



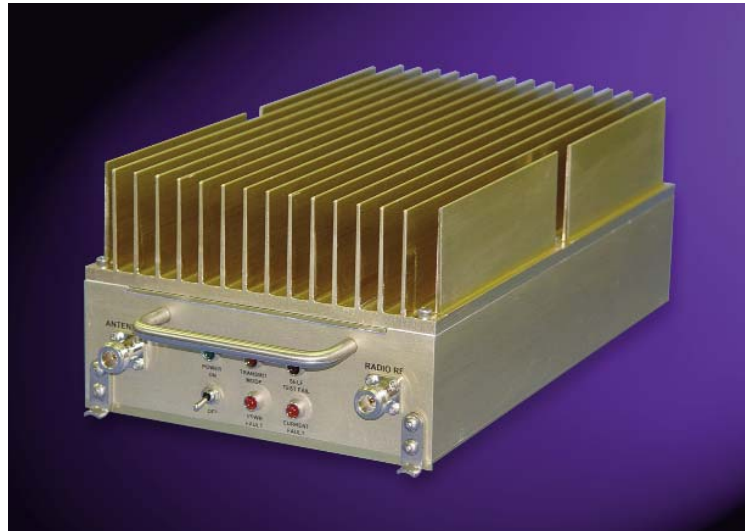
Silicon Carbide Broadband TR Module

Microwave Radio Booster Amplifier

Aethercomm Model Number SSPA 1.3-1.5-50 is a high power, T/R module manufactured for the AN/ARC-99A microwave radio. This high power amplifier is employed as a booster amplifier for this radio. It increases the radio's range by boosting the transmit power and reducing its noise figure. This high power module employs silicon carbide transistors in the transmit section for high reliability operation. It is packaged in a modular housing that is approximately 7.50" by 12.50" by 4.78" including the heat sink. This amplifier delivers a minimum of 50 watts of RF energy to the antenna. In Rx mode of operation, the noise figure at room temperature is 4.5dB maximum. The switching time between Rx/Tx operation is 25uSec. The switching time from Tx/Rx operation is 2.0uSec maximum. The Rx section includes T/R switches, pre-select filtering, a low noise amplification section and limiters to protect the LNA. The Tx section includes TR switches, a high power amplification section, filtering and numerous self protection features. There is also a complex DC-DC converter section that generates, monitors, filters and applies the RF module's voltage/current requirements. Worst case input and output return loss is -9.0dB.

This RF module has numerous BIT and protection features. It mates directly to the host radio which controls its operation. There is an initial internal self test that is performed at power up. In operation, there is Power On LED, a VSWR Fault indicator, an Over Current Indicator, a Self Test indicator and a Tx On indicator. All these indicators are LED's and discrete signals. The transmitter is protected from and infinite VSWR at the antenna port. The receiver is protected with a limiter at the LNA input. The amplifier is further protected with over-voltage and reverse polarity protection. There are other numerous protection features internal to this module that are not listed. Contact the factory with any questions you

- Repeater Amplifier for AN/ARC-99A Microwave Radio
- Operation from 1300 MHz to 1500 MHz min
- 47 dBm Output Power min
- Internal Rx Noise Figure of 4.5dB max
- 25uSec Rx/Tx and Tx/Rx Switching Time max



may have. This module has type N female connectors for the radio and antenna ports. The radio connector and the DC input connectors are military circular connectors.

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 1.3-1.5-50

SSPA 1.3-1.5-50 Typical Performance @ 25°C

Freq (GHz)	Tx Output Power (dBm)	Tx Current @ 28 VDC Vin (Amps)	Tx/Rx and Rx/Tx Switching Time (uSec)	Tx 2nd Harm (dBc)	Tx 3rd Harm (dBc)	Rx Gain (dB)	Rx Figure (dB)
1300	47.4	9.82	2.0/21.0	-56.5	-54.4	14.3	3.2
1400	47.6	9.85	2.0/21.0	-58.2	-43.5	12.3	3.5
1500	47.3	8.53	2.0/21.0	-50.7	-44.8	12.0	4.3