

HIGH POWER 1800W FM PALLET AMPLIFIER (48-50V)

Manual

IMPORTANT NOTE

- Upon receiving your order inspect the packaging material and unit for any damage. Any damage should be reported immediately at the time of delivery so we can make a claim with the shipping company. Take photos and have delivery personnel fill out a report and sign it, these can be used as a proof.

IMPORTANT! Before you power up an amplifier/transmitter please first make sure that drive power is set correctly and does not exceed absolute maximum (for amplifier). Also ensure proper heat dissipation and do not exceed rated maximum supply voltage. Make sure all fans are running (they could be damaged during transit).

- Mains cables are typically not included with our mains power supplies and units. Since these cables vary from country to country and we had trouble finding the exact type we decided against including them, especially since finding them is so easy and cheap locally. They can be obtained in any radio/computer/hardware shop. It is the type used in your PC for mains power.

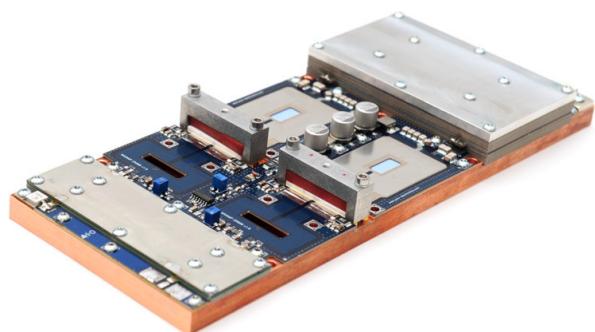
- Study local regulations and ensure you are always operating in compliance.

- Do not open the unit or attempt service yourself. Deadly mains voltage may be present inside. There are also high RF voltage points that can cause burns and discomfort if touched.

- Finally, never ever operate any transmitter or amplifier without a properly tuned antenna!

2x LDMOS BLF188XR makes it possible to create highly rugged 1800W pallets for high VSWR industrial and broadcast (analog and digital) applications. In this particular circuit two such devices are used in parallel in a wideband high-efficiency planar pallet design with two on-board combiners.

- 87,5-108MHz
- Max output power: >2000W typ @100MHz 50V
- Rated output power: 1800W typ
- Supply voltage/current: 48-50V DC,~50A max
- Input: 50 ohm, SWR 1.5:1 max
- Output: 50 ohm
- Drive power required: 5-6W
- No bias adjustment or tuning is necessary
- Dimensions(LxWxH): 255x100x30mm
- F2 Second Harmonic: -35dB typ.
- F3 Third Harmonic: -35dB typ.
- Efficiency: 79% max. @ 100Mhz FM CW.
- Power Gain: 23dB typ. ±2dB
- Operating Temperature range: 0 to +70 °C (at Device Flange)
- Storage Temperature range: -30 to +90 °C

