

# Coaxial Amplifier

## ZKL-2R5+

50Ω Medium Power 10 to 2500 MHz

### Features

- wideband, 10 to 2500 MHz
- high IP3, +31 dBm typ.
- low noise, 5 dB typ.
- rugged, shielded case
- protected by US Patent, 6,943,629

### Applications

- communication systems
- cellular
- PCS
- GSM/ISM



Generic photo used for illustration purposes only

CASE STYLE: BY493

| Connectors | Model    |
|------------|----------|
| SMA        | ZKL-2R5+ |

**+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      |                   |
|-----------|-----------------|-------|-----------|------|---------------|----------------------|-----|-------------------|---------------|----------------|----------------|-----|---------------|-------------------|
|           | $f_L$           | $f_U$ | Typ.      | Min. | Flatness Max. | Output (1 dB Compr.) |     | Input (no damage) | NF (dB) Typ.  | IP3 (dBm) Typ. | In             | Out | Volt (V) Nom. | Current (mA) Max. |
| ZKL-2R5+  | 10              | 2500  | 30        | 26   | ±1.5          | +13                  | +11 | +13               | 5.0           | +31            | 1.4            | 1.4 | 12            | 120               |

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  $f_U/2$ )

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

### Maximum Ratings

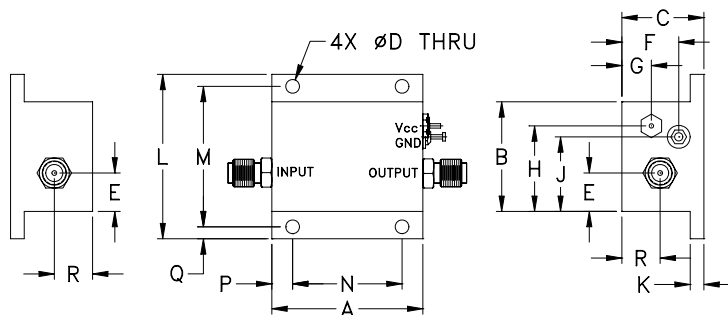
Operating Temperature -40°C to 75°C

Storage Temperature -55°C to 100°C

DC Voltage +13V 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    | Q    | R    | wt    |
|-------|-------|-------|------|------|-------|------|-------|-------|------|-------|-------|-------|------|------|------|-------|
| 1.38  | 1.00  | .75   | .125 | .35  | .52   | .27  | .76   | .66   | .125 | 1.50  | 1.281 | 1.000 | .19  | .11  | .35  | grams |
| 35.05 | 25.40 | 19.05 | 3.18 | 8.89 | 13.21 | 6.86 | 19.30 | 16.76 | 3.18 | 38.10 | 32.54 | 25.40 | 4.83 | 2.79 | 8.89 | 40    |

