

SSPA4-2531ODU 20 Watt Ka band Outdoor Solid State Power Amplifier

25.5-31.0 GHz SSPA Outdoor Unit



KEY FEATURES:

- **Moderate Size:** 10.3"x9"x 10.3", 26lbs.
- **High efficiency:** 250W typ. 350W max. consumption (@25W RF out)
- **Monitor & Control Processor**
- **Gain vs. Temp. compensation**
- **Full environment seal**
- **Internal 120/240VAC or 28VDC power supply**
- **Integrated fan/fins/heatpipe cooling system**

Product Description:

This new, high-power Ka family of products are a breakthrough in size and weight reduction for high-powered Ka Band SSPA's. Ka band SSPA's from Sophia cover the industry's broadest range of power levels and configurations, from 8 Watts up to 50 Watts, in both component and outdoor configurations.

Furthermore, the industry-leading efficiency greatly reduces heat generation and power consumption, greatly simplifying system integration challenges.

Even for non-size-constrained systems, the smaller size, lower power, less heat management can lead to significant reductions in system cost and development effort.

These high power Ka amplifiers are offered in both a component-type configuration and an outdoor-type configuration. The component configuration is the smallest box for system integrators. It requires a separate power supply to provide +6.0V power, and requires external cooling through the bottom surface, which contains an integrated heat pipe array for optimal cooling. Unlike Sophia's typical component units, this high-power Ka component is not environmentally sealed, so some external enclosure (e.g. a water-tight radome) is required.

The outdoor configuration (part # w/ ODU suffix), contains the exact same RF section, but inside a watertight weatherproof box with integrated power supply and cooling. It is fully self-contained and designed for all-weather environments. Either 120/240V AC or 28V DC power supply options are available. Cooling is supplied by weather-proof encapsulated fans and fins on heat-pipe heat distribution plates.

Features:

These units offer minimum gain with temperature compensation, monitor & control processor, discrete transmit/mute control, fault protection and reporting for over-temperature, over-voltage or over-current .

Performance Features:

The temperature compensation circuitry minimizes gain & linear power variations . Safety controls include thermal & bias protection to ensure reliable performance from initial system integration to harsh field environments.

Monitor & Control Functions:

The monitor & control processor interfaces with a host computer over a serial communications link. All voltage, current, power, and temperature sensors are read through this interface. The transmit/mute control is opto-isolated for trouble-free system integration. The RS422 port communications run at 9600 baud, 8-bit word, no parity, and 1 stop bit.

The monitor & control also provides safety features such as over-temperature fault modes, automatically shutting down the SSPA and reporting these fault conditions over the serial link.

Simplifying Heat Management:

The industry-leading efficiency greatly reduces power dissipation, thereby reducing heat generation.

Forced air cooling is provided; requires ambient air from -40C to +50C. Note that if used in a confined space, some form of ventilation or air-to-air heat exchange may be necessary to keep the ambient below 50C.

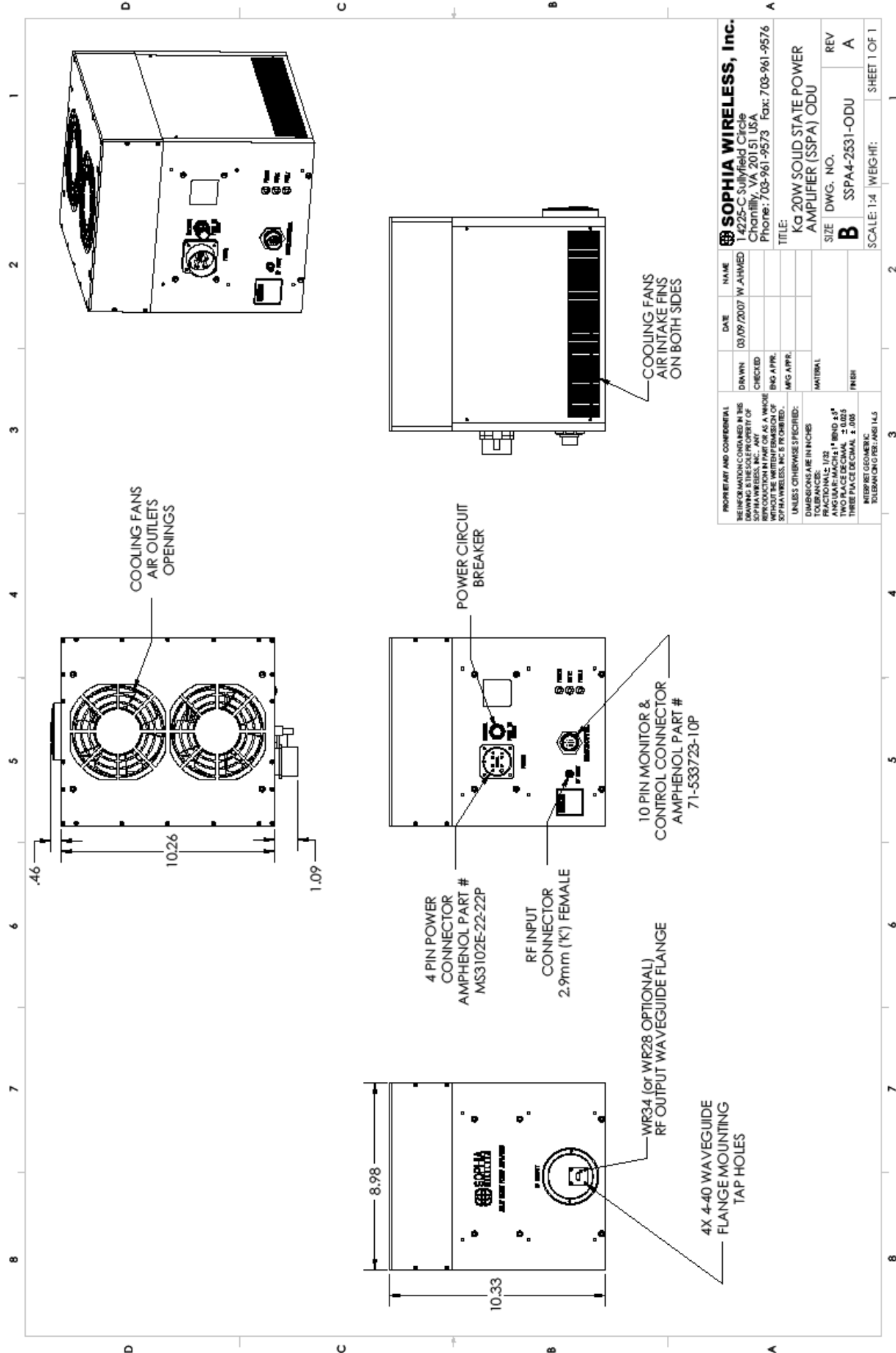
Electrical & Mechanical Specifications:

