

## AMPLIFIERS

Broadband, Linear 50 Ω 50 kHz to 21 GHz



| MODEL<br>PREFIX | FREQUENCY<br>(MHz) | GAIN, (dB) |                  | MAXIMUM POWER<br>(dBm) Typ.           |                         | NOISE<br>FIGURE<br>(dB) | IP3<br>(dBm) | VSWR<br>Typ.<br>(:1) |     | ACTIVE<br>DIRECTIVITY<br>(dB) Typ. | DC OPERATING<br>POWER |                      |
|-----------------|--------------------|------------|------------------|---------------------------------------|-------------------------|-------------------------|--------------|----------------------|-----|------------------------------------|-----------------------|----------------------|
|                 | $f_L - f_U$        | Min.       | Flatness<br>Max. | Output<br>(1 dB Comp.)<br>Total Range | Input<br>(no<br>damage) | Typ.                    | Typ.         | In                   | Out | Midband                            | VOLT<br>(V) Nom.      | CURRENT<br>(mA) Max. |

**ULTRA LOW NOISE** up to +20 dBm output NF 0.55 dB to 1 dB

|             |           |      |      |      |     |      |       |     |     |     |     |     |
|-------------|-----------|------|------|------|-----|------|-------|-----|-----|-----|-----|-----|
| ZX60-0916LN | 824-960   | 16.5 | ±1.2 | 16.5 | +10 | 0.55 | +30.0 | 1.2 | 1.4 | 6.5 | 5.0 | 45  |
| ZX60-242LN  | 1710-2400 | 10.0 | ±2.5 | 16.5 | +10 | 0.75 | +33.5 | 1.2 | 1.6 | 8   | 5.0 | 46  |
| ZX60-242GLN | 1710-2400 | 26.0 | ±1.2 | 20.0 | +17 | 1.0  | +36.0 | 1.4 | 1.6 | 12  | 5.0 | 150 |
| ZX60-272LN  | 2300-2700 | 11.5 | ±1.5 | 18.0 | +17 | 0.90 | +32.0 | 1.3 | 1.3 | 7   | 5.0 | 70  |
| ZX60-362LN  | 3300-3600 | 9.0  | ±1.0 | 10.5 | 0   | 0.90 | +22.0 | 1.4 | 1.4 | 8   | 5.0 | 30  |
| ZX60-362GLN | 3300-3600 | 18.0 | ±0.6 | 16.0 | +15 | 0.90 | +29.0 | 1.2 | 1.4 | 22  | 5.0 | 140 |

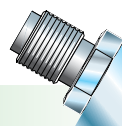
**LOW NOISE** up to +26 dBm output NF 0.4 dB to 2.0 dB

