

DATASHEET: Rev 1A, Issued Nov. 2023

The model AMP170220-80W-A01 is a high power solid state amplifier which utilizes the latest GaN Technology, suitable for application from 1700 to 2200MHz. The amplifier has built-in control, monitoring and protection circuits.

KEY FEATURES

- Power isolator at output
- High output power 80W
- High gain 50dB min
- Small and lightweight
- Supply 28V
- Built-in protections
- RoHS compliance

APPLICATIONS

- Jamming
- Radio-transmitters
- Communication
- High power drivers
- Laboratories
- Test equipment



TECHNICAL SPECIFICATIONS

RF and DC characteristics

Frequency	1700	1800	2000	2100	2200	MHz
Small Signal Gain @ Pin=-20dBm, typ	54,5	54,0	54,0	54,1	53,7	dB
Input VSWR	< 2,0.1					dB
Flatness, typ (note 1)	±1					dB
Saturated output power (note 2,3)	48,7	49,2	49,8	49,7	48,7	dBm
Second harmonic, typ (note 4)	-56	-52	-59	-55	-55	dBc
Third harmonic, typ (note 4)	-56	-63	-59	-50	-60	dBc
Supply voltage range, operational	+24...+30					V DC
OFF state current (note 3)	2,0					mA
Quiescent current (note 3)	1,4					A
Current @ saturated output (note 2,3)	5,7	6,5	6,3	5,9	5,1	A

* Typical values measured at temperature T=+25°C.

NOTES:

- 1) Measured at small input signal
- 2) Measured at CW
- 3) Supply voltage 28V
- 4) Measured at 20W CW output

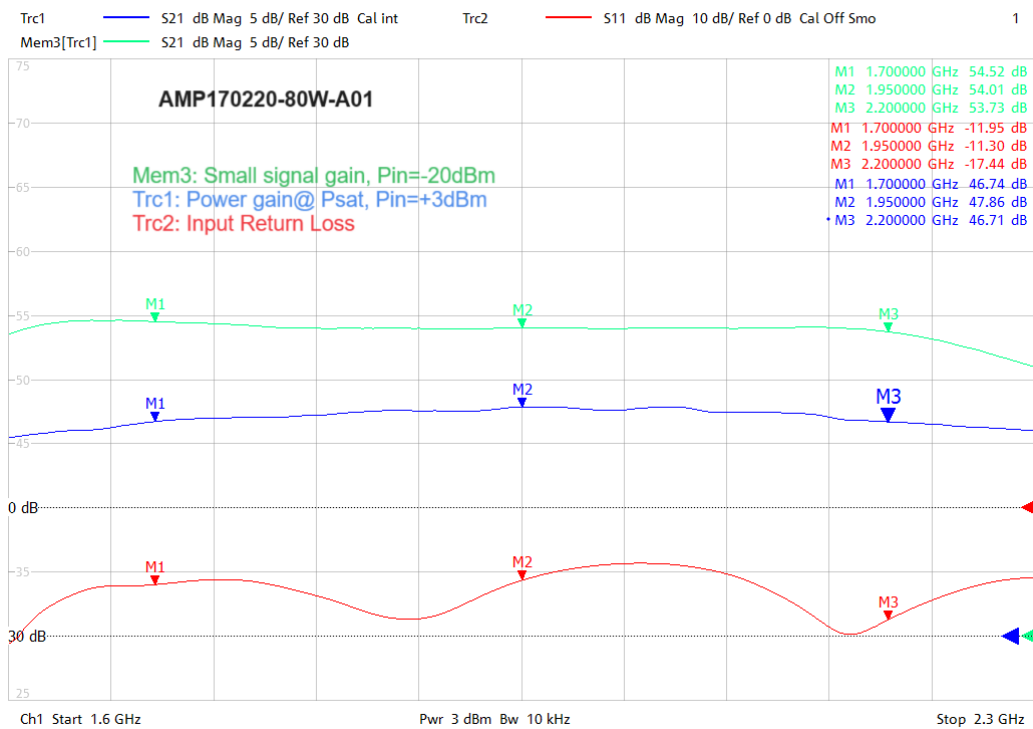


Figure 1: Small Signal Gain, Power Gain @ Psat and Input Return Loss

DC Interface Connector

Pin #	Pin name	Description
A1	VDD	+28VDC
1	TEMPERATURE MONITOR	Built-in temperature sensor output: $V_{out}[V]=0.01 \cdot T[degC]+0.5$
2	DET FWD	Forward Power Detection (diode detector) Typ 1V@Pout=+49dBm
3	DET REV	Reflected Power Detection (diode detector)
4	TEMPERATURE ALARM	Alarm Over-High Temperature An open-drain output pulls low when over $T > +60^{\circ}C$ (30V, 1A) Auto-restart when $T < 50^{\circ}C$ Can be used for fan control
5	SHUTDOWN	Amplifier Disable Input: TTL Logic High (+5V) (Internally Pulled-Low, 0V)
A2	GND	Ground

