



Gallium Nitride Broadband Power Amplifier Solid State RF Amplifier

Aethercomm Model Number SSPA 0.5-2.5-125 is a high power, broadband, Gallium Nitride (GaN) RF amplifier that operates from 500 MHz to 2500 MHz. 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 excellent power added efficiency. This amplifier operates with a base plate temperature of -40C to +95C. It is packaged in a modular housing that is approximately 5.32" (width) by 9.00" (long) by 1.97" (height) without the connectors. This amplifier weighs 5.6 pounds maximum. This amplifier has a typical saturated output power of 125 watts at room temperature. Noise figure at room temperature is 10 dB typical. The power flatness across the band is typically ± 1.5 dB across the band. Input and output VSWR is 2.0:1 typical. This PA operates from an input DC voltage of 17-36Vdc.

This SSPA includes an external DC blanking command that enables and disables the module in 10.0 uSec maximum. A logic low or open circuit disables the amplifier. 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. The input RF connector is a male SMP. The output RF connector is an SMA-F. DC and command voltages are accessible via a DSUB connector. Contact the factory with any questions you may have. Summary test data is found on sheet two of this data sheet at room temperature.

- **Gallium Nitride Broadband Power Amplifier**
- **Operation from 500 MHz to 2500 MHz min**
- **Large Signal Gain 55 dB at ambient typical**
- **125 Watts PSat typical**
- **Operates From an Input Voltage of 17-36 Vdc**
- **Base Plate Operating Temperature of -40C to +95C**



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 0.5-2.5-125

SSPA 0.5-2.5-125 Performance at Room Temperature from a 28Vdc Power Supply

Frequency (MHz)	Pin@Psat Output Power (dBm)	Psat (dBm)	Gain @ Rated Power Out (dB)	Current @ Rated Power Out (Amps)	DC Power (Watts)	PAE (%)	2nd Harmonic (dBc)	3rd Harmonic (dBc)
500	-17.0	51.8	58.8	12.0	337.4	44.9	-37.0	-26.0
600	-11.0	51.8	58.8	13.0	389.4	38.9	-19.4	-24.5
700	-7.0	51.6	58.6	14.2	398.7	36.3	-16.3	-29.0
800	-6.0	52.0	58.0	16.8	470.9	33.7	-13.4	-17.5
900	-6.0	51.8	57.8	15.4	431.2	35.1	-14.7	-25.6
1000	-3.0	51.6	54.6	17.0	476.0	30.4	-13.4	-36.0
1100	-5.0	50.5	55.5	16.7	469.0	23.9	-10.3	32.0
1200	-7.0	48.7	55.7	12.8	359.8	20.6	-12.8	-41.0
1300	-2.0	50.5	52.5	14.0	392.0	28.6	-26.7	-39.4
1400	-1.0	50.9	51.9	17.0	476.0	25.8	-19.5	-44.5
1500	-2.0	50.3	52.3	15.4	431.2	24.8	-34.0	-34.0
1600	-1.0	51.2	52.2	17.1	478.8	27.5	-32.0	-37.0
1700	-1.0	52.0	53.0	16.2	453.6	34.9	-37.5	-46.2
1800	-2.0	51.7	53.7	13.1	366.8	40.3	-42.1	-50.0
1900	-2.0	51.4	53.4	13.6	380.8	36.2	-44.9	-48.0
2000	-1.0	50.3	51.3	12.1	338.8	31.6	-58.0	-43.0
2100	-1.0	51.5	52.5	13.2	370.7	38.1	-51.0	-51.0
2200	0.0	51.0	51.0	13.1	366.8	34.3	-61.0	-46.0
2300	0.0	51.2	51.2	13.1	366.8	35.9	-34.4	-46.2
2400	0.0	51.3	51.3	15.4	431.2	31.3	-33.0	-56.0
2500	-2.0	51.2	53.2	16.6	464.8	28.4	-36.0	-66.0