24.75 | 25.30 | 2.89                      | 840.0          | 1.59         | 1.23 | 1.32 |
| 850.0          | 9.44                            | 9.74 | 9.74  | 9.39  | 9.68 | 9.42 | 0.38                   | 25.45             | 25.52 | 24.94 | 25.49 | 3.09                      | 850.0          | 1.53         | 1.24 | 1.31 |
| 860.0          | 9.45                            | 9.75 | 9.75  | 9.40  | 9.68 | 9.43 | 0.38                   | 25.65             | 26.02 | 25.09 | 25.64 | 3.22                      | 860.0          | 1.47         | 1.25 | 1.30 |
| 870.0          | 9.40                            | 9.68 | 9.68  | 9.35  | 9.62 | 9.38 | 0.35                   | 25.77             | 26.49 | 25.19 | 25.74 | 3.33                      | 870.0          | 1.41         | 1.25 | 1.30 |
| 880.0          | 9.34                            | 9.59 | 9.60  | 9.28  | 9.53 | 9.33 | 0.34                   | 25.86             | 26.94 | 25.22 | 25.80 | 3.32                      | 880.0          | 1.35         | 1.26 | 1.29 |
| 890.0          | 9.29                            | 9.53 | 9.53  | 9.23  | 9.46 | 9.27 | 0.32                   | 25.89             | 27.37 | 25.23 | 25.86 | 3.23                      | 890.0          | 1.29         | 1.27 | 1.29 |
| 900.0          | 9.25                            | 9.50 | 9.50  | 9.21  | 9.43 | 9.24 | 0.32                   | 25.92             | 27.83 | 25.22 | 25.90 | 3.13                      | 900.0          | 1.24         | 1.27 | 1.28 |
| 1000.0         | 9.27                            | 9.52 | 9.53  | 9.24  | 9.45 | 9.26 | 0.33                   | 26.44             | 30.84 | 25.70 | 26.37 | 3.45                      | 1000.0         | 1.19         | 1.34 | 1.30 |
| 1100.0         | 9.48                            | 9.72 | 9.73  | 9.45  | 9.65 | 9.47 | 0.32                   | 25.90             | 27.92 | 25.78 | 26.19 | 3.80                      | 1100.0         | 1.50         | 1.34 | 1.34 |
| 1200.0         | 9.55                            | 9.76 | 9.78  | 9.51  | 9.71 | 9.54 | 0.29                   | 23.79             | 25.62 | 24.16 | 24.43 | 4.13                      | 1200.0         | 1.57         | 1.26 | 1.31 |
| 1300.0         | 9.48                            | 9.68 | 9.69  | 9.44  | 9.62 | 9.46 | 0.26                   | 22.37             | 24.70 | 22.82 | 23.04 | 4.58                      | 1300.0         | 1.46         | 1.18 | 1.23 |
| 1400.0         | 9.52                            | 9.66 | 9.67  | 9.47  | 9.61 | 9.49 | 0.21                   | 22.12             | 24.46 | 22.50 | 22.75 | 5.04                      | 1400.0         | 1.34         | 1.14 | 1.14 |
| 1500.0         | 9.50                            | 9.59 | 9.59  | 9.47  | 9.53 | 9.47 | 0.14                   | 22.79             | 24.27 | 23.08 | 23.25 | 5.46                      | 1500.0         | 1.28         | 1.14 | 1.10 |
| 1550.0         | 9.57                            | 9.63 | 9.65  | 9.53  | 9.58 | 9.53 | 0.12                   | 23.52             | 23.98 | 23.72 | 23.91 | 5.83                      | 1550.0         | 1.28         | 1.14 | 1.11 |
| 1600.0         | 9.56                            | 9.58 | 9.60  | 9.53  | 9.53 | 9.51 | 0.09                   | 24.74             | 23.72 | 24.92 | 25.02 | 5.79                      | 1600.0         | 1.30         | 1.12 | 1.14 |
| 1650.0         | 9.60                            | 9.58 | 9.61  | 9.59  | 9.54 | 9.55 | 0.07                   | 26.61             | 23.36 | 26.80 | 26.96 | 5.97                      | 1650.0         | 1.32         | 1.09 | 1.19 |
| 1700.0         | 9.66                            | 9.60 | 9.62  | 9.65  | 9.56 | 9.61 | 0.10                   | 29.44             | 23.21 | 29.92 | 30.09 | 5.98                      | 1700.0         | 1.32         | 1.05 | 1.23 |
| 1750.0         | 9.64                            | 9.56 | 9.60  | 9.66  | 9.55 | 9.61 | 0.12                   | 32.09             | 23.26 | 33.70 | 34.35 | 5.95                      | 1750.0         | 1.32         | 1.02 | 1.26 |
| 1800.0         | 9.70                            | 9.56 | 9.60  | 9.73  | 9.55 | 9.67 | 0.19                   | 30.68             | 23.59 | 32.58 | 33.53 | 6.05                      | 1800.0         | 1.35         | 1.05 | 1.27 |
