



Ultra-Broadband High Power, SSPA

SSPA 2.0-6.0-100

Aethercomm Model Number SSPA 2.0-6.0-100 is a high power, Gallium Nitride (GaN) solid state power amplifier that operates from 2.0-6.0 GHz. It is packaged in an enclosure that is optimized for high altitude operation along with high performance shock and vibration. Nominal output power is 100 watts typical. Typical small signal gain is 56-62dB. The typical composite power added efficiency with a CW input is 28 % at saturation. Input and Output VSWR is 2.0:1 typical. This SSPA can be blanked on and off in less than 10 uSec. Standard features include reverse polarity protection and output short and open circuit protection. There is an over-temperature and over-voltage fault in this module. This power amplifier module operates from -40°C to $+85^{\circ}\text{C}$ base plate temperature. This SSPA operates from an input voltage of +18 to +32 Vdc but the nominal applied voltage is +28 Vdc.

This high power SSPA is employed in high shock and vibration environments and can be used on board many different types of airborne platforms. It is designed and tested to withstand MIL-STD-810 high shock and vibration requirements. Noise figure at room temperature is <12 dB. The housing volume is approximately 3.4" (W) x 6.9" (L) x 1.5" (H) and the power amplifier weighs 3.0 lbs maximum. DC and logic connections are accessible via a DSUB connector. The RF input connector is an SMA female. The RF output connector is a TNC female. Typical transmit test data appears on page two of this data sheet at room temperature. For mounting and heat sink instructions, further test data or operation and logic and pin out requirements, please contact the factory.

- Operation from 2.0 to 6.0 GHz
- Composite PAE of 28 % at Pout max
- GaN Technology
- 100 Watts Saturated Power Output typ.
- +18 to +32 Vdc Operation (+28V Nominal)



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 customers.

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 2.0-6.0-100 Typical Performance from 2000 to 6000 MHz @ 25°C with a CW Input Stimulus From a +28 Vdc Power Supply

Freq. (MHz)	Pin (dBm)	Pout (dBm)	Power Gain (dB)	Current (A)	PAE (%)	2nd Harmonic (dBc)	3rd Harmonic (dBc)
2000	-5.6	48.7	54.3	7.2	36.9	-14.6	-29.02
2500	0.4	50.3	49.9	11.2	34.1	-14.7	-44.3
3000	-0.2	50.1	50.3	11.2	33.1	-12.0	-53.2
3500	0.4	48.5	48.1	11.0	22.2	-23.4	<-65
4000	-0.2	50.3	50.5	12.0	32.2	-46.6	<-65
4500	2.4	50.0	47.6	13.0	27.5	-63.1	<-65
5000	4.8	50.0	45.2	16.9	21.1	<-65	<-65
5500	4.5	49.5	45.0	14.0	25.0	<-65	<-65
6000	5.0	48.0	43.0	11.7	19.5	<-65	<-65

SSPA 2.0-6.0-100 Small Signal Gain Response

