

# Coaxial Amplifier

## ZFL-2000+ ZFL-2000

50Ω Medium Power 10 to 2000 MHz

### Features

- wideband, 10 to 2000 MHz
- high gain, 20 dB min.
- unconditionally stable
- protected by US Patent, 6,943,629

### Applications

- instrumentation
- communication
- lab use



ZFL-2000X(+)

ZFL-2000(+)

CASE STYLE: SS98

| Connectors           | Model        | Price        | Qty.  |
|----------------------|--------------|--------------|-------|
| SMA                  | ZFL-2000(+)  | \$219.00 ea. | (1-9) |
| BRACKET (OPTION "B") |              | \$2.50       | (1+)  |
| SMA                  | ZFL-2000X(+) | \$209.00 ea. | (1-9) |

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

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

### Amplifier Electrical Specifications

| MODEL NO.    | FREQUENCY (MHz) |       | GAIN (dB) |               | MAXIMUM POWER (dBm)               |                   | DYNAMIC RANGE |                | VSWR (:1) Typ. |     | DC POWER      |                   |
|--------------|-----------------|-------|-----------|---------------|-----------------------------------|-------------------|---------------|----------------|----------------|-----|---------------|-------------------|
|              | $f_L$           | $f_U$ | Min.      | Flatness Max. | Output <sup>1</sup> (1 dB Compr.) | Input (no damage) | NF (dB) Typ.  | IP3 (dBm) Typ. | In             | Out | Volt (V) Nom. | Current (mA) Max. |
| ZFL-2000(+)  | 10              | 2000  | 20        | ±1.5          | +16                               | +5                | 7.0           | +25            | 2.0            | 2.0 | 15            | 120               |
| ZFL-2000X(+) | 10              | 2000  | 20        | ±1.5          | +16                               | +5                | 7.0           | +25            | 2.0            | 2.0 | 15            | 120               |

<sup>1</sup> Heat sink not included

<sup>1</sup>+15 dBm below 1000 MHz.

Open load is not recommended, potentially can cause damage.

With no load derate max input power by 20 dB

To order without heat sink, add suffix X to model number. Alternative heat sinking and heat removal must be provided by the user to limit maximum temperature to 71°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 15°C/W Max.

### Maximum Ratings

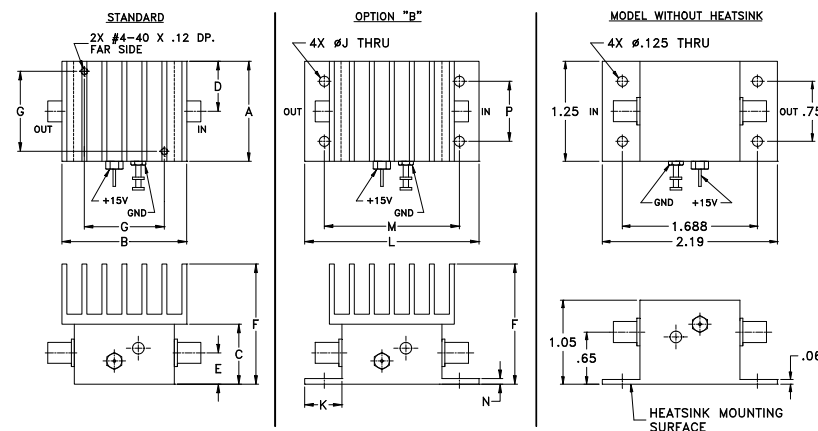
Operating Temperature -20°C to 71°C

Storage Temperature -55°C to 100°C

DC Voltage +17V Max.

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

### Outline Drawing



### Outline Dimensions (inch/mm)

| A     | B     | C     | D     | E    | F     | G     | H  | J    | K     | L     | M     | N    | P     | wt*   |
|-------|-------|-------|-------|------|-------|-------|----|------|-------|-------|-------|------|-------|-------|
| 1.25  | 1.56  | .75   | .63   | .39  | 1.50  | 1.000 | -- | .125 | .46   | 2.19  | 1.688 | .06  | .750  | grams |
| 31.75 | 39.62 | 19.05 | 16.00 | 9.91 | 38.10 | 25.40 | -- | 3.18 | 11.68 | 55.63 | 42.88 | 1.52 | 19.05 | 85.0  |

