

ART1K6 1000W FM PALLET AMPLIFIER (55V)

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 proof.

IMPORTANT! Before you power up an amplifier/transmitter please first make sure that the drive power is set correctly and does not exceed absolute maximum (for amplifier). Also ensure proper heat dissipation and does 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.

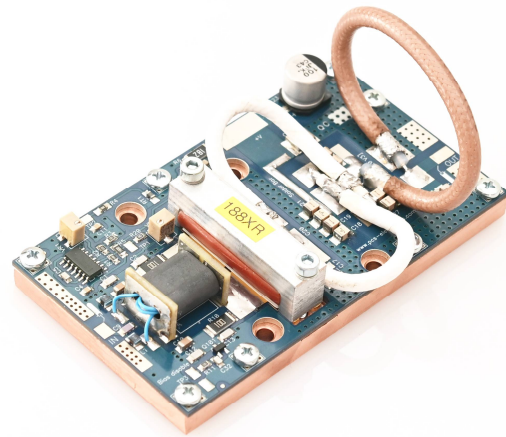
- Study local regulations and ensure you are always operating in compliance.

- 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!

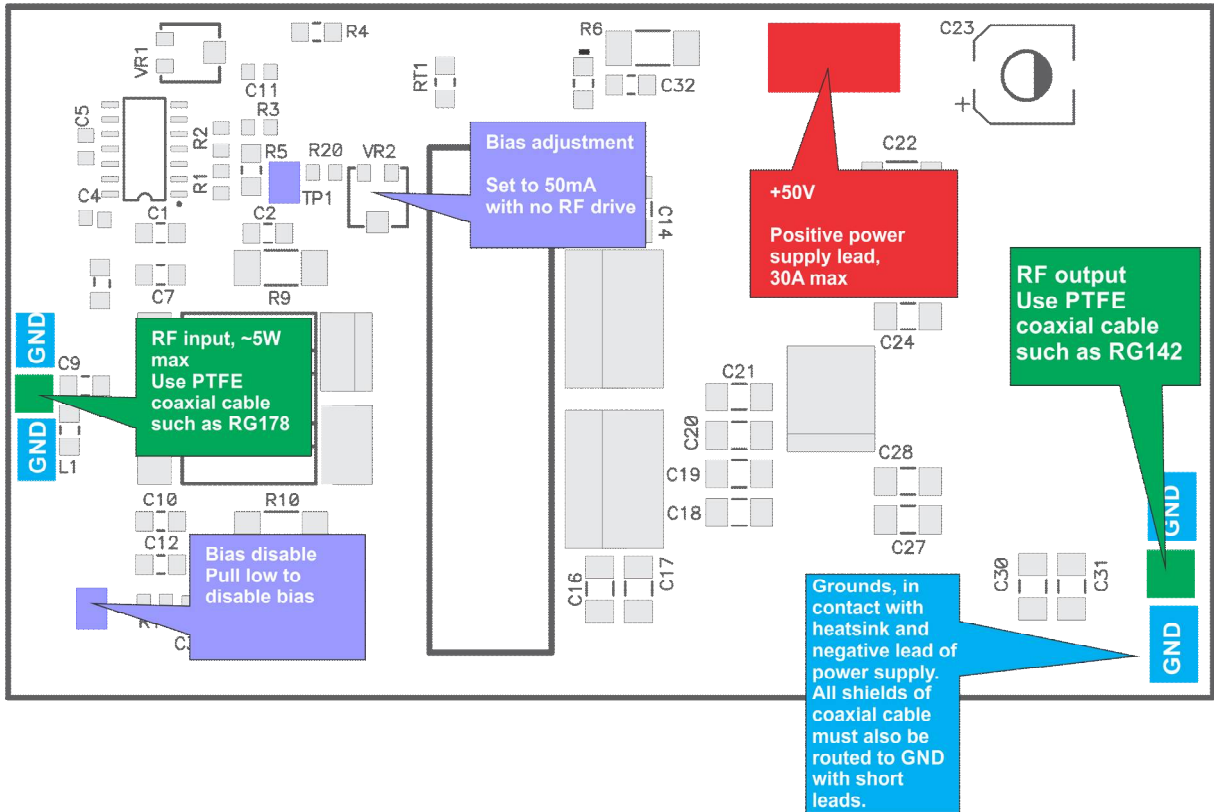
The new ART1K6 makes it possible to create highly rugged 1100W pallets for high VSWR industrial and broadcast (analog and digital) applications. In this circuit one such device is used in a wideband high-efficiency planar pallet design.

