
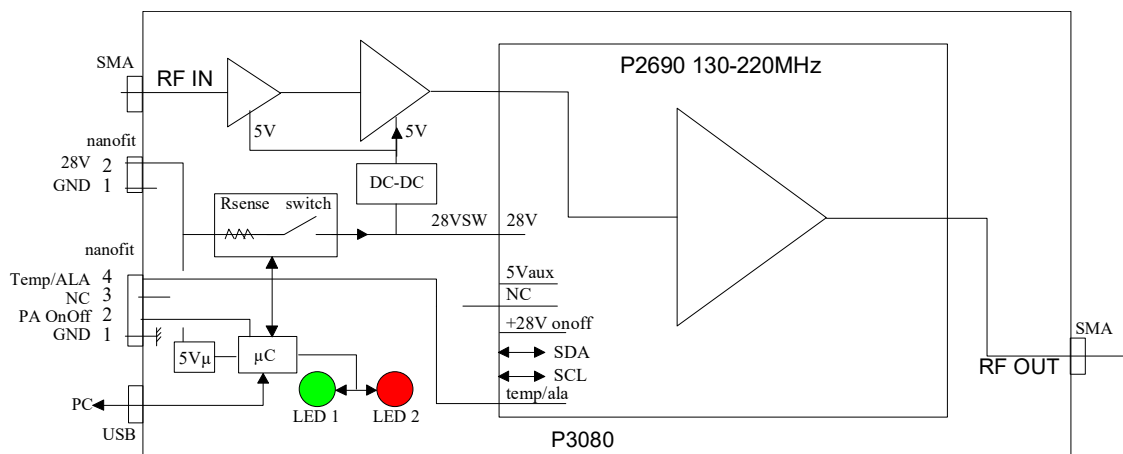


# LPA Concepts

<b>LINEAR POWER AMPLIFIER</b>	<b>LPA-AH1-010AA-0130M-0220M-28-00</b>
<b>P3080</b>	
<b>FEATURES</b> <ul style="list-style-type: none"> <li>◆ 130-220MHz</li> <li>◆ Gain : 50 dB</li> <li>◆ Class A / OIP3 = +50 dBm</li> <li>◆ 28V / 1.6A</li> <li>◆ Temperature compensated gain</li> <li>◆ Protection over/under voltage, current and temperature</li> <li>◆ Visual status with LEDs</li> <li>◆ USB monitoring &amp; controls</li> <li>◆ RoHS compliant</li> </ul>	<b>PACKAGE</b> 
	<b>APPLICATIONS</b> <ul style="list-style-type: none"> <li>◆ Instrumentation</li> </ul>

## BLOCK DIAGRAM



Specifications and information are subject to change without notice

# LPA Concepts

## Electrical characteristics: 50 ohms; +28V; -25°C to +80°C (1, 2)

Ref	Parameter	Conditions	Note	Min	Typ	Max	Units
1	Bandwidth			130		220	MHz
2	Gain small signal	175 MHz; 50°C			50		dB
3	Gain variation vs frequency	130 MHz - 220 MHz				1.5	dBpp
4	Gain variation vs temperature	-25°C to +80°C	2		0.5		dB
5	Input return loss	50 ohms				-15	dB
6	Output return loss	50 ohms				-15	dB
7	Peak envelope power	IMD3 = -30 dBc, f=175 MHz	3	10	12		W
8	OIP3	IMD3 = -60 dBc, f=175 MHz	4	50	52		dBm
9	OIP3 Flatness	130 MHz - 220 MHz				3	dBmpp
10	Second harmonic	F1=175MHz; 10W output				-50	dBc
11	Current consumption	28V ; <30dBm			1.6		A

1. Unless otherwise specified
2. Housing temperature
3. 2 CW tones 34dBm each, f1=170 MHz, f2=180MHz
4. 2 CW tones +21dBm each, f1=170 MHz, f2=180MHz

## Maximum ratings

Ref	Parameter	Conditions	Note	Min	Nom	Max	Units
1	Operating temperature	Flange temperature		-40°C		+90	°C
2	Supply voltage			26	28	30	V
3	Voltage on Alarm pin					10	V
4	Input CW power		5			-8	dBm
5	Load VSWR	at 10W output	5			10:1	

5. the output power is limited to 15W CW.