|              |           |      |      |       |     |      |       |      |      |      |     |     |
|--------------|-----------|------|------|-------|-----|------|-------|------|------|------|-----|-----|
| ZRL-700      | 250-700   | 27.0 | ±1.0 | +24.8 | +10 | 2.0  | +46.0 | 1.20 | 1.10 | 16   | 12  | 575 |
| ZQL-900LN    | 824-849   | 15.0 | ±0.5 | +21.0 | +10 | 0.9  | +35.0 | 1.2  | 1.1  | 7    | 15  | 160 |
| ZQL-900MLN   | 824-849   | 25.5 | ±0.5 | +24.5 | +3  | 1.2  | +41.0 | 1.3  | 1.4  | 22   | 15  | 230 |
| ZQL-900LNW   | 800-900   | 13.0 | ±1.6 | +21.0 | +10 | 0.9  | +35.0 | 1.2  | 1.1  | 7    | 15  | 160 |
| ZQL-900MLNW  | 800-900   | 22.0 | ±2.2 | +23.0 | +3  | 1.2  | +41.0 | 1.3  | 1.4  | 24   | 15  | 230 |
| ZQLSC-1100   | 600-1100  | 15.0 | ±2.5 | +19.0 | +10 | 0.6  | +35.0 | 1.5  | 1.5  | 11   | 24  | 185 |
| ZEL-0812LN   | 800-1200  | 20.0 | ±1.0 | +8.0  | +13 | 1.3  | +18.0 | 1.8  | 1.6  | 11   | 15  | 70  |
| ZHL-0812HLN  | 800-1200  | 30.0 | ±1.0 | +26.0 | +10 | 1.2  | +36.0 | 1.8  | 1.6  | 27   | 15  | 725 |
| ZHL-0812MLN  | 800-1200  | 28.0 | ±1.0 | +20.0 | 0   | 1.4  | +33.0 | 1.4  | 1.7  | 35   | 15  | 300 |
| ZRL-1200     | 650-1200  | 25.0 | ±1.0 | +24.3 | +10 | 2.0  | +46.0 | 1.2  | 1.2  | 17   | 12  | 575 |
| ZRL-1150LN   | 650-1400  | 25.0 | —    | +24.0 | +10 | 0.8  | +40.0 | 1.2  | 1.2  | 17   | 12  | 500 |
| ZX60-1215LN  | 800-1400  | 11.0 | ±3.0 | +12.5 | +13 | 0.4  | +26.7 | 1.65 | 1.4  | 13   | 12  | 50  |
| ZX60-1614LN  | 1217-1620 | 11.0 | ±2.0 | +13.5 | +13 | 0.5  | +30.0 | 1.3  | 1.3  | 11.7 | 12  | 50  |
| ZEL-1217LN   | 1200-1700 | 20.0 | ±1.0 | +8.0  | +13 | 1.5  | +25.0 | 2.0  | 1.4  | 11   | 15  | 70  |
| ZHL-1217HLN  | 1200-1700 | 30.0 | ±1.0 | +26.0 | +10 | 1.2  | +36.0 | 1.8  | 1.4  | 20   | 15  | 725 |
| ZHL-1217MLN  | 1200-1700 | 30.0 | ±1.0 | +20.0 | 0   | 1.5  | +34.0 | 1.8  | 1.4  | 34   | 15  | 300 |
| ZQL-1900LN   | 1850-1910 | 15.0 | ±0.5 | +19.0 | +10 | 1.3  | +37.0 | 1.15 | 1.25 | 10   | 15  | 160 |
| ZQL-1900MLN  | 1850-1910 | 25   | ±0.5 | +26.0 | +3  | 1.15 | +41.0 | 1.25 | 1.2  | 19   | 15  | 310 |
| ZQL-1900LNW  | 1700-2000 | 14.0 | ±1.8 | +18.5 | +10 | 0.8  | +37.0 | 1.15 | 1.25 | 10   | 15  | 160 |
| ZQL-1900MLNW | 1800-2000 | 23.0 | ±2.0 | +25.0 | +3  | 1.2  | +41.0 | 1.4  | 1.25 | 17   | 15  | 310 |
| ZRL-2150     | 950-2150  | 22.5 | ±1.8 | +22.0 | +10 | 1.5  | +33.0 | 1.3  | 1.2  | 26   | 12  | 300 |
| ZEL-1724LN   | 1700-2400 | 20.0 | ±1.0 | +8.0  | +13 | 1.5  | +22.0 | 1.6  | 1.6  | 12   | 15  | 70  |
| ZHL-1724HLN  | 1700-2400 | 30.0 | ±1.0 | +26.0 | +10 | 1.2  | +36.0 | 1.6  | 1.6  | 17   | 15  | 725 |
| ZHL-1724MLN  | 1700-2400 | 28.0 | ±1.0 | +20.0 | 0   | 1.1  | +32.0 | 1.6  | 1.6  | 32   | 15  | 300 |
| ZQLSC-2400   | 1400-2400 | 10.5 | —    | +20.0 | +10 | 1.1  | +36.0 | 1.5  | 1.6  | 9    | 24  | 185 |
| ZRL-2400LN   | 1000-2400 | 23.0 | ±4.0 | +23.0 | +10 | 1.0  | +44.0 | 1.5  | 1.35 | 15   | 12  | 500 |
| ZQL-2700MLNW | 2200-2700 | 25.0 | ±3.0 | +25.0 | +3  | 1.0  | +38.0 | 1.25 | 1.15 | 31   | 15  | 325 |
| ZX60-33LN    | 50-3000   | 13.0 | —    | +17.0 | +13 | 1.1  | +32.0 | 2.0  | 1.6  | 10   | 5.0 | 80  |
| ZX60-3011    | 400-3000  | 7.5  | —    | +19.5 | +15 | 1.6  | +31.0 | 1.7  | 1.6  | 11   | 12  | 120 |
| ZX60-3800LN  | 3300-3800 | 19.0 | ±1.0 | +18.0 | +1  | 0.9  | +36.0 | 1.35 | 1.35 | 17   | 5.0 | 110 |