- 87,5-108MHz
- Max output power: ~1200W typ @100MHz 55V
- Rated output power: 1000W typ @ 50V
- Supply voltage/current: 30V-55V DC, ~30A max
- Input: 50 ohm, SWR < 2:1
- Output: 50 ohm
- Drive power required: 2-3W
- No bias adjustment or tuning is necessary
- Dimensions (L x W x H): 101x58x45mm (4x2,25x1,5"), standard ¼ inch base
- F2 Second Harmonic: -36dB typ.
- F3 Third Harmonic: -34dB typ.
- Efficiency: ~75% max. @ 100Mhz FM CW.
- Power Gain: ~27dB typ.
- Operating Temperature range: 0 to +70 °C (at Device Flange)
- Storage Temperature range: -30 to +90 °C

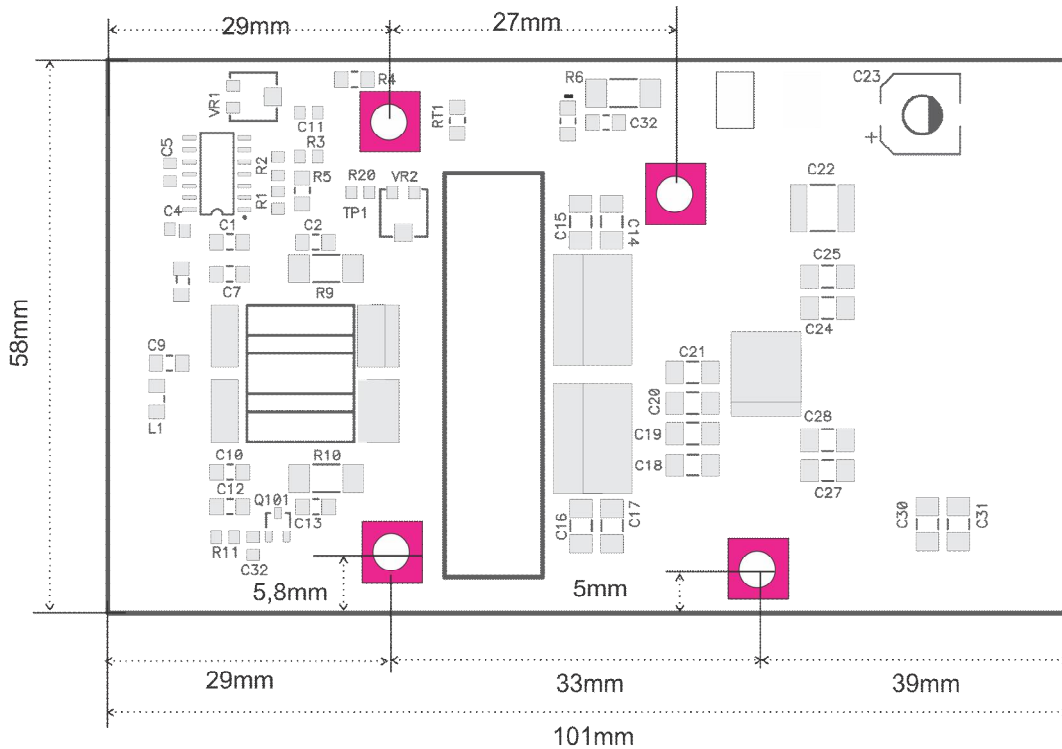


Dimensions (L x W x H): 101x58x45mm

Specifications				
Parameter	Min	Typ.	Max	Unit
Operating frequency range	87.5		108	MHz
Power input	2	2,5	3	W
Input return loss		>-20		dB
Power gain		27		dB
Supply voltage	30	50	55	V
Output power		1000		W
Current draw		27		A
Current draw (no drive)		~50		mA
F2		-36		dB
F3		-34		dB



Board layout and connections



Dimensions

IMPORTANT:

Warning: Do not exceed maximum supply voltage of 50V or damage will 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 heatsink with strong fans is needed!

– Ensure shielding between final stage and audio stage with exciter. Install a good [feed-through capacitor](#) on the supply +55V wiring feeding the power output stage. This will keep 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 circuit.

– Amplifier efficiency is function of supply voltage, 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 heatsink, using filter with insufficient specifications, connecting mismatched loads or no load at all and 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

V1.1 (Nov 2023): New photo, fixed some errors, fixed drill template and hookup diagram.

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.

Made in EU by PCS elektronik d.o.o.
<https://www.pcs-electronics.com>
email: radio@pcs-electronics.com
Model: BLF188XR 1000W FM PALLET AMPLIFIER

Made in EU by PCS elektronik d.o.o.
<https://www.pcs-electronics.com>
email: radio@pcs-electronics.com
Model: HIGH GAIN 25W FM PALLET AMPLIFIER
