

# Coaxial Amplifier

50Ω Medium Power 10 to 2000 MHz

## ZFL-2000+

### 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      |
|----------------------|------------|
| SMA                  | ZFL-2000+  |
| BRACKET (OPTION "B") |            |
| SMA                  | ZFL-2000X+ |

### +RoHS Compliant

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               |

\* 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

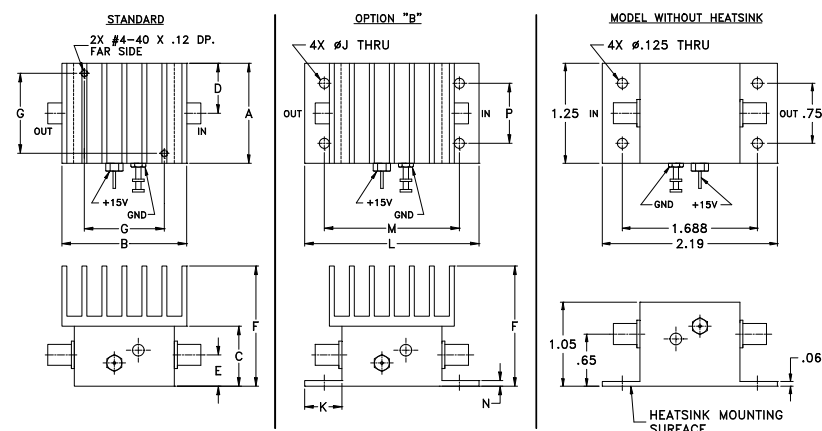
Operating Temperature -20°C to 71°C

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 without heat sink

### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



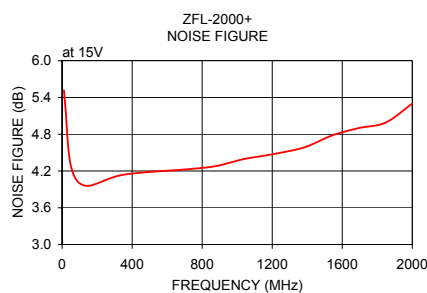
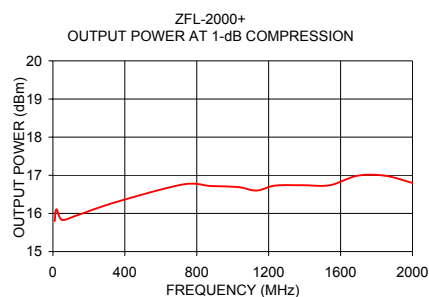
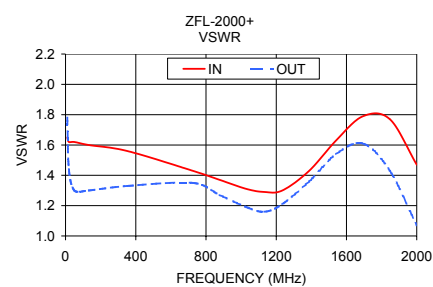
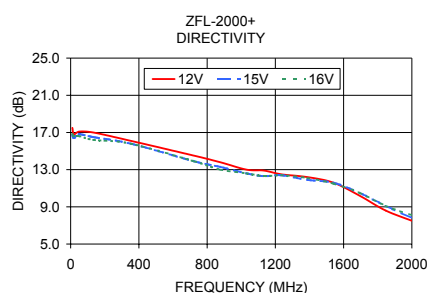
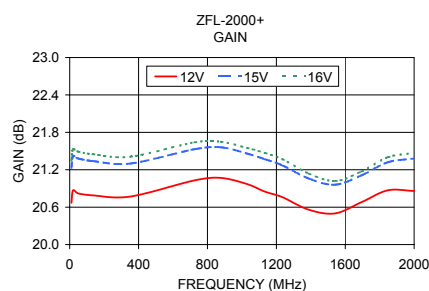
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ZFL-2000+  
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# Typical Performance Data/Curves

## ZFL-2000+

| FREQUENCY<br>(MHz) | GAIN<br>(dB) |       |       | DIRECTIVITY<br>(dB) |       |       | VSWR<br>(:1) |      | NOISE<br>FIGURE<br>(dB) | POUT<br>at 1 dB<br>COMPR.<br>(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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