**LOW POWER** up to +12 dBm output

|             |           |      |      |       |     |     |       |     |     |    |    |     |
|-------------|-----------|------|------|-------|-----|-----|-------|-----|-----|----|----|-----|
| ZFL-500     | 0.05-500  | 20.0 | ±1.0 | +9.0  | +5  | 5.3 | +18.0 | 1.9 | 1.9 | 16 | 15 | 80  |
| ZFL-500LN   | 0.1-500   | 24.0 | ±0.5 | +5.0  | +5  | 2.9 | +14.0 | 1.5 | 1.6 | 25 | 15 | 60  |
| ZFL-750     | 0.2-750   | 18.0 | ±0.5 | +9.0  | +5  | 6.0 | +18.0 | 1.5 | 2.0 | 22 | 15 | 90  |
| ZFL-1000    | 0.1-1000  | 17.0 | ±0.7 | +9.0  | +5  | 6.0 | +18.0 | 1.5 | 2.1 | 23 | 15 | 105 |
| ZFL-1000LN  | 0.1-1000  | 20.0 | ±0.5 | +3.0  | +5  | 2.9 | +14.0 | 1.5 | 2.0 | 23 | 15 | 60  |
| ZFL-2AD     | 2-1000    | 9.0  | ±0.5 | -3.5  | +10 | 6.5 | +14.0 | 2.0 | 2.0 | 21 | 15 | 22  |
| ZFL-11AD    | 2-2000    | 8.0  | ±1.3 | -3.5  | +10 | 6.5 | +14.0 | 2.5 | 2.0 | 18 | 15 | 22  |
| ZKL-2R5     | 10-2700   | 20.0 | ±0.7 | +12.0 | +13 | 5.0 | +30.0 | 1.3 | 1.4 | 11 | 12 | 120 |
| ZJL-3G      | 20-3000   | 14.0 | ±2.9 | +8.0  | +13 | 3.8 | +22.0 | 1.4 | 1.6 | 3  | 12 | 45  |
| ZJL-4G      | 20-4000   | 10.0 | ±0.6 | +12.0 | +20 | 5.5 | +30.5 | 1.4 | 1.6 | 6  | 12 | 75  |
| ZJL-6G      | 20-6000   | 10.0 | ±1.9 | +10.0 | +15 | 4.5 | +24.0 | 1.5 | 1.4 | 6  | 12 | 50  |
| ZJL-7G      | 20-7000   | 7.5  | ±1.2 | +9.0  | +15 | 5.0 | +24.0 | 1.5 | 1.5 | 7  | 12 | 50  |
| ZX60-8008E  | 20-8000   | 8.4  | —    | +10.8 | +15 | 4.1 | +24.0 | 1.5 | 1.9 | 8  | 12 | 50  |
| ZX60-14012L | 0.3-14000 | 9.0  | ±2.0 | +11.0 | +10 | 5.5 | +20.0 | 1.3 | 1.7 | 5  | 12 | 68  |





| MODEL<br>PREFIX | FREQUENCY<br>(MHz) | GAIN, (dB) |                  | MAXIMUM POWER<br>(dBm) Typ.           |                         | NOISE<br>FIGURE<br>(dB) | IP3<br>(dBm) | VSWR<br>Typ. (:1) |     | ACTIVE<br>DIRECTIVITY<br>(dB) Typ. | DC OPERATING<br>POWER |                      |
|-----------------|--------------------|------------|------------------|---------------------------------------|-------------------------|-------------------------|--------------|-------------------|-----|------------------------------------|-----------------------|----------------------|
|                 | $f_c$ - $f_u$      | Min.       | Flatness<br>Max. | Output<br>(1 dB Comp.)<br>Total Range | Input<br>(no<br>damage) | Typ.                    | Typ.         | In                | Out | Midband                            | VOLT<br>(V) Nom.      | CURRENT<br>(mA) Max. |

