



High Power, Super Broadband, SSPA

SSPA 0.020-1.000-350

Aethercomm Model Number SSPA 0.020-1.000-350 is a high power, multi-decade bandwidth, GaN solid state power amplifier. It is packaged in an enclosure that is optimized for airborne or ground applications that require survival in high performance shock and vibration environments. Nominal linear output power is 100-200 watts but power levels at saturation of 300-400 watts are typical from 100-900 MHz. Depending on the application, output power can be backed off to achieve excellent EVM metrics. This GaN broadband SSPA can be employed in high performance systems where high power, excellent efficiency and high linearity are required across a large frequency spectrum. Typical power gain is 53 to 57 dB. A nominal 0 dBm input drive is required to achieve saturated output power. The composite power added efficiency with a CW input is between 40-50% at room temperature from 50-1000 MHz. Input and output VSWR is 2.0:1 maximum. This SSPA can be blanked on and off in 10uSec maximum. Standard features include reverse polarity protection, output short and open circuit protection, and over/under voltage protection. In band harmonics are -17 dBc typical. Noise figure is 10 dB maximum. This power amplifier module operates from -40°C to +75°C base plate temperature. The thermal management system calls for this assembly to be mounted to a heat sink for conduction cooling.

This high power SSPA is employed in high shock and vibration environments. It is designed and tested to withstand MIL-STD-810 shock and vibration requirements. The housing volume is approximately 6.3" (W) x 12.8" (L) x 1.8" (H) and weighs 10.0 lbs. maximum. DC and logic connections are accessible via a single 9W4 DSUB connector. The RF input connector is an SMA female. The RF output connector is a type TNC female.

- Operation from 20 to 1000 MHz
- Composite PAE of 40-50% from 50 to 1000 MHz
- GaN Technology
- Ground or Airborne Capable
- 300-400 Watts Saturated Output Power
- Linear Output power of 100-200 Watts for Higher Par Waveforms



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. This GaN amplifier operates from a +50Vdc power supply.

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 0.020-1.000-350 Typical Performance from 20 to 1000 MHz @ 25°C with a CW Input Stimulus From a +50 Vdc Power Supply

Freq. (MHz)	Pin @ PSat (dBm)	Pout @ PSat (dBm)	Current @ PSat (Amps)	PAE (%)	2nd Harmonic (dBc)	3rd Harmonic (dBc)
20-49	-7	49.0	19.0	25.3	-17.9	-21.0
50-99	-1	54.9	18.9	40.5	-17.7	-19.7
100-199	0	54.7	16.4	36.0	-22.0	-22.0
200-299	0	55.5	16.2	43.6	-23.4	-21.5
300-399	0	56.3	17.3	49.4	-23.7	-24.3
400-499	0	55.7	14.8	50.4	-18.1	-19.1
500-599	0	55.1	13.9	46.3	-26.1	-21.5
600-699	0	56.9	18.1	53.8	-29.1	-29.1
700-799	0	56.1	16.5	49.9	-46.2	-42.8
800-899	0	55.8	16.5	46.4	-37.3	-62.4
900-949	0	55.4	18.4	48.5	-42.9	-53.4
950-1000	-4	54.5	17.5	38.7	-45.4	-74.3