

# Coaxial Amplifier

## ZFL-11AD+

50Ω High Isolation 2 to 2000 MHz

### Features

- wideband, 2 to 2000 MHz
- rugged, shielded case

### Applications

- receivers
- two-tone, 3rd order IM testing
- cellular
- satellite communication
- GPS



Generic photo used for illustration purposes only

CASE STYLE: Y460

|                      |           |
|----------------------|-----------|
| Connectors           | Model     |
| SMA                  | ZFL-11AD+ |
| BRACKET (OPTION "B") |           |

### +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. |     | ACTIVE DIRECTIVITY* (dB) |      |      |      | DC POWER      |                   |
|-----------|-----------------|-------|-----------|------|---------------------------|----------------------|---|-------------------|---------------|----------------|----------------|-----|--------------------------|------|------|------|---------------|-------------------|
|           | $f_L$           | $f_U$ | Min.      | m    | Flatness Max. Total Range | Output (1 dB Compr.) |   |                   | NF (dB) Typ.  | IP3 (dBm) Typ. | In             | Out | L                        |      | U    |      | Volt (V) Nom. | Current (mA) Max. |
| ZFL-11AD+ | 2               | 2000  | 8         | ±0.5 | ±1.3                      | L                    | U | Input (no damage) | 6.5           | +14            | 2.5            | 2.0 | Typ.                     | Min. | Typ. | Min. | 15            | 22                |

\*Active Directivity(dB)= Isolation (dB)- Gain (dB)

\*\*Above 1 GHz, -5 dBm min.

Open load is not recommended, potentially can cause damage.

With no load derate max input power by 20 dB

L= low range ( $f_L$  to  $f_U/2$ )

m= mid range ( $2f_L$  to  $f_U/2$ )

U= upper range ( $f_U/2$  to  $f_U$ )

### Maximum Ratings

Operating Temperature -20°C to 71°C

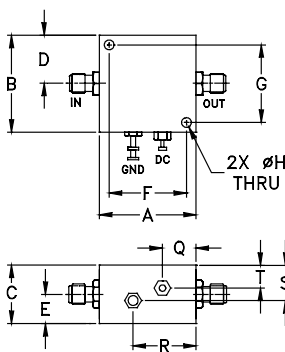
Storage Temperature -55°C to 100°C

DC Voltage +16V Max.

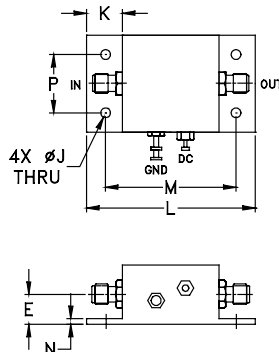
Permanent damage may occur if any of these limits are exceeded.

### Outline Drawing

STANDARD



OPTION "B"



### Outline Dimensions (inch/mm)

| A     | B     | C     | D     | E    | F     | G     | H    | J    | K     | L     | M     | N    | P     | Q     | R     | S     | T    | wt.   |
|-------|-------|-------|-------|------|-------|-------|------|------|-------|-------|-------|------|-------|-------|-------|-------|------|-------|
| 1.25  | 1.25  | .75   | .63   | .36  | 1.000 | 1.000 | .125 | .125 | .46   | 2.18  | 1.688 | .06  | .750  | .50   | .80   | .45   | .29  | grams |
| 31.75 | 31.75 | 19.05 | 16.00 | 9.14 | 25.40 | 25.40 | 3.18 | 3.18 | 11.68 | 55.37 | 42.88 | 1.52 | 19.05 | 12.70 | 20.32 | 11.43 | 7.37 | 38    |