## Protections

Ref	Parameter	Description	Remarks
1	Overvoltage	Shut down if supply > 30 V	
2	Under voltage	Shut down if supply < 26 V	
3	Overcurrent	Shut down if current > 2.3 A	Output power > +42dBm CW
4	Temperature	Shut down if temp > 80°C	Auto recovery (at 75°C)

## Analog monitoring & controls

Ref	Characteristic	Description	Remarks
1	Temperature	Analog output	-40°C to +100°C (TMP20)
2	Alarm	Open drain (0V on alarm)	Multiplexed with analog temp
3	PA On/Off	<Amplifier Off when PAOO > 3V	48V switches off
4			

## USB Monitoring & controls (6)

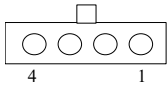
Ref	Characteristic	Description	Remarks
1	Temperature	Temperature of amplifier module	Digital sensor
2	Supply voltage	Voltage applied by user	
3	Current	Through sense resistor	Rsense=22 mohms
4	ON/OFF	Shut down amplifier	
5	Alarm	Provide state of amplifier	

6. Use Interface program PRSI25001V0.2.


Specifications and information are subject to change without notice

# LPA Concepts


## Communication DC Connector Molex NanoFit 105313-1104

Pin description		PINOUT
Pin 1 : GND		
Pin 2 : PA ONOff		
Pin 3 : NC		
Pin 4 : Temperature /ALA	Open drain	

## Communication USB

Pin description		PINOUT
Pin 1 : GND		
Pin 2 : Data-		
Pin 3 : Data+		
Pin 4 : Vbus		

## Power Supply DC Connector Molex NanoFit 105313-1102

Pin description		PINOUT
Pin 2 : Supply +28V		
Pin 1 : Gnd		

Mate with 105307-1202 with 105300-2100 inserts and AWG20-22 wires

## LED significations

LED 1 (green)	LED 2 (red/orange)	Signification
OFF	OFF	Power supply not applied
ON	OFF	Amplifier ON
Blinking	OFF	Amplifier Muted by operator
ON	Orange	Temperature warning, amplifier ON
OFF	Red	Amplifier OFF (Under voltage, over voltage, over temp....)

