



Gallium Nitride Broadband Amplifier System

SSPA 0.001-6.000-5

Aethercomm Model Number SSPA 0.001-6.000-5 is a medium power, super broadband, Gallium Nitride (GaN) RF amplifier that operates from 1.0 MHz to 6.0 GHz. This is almost infinite bandwidth! This PA is ideal for broadband military platforms as well as commercial applications because it is robust and offers high power over an extremely large bandwidth with decent power added efficiency. This amplifier was designed for broadband jamming and communication system platforms or any system or laboratory that just needs almost infinite band width up to 6 GHz. This amplifier operates with a base plate temperature of 85C. It is packaged in a modular housing that is approximately 2.5" (width) by 6.4" (long) by 1.00" (height). This amplifier has a typical saturated output power of 5-10 watts at room temperature. Noise figure at room temperature is 10 dB typical. This amplifier offers a typical gain of 30-40 dB with a typical power gain flatness of ± 4 dB. The power and gain flatness across the band is extremely flat for the bandwidth. Input VSWR is 2.0:1 typical. Class AB quiescent current is ~ 1.17 amps typical employing a +28 Vdc supply. Typical second and third harmonic values can be found on the next page of this data sheet. Typical OIP3 levels are 37 to 43 dBm with two tones at 27 dBm each tone with a 1MHz spacing.

This SSPA includes an external DC blanking command that enables and disables the module in 20.0 uSec maximum. Typical on/off timing values are 10 uSec. A logic low or open circuit disables the amplifier. A logic high will enable 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. DC

- Gallium Nitride Broadband Power Amplifier
- Operation from 1.0 MHz to 6.0 GHz min
- Small Signal Gain 40 dB typical
- 5 to 10 Watts PSat typical



and command voltages are accessible via a DSUB connector. Contact the factory with any questions you may have. This amplifier operates from -40C to $+85\text{C}$ base plate temperature. 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 0.001-6.000-5 Typical Performance @ 25°C

Freq (MHz)	Small Signal Gain (dB)	Pout @ PSat (dBm)	Current @ PSat from a 28 Vdc Supply (Amps)	2nd Harmonic @ Pout = 1.0 Watts (dBc)	3rd Harmonic @ Pout = 1.0 Watts (dBc)
1	42.1	29.8	1.5	-10.0	-17.0
5	46.6	37.9	2.2	-12.2	-19.0
10	51.1	40.1	2.0	-13.6	-21.0
20	50.7	40.3	2.0	-15.8	-25.0
50	49.7	40.1	2.1	-19.1	-27.0
100	49.0	40.1	2.3	-18.0	-25.8
500	43.0	40.7	2.6	-20.8	-23.6
1000	42.5	41.0	2.6	-19.5	-26.0
2000	41.3	40.4	2.4	-22.0	-23.0
3000	40.0	38.9	2.3	-16.2	-36.0
4000	38.3	37.6	2.0	-18.6	-60.0
5000	37.2	37.0	1.9	-23.0	-52.0
6000	35.0	34.8	1.8	-46.0	-60.0