

# POWER SPLITTERS/COMBINERS

50 & 75Ω

2 WAY-0° 2 kHz to 10 GHz



ZESC-2



ZFSC-2



ZMSC-2



ZSC-2

| MODEL NO.      | FREQ. RANGE<br>MHz<br><br>f <sub>L</sub> -f <sub>U</sub> | ISOLATION<br>dB |            |                |      |      | INSERTION LOSS, dB<br>Above 3dB |                |           |                |           |            | PHASE UNBAL.<br>Degrees |                |                | AMPLITUDE UNBAL.<br>dB |                |             | VSWR (:1) |  | CASE STYLE | CONNECTION | PRICE \$<br><br>Qty. (1-9) |       |
|----------------|----------------------------------------------------------|-----------------|------------|----------------|------|------|---------------------------------|----------------|-----------|----------------|-----------|------------|-------------------------|----------------|----------------|------------------------|----------------|-------------|-----------|--|------------|------------|----------------------------|-------|
|                |                                                          | L<br>Typ.       | M°<br>Min. | U<br>Typ.      | Min. | Typ. | L<br>Typ.                       | M°<br>Typ.     | U<br>Max. | Max.           | L<br>Max. | M°<br>Max. | U<br>Max.               | L<br>Max.      | M°<br>Max.     | U<br>Max.              | S<br>Typ.      | OUT<br>Typ. | Max.      |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
| ZESC-2-11      | 10-2000                                                  | 19              | 10         | 18             | 13   | 20   | 11                              | 0.5            | 0.9       | 0.5            | 1.0       | 0.6        | 1.2                     | 1              | 3              | 6                      | 0.20           | 0.30        | 0.50      |  |            | V37        | ar                         | 71.95 |
| ■ ZFSC-2-1     | 5-500                                                    | 30              | 25         | 28             | 20   | 25   | 20                              | 0.2            | 0.5       | 0.3            | 0.6       | 0.6        | 0.8                     | 2              | 4              | 4                      | 0.15           | 0.15        | 0.30      |  |            | K18        | ar                         | 44.95 |
| ■ ZFSC-2-1-75  | 0.25-300                                                 | 20              | 15         | 30             | 25   | 25   | 20                              | 0.4            | 0.75      | 0.4            | 0.75      | 0.4        | 1.0                     | 2              | 3              | 5                      | 0.15           | 0.20        | 0.30      |  |            | K18        | ar                         | 45.95 |
| ■ ZFSC-2-1W-75 | 5-600                                                    | 44              | 26         | 45             | 30   | 31   | 20                              | 0.22           | 0.6       | 0.27           | 0.7       | 0.46       | 0.9                     | 1              | 2              | 3                      | 0.20           | 0.30        | 0.40      |  |            | K18        | ar                         | 50.95 |
| ZFSC-2-1W      | 1-750                                                    | 30              | 20         | 28             | 20   | 25   | 20                              | 0.2            | 0.5       | 0.4            | 0.8       | 0.8        | 1.0                     | 2              | 4              | 4                      | 0.15           | 0.15        | 0.30      |  |            | K18        | ar                         | 48.95 |
| ZFSC-2-2       | 10-1000                                                  | 30              | 20         | 25             | 20   | 23   | 18                              | 0.2            | 0.5       | 0.5            | 1.0       | 0.9        | 1.2                     | 2              | 4              | 4                      | 0.15           | 0.15        | 0.30      |  |            | K18        | ar                         | 51.95 |
|                |                                                          | L <sup>1</sup>  |            | U <sup>1</sup> |      |      |                                 | L <sup>1</sup> |           | U <sup>1</sup> |           |            |                         | L <sup>1</sup> | U <sup>1</sup> | L <sup>1</sup>         | U <sup>1</sup> |             |           |  |            |            |                            |       |
| ZFSC-2-9G      | 3500-9000                                                | 18              | 12         | 20             | 12   |      |                                 | 0.5            | 1.5       | 0.6            | 1.2       |            |                         | 7              | 10             |                        | 0.30           | 0.50        |           |  |            | JJJ142     | as                         | 59.95 |
| ZFSC-2-10G     | 2000-10000                                               | 15              | 9          | 20             | 12   |      |                                 | 0.5            | 1.5       | 0.6            | 1.6       |            |                         | 7              | 12             |                        | 0.60           | 0.50        |           |  |            | JJJ142     | as                         | 69.95 |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |
|                |                                                          |                 |            |                |      |      |                                 |                |           |                |           |            |                         |                |                |                        |                |             |           |  |            |            |                            |       |

