



## General Description

The P250W33.5-37CP SSPA is a high power, broadband, solid state power amplifier housed in a ruggedized rack mount chassis. The SSPA incorporates a wide input range multimode DC–DC converter power supply with a compact forced air-cooled design. The amplifier is appropriate for high–power wide–band susceptibility testing, communications, radar, or any application requiring instantaneous power amplification of signals across the 33.5–36.0 GHz frequency band.

The P250W33.5-37CP incorporates high efficiency GaN MMICs, spatially combined in a compact structure to achieve robust, high performance power amplification across the entire band. The high-speed gating feature not only gates off the spatium but also the low power driver amplifier to ensure ultra-low noise interpulse power levels. This high-speed gating feature also includes the ability to envelope the RF signal inside the gating signal by using leading and trailing edge time delays adjustable over the ethernet communication link.

The Polarity amplifier is designed to have a wide input range DC to DC converter with extremely low output voltage ripple that operates in CW and pulse regulation modes. The output regulation guarantees very low pulse to pulse noise and low pulse droop performance on the RF output signal.

## Front and Rear Panel



## P250W33.5-37CP



## Product features

- Operating frequency: 33.5–37.0 GHz
- Output power: 250 Watts saturated power
- Gating frequency: 1 to 1MHz, burst to 2MHz
- VDS gating: 40ns rise and fall times
- RF Gating: <5ns rise and fall times
- RF droop: 0.1dB @ 100us pulse widths
- Small signal gain: 64 dB nominal
- Saturated gain: 54 dB nominal
- Input voltage: 22-32VDC
- Weight: 60lbs
- Monitor and Control: Ethernet
- Cooling: Forced air
- Enclosure: Rack mountable

## Applications

- Radar
- Communications
- Test and Measurement
- EMI Testing

## Ordering Information

Part No.	ECCN	Description
P250W33.5-36CP	3A611.X	33.5-36GHz 250W SSPA



## Performance Characteristics

Frequency Range	Ka band – 33.5 to 37GHz
Bandwidth Min.	3.5GHz
Peak Saturated Output Power, min.	250W
Amplitude Flatness, PTP, dB max.	1dB
RF Droop @ Pulse Width of 100 µSec	.1dB
VSWR - Output Power, max.	2.0:1
VSWR - No Damage	3:01
Large Signal Gain	54.5dB
Small Signal Gain	64dB
Input RF Drive	-1 to +5 dBm
Pulse Width (µs) max. - Vds Gating	50ns to 50% duty
Duty Cycle	50%
PRF max.	Single shot to 1MHz - 2MHz Bursts
Input Supply Voltage	22V to 32V
Average Input Current @ 28V, max	35A
Reverse Voltage Protection - settable	Yes
DC Power Consumption, typ.	900W
Efficiency, typ.	18% nominal
Gating Voltage	4V to 6V
Rise/Fall Time, typ.	50ns
Trigger Propagation Delay	200ns
Operating Temperature Range	-10 to +40C
Other Typical Environmental Specifications	Airborne/ground mobile/shipboard
Dimensions L x W x H	19 » rack mount
Weight, max. (lbs)	60
Connectors	Circular/D-sub
RF Input connector	2.92mm
RF Out connector	WR28
Computer control	Ethernet

## Absolute Maximum Ratings

Parameter	Rating
RF Input Power, CW, 50 Ω, T <sub>CASE</sub> =25 °C	+10 dBm
Load VSWR	3.0:1
DC Current (22, 28, 30VDC)	41A, 32A, 28A
Storage Air Temperature	-30 to +75 °C
Operating Air Temperature	-10 to +40 °C

