



General Description

The P100W27-31CPH SSPA is a high power, broadband, solid state power amplifier housed in a ruggedized hub 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 27.0–31.0 GHz frequency band.

The P100W27-31CPH 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



P100W27-31CPH



Product features

- Operating frequency: 27.0–31.0 GHz CW
- Output power: 100 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: 0.01dB @ 100us pulse widths
- Small signal gain: 62 dB nominal
- Saturated gain: 50 dB nominal
- Input voltage: 22-32VDC
- Weight: 25lbs / optional 17lbs
- Monitor and Control: Ethernet
- Cooling: Forced air
- Enclosure: Hub mountable

Applications

- Radar
- Communications
- Test and Measurement
- EMI Testing

Ordering Information

Part No.	ECCN	Description
P100W27-31CP	3A611.X	27-31GHz 100W SSPA



Performance Characteristics

Frequency Range	Ka band – 27 to 31GHz
Bandwidth Min.	4GHz
Peak Saturated Output Power, min.	100W CW / 150W peak
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 100% duty
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.	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	13.0" x 7.75" x 4.4", 330mm x 197mm x 112mm
Weight, max. (Kg.)	8
Connectors	Circular/D-sub
RF Input connector	2.92mm
RF Out connector	WR28
Computer control	Ethernet

Absolute Maximum Ratings

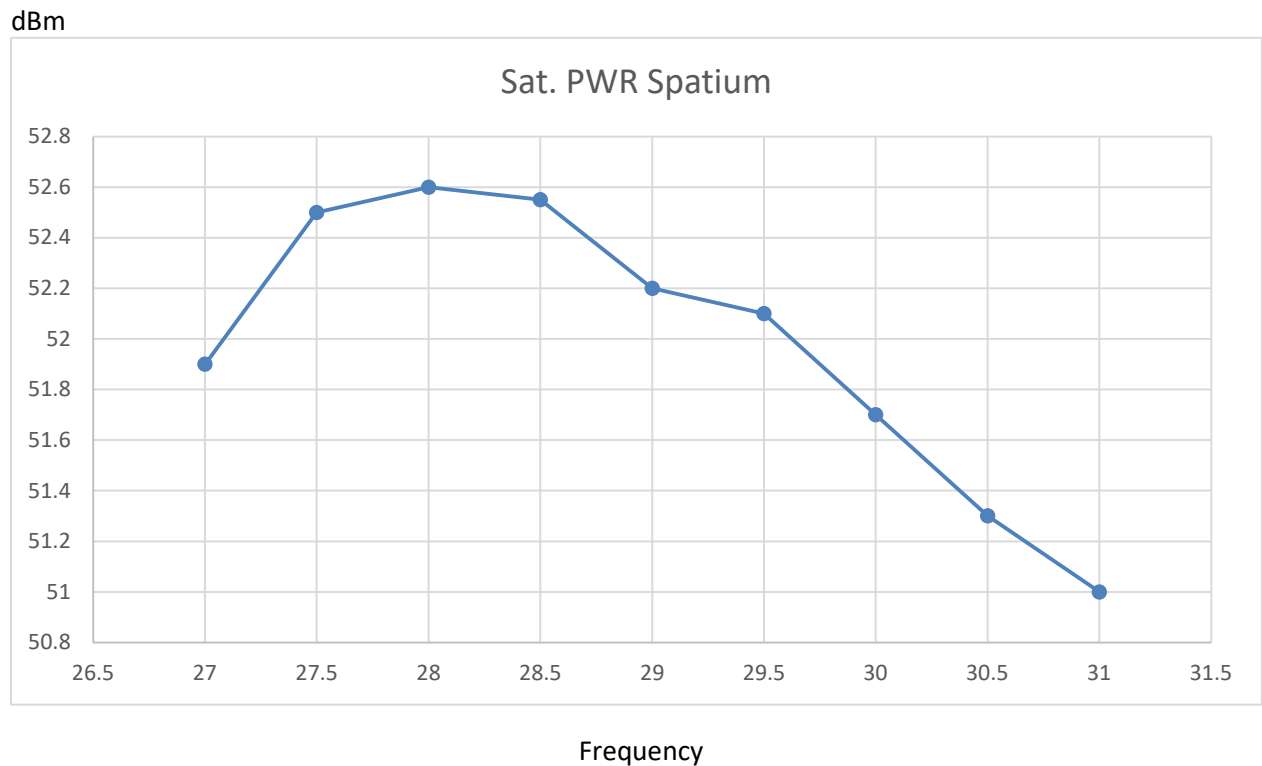
Parameter	Rating
RF Input Power, CW, 50 Ω, T _{CASE} =25 °C	+10 dBm
Load VSWR	3.0:1
DC Current (22, 28, 30VDC)	41A, 32A, 28A
Storage Air Temperature	-30 to +75 °C
Operating Air Temperature	-10 to +40 °C

