



Gallium Nitride High Power Pulsed Amplifier Solid State RF Amplifier

Model Number SSPA 2.9-3.1-300 is a high power, pulsed or CW Gallium Nitride (GaN) RF amplifier that can be employed in Radar or other applications throughout the S Band Frequency range. This amplifier is optimized for operation from 2.9 to 3.1 GHz. The devices in the amplifier are not matched therefore; we can operate from 2.7 to 2.9 GHz or 2.7 to 3.5 GHz with similar performance. Please contact the factory with any questions. This PA is ideal for radar platforms as it is robust and offers high power and excellent power added efficiency while maintaining compliant pulse fidelity. This amplifier operates with a base plate temperature of -40C to +85C. It is packaged in a modular housing that is approximately 5.00" (width) by 8.00" (long) by 1.94" (height). The weight of this unit is 2.5 pounds typical. This amplifier has a typical peak output power of 300 to 400 watts at room temperature (review the data on page 2 for frequency vs power across the band). Noise figure at room temperature is 10 dB typical. The power flatness across the band is typically ± 0.25 dB. Input and output VSWR is 2.0:1 typical. This PA operates from a +50 Vdc input voltage. Typical second and third 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 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. 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.

- **Gallium Nitride Power Amplifier**
- **Operation from 2.9 to 3.1 GHz**
- **Easily scalable from 2.7 to 3.5 GHz**
- **300 to 400 Watts Peak Output Power**
- **High Duty Cycle of 40% typical; can be used at 100%**
- **Tx On/Off Time of 5uSec maximum**



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 2.9-3.1-300

SSPA 2.9-3.1-300 Typical Performance @ 25°C from a +50 Vdc Supply with an input Stimulus of +12 dBm ± 1.0 dB at 50 uSec PW and a 40% Duty Cycle

Freq (MHz)	Peak Pout @Psat (dBm)	Peak Current @ Psat from a 50 Vdc Supply (Amps)	Power Added Efficiency (%)	Pulse Droop (dB)	2nd Harmonic @ PSat (dBc)	3rd Harmonic @ PSat (dBc)
2900	55.74	9.61	31.2	0.20	-55.0	-67.0
2920	55.73	9.54	31.4	0.20	-55.0	-68.0
2940	55.85	9.43	32.6	0.10	-55.0	-67.0
2960	56.03	9.41	34.1	0.15	-51.0	-67.0
2980	56.01	9.20	34.7	0.10	-52.6	-66.5
3000	55.92	9.06	34.5	0.10	-53.5	-63.5
3020	56.11	9.01	36.3	0.10	-55.3	-66.3
3040	55.81	9.11	33.5	0.10	-56.0	-66.3
3060	55.67	9.12	32.4	0.10	-55.8	-68.0
3080	55.60	9.09	32.0	0.10	-56.6	-69.0
3100	55.53	9.14	31.3	0.10	-57.6	-61.8