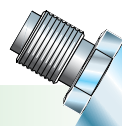
### MEDIUM POWER up to +21 dBm output

|            |           |      |       |       |     |     |       |      |      |    |    |     |
|------------|-----------|------|-------|-------|-----|-----|-------|------|------|----|----|-----|
| ZFL-1HAD   | 10-500    | 10.0 | ±1.0  | +20.0 | +17 | 7.5 | +30.0 | 1.3  | 1.35 | 33 | 15 | 115 |
| ZFL-500HLN | 10-500    | 19.0 | ±0.4  | +16.0 | +15 | 3.8 | +30.0 | 2.0  | 2.0  | 15 | 15 | 110 |
| ZFL-1000H  | 10-1000   | 28.0 | ±1.0  | +20.0 | +5  | 5.0 | +33.0 | 2.0  | 2.0  | 15 | 15 | 160 |
| ZFL-2HAD   | 50-1000   | 11.0 | ±1.0  | +20.0 | +15 | 5.0 | +33.0 | 2.0  | 2.0  | 25 | 15 | 110 |
| ZKL-1R5    | 10-1500   | 36.0 | ±1.2  | +15.0 | +13 | 3.0 | +31.0 | 1.4  | 1.6  | 7  | 12 | 115 |
| ZFL-2000   | 10-2000   | 20.0 | ±1.5  | +16.0 | +5  | 7.0 | +25.0 | 2.0  | 2.0  | 12 | 15 | 120 |
| ZKL-2      | 10-2000   | 29.0 | ±1.5  | +15.0 | +13 | 4.0 | +31.0 | 1.4  | 1.4  | 10 | 12 | 120 |
| ZKL-2R5    | 10-2500   | 26.0 | ±1.5  | +13.0 | +13 | 5.0 | +31.0 | 1.4  | 1.4  | 10 | 12 | 120 |
| ZFL-2500   | 500-2500  | 28.0 | ±1.5  | +15.0 | +5  | 8.0 | +27.0 | 2.5  | 2.5  | 32 | 5  | 220 |
| ZX60-2510M | 500-2500  | 12.9 | —     | +16.2 | +10 | 5.4 | +28.8 | 1.5  | 1.6  | 20 | 5  | 95  |
| ZX60-2514M | 500-2500  | 16.4 | —     | +17.5 | +10 | 4.8 | +30.3 | 1.5  | 1.7  | 17 | 5  | 90  |
| ZX60-2522M | 500-2500  | 23.5 | —     | +19.2 | +10 | 3.0 | +30.6 | 1.5  | 1.7  | 17 | 5  | 95  |
| ZX60-2531M | 500-2500  | 31.0 | —     | +18.2 | +10 | 3.5 | +28.4 | 1.3  | 1.6  | 25 | 5  | 130 |
| ZX60-2534M | 500-2500  | 34.0 | —     | +18.0 | +10 | 3.1 | +30.0 | 1.3  | 1.5  | 20 | 5  | 185 |
| ZX60-3018G | 20-3000   | 18.0 | —     | +12.8 | +13 | 2.7 | +25.0 | 1.3  | 1.4  | 4  | 12 | 45  |
| ZJL-4HG    | 20-4000   | 13.0 | ±2.4  | +15.0 | +13 | 4.5 | +30.5 | 1.5  | 1.4  | 5  | 12 | 75  |
| ZX60-4016E | 20-4000   | 15.7 | —     | +17.4 | +13 | 3.9 | +30.0 | 1.25 | 1.3  | 4  | 12 | 75  |
| ZX60-43    | 0.5-4000  | 17.0 | —     | +17.3 | +13 | 5.4 | +33.0 | 1.2  | 2.0  | 8  | 5  | 110 |
| ZHL-1042J  | 10-4200   | 25.0 | ±1.5  | +20.0 | +10 | 6.0 | +30.0 | 2.5  | 2.5  | 26 | 15 | 330 |
| ZX60-V83   | 20-4700   | 16.8 | —     | 17.0  | +20 | 6.0 | +31.0 | 1.25 | 1.7  | 10 | 5  | 82  |
| ZJL-5G     | 20-5000   | 7.0  | ±0.55 | +15.0 | +20 | 8.5 | +32.0 | 1.6  | 1.3  | 8  | 12 | 80  |
| ZX60-5916M | 1500-5900 | 17.2 | —     | +15.7 | +10 | 6.4 | +28.3 | 2.2  | 1.2  | 22 | 5  | 96  |
| ZX60-V81   | 20-6000   | 8.5  | —     | 18.5  | +20 | 8.0 | +36.0 | 1.2  | 1.25 | 13 | 5  | 115 |
| ZX60-V82   | 20-6000   | 13.5 | —     | 20.0  | +20 | 6.8 | +35.0 | 1.3  | 1.5  | 11 | 5  | 120 |
| ZX60-6013E | 20-6000   | 13.0 | —     | +13.4 | +15 | 3.3 | +28.7 | 1.4  | 1.2  | 6  | 12 | 50  |
| ZRON-8G    | 2000-8000 | 20.0 | ±1.5  | +20.0 | +10 | 6.0 | +30.0 | 2.0  | 2.0  | 43 | 15 | 310 |

