

## HD24223

## 100MHz – 10GHz RF Amplifier

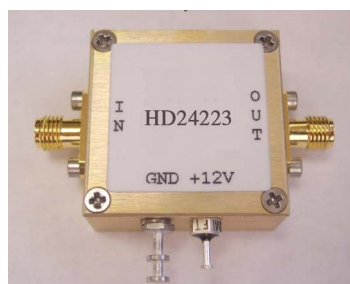
### Features

- Frequency Range: 0.1 -10GHz
- Gain: 16dB
- P<sub>1dB</sub>: +13dBm
- IP3: +28dBm
- Noise Figure: 4dB
- DC Power: 12V
- SMA Connector

Performance measured @ 2GHz

### Description

HD24223 is a wideband, Low Power RF Amplifier that operates with a frequency range from 100MHz to 10GHz.



### Electrical Specifications @ +25 °C, Z<sub>S</sub> = Z<sub>L</sub> = 50 Ohms

| Parameter        | Unit | Minimum | Typical | Maximum |
|------------------|------|---------|---------|---------|
| Frequency Range  | GHz  | 0.1     |         | 10      |
| Gain             |      |         |         |         |
| f = 0.1GHz       | dB   |         | 16.2    |         |
| f = 2.0GHz       | dB   |         | 16.0    |         |
| f = 4.0GHz       | dB   |         | 15.1    |         |
| f = 6.0GHz       | dB   |         | 13.4    |         |
| f = 10.0GHz      | dB   |         | 10.5    |         |
| P <sub>1dB</sub> |      |         |         |         |
| f = 0.1GHz       | dBm  |         | +14.0   |         |
| f = 2.0GHz       | dBm  |         | +13.0   |         |
| f = 4.0GHz       | dBm  |         | +13.0   |         |
| f = 6.0GHz       | dBm  |         | +14.6   |         |
| f = 10.0GHz      | dBm  |         | +13.0   |         |
| IP3              |      |         |         |         |
| f = 0.1GHz       | dBm  |         | +27.7   |         |
| f = 2.0GHz       | dBm  |         | +28.1   |         |
| f = 4.0GHz       | dBm  |         | +28.0   |         |
| f = 6.0GHz       | dBm  |         | +28.0   |         |
| f = 10.0GHz      | dBm  |         | +25.0   |         |

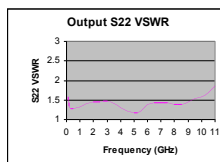
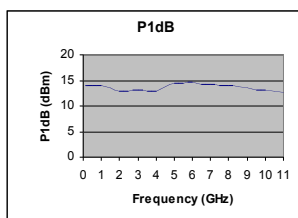
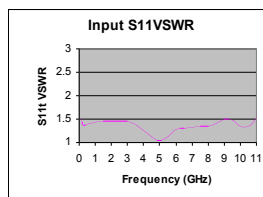
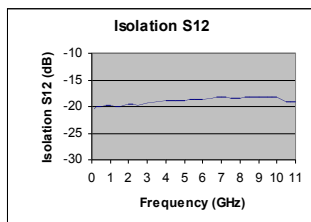
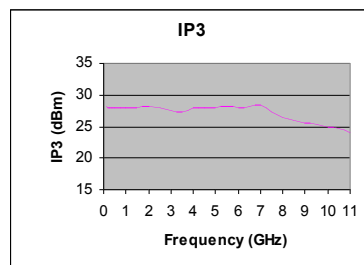
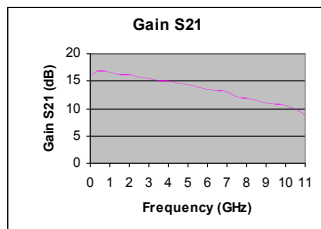


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|                       |    |   |       |    |
|-----------------------|----|---|-------|----|
| Noise Figure f = 2GHz | dB |   | 4.0   |    |
| VSWR f = 0.1-10GHz    |    |   |       |    |
| Input VSWR            |    |   | 1.7:1 |    |
| Output VSWR           |    |   | 1.7:1 |    |
| DC Power Supply       | V  | 9 | 12    | 15 |
| Supply Current        | mA |   | 50    |    |

### Typical Performance @ +25 °C



### Test Data @ +25 °C

| Frequency(GHz) | S21 (dB) | S12 (dB) | S11(VSWR) | S22(VSWR) | Noise Figure (dB) |
|----------------|----------|----------|-----------|-----------|-------------------|
| 0.040          | 14.30    | -22.46   | 2.29      | 3.00      | 3.83              |
| 0.075          | 15.80    | -22.86   | 1.66      | 1.83      | 3.62              |
| 0.100          | 16.22    | -20.5    | 1.53      | 1.58      | 3.66              |



