

General Description

The P100W20-40CP SSPA is a high power, broadband, solid state power amplifier housed in a custom hub mountable chassis. The amplifier incorporates a wide input range DC-DC power supply, fan-forced convective thermal management, and an internal driver amplifier. The amplifier is appropriate for high-power wide-band testing, communications, radar, or any application requiring capability for simultaneous power amplification of signals across the 20.0-40.0GHz spectrum.

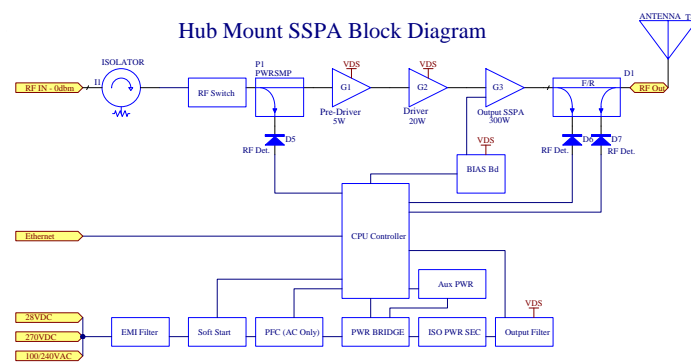
The P100W20-40CP incorporates high efficiency GaN MMICs, spatially combined in a compact structure to achieve robust, high performance power amplification across the 20-40.0GHz frequency range.



Product Features

- 20.0-40.0 GHz
- 100 Watts saturated output power, Max Duty 100%
- RF rise and fall times - 5ns
- Gating frequency - 100kHz, 1MHz bursts
- 62 dB small signal gain
- 51 dB nominal power gain
- 28VDC input voltage
- Weight 22lbs
- Ethernet monitor and control
- Air cooling - back panel inlet and outlet
- Liquid or conduction cooled options

Functional Block Diagram



Performance is typical across frequency. Please

Applications

- Radar
- Communications
- Test & Measurement
- EMI Testing

Ordering Information

Part No.	ECCN	Description
P100W20-40CP	3A611.X	20.0-40.0 GHz 100 Watt Amplifier

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)	45, 35, 33 A
Storage Air Temperature	-30 to +75 °C
Operating Air Temperature	-5 to +50 °C

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
Voltage (V _{dc})	22	28	30	V _{dc}
Current (dc)	36	28	26	A
Operating Air Temperature	0	25	40	°C
RF Input Power, CW		0	+5	dBm

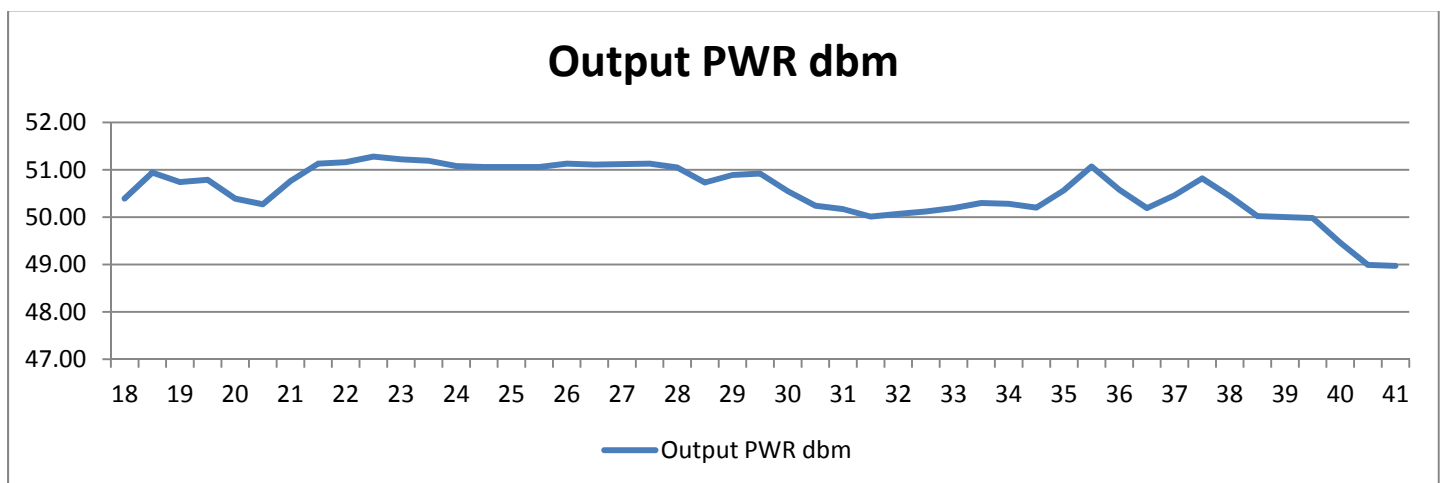
Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions.

Performance Plots

Please reference data plots for more details.