### MEDIUM HIGH POWER up to +30 dBm output

|             |           |      |      |       |     |      |       |      |      |    |    |      |
|-------------|-----------|------|------|-------|-----|------|-------|------|------|----|----|------|
| ZHL-32A     | 0.05-130  | 25.0 | ±1.0 | +29.0 | +10 | 10.0 | +38.0 | 2.0  | 2.0  | 13 | 24 | 600  |
| ZHL-3A      | 0.4-150   | 24.0 | ±1.0 | +29.5 | +10 | 11.0 | +38.0 | 2.0  | 2.0  | 12 | 24 | 600  |
| ZRL-400     | 150-400   | 27.0 | ±1.0 | +25.0 | +10 | 2.5  | +42.0 | 1.25 | 1.35 | 19 | 12 | 575  |
| ZHL-6A      | .0025-500 | 21.0 | ±1.2 | +22.0 | +10 | 9.5  | +34.0 | 1.8  | 2.0  | 30 | 24 | 350  |
| ZHL-1A      | 2-500     | 16.0 | ±1.0 | +28.0 | +20 | 11.0 | +38.0 | 2.0  | 2.0  | 14 | 24 | 600  |
| ZHL-211     | 800-950   | 20.0 | ±0.4 | +29.0 | +15 | 8.0  | +38.0 | 1.8  | 1.8  | 24 | 24 | 600  |
| ZFL-1000VH  | 10-1000   | 20.0 | ±1.0 | +25.0 | +15 | 4.5  | +38.0 | 2.0  | 2.5  | 17 | 15 | 320  |
| ZFL-1000VH2 | 10-1000   | 26.0 | ±1.0 | +25.0 | +15 | 5.0  | +38.0 | 2.0  | 2.5  | 17 | 15 | 320  |
| ZHL-2       | 10-1000   | 16.0 | ±1.0 | +29.0 | +15 | 9.0  | +38.0 | 2.0  | 2.0  | 27 | 24 | 600  |
| ZHL-2-8     | 10-1000   | 27.0 | ±1.0 | +29.0 | +5  | 10.0 | +38.0 | 2.0  | 2.0  | 31 | 24 | 600  |
| ZHL-1010    | 50-1000   | 9.5  | ±0.6 | +26.0 | +22 | 3.5  | +46.0 | 2.0  | 2.0  | 7  | 12 | 525  |
| ZHL-1010-75 | 50-1000   | 9.5  | ±0.7 | +26.0 | +20 | 3.5  | +47.0 | 1.5  | 1.5  | 6  | 12 | 525  |
| ZHL-2010    | 50-1000   | 20.0 | ±0.8 | +26.0 | +11 | 3.7  | +46.0 | 2.0  | 2.0  | 11 | 12 | 900  |
| ZHL-3010    | 50-1000   | 30.0 | ±1.0 | +26.0 | -3  | 5.5  | +46.0 | 2.5  | 2.0  | 16 | 12 | 1000 |
| ZHL-2-12    | 10-1200   | 24.0 | ±1.0 | +29.0 | +10 | 4.0  | +38.0 | 2.0  | 2.0  | 25 | 24 | 750  |
| ZRL-2300    | 1400-2300 | 21.0 | ±1.0 | +24.6 | +10 | 2.5  | +42.0 | 1.2  | 1.16 | 21 | 12 | 575  |
| ZX60-2411BM | 800-2400  | 9.0  | ±2.2 | +24.0 | +14 | 3.5  | +46.5 | 1.2  | 1.2  | 9  | 5  | 360  |
| ZFL-2500VH  | 10-2500   | 20.0 | ±1.5 | +23.0 | +10 | 5.5  | +35.0 | 1.7  | 2.0  | 15 | 15 | 300  |
| ZRL-3500    | 700-3500  | 11.0 | —    | +24.0 | +10 | 2.4  | +45.0 | 1.40 | 1.30 | 22 | 12 | 575  |
| ZHL-42W     | 0-4200    | 30.0 | ±1.5 | +28.0 | 0   | 8.0  | +38.0 | 2.5  | 2.5  | 26 | 15 | 880  |
| ZHL-4240W   | 10-4200   | 40.0 | ±1.5 | +28.0 | -5  | 8.0  | +38.0 | 2.5  | 2.5  | 19 | 15 | 900  |
| ZHL-42      | 700-4200  | 30.0 | ±1.0 | +28.0 | +5  | 10.0 | +38.0 | 2.5  | 2.5  | 31 | 15 | 880  |
| ZHL-4240    | 700-4200  | 40.0 | ±1.5 | +28.0 | -5  | 8.0  | +38.0 | 2.5  | 2.5  | 18 | 15 | 900  |
| ZVE-8G      | 2000-8000 | 30.0 | ±2.0 | +30.0 | +20 | 4.0  | +40.0 | 2.0  | 2.0  | 17 | 12 | 1200 |
| ZVA-183     | 700-18000 | 24.0 | ±1.0 | +24.0 | +4  | 3.0  | +33.0 | 1.35 | 1.25 | 50 | 12 | 400  |
| ZVA-213     | 800-21000 | 20.0 | ±1.0 | +24.0 | +4  | 3.0  | +33.0 | 1.35 | 1.25 | 50 | 12 | 400  |