RF Parameters	Specification			
Frequency Band (GHz)	25.5 -27.5	27.5 - 29.5	29.5 - 30.5	30.5 - 31
P1dB (rated power)	16W	17W	20W	18W
Psat	21W	21W	25W	23W
AM/PM Conversion	2 degrees/dB typ. @ 3dB below rated power 5 degrees/dB typ. @ 1.5dB below rated power			
Gain (min.)	48dB	48dB	48dB	48dB
Gain Variation over 1 GHz	+/- 3dB	+/- 2dB	+/- 1.5dB	+/- 3dB
Gain Variation over any 40MHz	+/- 1.5dB	+/- 1 dB	+/- .75dB	+/- 1dB
Gain Variation over Temperature	+/- 1.5dB			
Gain variation over Time	+/- 0.5dB			
Noise Figure in-band	15 dB			
Input VSWR	1.5:1			
Output VSWR:	1.5:1			
Spurious	-60dBc			
2 nd Harmonic @ 3dB below rated pwr.	-45dBc			
3 rd Order IMD @ 3dB max. backoff from rated pwr.	-23 dBc typical			

Specifications subject to change without notice 3/14/07

Sophia Wireless, Inc.
 14225-C Sullyfield Circle, Chantilly, VA 20151
 Phone 703 961-9573, Fax 703 961-9576
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Monitor & Control Parameters	Specification
Discrete Mute Control Voltage ranges	mute:4-5V; enable:0-1V
Thermal Shutdown Control threshold	+85 °C internal
Temperature Monitor Accuracy	+/- 3 °C
Summary Fault Monitor	
Input Power Parameters	Specification
28VDC or 110/220 VAC nominal input	28V version: 18 - 36Volts input
power draw	250W typ. 350W max.
Environmental/Physical Parameters	Specification
Operating Temperature (ambient)	-40° C to +50° C 2° C/1000 feet derating
Humidity	100% condensing
Altitude	12,000 feet MSL maximum
Storage Temperature	-54 to +105°C
RF input connector	2.92mm (k-connector) female
RF output connector	Standard: WR-34, Optional: WR-28
Power Connector	Amphenol MS3102E-22-22P
Monitor/Control Connector	MIL-26482 Series 1 receptacle, Shell size 12, 10 pins
Outline Dimensions	10.3" x 9" x 10.3"
Weight	< 26 lbs



PROPRIETARY AND CONFIDENTIAL	DATE	NAME	TITLE
REVISIONS	03/09/2007	WJ-ARMED	
DESIGNED BY			
CHECKED BY			
END APPR.			
MFG APPR.			
MATERIAL			
UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN INCHES			
TOLERANCES: FRACTIONAL: 1/32			
DECIMAL: .0150, .0100, .0075			
TWO PLACE DECIMAL: .0025			
THREE PLACE DECIMAL: .0005			
INTERPRET GEOMETRIC TOLERANCING PER: ANSI Y14.5			
SOPHIA WIRELESS, Inc. 14225-C Sunfield Circle Priority, VA 20151 USA Phone: 703-961-9573 Fax: 703-961-9576			
Ka 20W SOLID STATE POWER AMPLIFIER (SSPA) ODU			
SIZE	DWG. NO.	REV	
B	SSPA4-2531-ODU	A	
SCALE: 1:4			WEIGHT: SHEET 1 OF 1