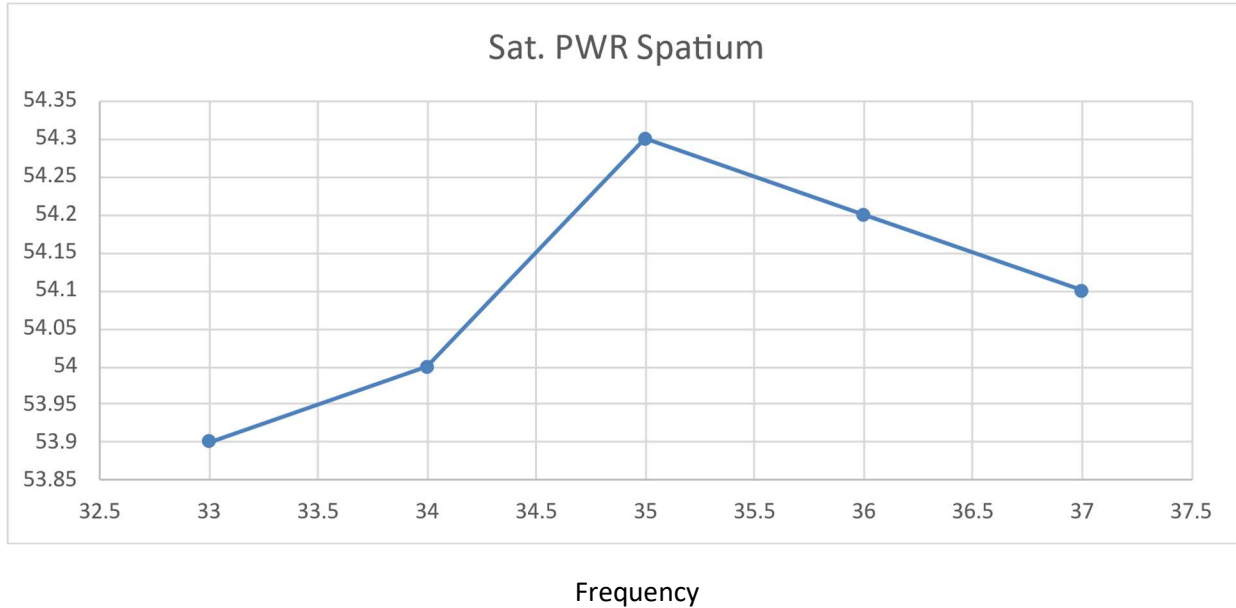
For the latest specifications, additional product information, worldwide sales and distribution locations

Email: [sales@polarity.net](mailto:sales@polarity.net) Web: [www.polarity.net](http://www.polarity.net) Tel: 916-635-3050 x221