## AMPLIFIERS

Broadband, Linear 50 Ω

2.5 kHz to 8 GHz

(WITHOUT HEATSINK)

ZHL-03-SWFX  
ZHL-1-2WX  
ZHL-1000-3WX  
ZHL-30W-252  
Case BT1344

LZY-1X Case BT1312  
LZY-2X Case BT451  
ZHL-10W-2GX Case BT1204  
ZHL-100W-52X Case BT1165

LZY-1 Case BT1312  
LZY-2 Case BT451  
ZHL-10W-2G Case BT1204  
ZHL-50W-52 Case BT1165  
ZHL-100W-52 Case BT1165  
ZHL-30W-252 Case BT1344

ZFL  
Case Y39

TIA-1000-1R8  
Case AP175

TIA-1000-4  
Case AP176

| MODEL<br>PREFIX | FREQUENCY<br>(MHz)<br>$f_L$ - $f_U$ | GAIN, (dB) |                  | MAXIMUM POWER<br>(dBm)         |                         | NOISE<br>FIGURE<br>(dB)<br>Typ. | IP3<br>(dBm)<br>Typ. | VSWR<br>Typ.<br>(:1)<br>In Out |  | ACTIVE<br>DIRECTIVITY<br>(dB) Typ.<br>Midband | DC OPERATING<br>POWER |                      |
|-----------------|-------------------------------------|------------|------------------|--------------------------------|-------------------------|---------------------------------|----------------------|--------------------------------|--|-----------------------------------------------|-----------------------|----------------------|
|                 |                                     | Min.       | Flatness<br>Max. | Output<br>(1 dB Comp.)<br>Min. | Input<br>(no<br>damage) |                                 |                      |                                |  |                                               | VOLT<br>(V) Nom.      | CURRENT<br>(mA) Max. |