| 1850.0         | 9.75                            | 9.62 | 9.66  | 9.79  | 9.61 | 9.72 | 0.20                   | 27.54             | 24.37 | 28.69 | 29.44 | 5.99                      | 1850.0         | 1.39         | 1.09 | 1.25 |
| 1900.0         | 9.77                            | 9.58 | 9.62  | 9.82  | 9.56 | 9.73 | 0.27                   | 25.44             | 25.62 | 26.19 | 26.78 | 5.95                      | 1900.0         | 1.41         | 1.12 | 1.19 |
| 1950.0         | 9.78                            | 9.59 | 9.64  | 9.82  | 9.57 | 9.71 | 0.27                   | 24.50             | 27.51 | 25.07 | 25.58 | 5.92                      | 1950.0         | 1.39         | 1.12 | 1.12 |
| 2000.0         | 9.80                            | 9.59 | 9.63  | 9.85  | 9.55 | 9.72 | 0.32                   | 24.82             | 29.96 | 25.29 | 25.70 | 5.75                      | 2000.0         | 1.30         | 1.10 | 1.11 |
| 2050.0         | 9.73                            | 9.52 | 9.56  | 9.77  | 9.47 | 9.64 | 0.32                   | 26.59             | 31.49 | 27.05 | 27.47 | 5.36                      | 2050.0         | 1.18         | 1.06 | 1.18 |
| 2100.0         | 9.78                            | 9.59 | 9.63  | 9.82  | 9.53 | 9.69 | 0.31                   | 30.99             | 29.85 | 31.86 | 32.16 | 5.34                      | 2100.0         | 1.12         | 1.01 | 1.29 |
| 2150.0         | 9.81                            | 9.61 | 9.66  | 9.87  | 9.58 | 9.73 | 0.33                   | 35.68             | 26.98 | 40.09 | 39.33 | 4.74                      | 2150.0         | 1.23         | 1.06 | 1.39 |
| 2175.0         | 9.83                            | 9.70 | 9.75  | 9.91  | 9.68 | 9.76 | 0.27                   | 31.75             | 25.77 | 33.69 | 33.60 | 4.83                      | 2175.0         | 1.30         | 1.09 | 1.43 |
| 2200.0         | 9.83                            | 9.70 | 9.76  | 9.93  | 9.68 | 9.77 | 0.29                   | 27.91             | 24.67 | 28.95 | 29.12 | 5.25                      | 2200.0         | 1.37         | 1.12 | 1.46 |
| 2225.0         | 9.85                            | 9.66 | 9.73  | 9.97  | 9.66 | 9.79 | 0.38                   | 24.99             | 23.74 | 25.76 | 26.02 | 5.13                      | 2225.0         | 1.41         | 1.15 | 1.48 |
| 2250.0         | 9.94                            | 9.81 | 9.89  | 10.10 | 9.84 | 9.90 | 0.36                   | 22.91             | 23.08 | 23.53 | 23.74 | 4.86                      | 2250.0         | 1.44         | 1.17 | 1.50 |
| 2275.0         | 9.82                            | 9.76 | 9.85  | 10.02 | 9.80 | 9.78 | 0.31                   | 21.21             | 22.45 | 21.75 | 21.99 | 5.39                      | 2275.0         | 1.43         | 1.19 | 1.50 |
| 2300.0         | 9.82                            | 9.70 | 9.81  | 10.03 | 9.76 | 9.78 | 0.40                   | 19.79             | 21.89 | 20.27 | 20.56 | 6.01                      | 2300.0         | 1.40         | 1.19 | 1.50 |
| 2325.0         | 9.90                            | 9.76 | 9.86  | 10.14 | 9.81 | 9.85 | 0.46                   | 18.73             | 21.47 | 19.14 | 19.42 | 5.91                      | 2325.0         | 1.35         | 1.20 | 1.49 |
| 2350.0         | 9.85                            | 9.76 | 9.86  | 10.09 | 9.81 | 9.79 | 0.41                   | 17.90             | 21.10 | 18.24 | 18.55 | 6.00                      | 2350.0         | 1.30         | 1.19 | 1.48 |
| 2375.0         | 9.80                            | 9.71 | 9.82  | 10.03 | 9.76 | 9.72 | 0.40                   | 17.06             | 20.58 | 17.32 | 17.70 | 6.68                      | 2375.0         | 1.28         | 1.18 | 1.48 |
| 2400.0         | 9.94                            | 9.81 | 9.92  | 10.16 | 9.84 | 9.85 | 0.44                   | 16.42             | 20.12 | 16.62 | 16.95 | 7.03                      | 2400.0         | 1.33         | 1.17 | 1.47 |
| 2425.0         | 9.97                            | 9.82 | 9.92  | 10.19 | 9.83 | 9.86 | 0.48                   | 15.78             | 19.57 | 15.93 | 16.36 | 7.13                      | 2425.0         | 1.44         | 1.16 | 1.47 |
| 2450.0         | 10.08                           | 9.93 | 10.03 | 10.30 | 9.94 | 9.97 | 0.50                   | 15.14             | 18.96 | 15.27 | 15.70 | 7.30                      | 2450.0         | 1.60         | 1.14 | 1.46 |