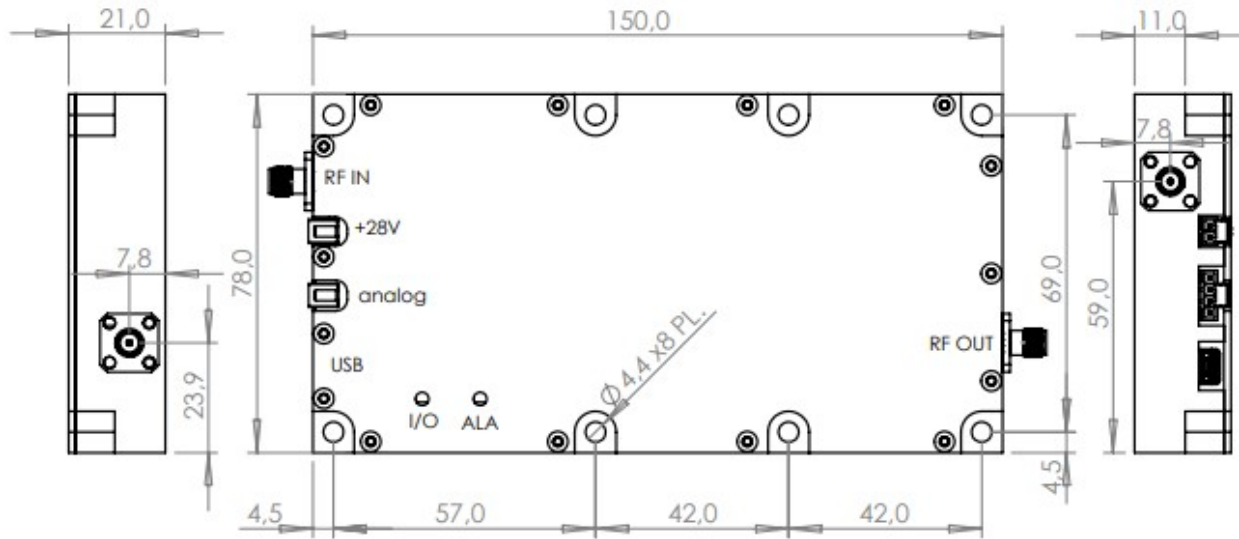
## Mechanical characteristics

Ref	characteristic	description	remarks
1	Housing dimensions	150mm x 78mm x 21mm	
2	Housing cover finish	Electroless nickel	
3	Mounting	8 M4 screws	
4	Input/output RF connectors	SMA	
5	DC supply connector	Molex 105313-1102	Male type
6	DC controls connector	Molex 105313-1104	Male type
7	USB connectors	Mini USB B	
8	Weight	460 grams	

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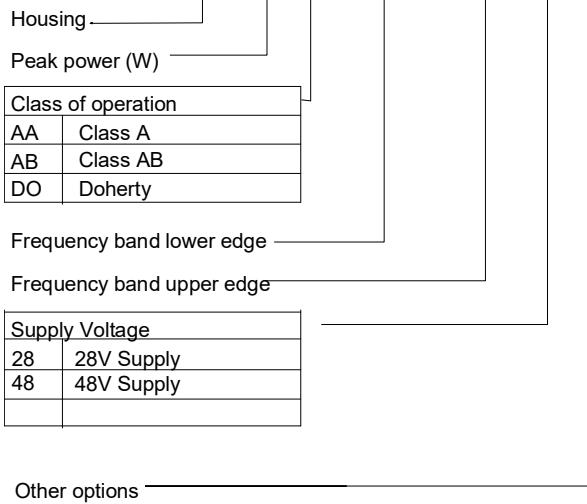
# LPA Concepts

## Package outline:



## Part numbering:

**LPA-AH1-010AA-0130M-0220M-28-00**



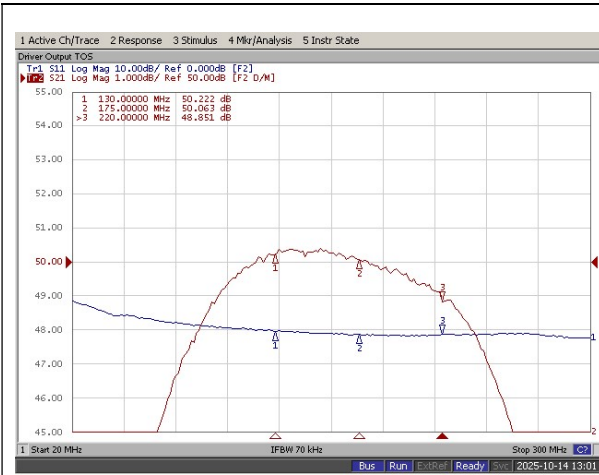
## Support material:

Ref	Document type	Document number	Title	Date
1	USB Cable		USB to mini USB B	
2	Interface program	PRSI25001 V0.2.		2025

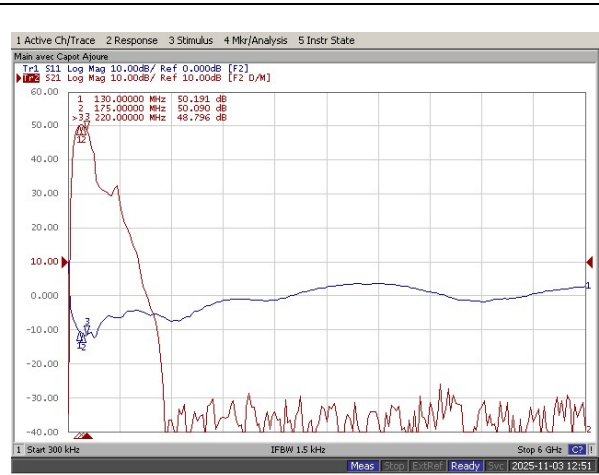
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# LPA Concepts