## HIGH POWER above +30 dBm output NF from 3.0 dB

|              |           |      |      |       |     |      |       |      |     |       |    |       |
|--------------|-----------|------|------|-------|-----|------|-------|------|-----|-------|----|-------|
| ZHL-03-5WFX  | 60-300    | 30.0 | ±1.0 | +36.0 | +10 | 3.0  | +49.0 | 1.4  | 1.5 | 29    | 24 | 2800  |
| ZHL-03-5WFX  | 60-300    | 30.0 | ±1.0 | +36.0 | +10 | 3.0  | +49.0 | 1.4  | 1.5 | 29    | 24 | 2800  |
| ZHL-5W-1     | 5-500     | 40.0 | ±1.7 | +37.0 | 0   | 4.0  | +49.0 | 2.0  | 2.5 | 16    | 24 | 3300  |
| ZHL-1-2W     | 5-500     | 29.0 | ±1.0 | +33.0 | +10 | 12.0 | +44.0 | 2.0  | 2.0 | 20    | 24 | 900   |
| ZHL-1-2WX    | 5-500     | 29.0 | ±1.0 | +33.0 | +10 | 12.0 | +44.0 | 2.0  | 2.0 | 20    | 24 | 900   |
| ZHL-50W-52   | 50-500    | 46.0 | ±2.8 | +43.0 | +2  | 6.0  | +55.0 | 1.6  | 2.0 | 24    | 24 | 9300  |
| ZHL-50W-52X  | 50-500    | 46.0 | ±2.8 | +43.0 | +2  | 6.0  | +55.0 | 1.6  | 2.0 | 24    | 24 | 9000  |
| ZHL-100W-52  | 50-500    | 47.0 | ±1.8 | +45.0 | +3  | 6.5  | +57.0 | 1.45 | 2.5 | 28    | 24 | 10500 |
| ZHL-100W-52X | 50-500    | 47.0 | ±1.8 | +45.0 | +3  | 6.5  | +57.0 | 1.45 | 2.5 | 28    | 24 | 10200 |
| LZY-1        | 20-512    | 39.0 | ±1.5 | +44.0 | +10 | 8.6  | +54.0 | 2.0  | —   | 20    | 26 | 7300  |
| LZY-1X       | 20-512    | 39.0 | ±1.5 | +44.0 | +10 | 8.6  | +54.0 | 2.0  | —   | 20    | 26 | 7300  |
| ZHL-900A-10W | 480-900   | 24.0 | ±1.0 | +39.0 | +25 | 10.0 | +50.0 | 1.3  | 1.3 | 35    | 24 | 3500  |
| ZHL-20W-13   | 20-1000   | 46.0 | ±1.8 | +39.0 | 0   | 3.5  | +50.0 | 1.7  | 2.5 | 20-30 | 24 | 2800  |
| ZHL-20W-13X  | 20-1000   | 46.0 | ±1.8 | +39.0 | 0   | 3.5  | +50.0 | 1.7  | 2.5 | 5-19  | 24 | 2800  |
| LZY-2        | 500-1000  | 40.0 | ±1.5 | +43.0 | +10 | 8.0  | +54.0 | 2.0  | 3.5 | 6     | 26 | 8000  |
| LZY-2X       | 500-1000  | 40.0 | ±1.5 | +43.0 | +10 | 8.0  | +54.0 | 2.0  | 3.5 | 6     | 26 | 8000  |
| ZHL-1000-3W  | 500-1000  | 38.0 | ±1.5 | +35.0 | 0   | 3.5  | +45.0 | 2.0  | 2.5 | 36    | 24 | 2250  |
| ZHL-1000-3WX | 500-1000  | 38.0 | ±1.5 | +35.0 | 0   | 3.5  | +45.0 | 2.0  | 2.5 | 36    | 24 | 2250  |
| ZHL-5W-2G    | 800-2000  | 40.0 | ±2.1 | +36.0 | +1  | 8.0  | +44.0 | 1.7  | 1.5 | 40    | 24 | 2000  |
| ZHL-5W-2GX   | 800-2000  | 40.0 | ±2.1 | +36.0 | +1  | 8.0  | +44.0 | 1.7  | 1.5 | 40    | 24 | 2000  |
| ZHL-10W-2G   | 800-2000  | 40.0 | ±2.0 | +39.0 | +1  | 7.0  | +50.0 | 1.3  | 1.3 | 40    | 24 | 5000  |
| ZHL-10W-2GX  | 800-2000  | 40.0 | ±2.0 | +39.0 | +1  | 7.0  | +50.0 | 1.3  | 1.3 | 40    | 24 | 5000  |
| ZHL-30W-252  | 700-2500  | 45.0 | ±2.0 | +43.0 | 0   | 5.5  | +52.0 | 1.3  | 1.2 | 30    | 28 | 6300  |
| ZHL-30W-252X | 700-2500  | 45.0 | ±2.0 | +43.0 | 0   | 5.5  | +52.0 | 1.3  | 1.2 | 30    | 28 | 6300  |
| ZVE-3W-83    | 2000-8000 | 30.0 | ±2.0 | +33.0 | +20 | 5.8  | +42.0 | 1.5  | 1.4 | 45    | 15 | 1500  |
| ZVE-3W-83X   | 2000-8000 | 30.0 | ±2.0 | +33.0 | +20 | 5.8  | +42.0 | 1.5  | 1.4 | 45    | 15 | 1500  |

