

Technical Datasheet

GT-1000B Microwave Power Amplifier

100 MHz to 20 GHz



Broadband High-Power Instrumentation Amplifier

GT-1000B Microwave Power Amplifier

Advanced Amplifier Technology

- 100 MHz to 20 GHz eliminates band switching, reduces cost and complexity
- Solid-state technology for low noise, high reliability and long life
- Ideal for EMC, Wireless Communications and Defense EW applications



The Giga-tronics GT-1000B Microwave Power Amplifier incorporates the CAP Wireless patented Spatium™ spatial combining architecture solid-state amplifier. The Spatium™ technology amplifier is based on a solid-state parallel MMIC technology 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-1000B Microwave Power Amplifier provides 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). The GT-1000B features low noise figure, low harmonics and spurious content, and is highly tolerant to load mismatch.

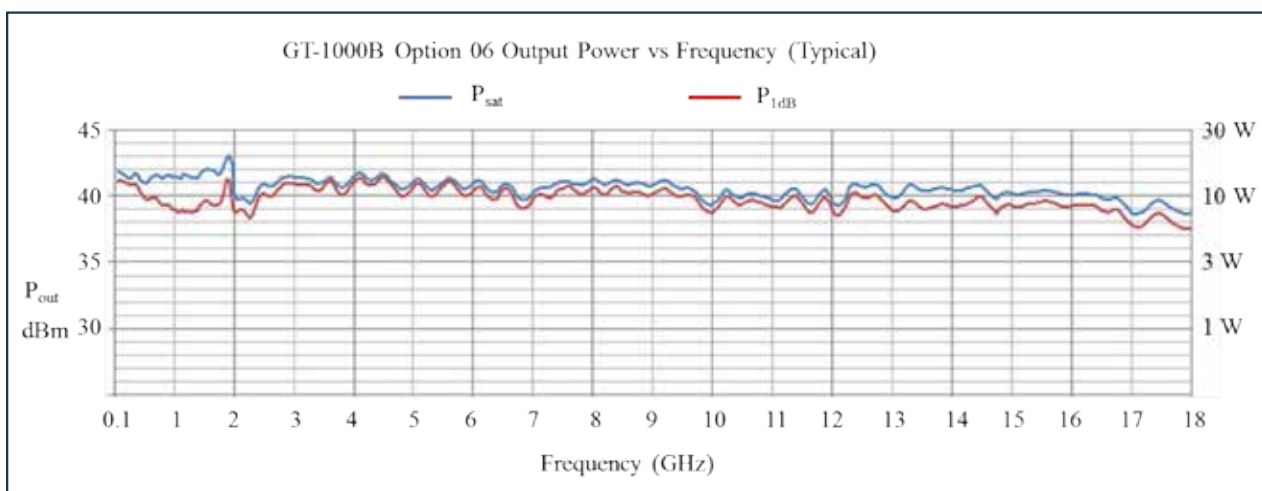
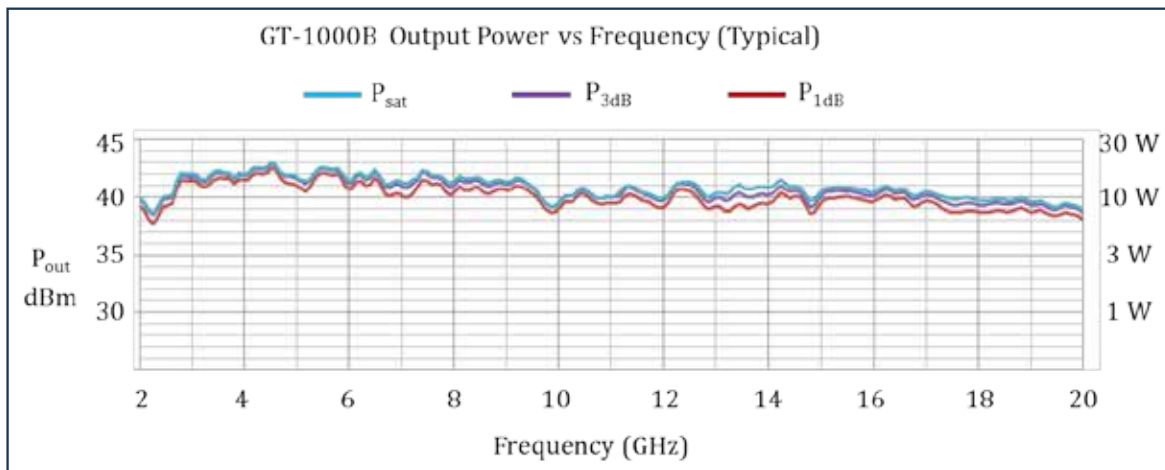
GT-1000B Microwave Power Amplifier