### Notes

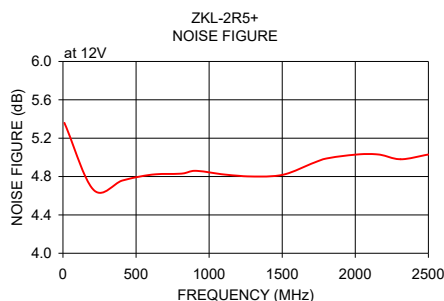
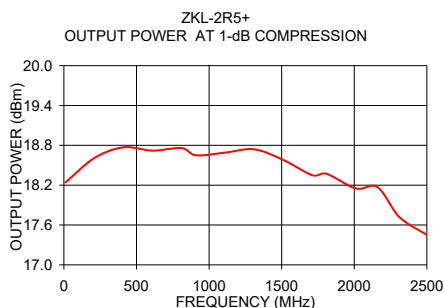
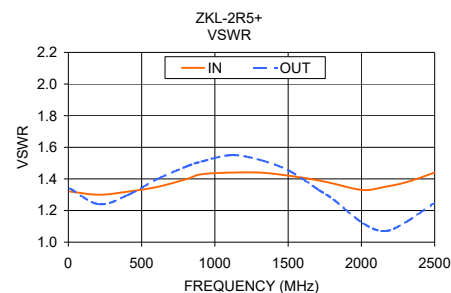
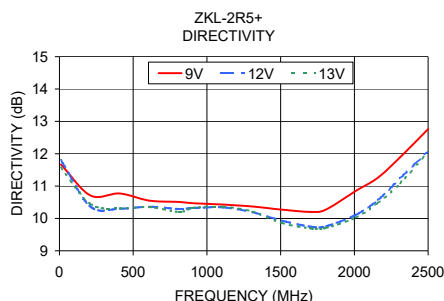
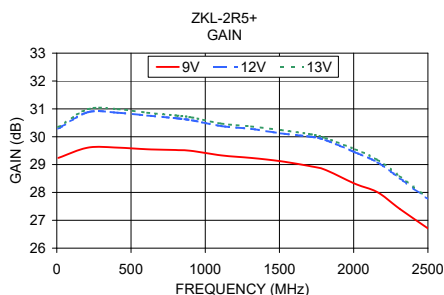
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ZKL-2R5+  
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| FREQUENCY (MHz) | GAIN (dB) |       |       | DIRECTIVITY (dB) |       |       | VSWR (:1) |      | NOISE FIGURE (dB) | P <sub>OUT</sub> at 1 dB COMPR. (dBm) |
|-----------------|-----------|-------|-------|------------------|-------|-------|-----------|------|-------------------|---------------------------------------|
|                 | 9V        | 12V   | 13V   | 9V               | 12V   | 13V   | IN        | OUT  |                   |                                       |
| 10.00           | 29.24     | 30.29 | 30.35 | 11.67            | 11.80 | 11.57 | 1.32      | 1.34 | 5.36              | 18.24                                 |
| 210.00          | 29.61     | 30.88 | 30.99 | 10.71            | 10.37 | 10.45 | 1.30      | 1.24 | 4.66              | 18.61                                 |
| 410.00          | 29.61     | 30.86 | 30.99 | 10.77            | 10.30 | 10.31 | 1.32      | 1.30 | 4.76              | 18.77                                 |
| 610.00          | 29.55     | 30.76 | 30.86 | 10.55            | 10.36 | 10.35 | 1.35      | 1.40 | 4.82              | 18.72                                 |
| 810.00          | 29.52     | 30.66 | 30.76 | 10.51            | 10.29 | 10.20 | 1.40      | 1.48 | 4.83              | 18.76                                 |
| 910.00          | 29.49     | 30.59 | 30.69 | 10.47            | 10.32 | 10.33 | 1.43      | 1.51 | 4.86              | 18.65                                 |
| 1110.00         | 29.33     | 30.38 | 30.47 | 10.43            | 10.34 | 10.36 | 1.44      | 1.55 | 4.82              | 18.69                                 |
| 1310.00         | 29.24     | 30.28 | 30.37 | 10.37            | 10.19 | 10.21 | 1.44      | 1.52 | 4.80              | 18.74                                 |
| 1510.00         | 29.12     | 30.12 | 30.24 | 10.27            | 9.93  | 9.86  | 1.42      | 1.45 | 4.82              | 18.58                                 |
| 1710.00         | 28.94     | 30.00 | 30.09 | 10.20            | 9.74  | 9.69  | 1.39      | 1.33 | 4.94              | 18.35                                 |
| 1810.00         | 28.81     | 29.88 | 29.95 | 10.28            | 9.76  | 9.71  | 1.37      | 1.27 | 4.99              | 18.37                                 |
| 2010.00         | 28.31     | 29.44 | 29.55 | 10.85            | 10.11 | 10.03 | 1.33      | 1.12 | 5.03              | 18.15                                 |
| 2160.00         | 28.01     | 29.08 | 29.17 | 11.26            | 10.57 | 10.48 | 1.35      | 1.07 | 5.03              | 18.17                                 |
| 2310.00         | 27.41     | 28.51 | 28.59 | 11.89            | 11.24 | 11.09 | 1.38      | 1.13 | 4.98              | 17.72                                 |
| 2500.00         | 26.71     | 27.76 | 27.82 | 12.76            | 12.08 | 12.05 | 1.44      | 1.25 | 5.03              | 17.45                                 |



