Gallium Nitride
Broadband Power Amplifier

"Bullets"

Gallium Nitride Broadband Power Amplifier
Operation from 20 MHz to 6.0 GHz min
Small Signal Gain 50 dB typical
5-10 Watts PSat typical

"Introduction"

Aethercomm Model Number SSPA 0.020-6.000-10 is a medium power, super broadband, Gallium Nitride (GaN) RF amplifier that operates from 20 MHz to 6.0 GHz. 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 broad band jamming and communication system platforms. 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 50 dB with a typical gain flatness of ± 4 dB. The power and gain flatness across the band is extremely flat for the bandwidth. Input and output VSWR is 2.0:1 typical. Class AB quiescent current is ~1.17 amps typical employing a +28 Vdc supply. This PA operates from a +28 Vdc input voltage. 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 30dBm 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 10uSec. A logic low or open circuit disables the amplifier. A logic high will enable 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. DC and command voltages are accessible via a DSUB connector. Contact the factory with any questions you may have. This amplifier operates from –40C to +85C 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.

Add Disclaimer

“Performance Tables – This is the second page of data sheet”

SSPA 0.020-6.000-10 Typical Performance @ 25ºC

Freq (MHz)	Small Signal Gain (dB)	Pout @ PSat (dBm)	Current @ PSat from a 28Vdc Supply (Amps)	2nd Harmonic @ Pout=1.0Watts (dBc)	3rd Harmonic @ Pout=1.0Watts (dBc)
20	48.0	40.1	1.6	-15.8	-25.0
50	51.2	39.9	1.9	-19.1	-27.0
100	50.7	40.2	2.2	-18.0	-25.8
200	49.4	40.7	2.6	-18.3	-26.0
400	48.8	40.6	2.7	-20.0	-25.8
600	49.3	40.7	2.6	-20.8	-23.6
800	48.6	40.6	2.7	-18.5	-26.5
1000	49.1	40.8	2.5	-19.5	-26.0
1250	48.0	40.7	2.6	-17.3	-26.3
1500	48.3	41.0	2.5	-23.1	-25.3
1750	47.1	40.7	2.5	-20.8	-28.1
2000	47.5	40.7	2.4	-22.0	-23.0
2250	46.3	40.0	2.3	-18.0	-25.8
2500	46.0	39.6	2.3	-15.6	-26.0
2750	44.7	39.2	2.4	-19.5	-26.0
3000	45.3	39.2	2.3	-16.2	-36.0
3250	45.6	38.4	2.0	-11.5	-30.0
3500	45.1	38.6	2.1	-15.3	-38.0
3750	43.8	39.4	2.2	-20.0	-46.0
4000	43.1	39.3	2.0	-18.6	-60.0
4500	42.8	38.7	2.2	-16.0	-50.0
5000	43.9	38.6	2.0	-23.0	-52.0
5500	41.2	38.8	2.0	-24.5	-43.0
6000	40.0	37.8	2.0	-46.0	-60.0