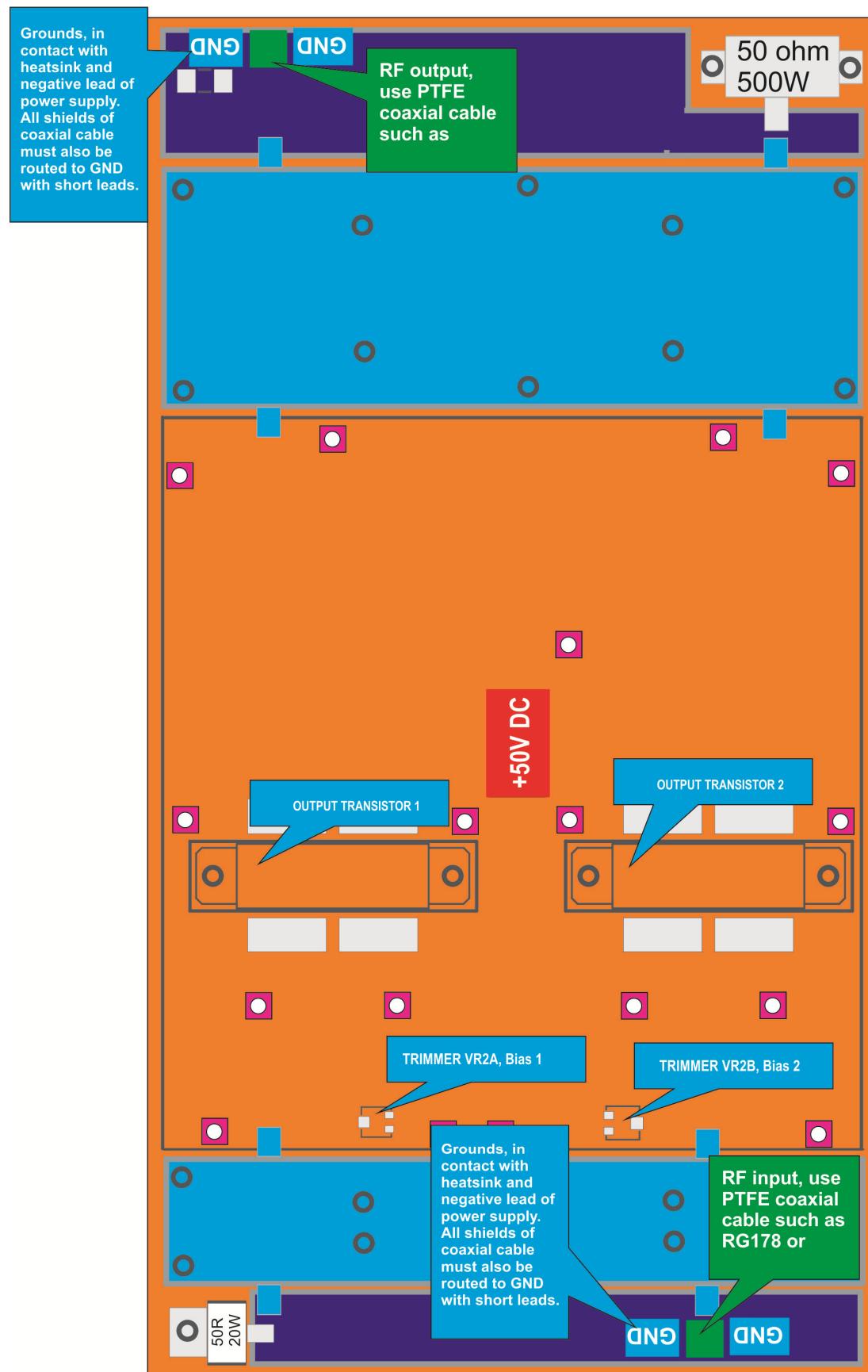


Dimensions(LxWxH): 255x100x30mm

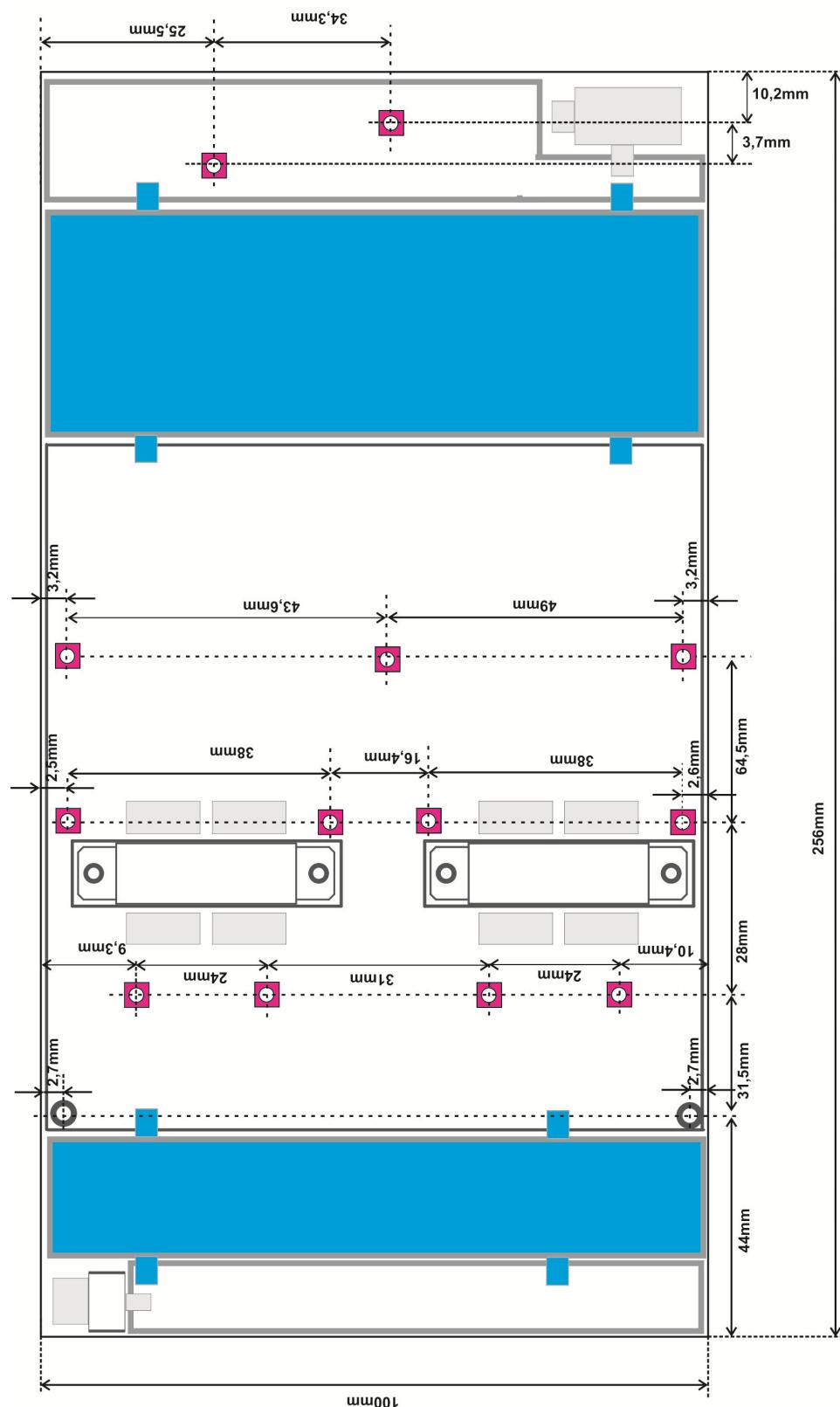
Specifications				
Parameter	Min	Typ	Max	Unit
Operating frequency range	87.5		108	MHz
Power input (*1)		4	6	W
Input return loss		>-20		dB
Power gain		23		dB
Supply voltage	32	48	50	V
Output power (*2)		1800	2200	W
Current draw		50		A
Current draw (no drive)		~125		mA
F2		-35		dB
F3		-25		dB

(*1): Always ensure maximum rated output power is not exceeded at frequency of operation! Monitor output as you increase input drive power!

(*2): Maximum output power varies from pallet to pallet and depends on frequency, supply voltage, drive power and temperature.



Board layout and connections



Dimensions

IMPORTANT:

Warning: Do not exceed maximum supply voltage of 50V or damage may occur!

- Please use teflon coaxial cable for RF input (RG178 is perfect) and output (RG142 or thicker .250 PTFE coax are perfect) connections, this makes it possible to have very short leads without burning the coax. Keep the coax leads as short as possible (few mm at most). Also keep leads short on connectors!
- A heat-sink with strong fans is definitely needed!
- Ensure shielding between pallet amplifier / final stage and power supply and exciter/control section. Install a good **feed-through capacitor** on the supply +50V wiring feeding the power output stage. This will keep and RF from the power line.
- Excessive drive level can damage this amplifier; design of equipment where the amplifier will be mounted must foresee an appropriate protection circuits. You have to monitor output to ensure that excessive drive is never applied!
- Amplifier efficiency is function of supply voltage, in order to obtain max efficiency please reduce supply in function of desired output power. Generally best compromise between efficiency and harmonic emission, is obtained when the amplifier work at about 2-3 dB of gain compression.
- RF pallets are sensitive devices, if you do not have sufficient experience please consider a fully finished product instead. They can be burned by applying too much drive power, too high supply voltage, not using proper heat-sink, using filter with excessive reflectivity or even poorly tuned coaxial filter, connecting mismatched loads or no load at all and also by soldering coax with too long leads. For this reason there is no warranty for any pallet. We do assure you that every pallet is tested and is 100% operational as it leaves our workshop.

Revisions and errata

V1.0 (Feb 2022): Release version of new manual format

Please report any errors you see in this manual, you will be helping us and many other users out there.
Thank you