<sup>1</sup> Total Loss = Insertion Loss+ 9dB Splitter Loss

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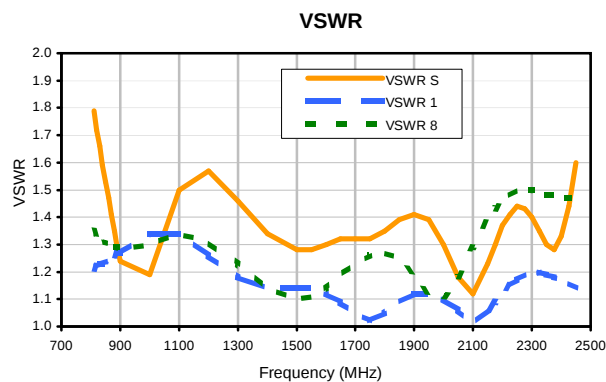
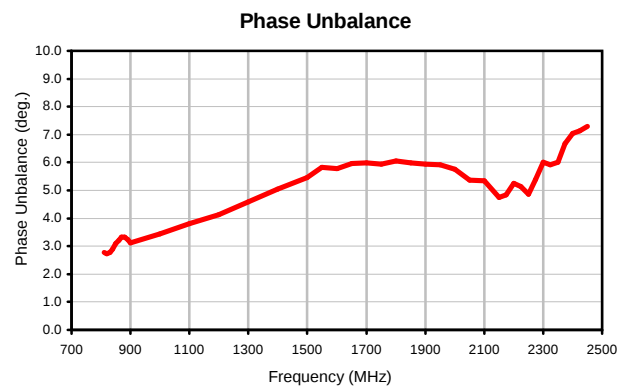
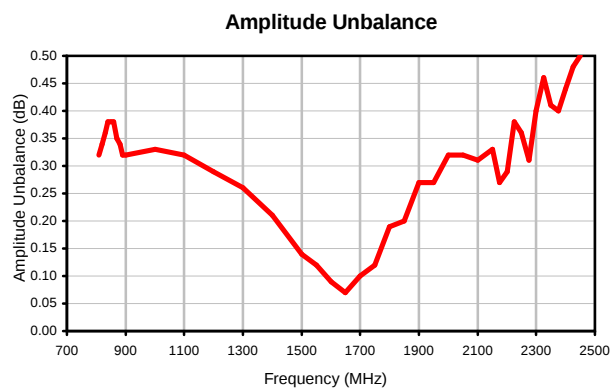
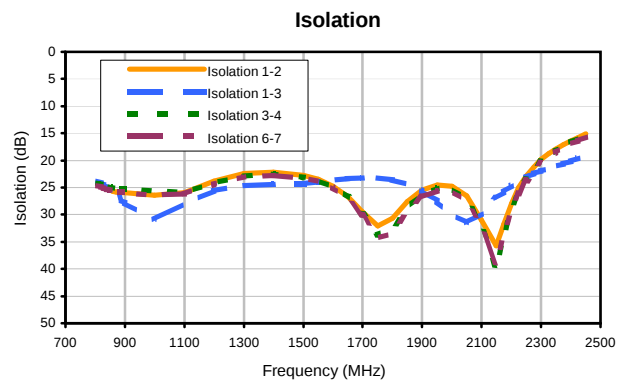
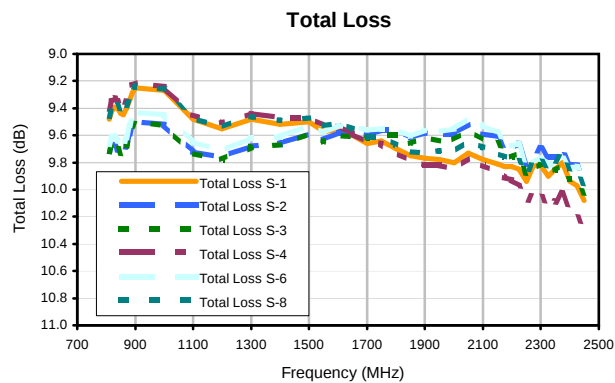
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## Typical Performance Curves