Description of protections

Amplifier over-temperature protection circuit does switch the device off if internal temperature is above $+85^{\circ}C$.
 Amplifier auto-restart if temperature drops below $+75^{\circ}C$

Under voltage protection: If the supply voltage is below +20 V the power amplifier switches off.

Over voltage protection: If the supply voltage is above +32 V the power amplifier switches off.

Over current protection: If the gate current of GaN transistor rises of too high, the power amplifier switches off and auto-restarts after a few seconds.

Absolute maximum ratings

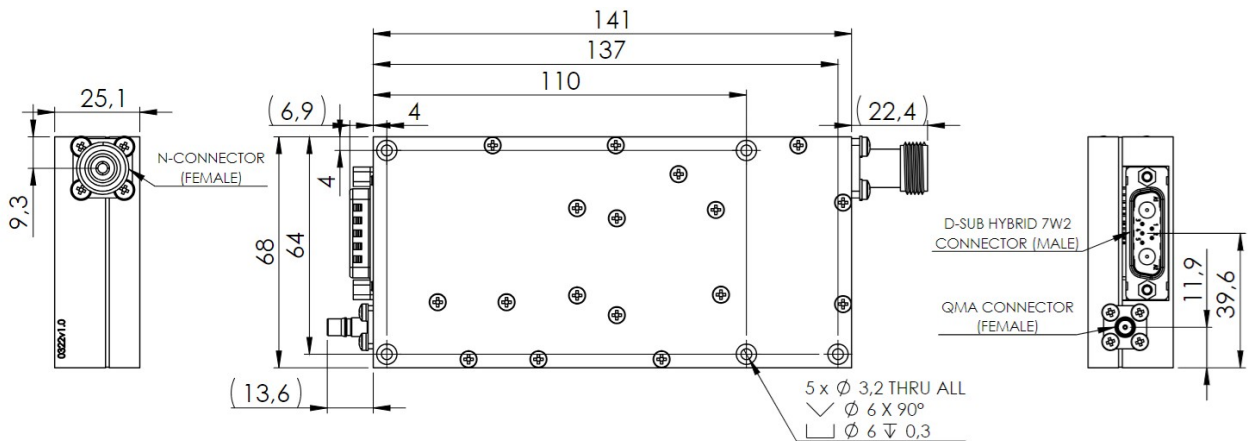
Supply voltage maximum	+32	V
Supply voltage minimum	+20	V
Input RF drive level without damage	+10	dBm
Temperature of pallet	+75	°C
Load VSWR at 50W output power	∞	-

Mechanical specifications

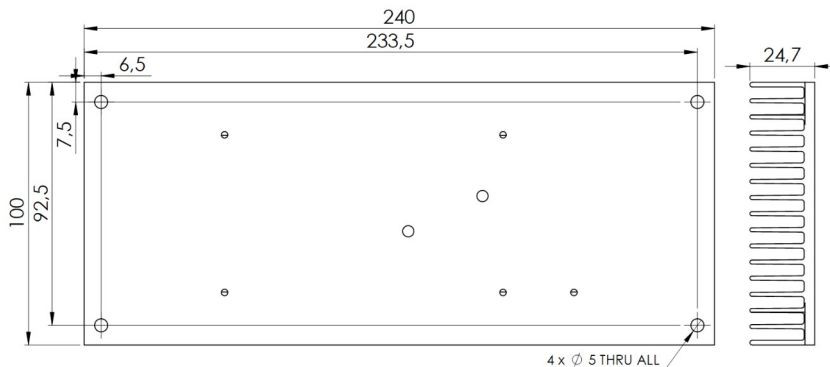
Dimension (WxDxH)	141 x 68 x 25.1mm
Input RF connector	QMA-female
Output RF connector	N-female
Cooling	External Heat-sink
DC Interface Connector	D-SUB_Hybrid_7W2

NB! The amplifier can only be used with Heatsink and a fan (recommended airflow 95m³/hour).

Mechanical view and dimensions (mm)



Heatsink (optional)



Rantelon reserves the right to change the specification without notice.