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|       |       |        |      |      |      |
|-------|-------|--------|------|------|------|
| 0.250 | 16.57 | -19.99 | 1.36 | 1.31 | 3.59 |
| 0.500 | 16.79 | -19.95 | 1.39 | 1.28 | 3.72 |
| 1.000 | 16.61 | -19.88 | 1.43 | 1.33 | 3.65 |
| 1.500 | 16.21 | -20.07 | 1.45 | 1.40 | 3.48 |
| 2.000 | 16.17 | -19.56 | 1.45 | 1.45 | 3.66 |
| 2.500 | 15.64 | -19.75 | 1.46 | 1.45 | 3.67 |
| 3.000 | 15.43 | -19.30 | 1.46 | 1.48 | 3.97 |
| 3.500 | 14.98 | -19.21 | 1.39 | 1.40 | 3.73 |
| 4.000 | 15.16 | -18.92 | 1.26 | 1.30 | 3.80 |
| 4.500 | 14.58 | -18.81 | 1.12 | 1.21 | 3.81 |
| 5.000 | 14.23 | -18.80 | 1.05 | 1.17 | 3.88 |
| 5.500 | 13.85 | -18.62 | 1.14 | 1.22 | 4.08 |
| 6.000 | 13.42 | -18.60 | 1.28 | 1.38 | 3.92 |
| 6.500 | 13.23 | -18.40 | 1.31 | 1.42 | 3.96 |
| 7.000 | 13.00 | -18.31 | 1.33 | 1.43 | 4.05 |
| 7.500 | 12.20 | -18.42 | 1.34 | 1.43 | 4.04 |
| 8.000 | 11.98 | -18.41 | 1.34 | 1.39 | 4.11 |
| 8.500 | 11.50 | -18.22 | 1.41 | 1.39 | 4.28 |
| 9.000 | 11.10 | -18.20 | 1.49 | 1.46 | 4.34 |
| 9.500 | 10.89 | -18.22 | 1.48 | 1.53 | 4.52 |
| 10.00 | 10.50 | -18.30 | 1.34 | 1.58 | 4.69 |
| 10.50 | 9.86  | -19.01 | 1.34 | 1.69 | 4.70 |
| 11.00 | 8.70  | -19.20 | 1.53 | 1.87 | 4.72 |

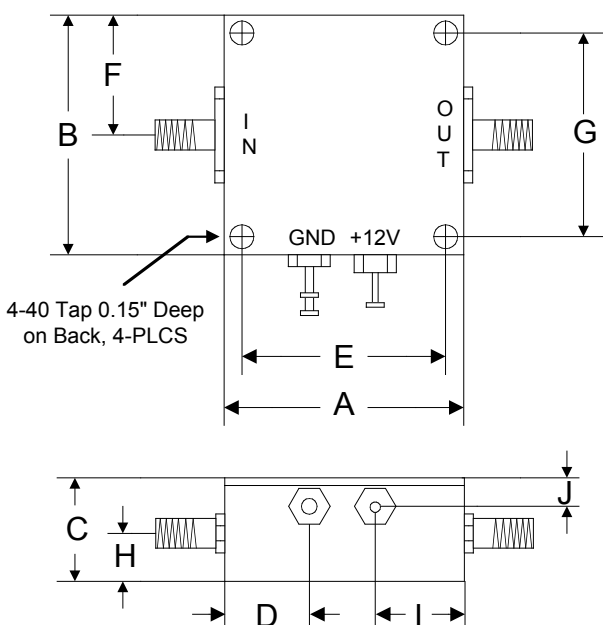
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### Absolute Maximum Ratings

| Parameter             | Absolute Maximum  |
|-----------------------|-------------------|
| RF Input Power        | +15dBm            |
| Supply Voltage        | +16V              |
| Operating Temperature | -40 °C to +85 °C  |
| Storage Temperature   | -55 °C to +100 °C |

### Outline



|      | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Inch | 1.250 | 1.250 | 0.563 | 0.450 | 1.000 | 0.625 | 1.000 | 0.250 | 0.500 | 0.187 |
| mm   | 31.75 | 31.75 | 14.29 | 11.43 | 25.40 | 15.88 | 25.40 | 6.35  | 12.70 | 4.76  |