### Notes

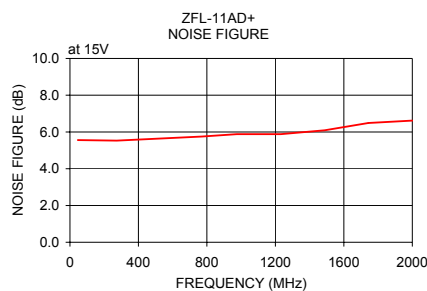
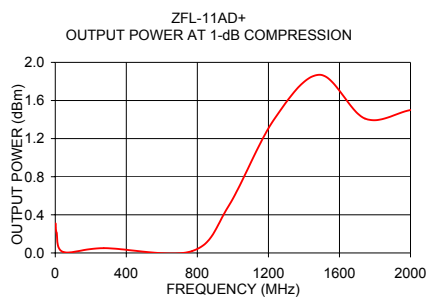
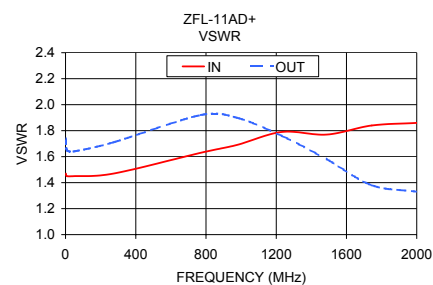
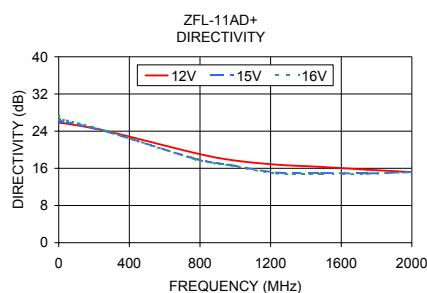
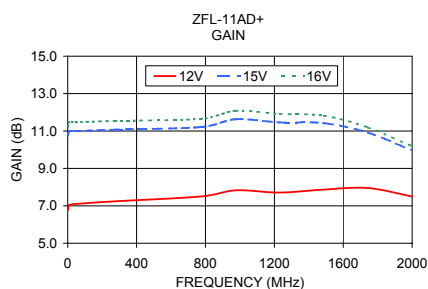
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- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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ZFL-11AD+  
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| 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  |                   |                           |
| 2.00            | 6.79      | 10.76 | 11.24 | 26.50            | 26.60 | 27.20 | 1.47      | 1.74 | —                 | 0.31                      |
| 7.60            | 7.04      | 10.99 | 11.47 | 25.80            | 26.10 | 26.50 | 1.45      | 1.65 | —                 | 0.21                      |
| 45.70           | 7.10      | 10.99 | 11.47 | 25.60            | 25.90 | 26.30 | 1.45      | 1.64 | 5.56              | 0.01                      |
| 273.20          | 7.24      | 11.07 | 11.54 | 24.00            | 23.90 | 24.00 | 1.47      | 1.71 | 5.53              | 0.05                      |
| 770.50          | 7.50      | 11.21 | 11.65 | 19.30            | 18.10 | 18.00 | 1.63      | 1.92 | 5.75              | 0.02                      |
| 975.40          | 7.83      | 11.63 | 12.08 | 17.80            | 16.70 | 16.60 | 1.69      | 1.90 | 5.88              | 0.49                      |
| 1231.50         | 7.71      | 11.46 | 11.91 | 16.80            | 15.10 | 14.90 | 1.79      | 1.76 | 5.88              | 1.40                      |
| 1487.70         | 7.87      | 11.42 | 11.82 | 16.30            | 15.00 | 14.70 | 1.77      | 1.58 | 6.09              | 1.87                      |
| 1743.80         | 7.95      | 10.91 | 11.19 | 15.70            | 14.90 | 14.80 | 1.84      | 1.38 | 6.49              | 1.41                      |
| 2000.00         | 7.50      | 9.96  | 10.19 | 15.20            | 15.20 | 15.20 | 1.86      | 1.33 | 6.62              | 1.50                      |



