

## Technical Datasheet

# GT-1051B Microwave Power Amplifier

10 MHz to 50 GHz



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Broadband High-Power Instrumentation Amplifier

# GT-1051B Microwave Power Amplifier

Advanced Amplifier Technology

- 10 MHz to 50 GHz eliminates band switching, reduces cost and complexity
- Solid-state technology for low noise, high reliability and long life
- Ideal for R&D Lab, ATE Systems, Wireless Communications and Defense EW applications



The Giga-tronics GT-1051B Microwave Power Amplifier incorporates broadband MMIC-based architecture. These state-of-the-art amplifiers are based on solid-state parallel MMIC design with exceptionally wide bandwidth and high power. The unique circuit topology is highly reliable, with performance that excels where extremes of bandwidth and power are demanded.

The Giga-tronics GT-1051B Microwave Power Amplifiers provide excellent pulse fidelity, low intermodulation distortion, high linearity and superior gain flatness without the warm-up time, drift or aging issues of traveling wave tube amplifiers (TWTAs). They feature low noise figure, low harmonics and spurious content, and are highly tolerant to load mismatch.

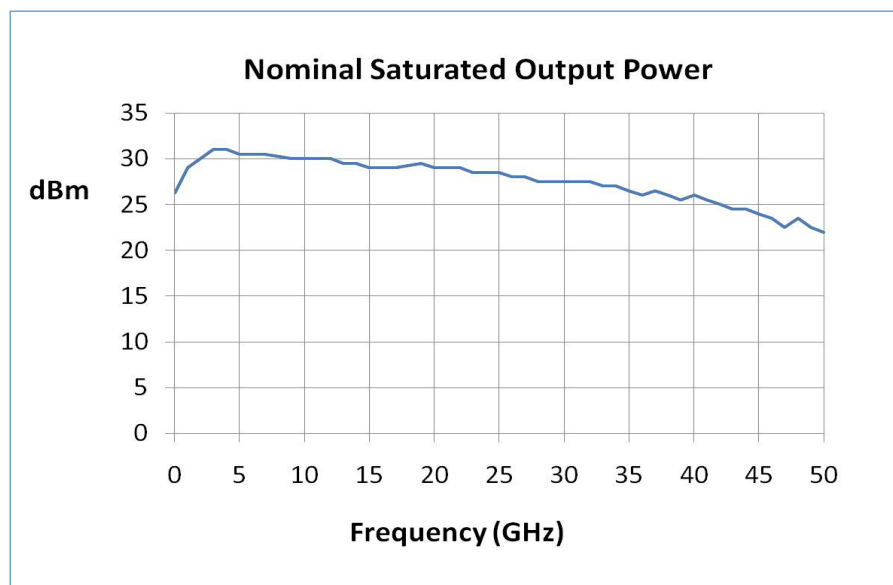
# GT-1051B Microwave Power Amplifier

## Advanced Amplifier Technology

The Giga-tronics GT-1051B Microwave Power Amplifier offers linear high-power amplification across multi-octave bands. It is ideal for testing in R&D Lab, ATE Systems, wireless communications applications and Defense EW systems. The 10 MHz to 50 GHz frequency range allows broadband testing without band switching or swapping narrow band amplifiers resulting in faster and more accurate testing.

The amplifiers can be used in wireless communications and component testing wherever a highly linear amplifier is needed. These microwave power amplifiers with excellent pulse fidelity are ideal for many Aerospace and Defense applications, including EW, ECM, ECCM, radar and satellite system signal simulation and testing. The GT-1051B is an ideal ATE system building block for boosting test signals to overcome cable and connector loss whenever long cable runs are needed in assembly bays, environmental test chambers or field locations.

The amplifier nominally provides 25 dB of gain over the 10 MHz to 50 GHz frequency range. The GT-1051B can be paired with a Giga-tronics 2540B 40 GHz Microwave Signal Generator or with Giga-tronics 2550B 50 GHz Microwave Signal Generator, increasing the overall output power while preserving the synthesizer's fast switching speed, modulation, and high signal fidelity.



# GT-1051B Microwave Power Amplifier

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## Frequency Range

|          |                  |
|----------|------------------|
| GT-1051B | 10 MHz to 50 GHz |
|----------|------------------|