The Giga-tronics GT-1000B Microwave Power Amplifier offers linear high-power amplification across multi-octave bands. It is ideal for testing in EMC, wireless communications applications and Defense EW systems. For EMI/EMC and standards laboratories, the GT-1000B with 100 MHz to 20 GHz frequency range allows broadband testing without band switching or swapping narrow band amplifiers resulting in faster and more accurate testing.

The amplifier can be used in wireless communications and component testing wherever a highly linear amplifier is needed, such as testing RFICs and MMICs, or testing base station transmitters with high crest factor signals and high peak-to-average power levels. The GT-1000B provides high power for testing limiters, step recovery diodes (SRD), or driving traveling wave tubes (TWT).

The microwave power amplifier with excellent pulse fidelity is ideal for many Aerospace and Defense applications, including EW, ECM, ECCM, radar and satellite system signal simulation and testing. The GT-1000B 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 provides up to 40 dB of gain over the 100 MHz to 20 GHz frequency range. An optional coupler/detector is available for external power monitoring or for external leveling a companion microwave signal generator. The GT-1000B can be paired with a Giga-tronics 2520B Microwave Signal Generator, increasing the overall output power while preserving the synthesizer's fast switching speed, modulation, and high signal fidelity.



GT-1000B Microwave Power Amplifier

Frequency Range

GT-1000B	2 GHz to 20 GHz
GT-1000B Option 06	100 MHz to 18 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*
2 GHz to 8 GHz	+40 dBm (10 Watts) typical, +38.5 dBm (7 Watts) minimum
8 GHz to 12 GHz	+38.5 dBm (7 Watts) typical, +37 dBm (5 Watts) minimum
12 GHz to 18 GHz	+37 dBm (5 Watts) typical, +36 dBm (4 Watts) minimum
18 GHz to 20 GHz	+37 dBm (5 Watts) typical

* Note: Output power with Option 01 is decreased by 1 dB

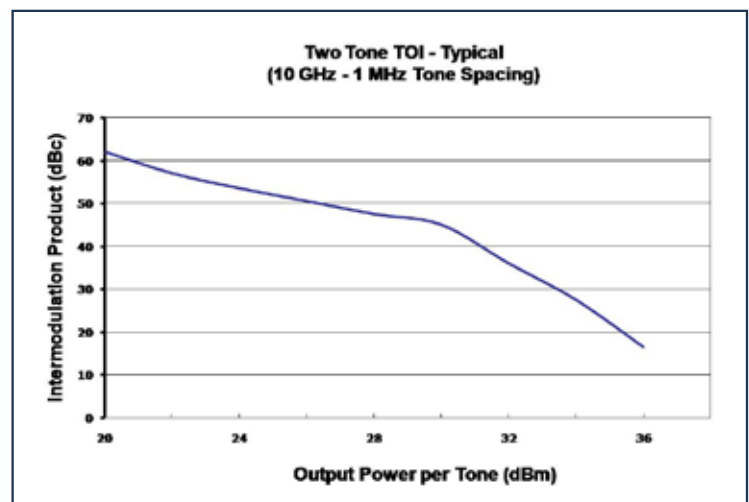
Range, Option 06	Specifications*
100 MHz to 2 GHz	+38.5 dBm (7 Watts) typical, +37 dBm (5 Watts) minimum
2 GHz to 8 GHz	+38.5 dBm (7 Watts) typical, +37 dBm (5 Watts) minimum
8 GHz to 12 GHz	+37 dBm (5 Watts) typical, +36 dBm (4 Watts) minimum
12 GHz to 18 GHz	+36 dBm (4 Watts) typical, +35 dBm (3 Watts) minimum

