



GaN Broadband Power Amplifier

Solid State RF Amplifier

Aethercomm Model Number SSPA 1.0-2.5-50 is a high power, broadband, Gallium Nitride (GaN) RF amplifier that operates from 1.0 to 2.5 GHz. This unit will operate down to 800 MHz with no degradation in 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. This RF module employs temperature compensation to keep the gain constant over the temperature extremes. The power response changes by a ± 0.75 dB typical over temperature. 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, robust housing that is approximately 2.5" (W) by 6.4" (L) by 1.0" (H)". This amplifier has a typical P1dB of 35 watts at room temperature. Saturated output power across the band is typically 50 watts. Noise figure at room temperature is 8.0dB typical. This amplifier offers a typical gain of 50 dB with a typical gain flatness of ± 2.0 dB. Typical OIP3 is 57 dBm. Input and Output VSWR is 2.0:1 maximum. Class AB current is approximately 4.0 amps typical employing a +28.0 Vdc supply. This PA operates from a 27.0 Vdc to 29.0 Vdc input voltage. This SSPA includes an external DC blanking command that enables and disables the module in 20 uSec typical.

Standard features include over/under voltage protection, reverse polarity protection and internal DC-DC converter. 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 nine pin DSUB connector. This amplifier operates from -40C to +85C base plate. Test data is found on the next page of this data sheet.

- **Gallium Nitride Broadband Power Amplifier**
- **Operation from 800 MHz to 2.5 GHz min.**
- **Small Signal Gain 50 dB typ.**
- **57 dBm OIP3 typ.**
- **50 Watts PSat typ.**



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.

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SSPA 1.0-2.5-50

SSPA 1.0-2.5-50 Typical Performance @ 25°C

Freq (MHz)	P1dB (dBm)	Current @ P1dB (Amps)	Pout @ Pin = 1 dBm (dBm)	Current @ PSat (Amps)	SS Gain (dB)
800	45.0	7.7	46.5	9.4	54.0
1000	44.9	7.5	46.7	9.3	54.4
1150	45.1	7.8	46.8	9.1	54.6
1300	46.0	8.3	46.5	8.1	55.6
1450	45.3	7.5	46.9	8.7	54.3
1600	46.1	7.5	47.8	8.9	54.0
1750	48.7	8.7	49.0	8.9	56.1
1900	48.3	7.9	49.3	8.8	57.6
2050	46.9	6.7	48.8	8.4	57.0
2200	46.6	7.3	47.9	8.4	54.5
2350	46.1	7.4	47.0	8.1	54.3
2500	45.6	7.6	46.2	8.1	53.9