



## Solid-State Pulsed Power Amplifier, 9300–9700 MHz, 1.5kW

PXB1500-V4

POAM's PXB1500-V4 is a rugged, standalone Pulse 1500 W X-band GaN RF power amplifier designed for radar and field-deployed transmitter applications. Operating from 9300 to 9700 MHz, the PXB1500-V4 delivers up to 60 dB of gain with approximately 25% efficiency under rated operating conditions. The amplifier is powered from a single 48 VDC supply and is based on gallium-nitride-on-silicon-carbide (GaN-on-SiC) technology to support wide instantaneous bandwidth, and high-power density.

The PXB1500-V4 is engineered as a compact, lightweight unit with an integrated thermal management structure to support reliable high-power operation. It is built to military-grade standards and housed in a weatherproof enclosure rated to IP67 for demanding outdoor and mobile environments. Both RF input and output ports are fully matched to 50  $\Omega$  (in coaxial interface), enabling straightforward system integration.

### Features

- High Power X-Band Pulsed GaN Power Amplifier
- Small Signal Gain 60dB Typical
- Saturation Output Power 1500 W Typical
- Supply Voltage +48VDC
- IP67 Protection
- 50 Ohm Matched Input/Output
- Compact and rugged design 297.6x283x260 mm (11.7x11.1x10.2 Inches)
- low weight 17 kg (35 lbs.)

### ELECTRICAL SPECIFICATIONS

(TEST CONDITION: TA=+25°C, DUTY CYCLE=10%, PULSE= 100US, UNLESS OTHERWISE STATED)

PARAMETER		VALUE	UNIT
Operating Frequency		9300 to 9700	MHz
Saturation Output Power-Pulsed		1400 (Minimum), 1500 (Typical)	W
Input Power (Pulsed)		-2 (min), +4 (max)	dBm
Power Gain		60	dB
Gain Flatness		+/- 1	dB
Duty Cycle		10 (Max)	%
Pulse Width		100	us
Spurious		60 (min)	dBc
Rise/Fall Time [PW=100 us]		50/50	ns
Input/Output VSWR		1.5:1	
Input Impedance		50	$\Omega$ (coaxial option)
Power Supply	Voltage	48	VDC
	Current	20 (Typical)	A (for Duty Cycle=10% and PW=100us)
MTBF		200,000	Hours (25°C, Ground fixed, duty cycle 10%; per MIL-HDBK-217F)



### Typical Applications

- Radar
- Wireless Infrastructure
- Military and Aerospace
- Test Instrumentation
- TR Modules
- TWTA Replacement



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### MECHANICAL AND ENVIRONMENTAL SPECIFICATION

PARAMETER	VALUE	NOTE
Operational Temperature	-30°C to +75°C	
Storage Temperature	-40°C to +85°C	
Dimension	298x283x260 mm (12x11x10 Inches)	
Weight	17 kg (22 lbs.)	
RF Connectors	WR90 (Input/Output)	Also Available with SMA or N-Type input
DC and M&C Connectors	Military Round connectors D38999 Series by AMPHENOL	Mating connectors will be provided
Environmental Protection	IP67	
Cooling method	Heatsink with fans	fans rated IP67
Colour	Anodized Olive Green	Other colours also available

### TEST STANDARDS

	PARAMETER	VALUE	NOTE - TEST STANDARD
<b>Vibration</b>	Random Vibration	5Hz to 8Hz @ 6mm, 8Hz to 500Hz @ 15m/s <sup>2</sup> , 2 hours in each direction of 3 axes	MIL-STD-202G BS EN 60068-2-6 2008:
	Vibration Shock	Half Sine, 400m/s <sup>2</sup> , 11ms. 3 shocks in each direction of 3 axes	BS EN 60068-2-27: 2009: SHOCK
	Bump Test	Half Sine, 250m/s <sup>2</sup> , 6ms, 4000 bumps in each direction of 3 axes	BS EN 60068-2-27: 2009:
<b>Thermal</b>	Ambient Temperature Test	14 days	BS EN 60068
	Damp Heat Test	+40°C 93%RH, 16-hour dwell.	BS EN 60068-2-78:
	Temperature Shock	+55°C to -30°C, 3-hour dwells, 10 second transfer, 2 cycles.	BS EN 60068-2-14: 2023:
	Low Temperature Test	-30°C for 16 hours - Operational -40°C for 16 hours - Storage	BS EN 60068-2-1: 2007:
	High Temperature Test	+60°C for 16 hours - Operational +80°C for 16 hours - Storage	BS EN 60068-2-2: 2007:
	Humidity Cycling Test	3-hour ramp +20°C 95%RH to +30°C 95%RH 12-hour dwell +30°C 95%RH 3-hour ramp +30°C 95%RH to +20°C 95%RH 6-hour dwell +20°C 95%RH 24-hour cycle, 14 cycles Functional test performed during the first 2 hours of the +35°C dwell on the 7th and 14th cycles.	BS EN 60068-2-30: 2005:
<b>Drop</b>	Drop Test	Drop height 250mm onto 6 faces. Steel plate backed with concrete	BS EN 60068-2-31: 2008:
	Topple Test	Drop onto wood, 1 drop from each bottom edge, opposite edge lifted to either 45° or 100mm, then allowed to drop back onto bottom face	BS EN 60068-2-31: 2008:
<b>Protection</b>	Ingress Protection, IP6X	Dust tight (with internal pressure reduction)	BS EN 60529:1992+A2:2013
	Driving Rain	200 l/m <sup>2</sup> /h for 1 hour	DEF STAN 00-035, PART 3, ISSUE 4, TEST CL 27
	Environmental Protection		MIL-STD-108E