## NOTES:

- \* Isolation specified to 0.004 MHz
- \*\* Insertion loss, Isolation specified to -20°C from 0.002 to 0.004 MHz
- ⊕ When only specification for M range given, specification applies to entire frequency range.
- ❖ At low range frequency band ( $f_L$  to  $10 f_L$ ), linearly derate maximum input power by 13 dB.
- Denotes 75 Ohm model, for coax connector models 75 Ohm BNC connectors are standard.
- ▲ Available only with SMA connectors
- A. General Quality Control Procedures, Environmental Specifications, Hi-Rel and MIL description are given in "Mini-Circuits Guarantees Quality" article.
- B. For details on Connector types, case mounted options, case finishes see "Case styles & Outline Drawings".
- C. Prices and specifications subject to change without notice.
- 1. Absolute maximum power, voltage and current ratings:
  - 1a. Matched power rating:
    - Models ZAPD, ZN2PD, ZC2PD, ZN2PD2 ..... 10 Watt
    - ZAPD-900-5W, ZN2PD-20 ..... 5W(as a splitter)
    - ZAPD-30 and other models ..... 1 Watt
  - 1b. Internal load dissipation:
    - ZAPD-900-5W ..... 1W max.
    - ZN2PD-20 ..... 0.725W max.
    - ZN2PD-9G, ZAPD-2-22-75, ZN2PD2 ..... 0.25W max.
    - All other models ..... 0.125 Watt

## coaxial connections

see case style outline drawing for pin locations

| PORT     | ar | as | at |
|----------|----|----|----|
| SUM PORT | 3  | 5  | 2  |
| PORT 1   | 1  | 1  | 1  |
| PORT 2   | 2  | 2  | 3  |
| GND EXT. | —  | —  | —  |
| CASE GND | —  | —  | —  |
| NOT USED | —  | —  | —  |