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# Amplifier

# ZFL-11AD+

## Typical Performance Data

| FREQUENCY<br>(MHz) | GAIN<br>(dB) |       |       | DIRECTIVITY<br>(dB) |       |       | VSWR<br>IN<br>(:1)<br>15V | VSWR OUT<br>(:1)<br>15V | NOISE<br>FIGURE<br>(dB)<br>15V | Pout at<br>1dB Comp.<br>(dBm)<br>15V |
|--------------------|--------------|-------|-------|---------------------|-------|-------|---------------------------|-------------------------|--------------------------------|--------------------------------------|
|                    | 12V          | 15V   | 16V   | 12V                 | 15V   | 16V   |                           |                         |                                |                                      |
| 2.0                | 6.79         | 10.76 | 11.24 | 26.50               | 26.60 | 27.20 | 1.47                      | 1.74                    | -                              | 0.31                                 |
| 7.6                | 7.04         | 10.99 | 11.47 | 25.80               | 26.10 | 26.50 | 1.45                      | 1.65                    | -                              | 0.21                                 |
| 45.7               | 7.10         | 10.99 | 11.47 | 25.60               | 25.90 | 26.30 | 1.45                      | 1.64                    | 5.56                           | 0.01                                 |
| 273.2              | 7.24         | 11.07 | 11.54 | 24.00               | 23.90 | 24.00 | 1.47                      | 1.71                    | 5.53                           | 0.05                                 |
| 770.5              | 7.50         | 11.21 | 11.65 | 19.30               | 18.10 | 18.00 | 1.63                      | 1.92                    | 5.75                           | 0.02                                 |
| 975.4              | 7.83         | 11.63 | 12.08 | 17.80               | 16.70 | 16.60 | 1.69                      | 1.90                    | 5.88                           | 0.49                                 |
| 1231.5             | 7.71         | 11.46 | 11.91 | 16.80               | 15.10 | 14.90 | 1.79                      | 1.76                    | 5.88                           | 1.40                                 |
| 1487.7             | 7.87         | 11.42 | 11.82 | 16.30               | 15.00 | 14.70 | 1.77                      | 1.58                    | 6.09                           | 1.87                                 |
| 1743.8             | 7.95         | 10.91 | 11.19 | 15.70               | 14.90 | 14.80 | 1.84                      | 1.38                    | 6.49                           | 1.41                                 |
| 2000.0             | 7.50         | 9.96  | 10.19 | 15.20               | 15.20 | 15.20 | 1.86                      | 1.33                    | 6.62                           | 1.50                                 |

