Technical Datasheet

GT-1051B Microwave Power Amplifier

10 MHz to 50 GHz

Broadband High-Power Instrumentation Amplifier

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Giga-tronics

35528 -Rev.A / US012314

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 (TWTA). They feature low noise figure, low harmonics and spurious content, and are highly tolerant to load mismatch.

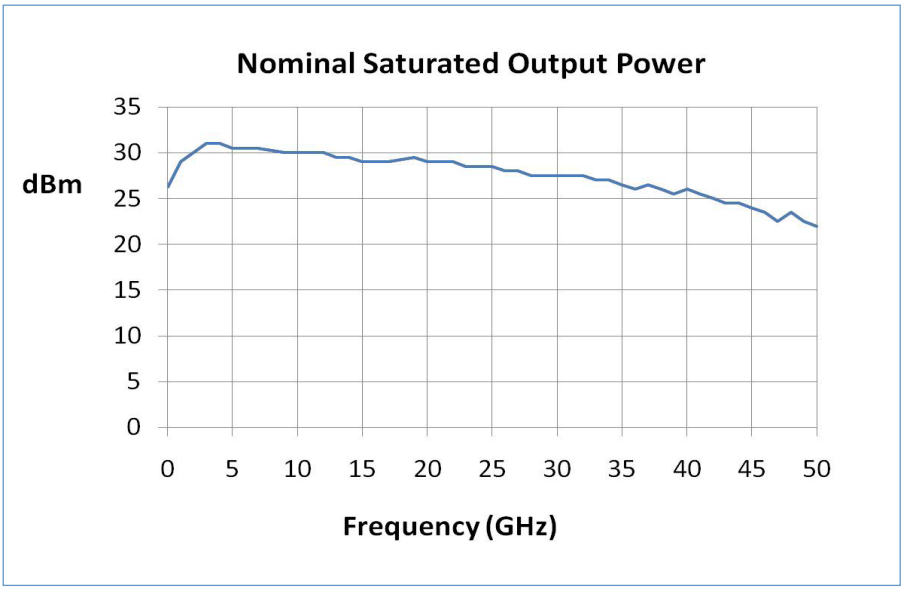
GT-1051B Microwave Power Amplifier

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.



Frequency Range

GT-1051B	10 MHz to 50 GHz

Output Power

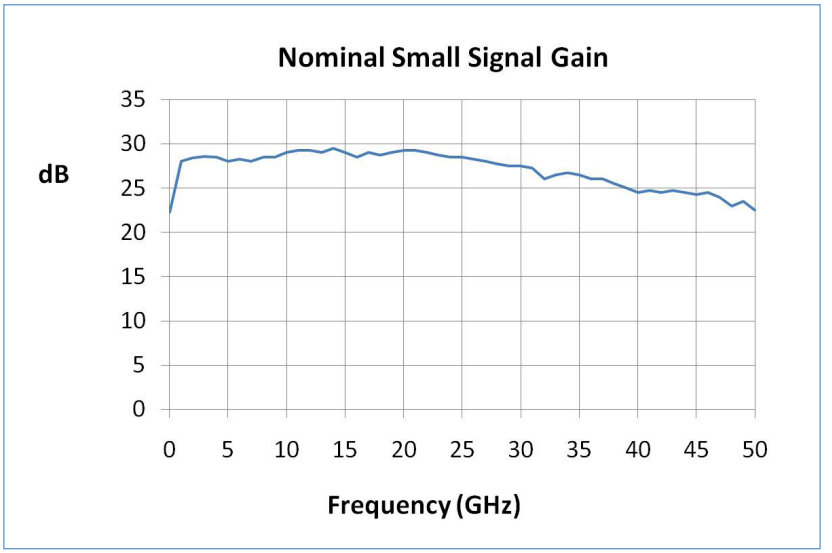
Output power is specified as minimum saturated power into 50 Ohm load with +5 dBm input, at 23°C ± 5°C
Input power for normal operation should be limited to +20 dBm maximum.

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



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