**Notes**

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# Amplifier

# ZKL-2R5+

## Typical Performance Data

| FREQUENCY<br>(MHz) | GAIN<br>(dB)<br>12V | DIRECTIVITY<br>(dB)<br>12V | VSWR<br>IN<br>(:1)<br>12V | VSWR OUT<br>(:1)<br>12V | NOISE<br>FIGURE<br>(dB)<br>12V | Pout at<br>1dB Comp.<br>(dBm)<br>12V |
|--------------------|---------------------|----------------------------|---------------------------|-------------------------|--------------------------------|--------------------------------------|
| 10.0               | 30.29               | 11.80                      | 1.32                      | 1.34                    | 5.36                           | 18.24                                |
| 210.0              | 30.88               | 10.37                      | 1.30                      | 1.24                    | 4.66                           | 18.61                                |
| 410.0              | 30.86               | 10.30                      | 1.32                      | 1.30                    | 4.76                           | 18.77                                |
| 610.0              | 30.76               | 10.36                      | 1.35                      | 1.40                    | 4.82                           | 18.72                                |
| 810.0              | 30.66               | 10.29                      | 1.40                      | 1.48                    | 4.83                           | 18.76                                |
| 910.0              | 30.59               | 10.32                      | 1.43                      | 1.51                    | 4.86                           | 18.65                                |
| 1110.0             | 30.38               | 10.34                      | 1.44                      | 1.55                    | 4.82                           | 18.69                                |
| 1310.0             | 30.28               | 10.19                      | 1.44                      | 1.52                    | 4.80                           | 18.74                                |
| 1510.0             | 30.12               | 9.93                       | 1.42                      | 1.45                    | 4.82                           | 18.58                                |
| 1710.0             | 30.00               | 9.74                       | 1.39                      | 1.33                    | 4.94                           | 18.35                                |
| 1810.0             | 29.88               | 9.76                       | 1.37                      | 1.27                    | 4.99                           | 18.37                                |
| 2010.0             | 29.44               | 10.11                      | 1.33                      | 1.12                    | 5.03                           | 18.15                                |
| 2160.0             | 29.08               | 10.57                      | 1.35                      | 1.07                    | 5.03                           | 18.17                                |
| 2310.0             | 28.51               | 11.24                      | 1.38                      | 1.13                    | 4.98                           | 17.72                                |
| 2500.0             | 27.76               | 12.08                      | 1.44                      | 1.25                    | 5.03                           | 17.45                                |

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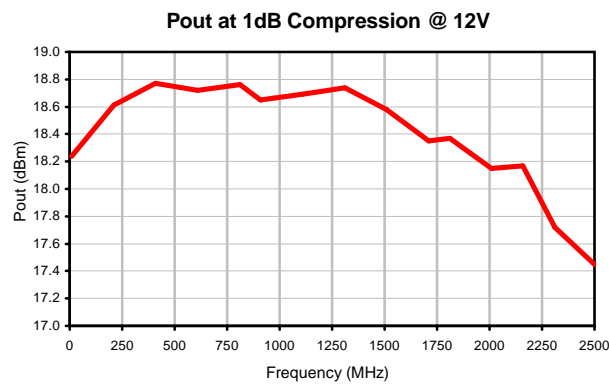
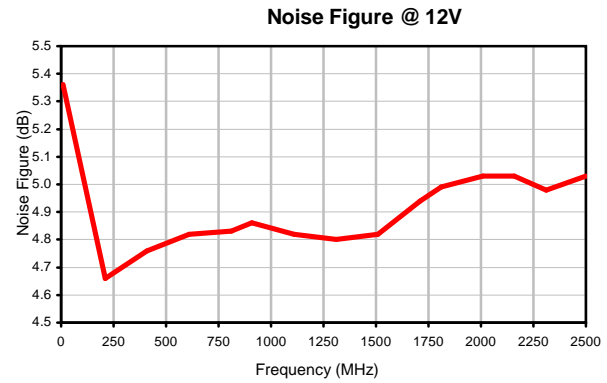
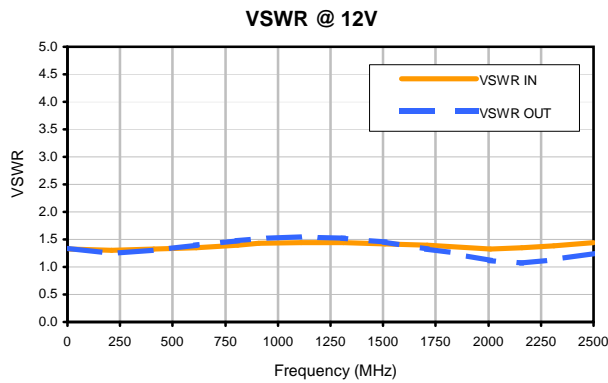
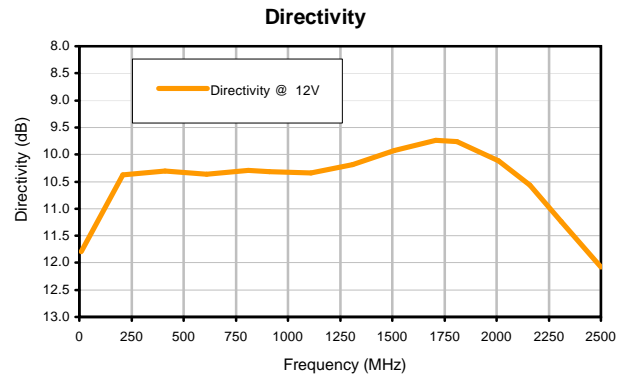
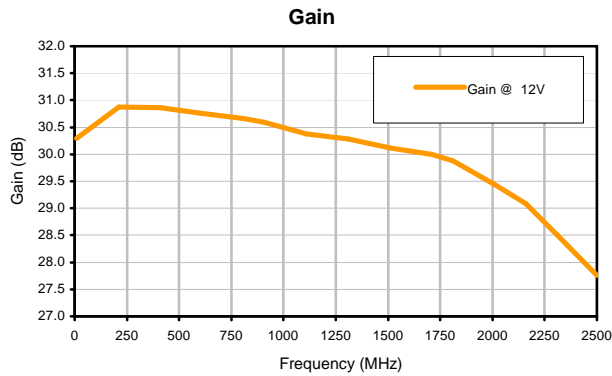
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## Typical Performance Curves

