Solid State Power Amplifier 100W 20MHz to 3000MHz

Part No.: PA20M3000M100V6

The PA20M3000M100V6 is a 100-watt, high-performance broadband power amplifier covering 20 – 3000 MHz, designed for CW, AM, FM, Pulse, and general RF applications.

Leveraging advanced Gallium Nitride (GaN) technology, the amplifier delivers a minimum saturated output power of 50 dBm (100W) and a minimum small-signal gain of 50 dB with ±2 dB gain flatness. Built-in protection, monitoring, and control circuits ensure long-term reliability and repeatable performance across temperature and load conditions.

The unit is supplied in a rugged 4U rack-mount enclosure, with N-Type female connectors for input and output, and is compatible with RS-232/RS-485/RS-422/USB/Ethernet interfaces (customer choose) for control and telemetry. Designed for indoor use, an optional outdoor hub-mount version is available on request.

Product Features:

- Minimum Small-Signal Gain: 50 dB
- Minimum Saturated Output Power: 50 dBm (100 W)
- Gain Flatness: ±2 dB
- Adjustable Gain Range: 15 dB (1 dB steps)
- Instant-On Operation (no warm-up)
- 50 Ω Matched Input and Output
- Input/Output Connectors: N-Type Female
- Comprehensive Protections:
    - Reverse Polarity
    - Temperature Over-Limit

  - Current Limiting
- Integrated Monitoring and Telemetry:
  - Temperature Indication
  - Current Consumption Monitoring
- Control Interfaces: RS-232 / RS-485 / RS-422 / USB / Ethernet (customer selectable)
- Power Input: 100–240 VAC, 50/60 Hz
- Solid-State MMIC Reliability
- Rack-Mountable (4U, 50 cm depth)

Application:

- Radar Transmitters
- Satellite Communication Systems
- TWTA Replacement
- R&D and Laboratory Use
- Jamming
- Military and Aerospace Platforms

Electrical Specifications (T_A=+25^{0}C)

Parameter	Typ	Units
Frequency Range	20 – 3000	MHz
Minimum Small Signal Gain (0 dBm input)	50	dB
Minimum Saturated Output Power (Psat)	100	W
Gain Variance (Maximum)	+/-2	dB
Gain Variation Over Temperature (-40^{0}C to +70^{0}C)	+/-3	dB
Gain adjustment range	15	dB
Gain adjustment step size	1	dB
Input Return Loss	-15	dB
Spurious	-60	dBc
Harmonics @ POUT = 100W	-20 (2nd) -10(3rd)	dBc
IM3	-20	dBc
PA enable / disable time	2	uSec
Noise Figure @ max. gain	10	dB
Input RF drive level without damage	+ 7 (Max)	dBm
Operating voltage	100 to 240	VAC

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Supply Current	4.5	A
Weight	28	Kg
Impedance	50	Ohms
Size	4U rack, 50cm deep	
Input / Output Connectors	N-Type Female	
Monitoring and control interface	D-SUB, 9-pin, Male	
AC Power connector	IEC 60320-C14	

Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40^{0}C to +85^{0}C (Case Temperature)
Storage Temperature	-40^{0}C to +85^{0}C
Thermal Shock	-40^{0}C to +85^{0}C (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C; 1.5 Hours Per Axis
High-Temperature Burn-In	Temperature +85^{0}C for 72 Hours
Shock	1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction).
Altitude	Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)

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Handling Precautions

Caution!
ESD-Sensitive Device

RF VOLTAGE HAZARD: Contact with RF fields at the output connector can cause burns or electric shock. High levels of RF/Microwave energy may be present when the unit is operating.

HIGH DC CURRENT HAZARD: High levels of DC current are present when the unit is operating.

Each amplifier is shipped in a hard and well-protected carry case.

Contact Information

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

Web: www.poamelectronics.com
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Email: sales@poamelectronics.com

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