

## General Description

The P100W32-38P 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 32.0 – 38.0 GHz spectrum.

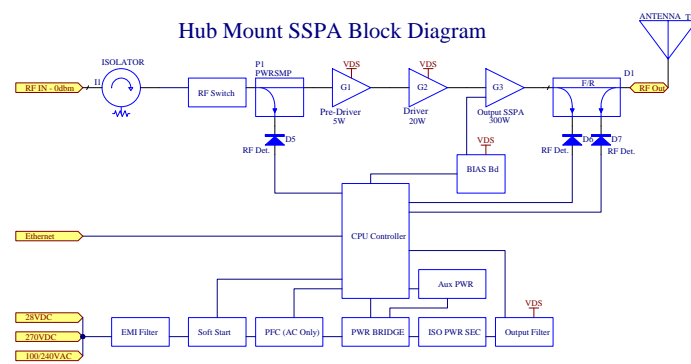
The P100W32-38CP incorporates high efficiency GaN MMICs, spatially combined in a compact structure to achieve robust, high performance power amplification across the 32.0 – 38.0 GHz frequency range.



## Product Features

- 32.0 – 38.0 GHz
- 100 Watts saturated output power, Duty 20%
- 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
P100W32-38CP	3A611.X	32.0 – 38.0 GHz 100 Watt Amplifier

## Absolute Maximum Ratings

Parameter	Rating
RF Input Power, CW, 50 $\Omega$ , 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 +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 <sub>dc</sub> )	22	28	30	V <sub>dc</sub>
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

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

Parameter	Conditions <sup>(1)</sup>	Min	Typ	Max	Units
Operational Frequency Range	Pulsed @ +25C Duty 100%	32.0		38.0	GHz
Output Power ( $P_{IN} = 0$ dBm)	32 GHz		51.2		dBm
	33 GHz		51.5		dBm
	34 GHz		51.5		dBm
	35 GHz		51.4		dBm
	36 GHz		51.3		dBm
	37 GHz		51.0		dBm
	38 GHz		49.8		dBm
Power Gain ( $P_{IN} = 0$ dBm)	32 GHz		51.2		dB
	33 GHz		51.5		dB
	34 GHz		51.5		dB
	35 GHz		51.4		dB
	36 GHz		51.3		dB
	37 GHz		51.0		dB
	38 GHz		49.8		dB
Small Signal Gain	32 GHz		62		dB
	33 GHz		62		dB
	34 GHz		68		dB
	35 GHz		68		dB
	36 GHz		64		dB
	37 GHz		62		dB
	38 GHz		62		dB
Small Signal Gain Flatness			See plot		dB
Non-Harmonic Spurious	$F_0 = 32 - 38$ GHz, $P_{IN} = 0$ dBm			-60	dBc
DC Input Power (average)			790	1000	W
DC Fuse	50A, 50V				

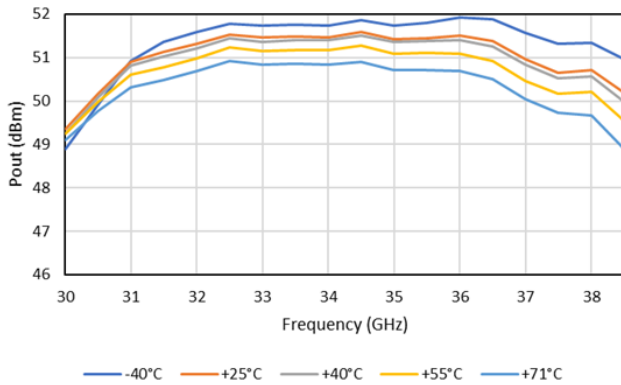
Notes:

1. Test conditions unless otherwise noted:  $V_{dc} = 28V$ , Air Temp = +25 °C, 50 Ω system.

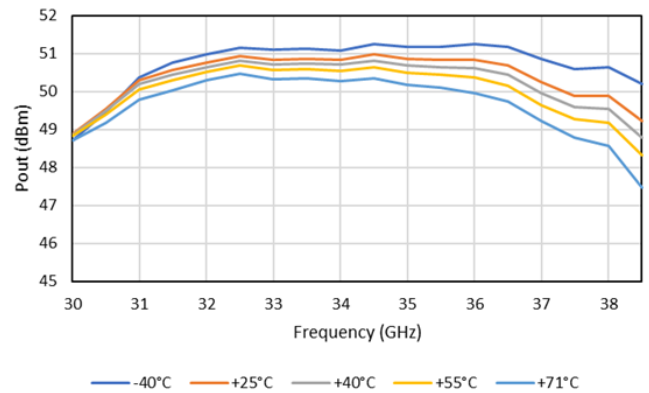
## CW Output Power vs Temperature

Vd = 24V and 20V, Idq = 4.8A

Vd = 24V



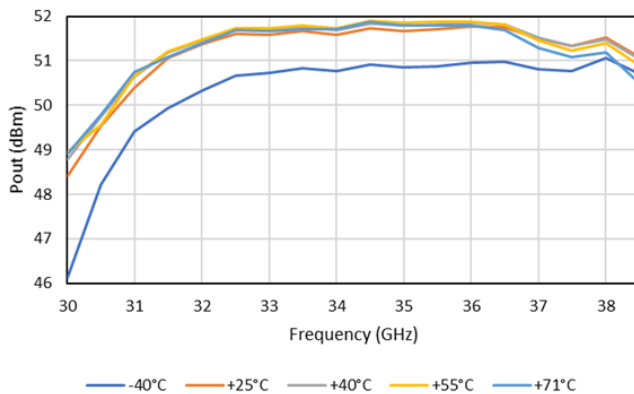
Vd = 20V



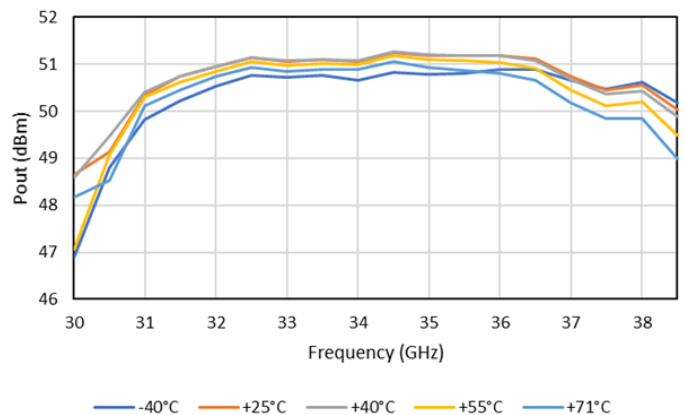
## Pulsed Output Power vs Temperature

Vd = 24V and 20V, Idq = 4.8A, PW = 9us, DC = 12%

Vd = 24V



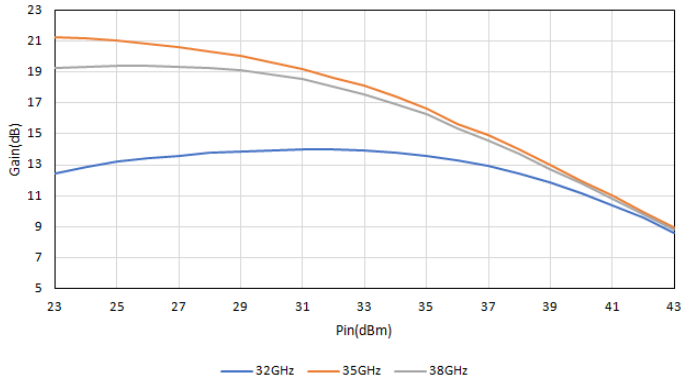
Vd = 20V



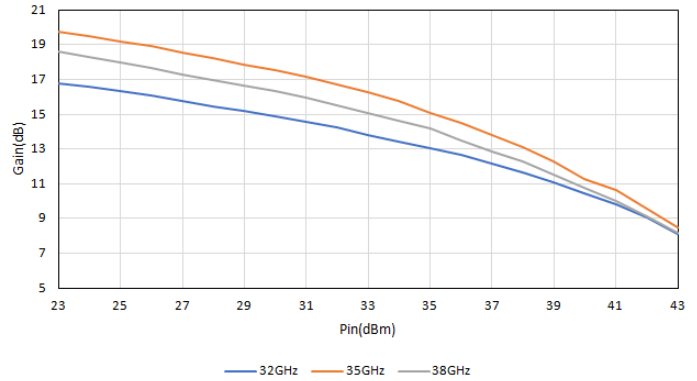
## Gain Compression

Vd = 24V, Idq = 4.8A

-40C