* Note: Output power with Option 01 is decreased by 2 dB

Gain Flatness

Nominal gain is 40 dB (Nominal gain with Option 06 is 35 dB). Gain flatness is specified as maximum variation with -5 dBm input and 50 Ohm load.

Range	Specifications
100 MHz to 18 GHz (Opt. 06)	+/- 4.5 dB maximum
2 GHz to 20 GHz	+/- 3.5 dB maximum



GT-1000B Microwave Power Amplifier

Input and Output VSWR

Parameter	Specifications
Input, Standard (2 GHz to 20 GHz)	50 Ohms, 2:1 maximum
Input, Option 06 (100 MHz to 18 GHz)	50 Ohms, 2.9:1 maximum, 2.5:1 typical
Output, Standard (2 GHz to 20 GHz)	50 Ohms, 2.7:1 maximum, 2.3:1 typical
Output, Option 06 (100 MHz to 18 GHz)	50 Ohms, 3.7:1 maximum, 3.5:1 typical

Additional Specifications

Parameter	Specifications
Stability	Unconditionally Stable
Maximum Load VSWR	3:1
Harmonics*, Standard (2 GHz to 20 GHz)	< -30 dBc typical
Harmonics*, Option 06 (100 MHz to 18 GHz)	< -25 dBc typical
Spurious*	< -60 dBc typical
Noise Figure	< 10 dB typical, < 14 dB maximum

* Note: Harmonics measured at +27 dBm output power. Spurious measured at -5 dBm input power level

General Specifications

Line Voltage	85 to 264 VAC, 47 to 63 Hz, Single Phase
Line Power	450 VA maximum
Operating Temperature	0°C to +50°C
Storage Temperature	-20°C to +75°C
Cooling	Forced air, field replaceable fans
Rack Height	3U (5.25")
Dimensions*	5.25" H x 17" W x 20" D (134 mm H x 432 mm W x 508 mm D)
Weight	<35 lbs (<16 kg)
Environmental	MIL-PRF-28800F, Class 3
Safety	EN61010
Emissions	EN61326

* Note: Dimensions with rack ears, 5.25" H x 19" W x 21" D (134 mm H x 483 mm W x 534 mm D)

GT-1000B Front Panel Status Indicators

Indicator	Description
Power On	Lit indicates AC power is applied and unit is ready to function
Module Fault	Lit indicates an amplifier module in the unit is inoperable
Temperature Fault	Lit indicates internal heat sink temperature exceeding 75°C
Fan Fault	Lit indicates the exhaust fan has stopped rotating

GT-1000B Rear Panel Connections

Connection	Description
RF Input	SMA (f) standard or Type-N (f) with Option 02
Detector Output (Option 01)	BNC (f), -1 Volt DC nominal detector output at 10 Watts RF out, and nominally -250 mV at 1 Watt RF out, into high impedance
Remote RF Off Input	BNC (f), Open = RF On, Short to Ground = RF Off, Short Circuit Current = 10 mA max.
AC Power Input	85 to 64 VAC, 47 to 63 Hz, Single Phase, 450 VA max.



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-1000B	Microwave Power Amplifier, 2 GHz to 20 GHz, SMA (f) connectors

Available Options and Accessories*

Option	Description
01	Add internal coupler/detector for external ALC and power monitoring
02	Type-N (f) input and output connectors
04	Both input and output connectors on front panel
06	Add 100 MHz to 18 GHz Frequency Range
46	Rack slide Kit (HP Style Rack only)

* Special connector configurations available upon request. Contact your local representative.

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

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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