High Power, Compact GaN Amplifier

Solid State RF Amplifier

Aethercomm Model Number SSPA 1.70-1.85-20 is a high power, Gallium Nitride (GaN) amplifier that operates from 1700 MHz to 1850 MHz minimum and is packaged in a rugged, compact enclosure. This amplifier is designed for operation in airborne environments and is used to boost the signals from telemetry transmitters. Minimum output power is 20 watts across the band at PSat. Small signal gain is 50.5 dB ± 0.5 dB across the band typically. Input and output VSWR is 2.0:1 maximum. Standard features include reverse polarity protection, output short and open circuit protection, and over/under voltage protection. This RF module contains internal filtering to ameliorate the noise power at GPS L1 and L2 and also for harmonic suppression. This RF power amplifier operates from a +22 to +32 Vdc power supply. This unit operates from -40C to +85C base plate temperature. There is an over temperature shut off function to protect the unit when the temperature exceeds 90C base plate.

This high power RF module can be employed in high shock and vibration environments. Standard housing size is approximately 4.00(w) by 6.50(l) by 1.15(h) inches. For mounting and heat sink instructions, please contact the factory. An SMA female connector is standard on the RF input and output ports. DC and logic connections are accessible via a DSUB connector. Typical test data appears on page two of this data sheet at room temperature.

- **Operation across 1700 to 1850 MHz min**
- **High Power Added Efficiency**
- **20 to 25 Watts Output Power**
- **22 to 32 Vdc Operation**

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 1.70-1.85-20 Typical Performance from 1700 to 1850 MHz @ 25°C with a CW Input Signal

Freq (MHz)	Pout @ PSat (dBm)	Current @ P3dB from a +28 Vdc Supply (Amps)	2nd Harmonic at P3dB (dBc)	3rd Harmonic at P3dB (dBc)	Small Signal Gain at Pin = -20 dBm (dB)	Power Added Efficiency @ PSat (%)
1700	43.6	2.05	-86.0	-84.4	50.5	39.5
1730	43.9	2.14	-86.3	-86.3	50.7	41.1
1760	44.0	2.20	-87.3	-86.7	50.9	40.4
1790	44.2	2.23	-85.9	-85.0	50.8	42.0
1820	44.1	2.18	-86.0	-86.0	51.0	42.1
1850	44.0	2.13	-82.9	-82.6	50.0	42.3