



Preliminary Technical Datasheet



GT-1000A Microwave Power Amplifier 2 GHz to 20 GHz

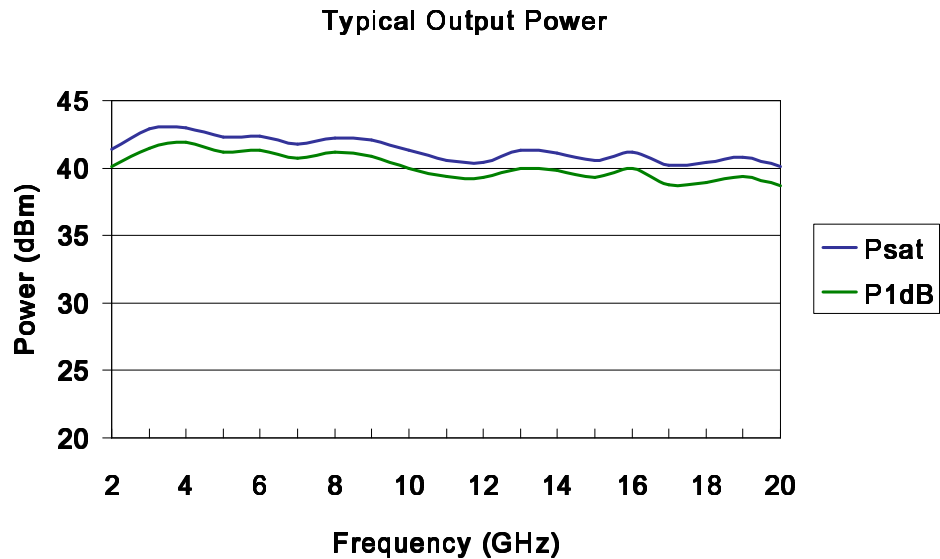
Broadband High-Power Instrumentation Amplifier

GT-1000A Microwave Power Amplifier

Advanced Amplifier Technology

The Giga-tronics GT-1000A 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 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-1000A Microwave Power Amplifier with CAP Wireless Spatium™ technology 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-1000A features low noise figure, low harmonics and spurious content, and is highly tolerant to load mismatch.



GT-1000A Microwave Power Amplifier

Advanced Amplifier Technology

The Giga-tronics GT-1000A 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-1000A with 2 GHz to 20 GHz frequency range allows broadband testing without band switching or swapping narrow band amplifiers resulting in faster and more accurate testing.

The Giga-tronics GT-1000A Microwave Power 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 with high peak-to-average power levels. The GT-1000A provides high power for testing limiters, step recovery diodes (SRD), or driving traveling wave tubes (TWT), magnetrons and klystrons.

The Giga-tronics GT-1000A 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-1000A 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, 10 watts nominal output power over the 2 GHz to 20 GHz frequency range. Gain is variable up to 10 dB via a front panel knob. An optional coupler/detector is available for external power monitoring or for external leveling a companion microwave signal generator. The GT-1000A can be paired with a Giga-tronics 2520A Microwave Signal Generator, increasing the overall output power to +40 dBm while preserving the synthesizer's fast switching speed, modulation, and high signal fidelity.



GT-1000A Microwave Power Amplifier

Frequency Range

2 GHz to 20 GHz

Output Power

Output power is specified as minimum saturated power into 50 Ohm load with 0 dBm input.

Input power for normal operation should be limited to +3 dBm maximum.

Range	Specification*
2 to 2.5 GHz	+41.5 dBm (14 Watts) typical, +38.7 dBm (7.5 Watts) minimum
2.5 to 10 GHz	+42 dBm (15 Watts) typical, +39.5 dBm (9 Watts) minimum
10 to 18 GHz	+42 dBm (15 Watts) typical, +38.4 dBm (7 Watts) minimum
18 to 20 GHz**	+41.5 dBm (14 Watts) typical, +38.4 dBm (7 Watts) minimum

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

** Note: Output power typical with Option 02 and Option 03 (Type-N output connector)

Gain Flatness

Nominal gain is 40 dB. Gain adjustment range is 10 dB minimum.

Gain flatness is specified as maximum variation with 0 dBm input and 50 Ohm load.

Range	Specification
2 to 20 GHz	+/- 2.5 dB maximum
2 to 6 GHz	+/- 1.5 dB maximum
6 to 10 GHz	+/- 1.5 dB maximum
10 to 18 GHz	+/- 2.0 dB maximum
18 to 20 GHz	+/- 2.0 dB maximum

Input and Output VSWR

Input: 50 Ohms, 2:1 maximum

Output: 50 Ohms, 2.3:1 maximum

GT-1000A Microwave Power Amplifier

Additional Specifications

Parameter	Specification
Stability	Unconditionally Stable
Maximum Load VSWR	5:1
Harmonic Distortion*	< -30 dBc typical
Spurious*	< -60 dBc typical
Noise Figure	< 10 dB typical, < 14 dB maximum
Phase Linearity	20 degrees typical

* Note: Harmonics and spurious measured at -5 dBm input power level

General Specifications

Line Voltage	85 to 264 VAC, 47 to 63 Hz, Single Phase
Line Power	300 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-1000A 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-1000A Rear Panel Connections

Connection	Description
RF Input	SMA (f) standard or Type-N (f) with Option 02
Coupler/Detector Output	SMA (f), -1 Volt DC nominal detector output at 10 Watts RF out, and nominally -250 mV at 1 Watt RF out, into high impedance.
AC Power Input	85 to 264 VAC, 47 to 63 Hz, Single Phase, 300 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 solution for your test and measurement needs, our staff can provide quotations, assist you in placing orders, and do everything necessary to ensure that your inquiries and business transactions with Giga-tronics are handled fast and efficiently.

Model Number	Description
GT-1000A	Microwave Power Amplifier, 2 GHz to 20 GHz

Available Options and Accessories

Option	Description
01	Add internal coupler/detector for ext. ALC and power monitoring
02	Type-N (f) input and output connectors*
03	SMA (f) input and Type-N (f) output connectors*
04	Both input and output connectors on front panel
46	Rack Slide Kit (HP Style Rack only)

* Option 02 and option 03 may not be ordered at the same time

Giga-tronics Support Services

Giga-tronics understands the many challenges you face. Our support services begin from the moment you call us. We aim to help you achieve both top-line growth and bottom-line efficiencies by working to identify your precise needs and implement smart and result oriented solutions. We believe and commit ourselves in providing you with superior test and measurement solutions.

For technical support, contact:

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

E-Mail: **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>