## VARIABLE GAIN up to +13 dBm output NF from 12 dB, Control Range 30 dB

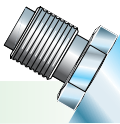
|            |         |      |      |       |     |      |       |     |     |    |    |     |
|------------|---------|------|------|-------|-----|------|-------|-----|-----|----|----|-----|
| ZFL-1000G  | 10-1000 | 17.0 | ±1.5 | +3.0  | +10 | 12.0 | +13.0 | 2.0 | 2.0 | 30 | 15 | 100 |
| ZFL-1000GH | 10-1200 | 24.0 | ±1.5 | +13.0 | +10 | 15.0 | +25.0 | 2.2 | 2.0 | 24 | 15 | 170 |

| MODEL<br>PREFIX | FREQUENCY<br>(MHz)<br>$f_L$ - $f_U$ | GAIN, (dB) |                  | MAXIMUM POWER<br>(dBm)         |                         | NOISE<br>FIGURE<br>(dB)<br>Typ. | IP3<br>(dBm)<br>Typ. | VSWR<br>Typ.<br>(:1)<br>In Out |  | ACTIVE<br>DIRECTIVITY<br>(dB) Typ.<br>Midband | AC OPERATING<br>POWER<br>(50/60 Hz) |                      |
|-----------------|-------------------------------------|------------|------------------|--------------------------------|-------------------------|---------------------------------|----------------------|--------------------------------|--|-----------------------------------------------|-------------------------------------|----------------------|
|                 |                                     | Min.       | Flatness<br>Max. | Output<br>(1 dB Comp.)<br>Min. | Input<br>(no<br>damage) |                                 |                      |                                |  |                                               | VOLT<br>(V)                         | CURRENT<br>(mA) Max. |

## RF INSTRUMENT

|                |           |      |      |       |     |      |       |     |     |    |     |      |
|----------------|-----------|------|------|-------|-----|------|-------|-----|-----|----|-----|------|
| TIA-1000-1R8   | 0.50-1000 | 35.0 | ±2.0 | +32.0 | +7  | 8.0  | +45.0 | 1.9 | 2.5 | 44 | 110 | 1300 |
| TIA-1000-1R8-2 | 0.50-1000 | 35.0 | ±2.0 | +32.0 | +7  | 8.0  | +45.0 | 1.9 | 2.5 | 44 | 220 | 650  |
| TIA-1000-4     | 100-1000  | 19.0 | ±1.5 | +36.0 | +25 | 12.0 | +48.0 | 2.5 | 2.5 | 38 | 110 | 3700 |
| TIA-1000-4-2   | 100-1000  | 19.0 | ±1.5 | +36.0 | +25 | 12.0 | +48.0 | 2.5 | 2.5 | 38 | 220 | 1850 |





| MODEL<br>PREFIX | FREQUENCY<br>(MHz) | GAIN, (dB)       |      | RISE/<br>FALL<br>TIME<br>(ns)<br>Max. | PULSE<br>WIDTH<br>(µs)<br>Max. | MAXIMUM POWER<br>(dBm) Typ. |                      | NOISE<br>FIGURE<br>(dB)<br>Typ. | IP3<br>(dBm)<br>Typ. | VSWR<br>Typ.<br>(:1)<br>In Out |  | ACTIVE<br>DIRECTIVITY<br>(dB) Typ.<br>Midband | DC OPERATING<br>POWER |                      |
|-----------------|--------------------|------------------|------|---------------------------------------|--------------------------------|-----------------------------|----------------------|---------------------------------|----------------------|--------------------------------|--|-----------------------------------------------|-----------------------|----------------------|
|                 |                    | Flatness<br>Min. | Max. |                                       |                                | Output<br>(1 dB Comp.)      | Input<br>(no damage) |                                 |                      |                                |  |                                               | VOLT<br>(V) Nom.      | CURRENT<br>(mA) Max. |

PULSE AMPLIFIERS Inverting and Non-Inverting +22 dBm output NF from 7.2 dB

|          |            |    |      |     |   |      |     |     |       |     |     |    |    |     |
|----------|------------|----|------|-----|---|------|-----|-----|-------|-----|-----|----|----|-----|
| ZPUL-21  | 0.0025-700 | 21 | ±1.0 | 1.5 | 6 | 22.0 | +10 | 7.3 | +34.0 | 2.0 | 2.0 | 27 | 24 | 350 |
| ZPUL-30P | 0.0025-700 | 29 | ±1.0 | 1.5 | 6 | 22.0 | +10 | 7.2 | +34.0 | 2.0 | 2.0 | 37 | 24 | 400 |