\*70 grams with heat sink

**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

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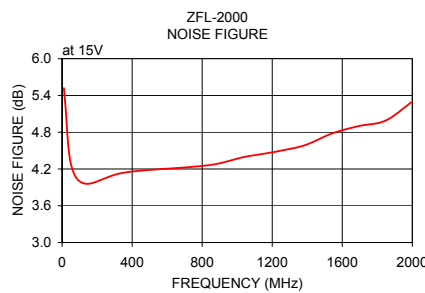
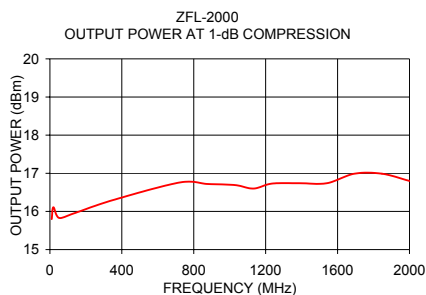
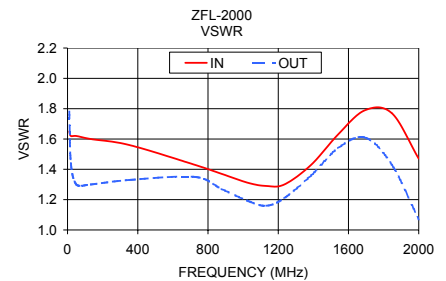
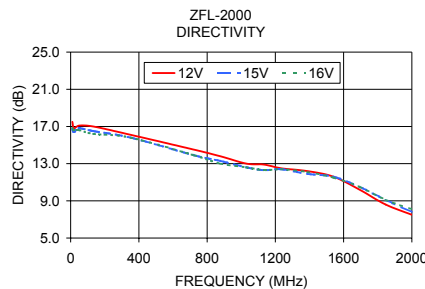
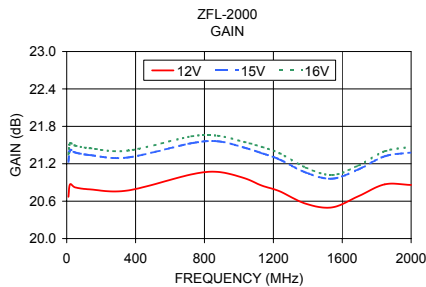
IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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).

# Typical Performance Data/Curves

# ZFL-2000+ ZFL-2000

| FREQUENCY (MHz) | GAIN (dB) |       |       | DIRECTIVITY (dB) |       |       | VSWR (:1) |      | NOISE FIGURE (dB) | POUT at 1 dB COMPR. (dBm) |
|-----------------|-----------|-------|-------|------------------|-------|-------|-----------|------|-------------------|---------------------------|
|                 | 12V       | 15V   | 16V   | 12V              | 15V   | 16V   | IN        | OUT  |                   |                           |
| 10.00           | 20.67     | 21.23 | 21.35 | 17.50            | 16.70 | 16.80 | 1.65      | 1.78 | 5.52              | 15.80                     |
| 19.10           | 20.87     | 21.42 | 21.53 | 16.80            | 16.40 | 16.60 | 1.62      | 1.44 | 5.24              | 16.11                     |
| 50.50           | 20.82     | 21.38 | 21.49 | 17.10            | 16.80 | 16.60 | 1.62      | 1.30 | 4.28              | 15.83                     |
| 133.40          | 20.79     | 21.34 | 21.45 | 17.00            | 16.50 | 16.20 | 1.60      | 1.30 | 3.96              | 15.95                     |
| 352.30          | 20.77     | 21.30 | 21.41 | 16.10            | 15.80 | 15.80 | 1.56      | 1.33 | 4.14              | 16.30                     |
| 724.40          | 21.03     | 21.53 | 21.64 | 14.50            | 13.90 | 13.90 | 1.43      | 1.35 | 4.23              | 16.76                     |
| 877.40          | 21.07     | 21.56 | 21.65 | 13.80            | 13.30 | 13.00 | 1.37      | 1.27 | 4.28              | 16.72                     |
| 1030.50         | 20.97     | 21.46 | 21.55 | 13.00            | 12.60 | 12.60 | 1.31      | 1.19 | 4.39              | 16.69                     |
| 1132.60         | 20.85     | 21.37 | 21.47 | 12.90            | 12.30 | 12.30 | 1.29      | 1.16 | 4.44              | 16.60                     |
| 1234.60         | 20.76     | 21.27 | 21.37 | 12.50            | 12.40 | 12.40 | 1.30      | 1.21 | 4.49              | 16.73                     |
| 1387.70         | 20.56     | 21.06 | 21.14 | 12.20            | 11.90 | 12.10 | 1.43      | 1.36 | 4.59              | 16.74                     |
| 1540.80         | 20.50     | 20.96 | 21.02 | 11.60            | 11.60 | 11.50 | 1.63      | 1.54 | 4.78              | 16.74                     |
| 1693.80         | 20.68     | 21.11 | 21.17 | 10.20            | 10.50 | 10.50 | 1.79      | 1.61 | 4.90              | 16.99                     |
| 1846.90         | 20.87     | 21.32 | 21.40 | 8.60             | 9.10  | 9.10  | 1.77      | 1.43 | 4.99              | 16.99                     |
| 2000.00         | 20.86     | 21.38 | 21.47 | 7.50             | 7.80  | 8.10  | 1.47      | 1.07 | 5.30              | 16.80                     |



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