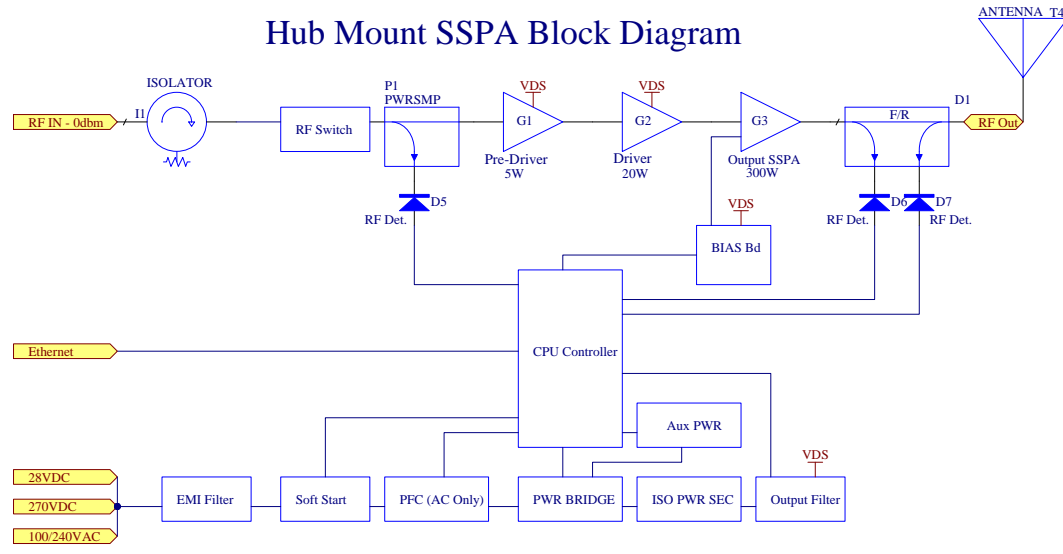
Parameter	Conditions ⁽¹⁾	Min	Typ	Max	Units
Operational Frequency Range	Pulsed @ +25°C Duty 100%	32.0		38.0	GHz
Output Power ($P_{IN} = +5\text{dBm}$)	18 GHz		50.4		dBm
	22 GHz		51.2		dBm
	26 GHz		51.1		dBm
	30 GHz		50.6		dBm
	34 GHz		50.3		dBm
	38 GHz		50.5		dBm
	40 GHz		49.5		dBm
Power Gain ($P_{IN} = +5\text{dBm}$)	18 GHz		50.4		dB
	22 GHz		51.2		dB
	26 GHz		51.1		dB
	30 GHz		50.6		dB
	34 GHz		50.3		dB
	38 GHz		50.5		dB
	40 GHz		49.5		dB
Small Signal Gain	18 GHz		61		dB
	22 GHz		62		dB
	26 GHz		65		dB
	30 GHz		65		dB
	34 GHz		62		dB
	38 GHz		61		dB
	40 GHz		61		dB
Small Signal Gain Flatness			See plot		dB
Non-Harmonic Spurious	$F_0 = 18 - 40 \text{ GHz}$, $P_{IN} = 0 \text{ dBm}$			-60	dBc
DC Input Power (average)			790	1000	W
DC Fuse	50A, 50V				

Notes: Test conditions unless otherwise noted: $V_{dc} = 18\text{V}$, Air Temp = +25°C, 50 Ω system.



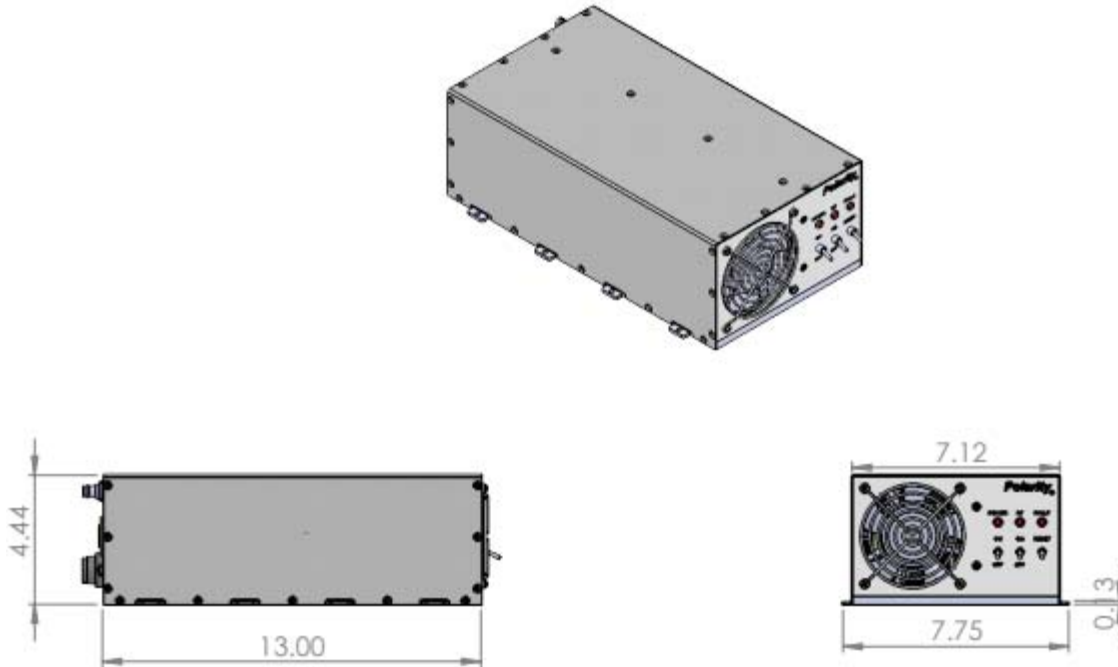
Test conditions unless otherwise noted: $V_{ds} = 28V$ Ambient Air Temp = +25 °C 50 Ohm system

Block Diagram and Description



I/O Port	Label	Description
RF In	N/A	2.92 mm (F) RF Input
RF Out	N/A	WR28 High Power RF Output Waveguide
DC Input	N/A	Circular MIL

Package Marking and Dimensions



Handling Precautions



Caution!
ESD-Sensitive Device

Contact Information

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

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