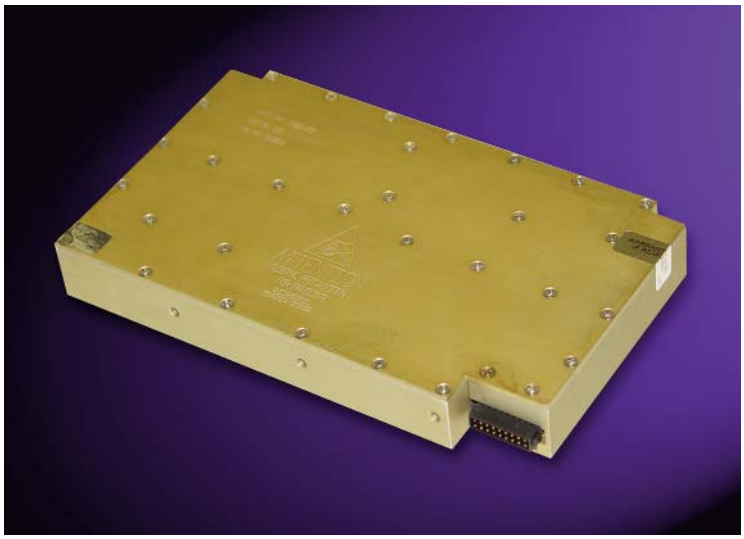
High Power, Broadband GaN Amplifier

Solid State RF Amplifier

Aethercomm Model Number SSPA 0.020-1.400-14 is a high power, broadband, Gallium Nitride (GaN) amplifier that operates from 20 MHz to 1400 MHz minimum. Typical output power for maximum power is 15 to 20 Watts. Power added efficiency in saturation is typically 40 to 50% across the band even while the power is being reduced from 20 Watts down to 5 Watts. There is a novel power control scheme implemented that allows for high efficiency operation while reducing the transmitted output power. Input VSWR is 2.0:1 maximum. This unit is equipped with DC switching circuitry that enables and disables the DC-DC circuitry in 20 uSec maximum. Standard features include reverse polarity protection, output short and open circuit protection, and reverse polarity protection. This power amplifier operates from a +28 Vdc power supply nominal. Standby current is ~150 mA and the quiescent current is ~500 mA without RF drive. This amplifier operates from -40C to +85C base plate temperature.

This SSPA is manufactured for broadband communication systems and electronic warfare systems. Standard housing size is approximately 3.68(w) by 6.41(l) by 0.85(h) inches. For mounting and heat sink instructions, please contact the factory. A MMBX female connector is standard on the RF input and output ports but an SMA or other connector can be easily employed. DC and logic connections are accessible via a DSUB connector. A logic high or open circuit disables the amplifier to the Off state. A logic low will enable the unit. Typical test data appears on page two of this data sheet at room temperature. For more information or variations of this standard product, please contact the factory.

- **Operation Across 20 MHz to 1.4 GHz min**
- **High Efficiency Operation**
- **Innovative Power Control Scheme**
- **28 Vdc Operation Nominally**
- **Small Compact Package**



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 0.020-1.400-14 Typical Performance @ 25°C

Freq (MHz)	Pout @ Psat (dBm)	Current @ Psat from a +28 Vdc Supply (Amps)	2nd Harmonic @ Pout = 41.5 dBm (dBc)	3rd Harmonic @ Pout = 41.5 dBm (dBc)	Small Signal Gain (dB)	OIP3 Pout SCL = 34 dBm per tone with a 500 kHz Separation (dBm)
20	41.3	1.70	-19.5	-10.1	45.1	>50.0
100	41.8	1.47	-17.3	-14.3	46.9	>50.0
200	41.8	1.59	-13.0	-13.6	46.3	>50.0
300	41.9	1.78	-12.5	-13.8	46.3	>50.0
400	42.6	1.94	-11.1	-10.5	47.4	>50.0
600	43.0	2.14	-13.3	-21.5	46.8	>50.0
800	43.9	2.50	-17.0	-22.8	45.6	>50.0
1000	43.4	2.37	-21.1	-24.3	45.6	>50.0
1200	43.9	2.30	-56.6	-36.6	46.6	>50.0
1400	39.1	1.43	-40.0	-45.0	40.2	>50.0