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<b>Altitude</b>	Altitude	30,000 ft, 30 kPa, 16 hours	MIL-STD-810 method 500
<b>Safety</b>	EMC/EMI	CE102, CS101, CS114, CS115, CS116, CS118, RE102, RS103	MIL-STD-461G

### RF CONNECTOR (J1 & J2)

PIN	DESCRIPTION	NOTE
J1 - RF Input	WR90 Waveguide	Please advise if SMA or N-type interface is required
J2 - RF output	WR90-Waveguide	


### M&C CONNECTOR PIN DESCRIPTION (J4-M&C)

[D38999/20WB35SN AMPHENOL CIRCULAR MIL SPEC CONNECTOR]

PIN	DESCRIPTION	NOTE
1	Health and Temperature monitoring	
2		
3		
4	Disable/ Enable Amplifier (on/off)	
5	Ground	
6	Ground	
7 to 13	NC	

### DC CONNECTORS PIN DESCRIPTION (J3-POWER)

[D38999/20WB98PN AMPHENOL CIRCULAR MIL SPEC CONNECTOR]

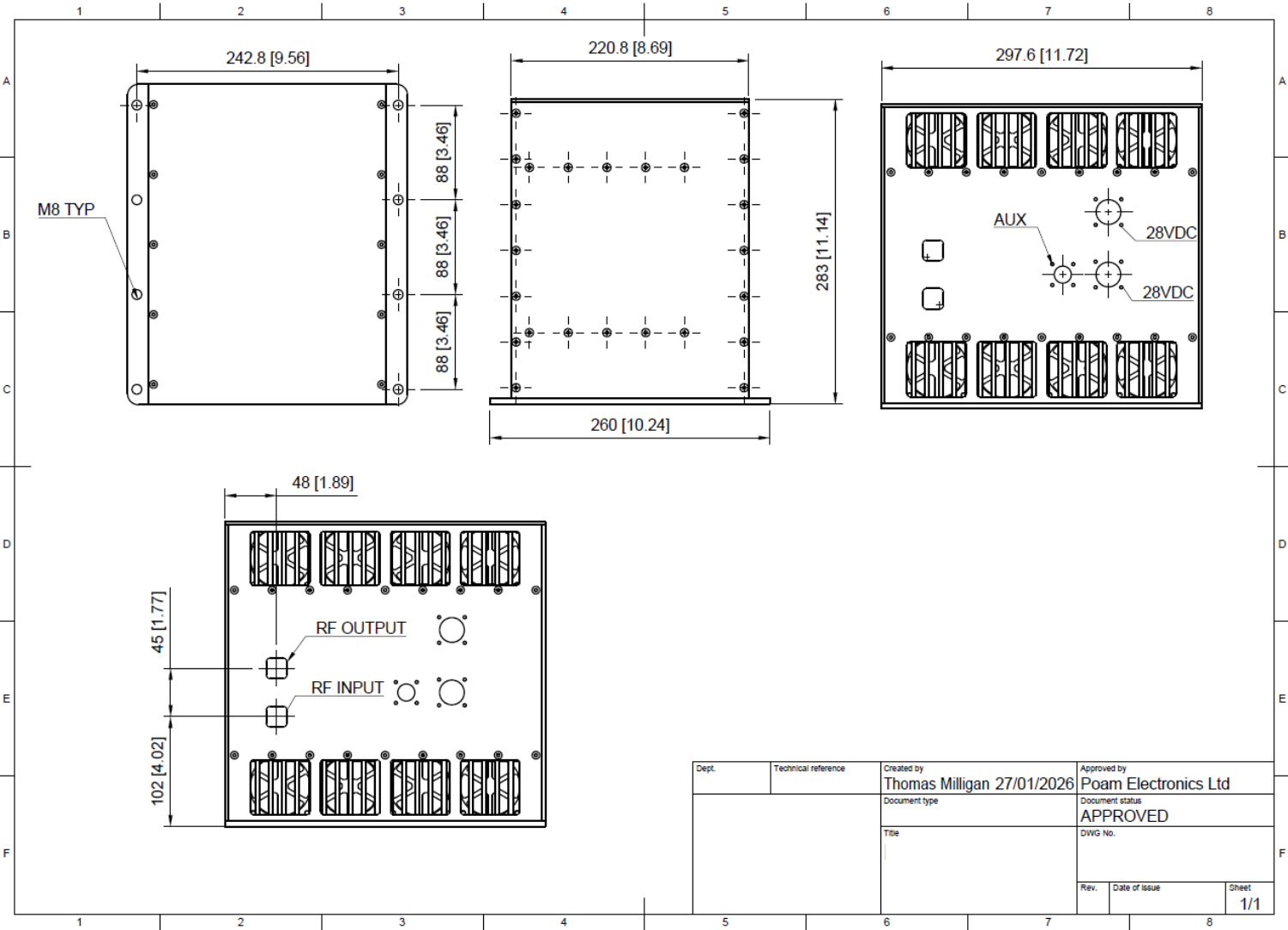
PIN	DESCRIPTION	NOTE
A	+ 48 VDC	
B	+ 48 VDC	
C	+ 48 VDC	
D	GND	
E	GND	
F	GND	



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**OUTLINE DRAWING:**

Note: Unit mm [Inches]





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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 rigid protective carrying case designed to prevent mechanical damage during handling and transport.**



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