## Output Power

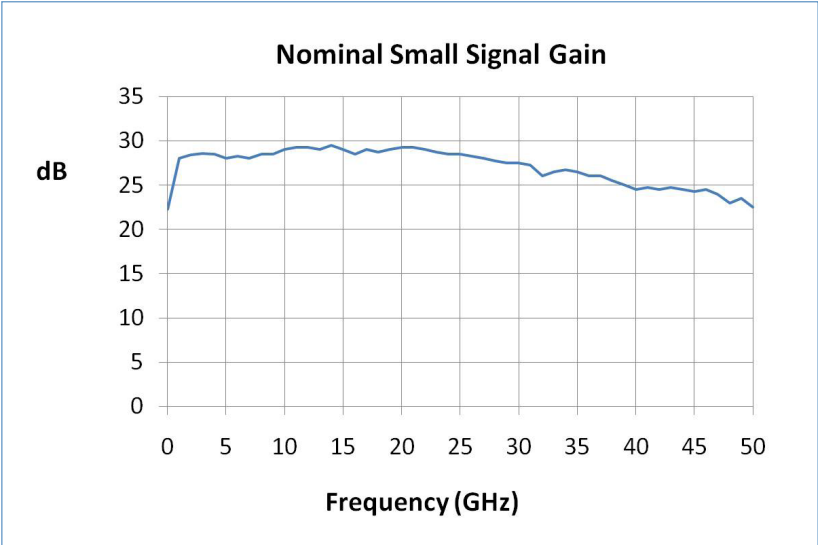
Output power is specified as minimum saturated power into 50 Ohm load with +5 dBm input, at 23°C ± 5°C  
Input power for normal operation should be limited to +20 dBm maximum.

| Range             | Specifications*                                     |
|-------------------|---|
| 10 MHz to 100 MHz | +24 dBm (250 mW) typical                            |
| 100 MHz to 2 GHz  | +27 dB (500 mW) typical                             |
| 2 to 10 GHz       | +30 dBm (1 Watts) nominal, +26 dBm (400 mW) minimum |
| 10 to 30 GHz      | +28 dBm (600 mW) nominal, +25 dBm (300 mW) minimum  |
| 30 to 40 GHz      | +27 dBm (500 mW) nominal, +23 dBm (200 mW) minimum  |
| 40 to 50 GHz      | +24 dBm (250 mW) nominal, +20 dBm (100 mW) minimum  |

## Gain Flatness

Nominal gain is 25 dB, minimum gain > 20 dB.  
Gain flatness is specified as maximum variation with -5 dBm input and 50 Ohm load.

| Range             | Specifications   |
|-------------------|------------------|
| 10 MHz to 100 MHz | ± 3.5 dB typical |
| 100 MHz to 2 GHz  | ± 2.5 dB typical |
| 2 to 40 GHz       | ± 2.5 dB nominal |
| 2 to 50 GHz       | ± 3.5 dB nominal |



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## Input and Output VSWR

|                 | 100 MHz to 1 GHz | 1 to 2 GHz    | 2 to 30 GHz   | 30 to 40 GHz  | 40 to 50 GHz  |
|-----------------|------------------|---------------|---------------|---------------|---------------|
| Input, 50 ohms  | 2.3:1 typical    | 2.0:1 typical | 1.5:1 nominal | 2.0:1 nominal | 2.3:1 nominal |
| Output, 50 ohms | 4.5:1 typical    | 2.9:1 typical | 2.0:1 nominal | 2.3:1 nominal | 2.9:1 nominal |

## Additional Specifications

| Parameter             | Specifications                   |
|-----------------------|----------------------------------|
| Stability             | Unconditionally Stable           |
| Maximum Load VSWR     | 3:1                              |
| Maximum Input Power   | +20 dBm                          |
| Third Order Intercept | +37 dBm nominal                  |
| Harmonic Distortion*  | < -30 dBc nominal                |
| Spurious*             | < -60 dBc nominal                |
| Reverse Isolation     | > 50 dB                          |
| Noise Figure          | < 10 dB nominal, < 14 dB maximum |

\* Note: Harmonics measured at +10 dBm output power. Spurious measured at -5 dBm input power level

## General Specifications

|                       |  |
|-----------------------|--|
| Line Voltage          | 100 to 240 VAC, 47 to 63 Hz, Single Phase                |
| Line Power            | 20 VA maximum  |
| Operating Temperature | 0°C to +50°C   |
| Storage Temperature   | -20°C to +75°C   |
| Dimensions            | 2.5" H x 6.8" D x 7.0" W (64 mm H x 173 mm D x 178 mm W) |
| Weight                | 4.5 lbs (2 kg)   |
| RF Connectors         | Input: 2.4 mm compatible 1.85 mm (f) V connector         |
|                       | Output: 2.4 mm compatible 1.85 mm (f) V connector        |



## Ordering Information

Giga-tronics has a network of RF and Microwave instrumentation sales engineers and a staff of factory support personnel to help you find the best, most economical instrument for your specific applications. In addition to helping you select the best instrument for your needs, our staff can provide quotations, assist you in placing orders, and do everything necessary to ensure that your business transactions with Giga-tronics are handled efficiently.

| Model Number | Frequency Range                             |
|--------------|---|
| GT-1051B     | Microwave Power Amplifier, 10 MHz to 50 GHz |

## Giga-tronics Support Services

At Giga-tronics, we understand the challenges you face. Our support services begin from the moment you call us. We help you achieve both top-line growth and bottom-line efficiencies by working to identify your precise needs and implement smart and result orientated solutions. We believe and commit ourselves in providing you with more than our superior test solutions. For technical support, contact:

Tel: 1-800-726-GIGA (4442) or (925) 328-4669

Email: [support@gigatronics.com](mailto:support@gigatronics.com)

## Updates

All data is subject to change without notice. For the latest information on Giga-tronics products and applications, please visit our website:

<http://www.gigatronics.com>



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