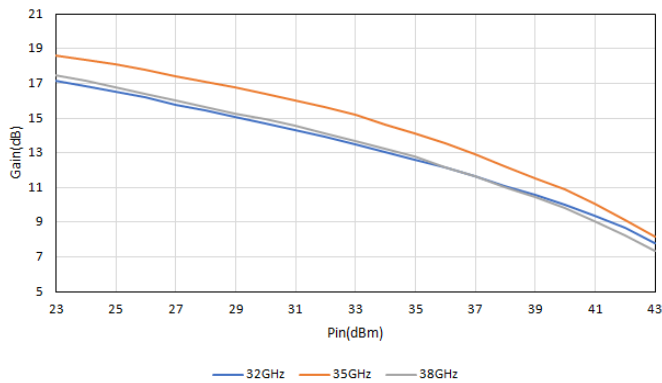
+25C



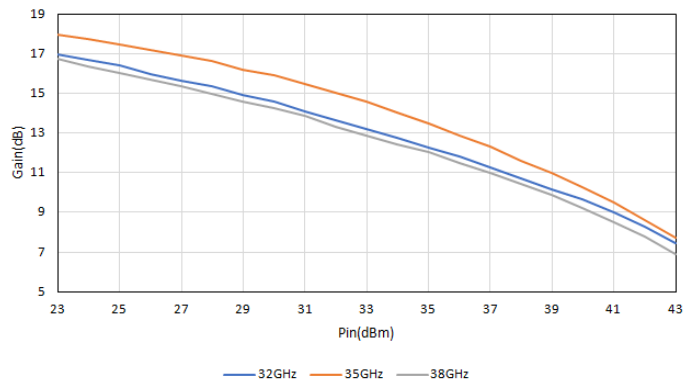
## Gain Compression

Vd = 24V, Idq = 4.8A

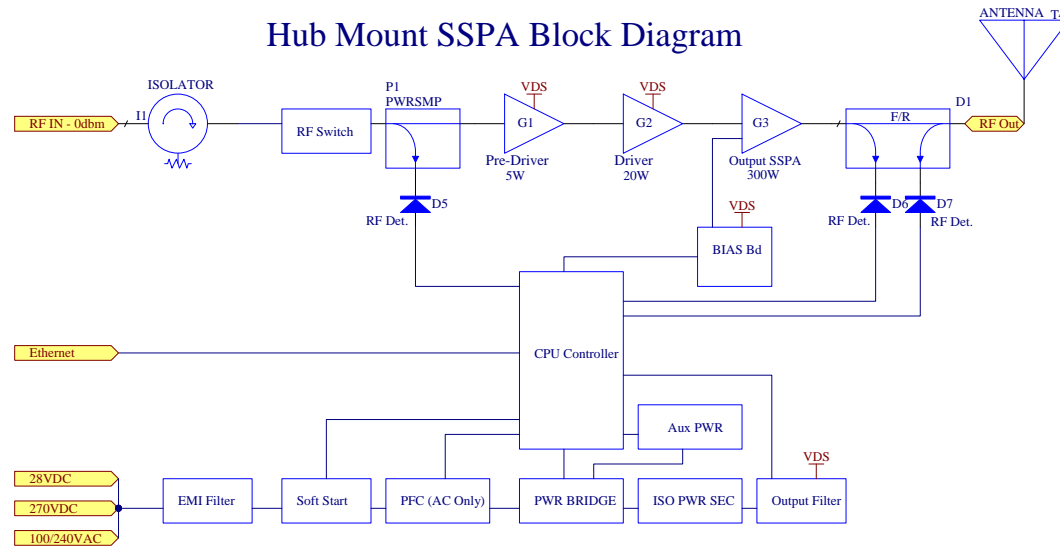
+55C



+71C



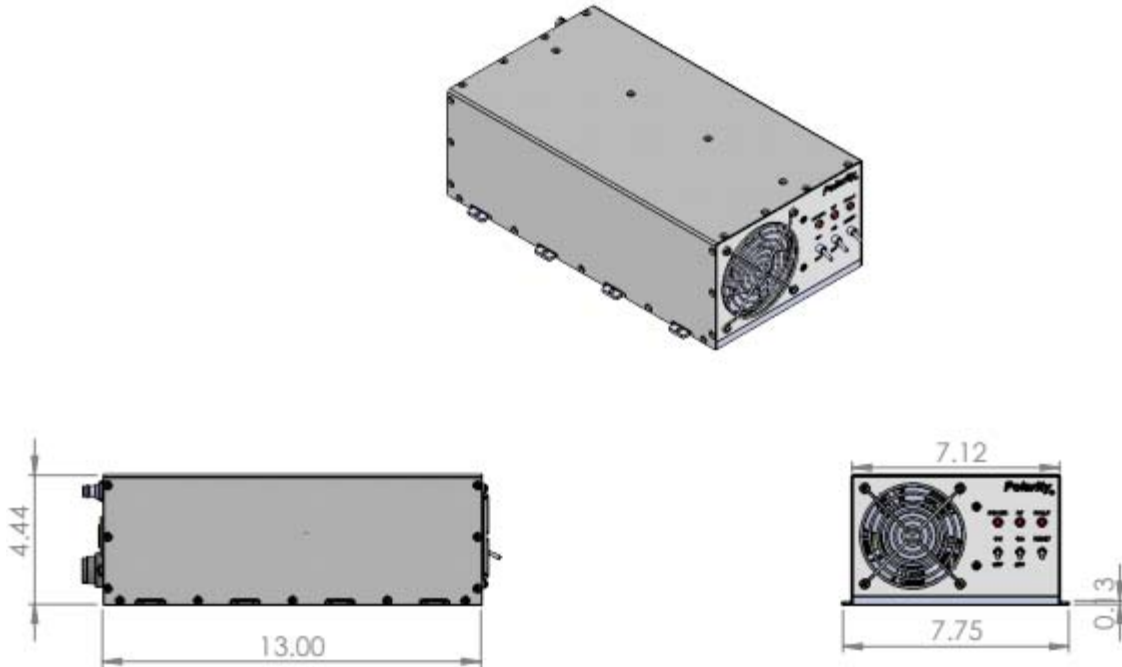
## Block Diagram and Description



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

**Tel:** 916-635-3050 x221

**Web:** [www.polarity.net](http://www.polarity.net)

**Email:** [sales@polarity.net](mailto:sales@polarity.net)

For technical questions and application information:

**Email:** [sales@polarity.net](mailto:sales@polarity.net)