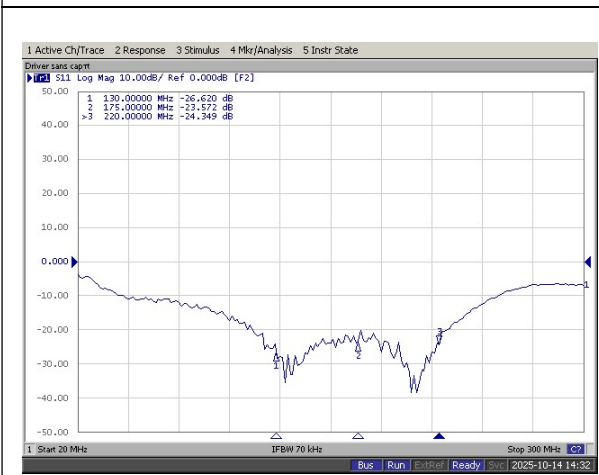
## TYPICAL PERFORMANCE



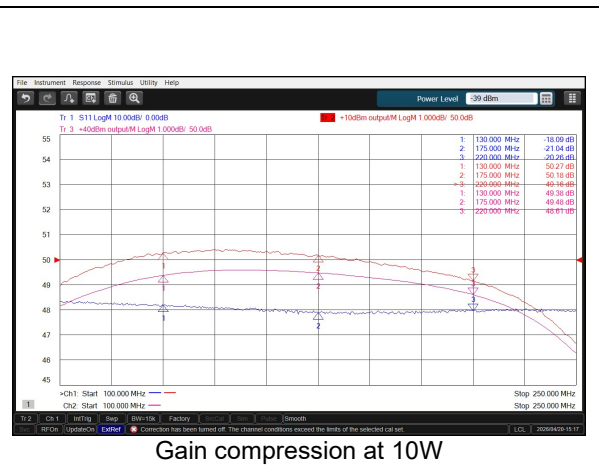
Gain / IRL vs frequency



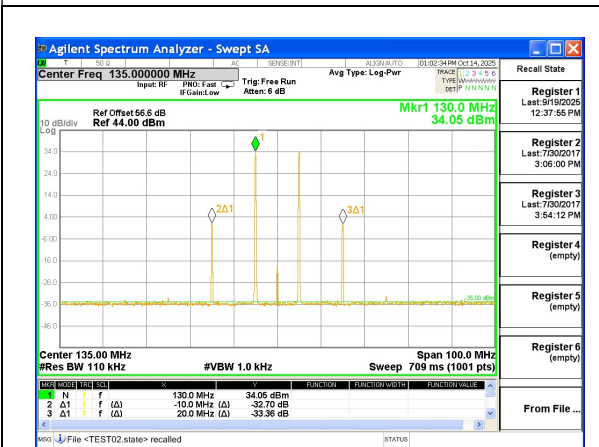
Wideband response



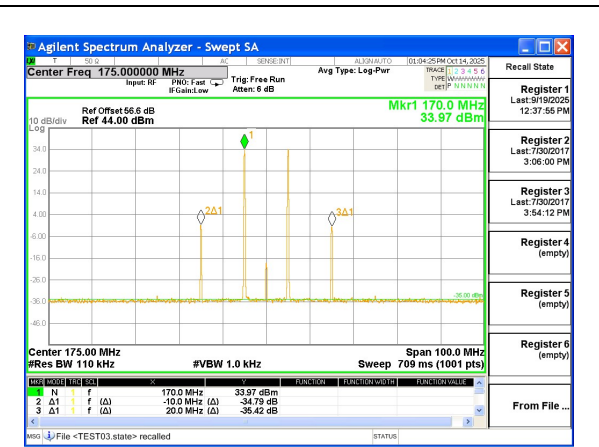
Output return loss vs frequency



Gain compression at 10W



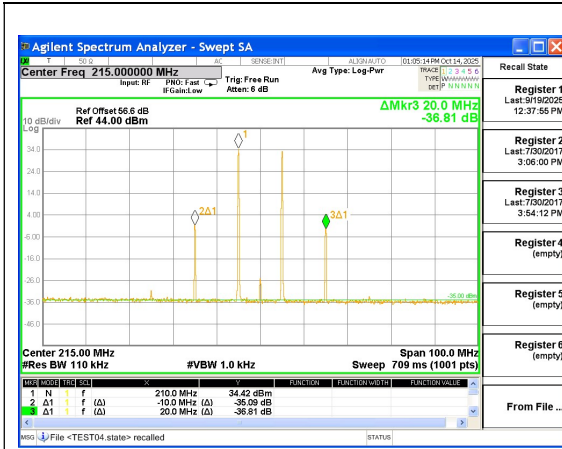
2 tones 130MHz 140MHz +34dBm each



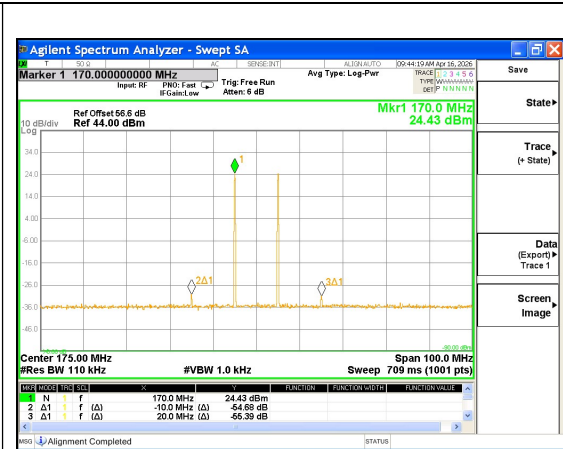
2 tones 170MHz 180MHz +34dBm each

