



## GaN Broadband Power Amplifier

### Solid State RF Amplifier

Aethercomm Model Number SSPA 0.020-0.520-125 is a high power, broadband, Gallium Nitride (GaN) RF amplifier that operates from 20 MHz to 520 MHz. 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 amplifier was designed for broad band jamming and communication systems platforms. 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 housing that is approximately 3.4" (width) by 6.4" (long) by 1.0" (height). This amplifier has a typical P3dB of 100-125 watts at room temperature. Noise figure at room temperature is 10.0 dB typical. This amplifier offers a typical gain of 58 dB with a typical gain flatness of  $\pm 2.0$  dB. The power and gain flatness across the band is extremely flat for the bandwidth. Input VSWR is 2.0:1 maximum. Class AB quiescent current is ~2.0 amps typical employing a +28 Vdc supply. This PA operates from a +28 Vdc input voltage. Typical 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 12 to 15 uSec typical. Faster switching times are easily achievable. 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. Other connector types can be configured for airborne applications. DC and command voltages are accessible via DC feed through capacitors. Contact the factory with any questions you may

- **Gallium Nitride Broadband Power Amplifier**
- **Operation from 20 MHz to 520 MHz min**
- **Small Signal Gain 58 dB typical**
- **50+% Typical Power Added Efficiency**
- **125 Watts P3dB typical**



have. This amplifier operates from -40C to +85C base plate. Summary test data is found on sheet two of this data sheet.

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 0.020-0.520-125 Typical Performance @ 25°C

| Freq<br>(MHz) | Small<br>Signal<br>Gain<br>(dB) | P3dB<br>(dBm) | Current @<br>P3dB from a<br>28 Vdc<br>Supply<br>(Amps) | 2nd<br>Harmonic @<br>P1dB<br>(dBc) | 3rd<br>Harmonic @<br>P1dB<br>(dBc) | Power<br>Added<br>Efficiency<br>(%) |
|---------------|---------------------------------|---------------|--|------------------------------------|------------------------------------|-------------------------------------|
| 20            | 59.5                            | 48.7          | 6.10   | -19.0                              | -13.0                              | 44.0                                |
| 50            | 57.3                            | 51.6          | 9.00   | -23.0                              | -14.0                              | 52.0                                |
| 100           | 57.7                            | 51.1          | 8.20   | -27.0                              | -15.0                              | 54.0                                |
| 200           | 59.2                            | 50.7          | 7.50   | -24.0                              | -17.0                              | 55.0                                |
| 300           | 61.0                            | 50.5          | 6.70   | -40.0                              | -19.0                              | 58.0                                |
| 400           | 58.7                            | 49.9          | 6.00   | -34.0                              | -25.0                              | 58.0                                |
| 520           | 57.9                            | 49.4          | 5.70   | -32.0                              | -30.0                              | 53.0                                |