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

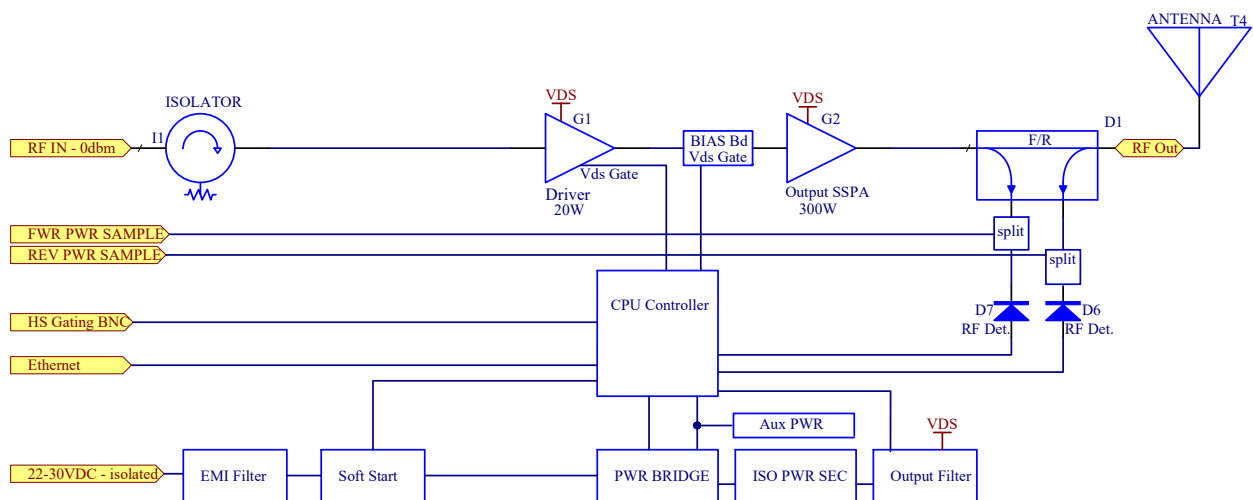
Email: sales@polarity.net Web: www.polarity.net Tel: 916-635-3050 x221



SSPA Frequency vs. Power @ 35C



Functional Block Diagram

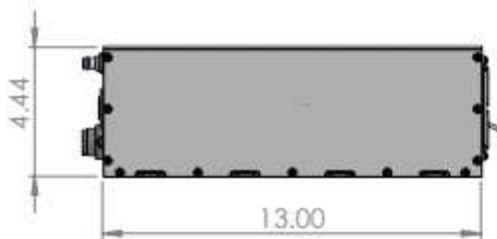
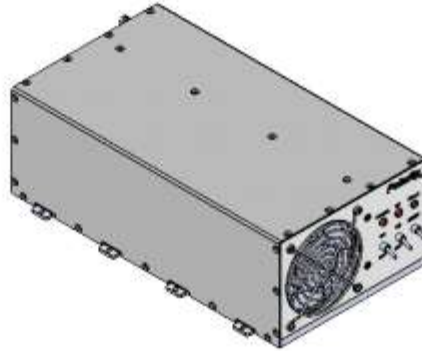


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Package Marking and Dimensions



Caution ESD - Sensitive Device

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