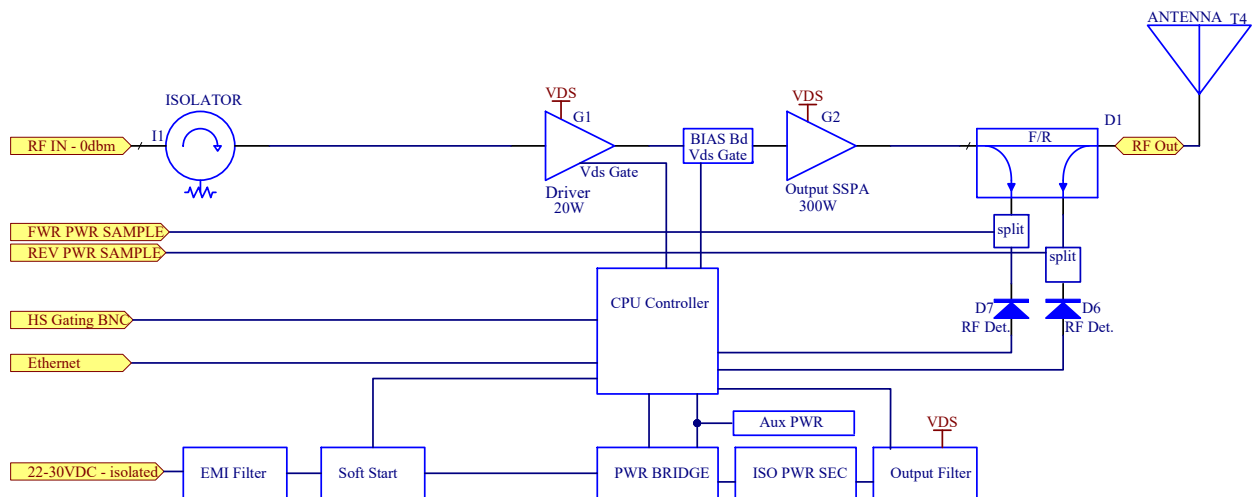


## SSPA Frequency vs. Power @ 35C

dBm



## Functional Block Diagram

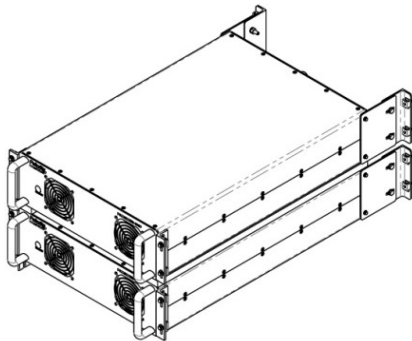
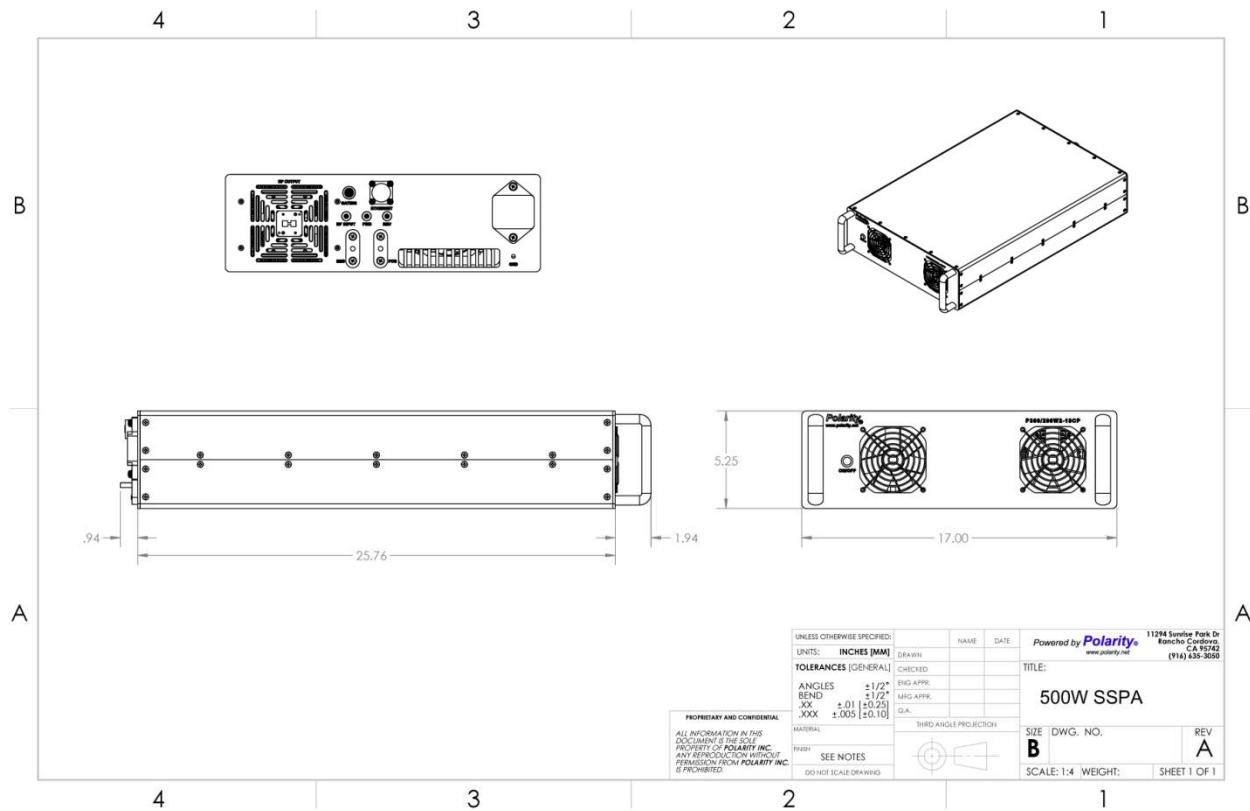


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## Package Marking and Dimensions



VIEW FOR REFERENCE ONLY



**Caution ESD - Sensitive Device**

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