



## General Description

The P100W18-40CP 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 18.0–40.0 GHz frequency band.

The P100W18-40CP 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.

## Rear Panel Connections



## P100/80W18-40CP



## Product features

- Operating frequency: 18.0–40.0 GHz
- Output power: 100/80 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: 52 dB nominal
- Saturated gain: 50 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
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## Ordering Information

Part No.	ECCN	Description
P100W18-40CP	3A611.X	18-40GHz 100W SSPA



## Performance Characteristics

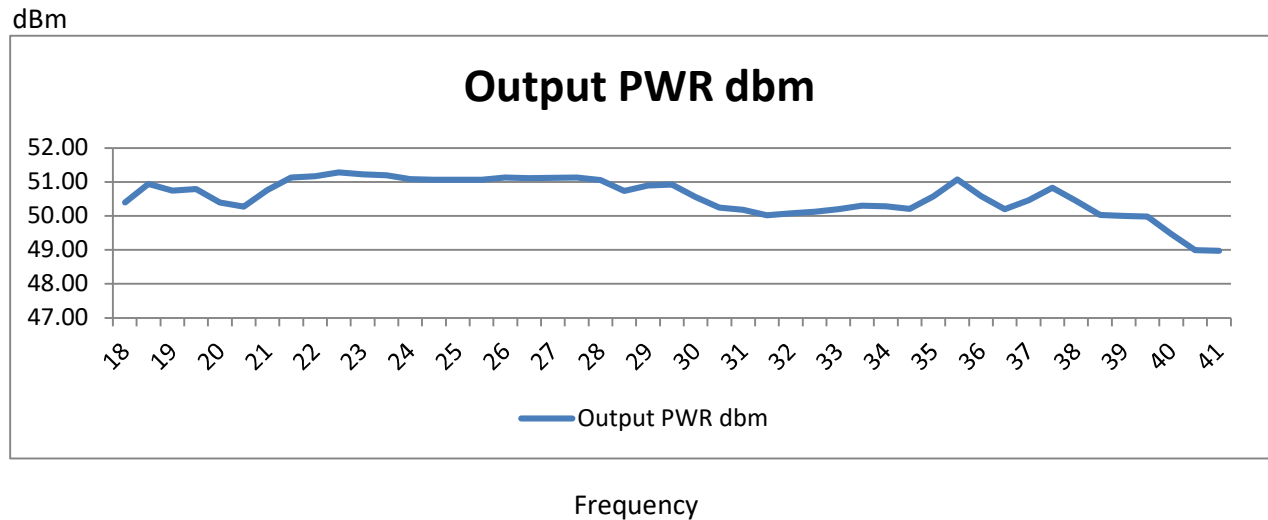
Frequency Range	Ka band - 18 to 40GHz
Bandwidth Min.	22GHz
Peak Saturated Output Power, min.	100W/80W
Amplitude Flatness, PTP, dB max.	1dB
RF Droop @ Pulse Width of 100 µSec	1dB
VSWR - Output Power, max.	2.0:1
VSWR - No Damage	3:01
Large Signal Gain	50.5dB
Small Signal Gain	61dB
Input RF Drive	-1 to +5 dBm
Pulse Width (µs) max. - Vds Gating	50ns to CW
Duty Cycle	100%
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.	15% 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. (Kg.)	8
Connectors	Circular/D-sub
RF Input connector	2.92mm
RF Out connector	WRD180
Computer control	Ethernet

## Absolute Maximum Ratings

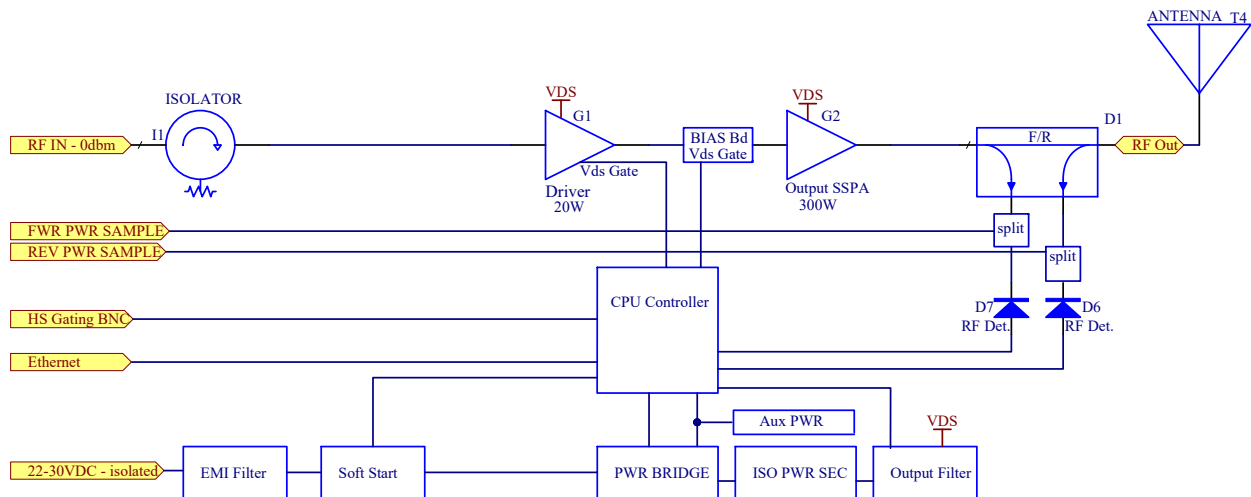
Parameter	Rating
RF Input Power, CW, 50 Ω, T <sub>CASE</sub> =25 °C	+10 dBm
Load VSWR	3.0:1
DC Current (22, 28, 30VDC)	45, 35, 33 A
Storage Air Temperature	-30 to +75 °C
Operating Air Temperature	-5 to +40 °C