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020729

# Coaxial



|     | MODEL NO.      | FREQ. RANGE<br>MHz<br><br>f <sub>L</sub> -f <sub>U</sub> | ISOLATION<br>dB |           |           | INSERTION LOSS, dB<br>Above 3dB |           |           | PHASE UNBAL.<br>Degrees |           |           | AMPLITUDE UNBAL.<br>dB |           |                                          | VSWR (:1) |           | CASE STYLE<br><br>Note B | CONNECTION | PRICE \$<br><br>Qty. (1-9) |       |       |
|-----|----------------|----------------------------------------------------------|-----------------|-----------|-----------|---------------------------------|-----------|-----------|-------------------------|-----------|-----------|------------------------|-----------|------------------------------------------|-----------|-----------|--------------------------|------------|----------------------------|-------|-------|
|     |                |                                                          | L               | M°        | U         | L                               | M°        | U         | L                       | M°        | U         | L                      | M°        | U                                        | S         | OUT       |                          |            |                            |       |       |
|     |                |                                                          | Typ. Min.       | Typ. Min. | Typ. Min. | Typ. Max.                       | Typ. Max. | Typ. Max. | Max. Max.               | Max. Max. | Max. Max. | Max. Max.              | Max. Max. | Max. Max.                                | Typ. Max. | Typ. Max. |                          |            |                            |       |       |
| NEW | ZC2PD-900      | 800-900                                                  |                 | 30        | 20        |                                 | 0.1       | 0.4       |                         | 2         |           | 0.20                   |           | 1.10                                     | 1.30      | 1.10      | 1.30                     | F183       | as                         | 64.95 |       |
|     | ZN2PD-20       | 750-2000                                                 | L°<br>18        | 15        | 25        | 20                              | 18        | 15        |                         | 0.2       | 0.5       | 4                      | 0.30      | 1.16                                     | 1.5       | 1.10      | 1.35                     | VVV180     | as                         | 67.95 |       |
|     | ZN2PD-920      | 800-920                                                  |                 | 30        | 20        |                                 | 0.15      | 0.4       |                         | 2         |           | 0.20                   |           | 1.10                                     | 1.20      | 1.04      | 1.20                     | VVV180     | as                         | 59.95 |       |
|     | ZN2PD-920W     | 700-1050                                                 |                 | 22        | 15        |                                 | 0.15      | 0.5       |                         | 3         |           | 0.30                   |           | 1.20                                     | 1.50      | 1.04      | 1.20                     | VVV180     | as                         | 54.95 |       |
|     | ZN2PD-1900     | 1600-1900                                                |                 | 30        | 20        |                                 | 0.18      | 0.4       |                         | 2         |           | 0.20                   |           | 1.20                                     | 1.35      | 1.04      | 1.20                     | VVV180     | as                         | 69.95 |       |
|     | ZN2PD-1900W    | 1500-2000                                                |                 | 24        | 15        |                                 | 0.2       | 0.5       |                         | 3         |           | 0.30                   |           | 1.20                                     | 1.50      | 1.04      | 1.20                     | VVV180     | as                         | 64.95 |       |
|     | ZN2PD-9G       | 1700-9000                                                |                 | 22        | 15        |                                 | 0.5       | 1.4       |                         | 4         |           | 0.60                   |           |                                          |           |           |                          | VVV180     | as                         | 69.95 |       |
|     | ZN2PD2-50      | 500-5000                                                 |                 | 25        | 15        |                                 | 0.8       | 1.4       |                         | 4         |           | 0.5                    | 1.20      | —                                        | 1.10      | —         |                          | VVV845     | as                         | 74.95 |       |
|     |                | 600-1600                                                 |                 | 24        | 17        |                                 | 0.7       | 1.1       |                         | 2         |           | 0.3                    | 1.20      | —                                        | 1.10      | —         |                          |            |                            |       |       |
|     |                | 1600-2700                                                |                 | 26        | 18        |                                 | 0.8       | 1.2       |                         | 3         |           | 0.3                    | 1.20      | —                                        | 1.10      | —         |                          |            |                            |       |       |
|     |                | 2700-3600                                                |                 | 28        | 19        |                                 | 0.9       | 1.3       |                         | 3         |           | 0.4                    | 1.20      | —                                        | 1.10      | —         |                          |            |                            |       |       |
|     |                | 3700-4800                                                |                 | 22        | 18        |                                 | 0.9       | 1.4       |                         | 4         |           | 0.5                    | 1.20      | —                                        | 1.10      | —         |                          |            |                            |       |       |
|     |                | GHz                                                      |                 |           |           |                                 |           |           |                         |           |           |                        |           |                                          |           |           |                          |            |                            |       |       |
|     |                | IZY2PD-64                                                | 5.8-6.4         |           | 35        | 24                              |           | 0.2       | 0.5                     |           | 5         |                        | 0.30      |                                          | 1.05      | 1.30      | 1.20                     | 1.35       | JJJ245                     | as    | 89.95 |
|     |                | IZY2PD-86                                                | 7.0-8.6         |           | 30        | 18                              |           | 0.1       | 0.5                     |           | 6         |                        | 0.25      |                                          | 1.10      | 1.45      | 1.10                     | 1.40       | JJJ245                     | as    | 94.95 |
|     | ZAPD-1         | 0.5-1.0                                                  |                 | 25        | 19        |                                 | 0.25      | 0.6       |                         | 2         |           | 0.20                   |           |                                          |           |           |                          | F14        | as                         | 54.95 |       |
|     | ZAPD-2         | 1.0-2.0                                                  |                 | 25        | 19        |                                 | 0.25      | 0.6       |                         | 2         |           | 0.20                   |           |                                          |           |           |                          | F14        | as                         | 54.95 |       |
|     | ■ ZAPD-2-22-75 | 0.91-2.15                                                |                 | 30        | 20        |                                 | 0.2       | 0.7       |                         | 2         |           | 0.40                   |           | 1.15                                     | 1.60      | 1.10      | 1.30                     | F14        | as                         | 58.95 |       |
|     | ZAPD-20        | 0.7-2.0                                                  |                 | 30        | 20        |                                 | 0.30      | 0.7       |                         | 3         |           | 0.40                   |           | 1.15                                     | 1.35      | 1.10      | 1.30                     | F53        | as                         | 59.95 |       |
|     | ZAPD-21        | 0.5-2.0                                                  |                 | 25        | 18        |                                 | 0.25      | 1.0       |                         | 3         |           | 0.20                   |           |                                          |           |           |                          | F53        | as                         | 59.95 |       |
|     | ▲ ZAPD-30      | 0.02-3.0                                                 | 14              | 12        | 16        | 12                              | 20        | 14        | 1.1                     | 1.5       | 1.1       | 1.8                    | 1.4       | 2.3                                      | 3         | 5         | 9                        | F14        | as                         | 79.95 |       |
|     | ZAPD-4         | 2.0-4.2                                                  |                 | 25        | 19        |                                 | 0.4       | 0.8       |                         | 6         |           | 0.40                   |           | see Yoni for Performance Data and curves |           |           | F14                      | as         | 59.95                      |       |       |
|     | ZAPD-50        | 4.4-5.0                                                  |                 | 26        | 20        |                                 | 0.3       | 0.8       |                         | 5         |           | 0.50                   |           |                                          |           |           | F14                      | as         | 54.95                      |       |       |
|     | ZAPD-50W       | 4.2-6.0                                                  |                 | 26        | 16        |                                 | 0.3       | 0.8       |                         | 5         |           | 0.70                   |           |                                          |           |           | F14                      | as         | 64.95                      |       |       |
|     | ZAPD-900-5W    | 0.1-0.9                                                  |                 | 23        | 18        |                                 | 0.3       | 1.0       |                         | 3         |           | 0.30                   |           | 1.15                                     | 1.50      | 1.22      | 1.50                     | F14        | as                         | 59.95 |       |
|     | ZAPD-1750      | 0.95-1.75                                                |                 | 30        | 22        |                                 | 0.2       | 0.4       |                         | 4         |           | 0.50                   |           | 1.15                                     | 1.50      | 1.22      | 1.50                     | F14        | as                         | 54.95 |       |