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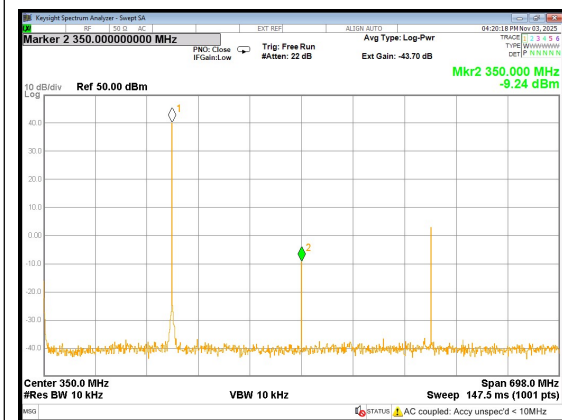
## TYPICAL PERFORMANCE (continued)



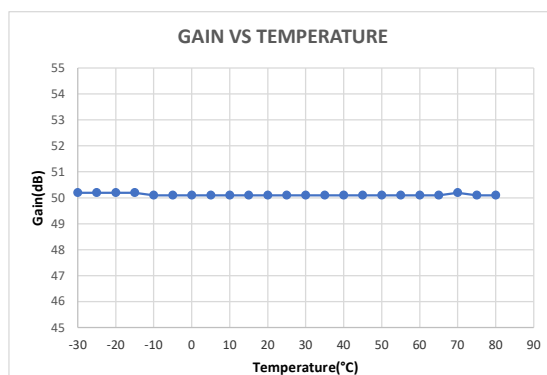
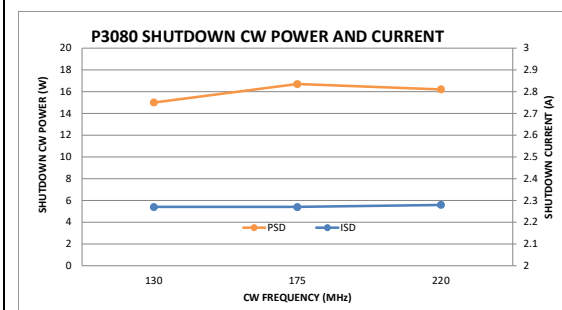
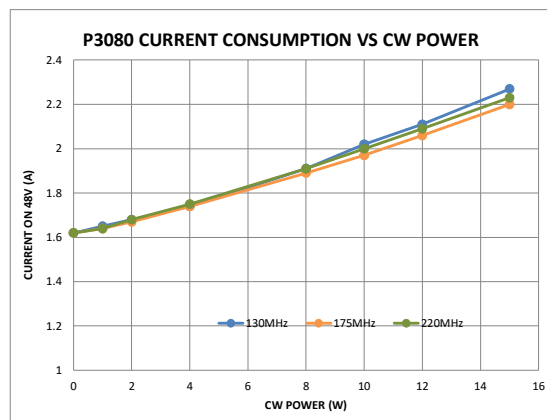
2 tones 210MHz 220MHz +34dBm each



2 tones 170MHz 180MHz +24dBm each



2d and 3rd Harmonics at 10W output



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