



GaN Broadband Power Amplifier

Solid State RF Amplifier

Aethercomm Model Number SSPA 0.020-1.000-20 is a high power, broadband, Gallium Nitride (GaN) RF amplifier that operates from 20 MHz to 1000 MHz. The bandwidth of this amplifier can be extended to 1200 MHz+ with similar performance. This PA is ideal for broadband military platforms as well as commercial applications because it is robust and offers high power over a multi-octave bandwidth with excellent power added efficiency. This amplifier was designed for broad band jamming and communication systems platforms. This amplifier operates with a base plate temperature of 85C with no degradation in the MTBF for the GaN devices inside. It is packaged in a modular housing that is approximately 3.4" (width) by 6.4" (long) by 1.06" (height). This amplifier has a typical P3dB of 30-40 watts at room temperature. Noise figure at room temperature is 3.1 dB typical. This amplifier offers a typical gain of 52 dB with a typical gain flatness of ± 2.0 dB. The power and gain flatness across the band is extremely flat for the bandwidth. Input VSWR is 2.0:1 maximum. Class AB quiescent current is ~1.0 amp typical employing a +28 Vdc supply. This PA operates from a +28 Vdc input voltage. Typical harmonic values can be found on the next page of this data sheet.

This SSPA includes an external DC blanking command that enables and disables the module in 5.0 uSec typical. A logic low enables the amplifier. A logic high or open circuit will disable the amplifier. Standard features include over/under voltage protection and reverse polarity protection. The output is fully protected from an open or short circuit presented to this port with no damage. Input/output RF connectors are SMA female. Other connector types can be configured

- **Gallium Nitride Broadband Power Amplifier**
- **Operation from 20 MHz to 1000 MHz min**
- **Small Signal Gain 52 dB typical**
- **30 to 60+% Typical Power Added Efficiency**
- **30-40 Watts P3dB typical**



for airborne applications. DC and command voltages are accessible via DC feed through capacitors. Contact the factory with any questions you may have. This amplifier operates from -40C to +85C base plate. Summary test data is found on sheet two of this data sheet at room temperature.

This is an example of an Aethercomm standard product. Aethercomm designs and manufactures high performance, high power CW or pulsed SSPA's for commercial, military and satellite communications customer.

Aethercomm Inc. reserves the right to make changes without further notice. Aethercomm recommends that before these items herein are specified into a system or critical application that the performance characteristics be verified by contacting the factory.

SSPA 0.020-1.000-20 Typical Performance @ 25°C

Freq (MHz)	Small Signal Gain (dB)	P3dB (dBm)	Current @ P3dB from a 28 Vdc Supply (Amps)	2nd Harmonic @ Pout=10 Watts (dBc)	3rd Harmonic @ Pout=10 Watts (dBc)	Power Added Efficiency @ P3dB (%)
20	52.5	43.7	1.6	-29.1	-16.0	52.2
50	52.7	46.2	2.2	-34.5	-16.9	67.6
100	53.0	46.4	2.3	-33.2	-20.0	67.7
200	53.0	46.2	2.4	-31.8	-21.4	62.0
300	53.0	46.0	2.6	-32.8	-22.3	55.0
400	53.1	45.8	2.9	-35.7	-25.8	46.8
500	53.6	46.2	3.1	-36.4	-27.2	48.0
600	53.7	45.7	3.1	-32.9	-32.5	42.8
700	53.6	45.2	3.1	-36.0	-30.9	38.1
800	52.8	43.7	3.0	-37.5	-32.0	27.8
900	51.5	45.6	3.7	-35.6	-33.0	35.8
1000	50.5	44.8	3.1	-35.8	-35.0	34.5