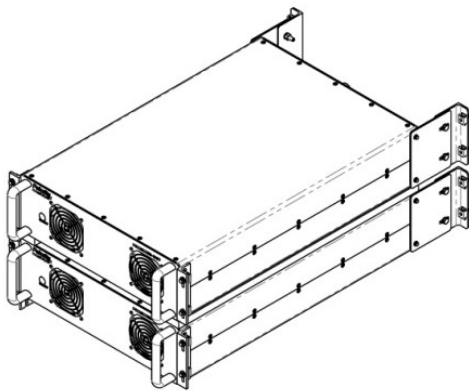
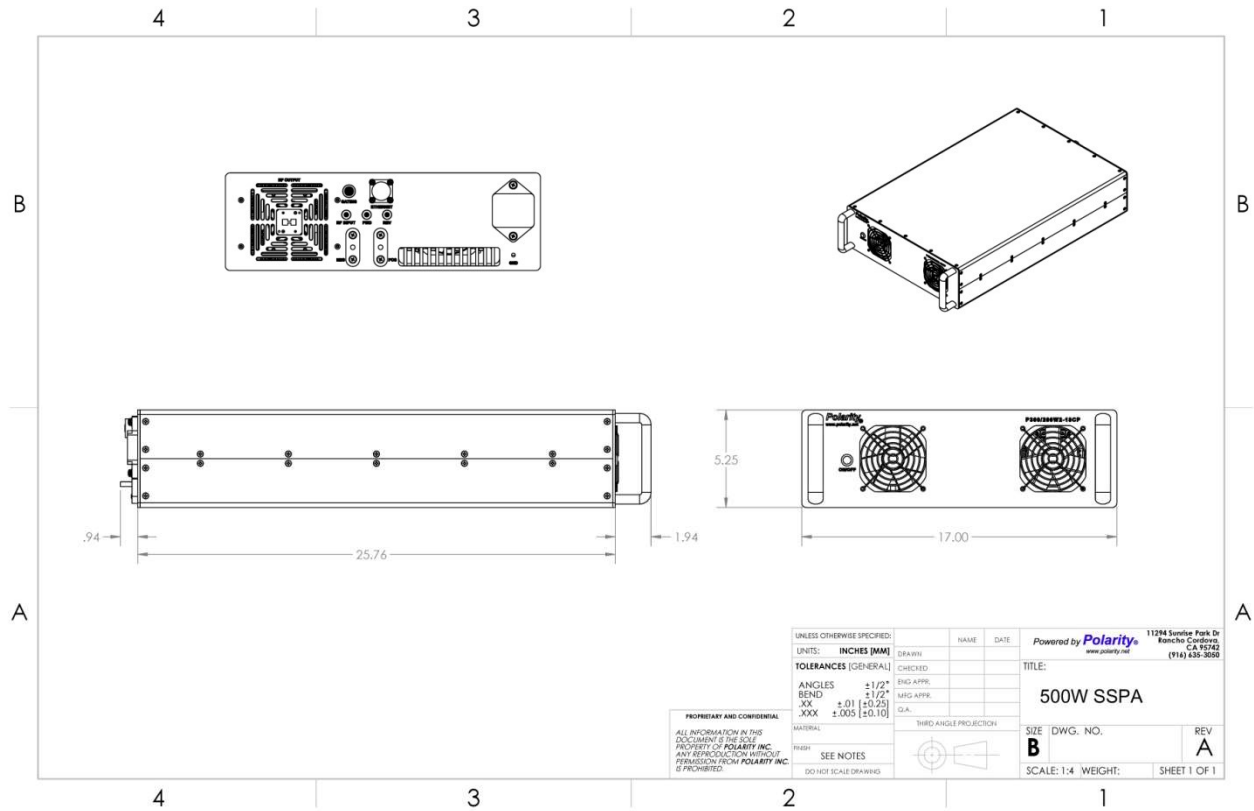
## SSPA Frequency vs. Power @ 35C



## Functional Block Diagram



## Package Marking and Dimensions



VIEW FOR REFERENCE ONLY



**Caution ESD - Sensitive Device**