L = low range [ $f_L$  to  $10 f_L$ ]  
 $L^1 = f_L$  to 6 GHz  
 $L^0 = 750$  to 875 MHz

M = mid range [ $10 f_L$  to  $f_U/2$ ]  
 $U^1 = 6$  GHz to  $f_U$   
 $U^0 = 1850$  to 2000 MHz

U = upper range [ $f_U/2$  to  $f_U$ ]

## NSN GUIDE

| MCL NO.        | NSN              | MCL NO.        | NSN              | MCL NO.       | NSN              |
|----------------|------------------|----------------|------------------|---------------|------------------|
| ZAPD-1(TNC)    | 5985-01-250-4883 | ZFSC-2-2(SMA)  | 6625-01-333-1127 | ZSC-2-1(TNC)  | 6625-01-310-2129 |
| ZAPD-2 (BNC)   | 5895-01-476-0831 | ZFSC-2-2B      | 5895-01-330-4416 | ZSC-2-1       | 5895-01-214-6032 |
| ZAPD-2(SMA)    | 5895-01-229-7431 | ZFSC-2-4       | 6625-01-291-3346 | ZSC-2-1B      | 6625-01-018-1066 |
| ZAPD-4         | 6625-01-173-1887 | ZFSC-2-4(TNC)  | 5985-01-250-4882 | ZSC-2-1B(TNC) | 6625-01-109-3706 |
| ZAPD-4(SMA)    | 5985-01-383-0636 | ZFSC-2-5       | 6625-01-253-2444 | ZSC-2-1(BNC)  | 5895-01-036-6254 |
| ZESC-2-11      | 5985-01-381-9081 | ZFSC-2-6       | 6625-01-419-4241 | ZSC-2-1B(BNC) | 6625-00-270-3055 |
| ZFSC-2-1       | 6625-01-139-3499 | ZFSC-2-6(BNC)  | 5895-01-408-6857 | ZSC-2-1W      | 5895-01-283-0850 |
| ZFSC-2-1(SMA)  | 6625-01-213-6490 | ZFSC-2-6B      | 5985-01-315-2869 | ZSC-2-1WB     | 6625-01-264-8985 |
| ZFSC-2-1(BNC)  | 5985-01-176-4551 | ZFSC-2-10G     | 5895-01-467-5372 | ZSC-2-1-75B   | 5895-01-136-8182 |
| ZFSC-2-1-75    | 5895-01-325-4795 | ZFSC-2-11(SMA) | 6625-01-415-2183 | ZSC-2-2B      | 5820-01-136-7245 |
| ZFSC-2-1W(SMA) | 6625-01-200-5094 | ZMSC-2-1       | 5985-01-333-1128 | ZSC-2-2-75B   | 5915-01-012-8162 |
| ZFSC-2-1W      | 5895-01-348-3534 | ZMSC-2-1B      | 5895-01-253-2445 | ZSC-2375      | 5895-01-229-0157 |
| ZFSC-2-2B(SMA) | 6625-01-362-1801 | ZMSC-2-1BR     | 5985-01-338-9329 | ZSC-2-4B      | 5895-01-467-5362 |
|                |                  | ZMSC-2-1W      | 5895-01-127-0232 |               |                  |



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