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant

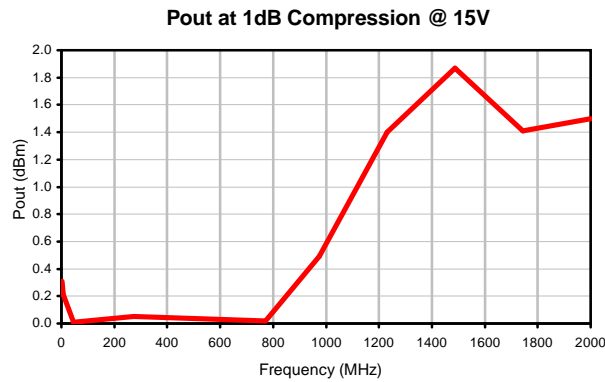
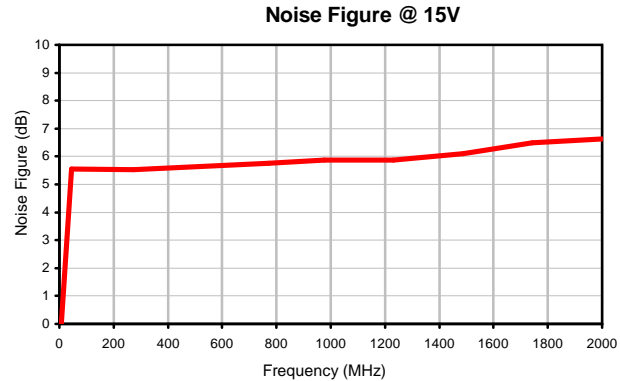
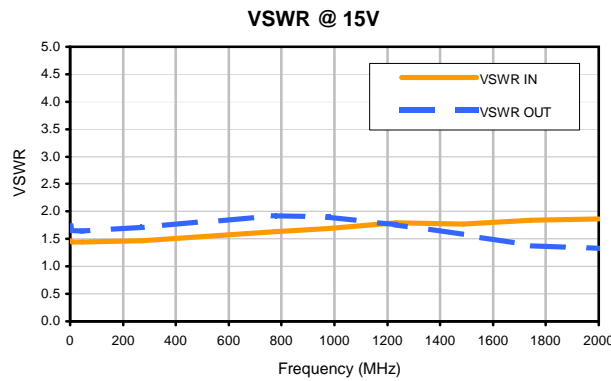
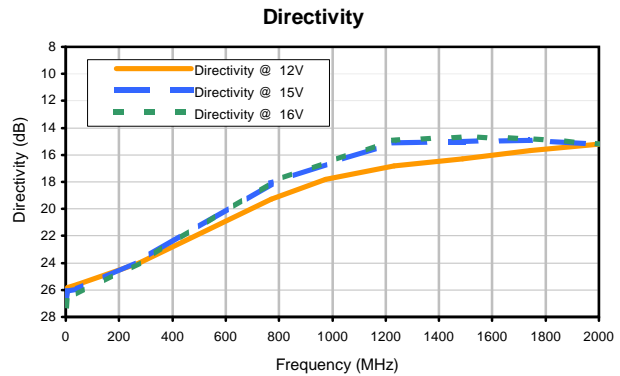
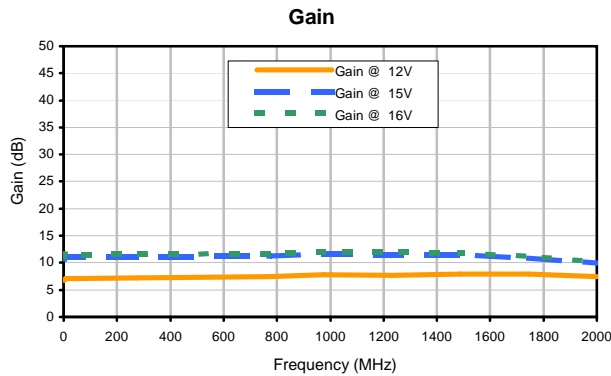
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## Typical Performance Curves



### Outline Dimensions



| CASE# | A               | B               | C              | D             | E             | F               | G               | H             | J             | K             | L              | M               | N            |
|-------|-----------------|-----------------|----------------|---------------|---------------|-----------------|-----------------|---------------|---------------|---------------|----------------|-----------------|--------------|
| Y460  | 1.25<br>(31.75) | 1.25<br>(31.75) | .75<br>(19.05) | .63<br>(16.0) | .36<br>(9.15) | 1.000<br>(25.4) | 1.000<br>(25.4) | .125<br>(3.2) | .125<br>(3.2) | .46<br>(11.7) | 2.18<br>(55.4) | 1.688<br>(42.9) | .06<br>(1.5) |

| CASE# | P              | Q             | R             | S             | T            | WT. GRAMS |
|-------|----------------|---------------|---------------|---------------|--------------|-----------|
| Y460  | .750<br>(19.0) | .50<br>(12.7) | .80<br>(20.3) | .45<br>(11.4) | .29<br>(7.4) | 38        |

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

#### Notes:

1. Case material: Aluminum alloy.
2. Case finish:  
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number



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     | -20° to 71° C<br>Ambient Environment  | Individual Model Data Sheet                        |
| Storage Temperature       | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet                        |
| Stabilization Bake        | (non-operating)<br>125°C, 24 hours    | - - -  |
| Burn-in at Elevated Temp. | (DC on)<br>160 hours at 85° C         | MIL-STD-202, Method 108                            |
| Thermal Shock             | -55° to 100°C, 5 cycles               | MIL-STD-202, Method 107, Condition A, except 100°C |