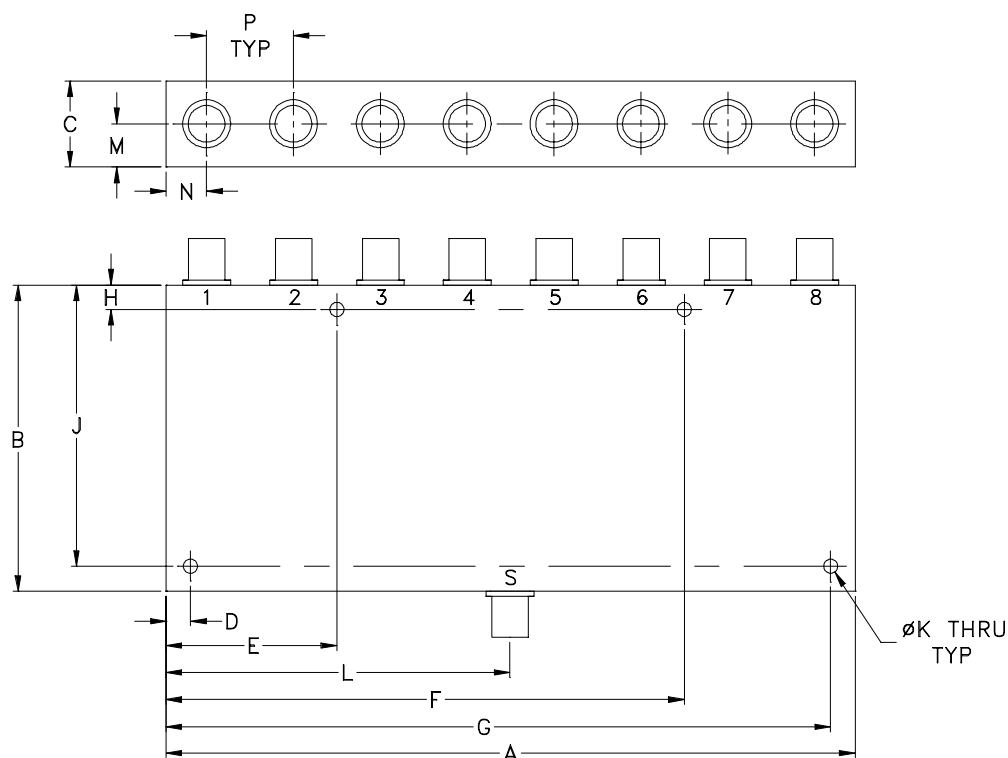


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### Outline Dimensions



| CASE# | A                | B               | C              | D              | E                | F                 | G                 | H              | J                | K              | L               | M              | N               |
|-------|------------------|-----------------|----------------|----------------|------------------|-------------------|-------------------|----------------|------------------|----------------|-----------------|----------------|-----------------|
| Z41   | 7.06<br>(179.32) | 3.13<br>(79.50) | .88<br>(22.35) | .250<br>(6.35) | 1.750<br>(44.45) | 5.310<br>(134.87) | 6.810<br>(172.97) | .250<br>(6.35) | 2.875<br>(73.03) | .144<br>(3.66) | 3.53<br>(89.66) | .44<br>(11.18) | .415<br>(10.54) |

| CASE# | P              | WT.GRAMS |
|-------|----------------|----------|
| Z41   | .89<br>(22.61) | 800      |

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

#### Notes:

- Case material: Aluminum alloy.
- Case finish:

For RoHS Case Styles:

Clear chemical conversion coating, non-chrome or trivalent chrome based.



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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<br>Ambient Environment                                                   | Individual Model Data Sheet          |
| Storage Temperature   | -55° to 100° C<br>Ambient Environment                                                  | Individual Model Data Sheet          |
| Barometric Pressure   | 100,000 Feet                                                                           | MIL-STD-202, Method 105, Condition D |
| Humidity              | 90% RH, 65°C<br>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 |