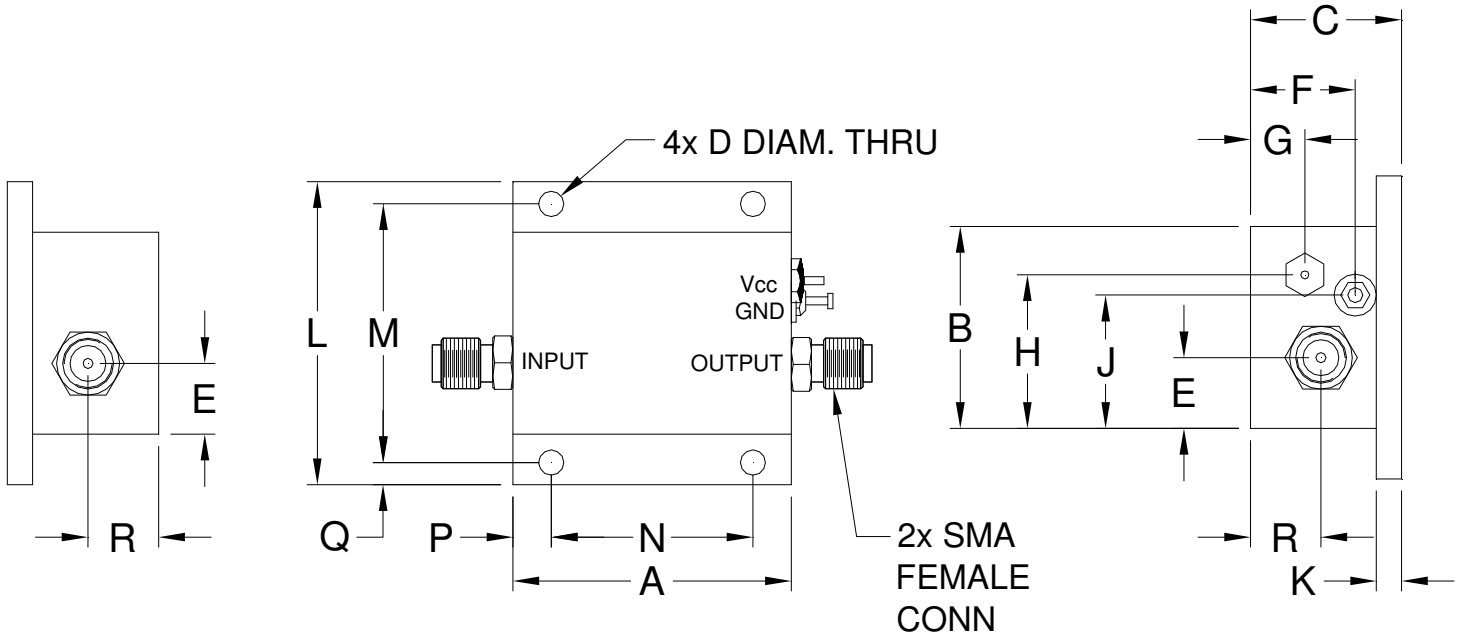


# Case Style

# BY

## Outline Dimensions

## BY493



| CASE# | A               | B               | C              | D              | E             | F              | G             | H              | J              | K              | L               | M                | N                |
|-------|-----------------|-----------------|----------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|-----------------|------------------|------------------|
| BY493 | 1.38<br>(35.05) | 1.00<br>(25.40) | .75<br>(19.05) | .125<br>(3.18) | .35<br>(8.89) | .52<br>(13.21) | .27<br>(6.86) | .76<br>(19.30) | .66<br>(16.76) | .125<br>(3.18) | 1.50<br>(38.10) | 1.281<br>(32.54) | 1.000<br>(25.40) |

| CASE# | P             | Q             | R             | WT. GRAMS |
|-------|---------------|---------------|---------------|-----------|
| BY493 | .19<br>(4.83) | .11<br>(2.79) | .35<br>(8.89) | 40        |

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

### Notes:

1. Case material: Aluminum alloy.
2. Case finish: Clear chemical conversion coating, non-chrome or trivalent chrome based.

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| Specification             | Test/Inspection Condition             | Reference/Spec                                     |
|---------------------------|---------------------------------------|--|
| Operating Temperature     | -40° to 75°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 |