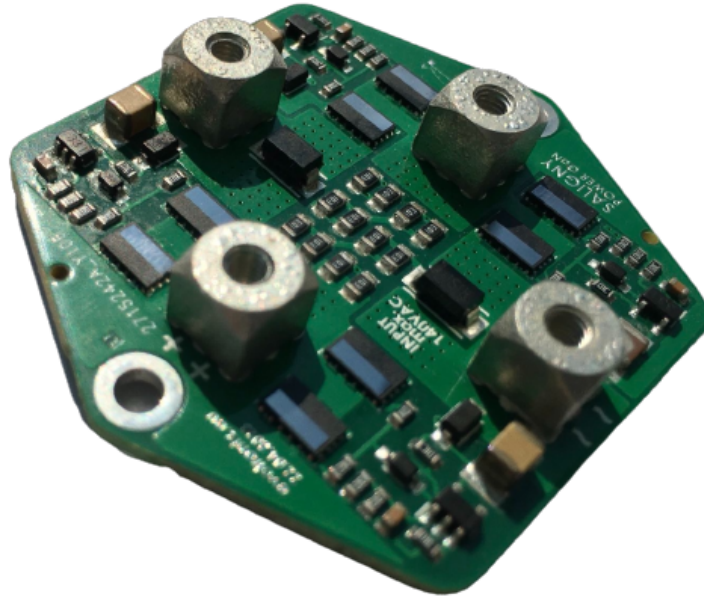


# Saligny® Power GaN



**September 7th, 2023**

Design by: eng. Tiberiu Vicol  
PCB by: Catalin Nica

## DESCRIPTION

Saligny Power GaN is an active bridge rectifier employing the latest MOSFET technology Gallium Nitride (GaN), targeting laboratory, computer and server state of the art power supply. Saligny Power GaN replaces the four diodes in a full-wave bridge rectifier with a mili-ohm  $R_{dson}$  GaN MOSFET, to drastically reduce power dissipation, heat generation, voltage loss and diode on/off switching noise. There is no P-N junction involved, only a low mili-ohm conductive channel is inserted in the power path. This allows big current capability, better power management, less power loss, less dynamic impedance change versus load current and better circuit performance than any available rectifier solution.

For more information see <https://evotronix.eu/>

While a normal diode has at least 600mV drop at 1A, a low R<sub>dson</sub> MOSFET will have as little as 3mV, or less, at the same 1A. This is 200 times better than a PN diode and at least 100 times better than a Schottky diode.

## APPLICATIONS

- Laboratory power supply
- Computer/server state of the art power supply
- Ultra low noise power supply
- High-end audio
- Polarity-agnostic input devices
- High current diode bridge replacement
- Green products

## FEATURES

- Smaller solution size – Saligny Power GaN offer small footprint/watt
- Maximizes power efficiency
- Maximizes available voltage and current
- Eliminate power thermal design problems
- Up to 50A no need for a heatsink
- Zero switching noise
- No secondary ringing in the transformer like PN or Schottky diodes

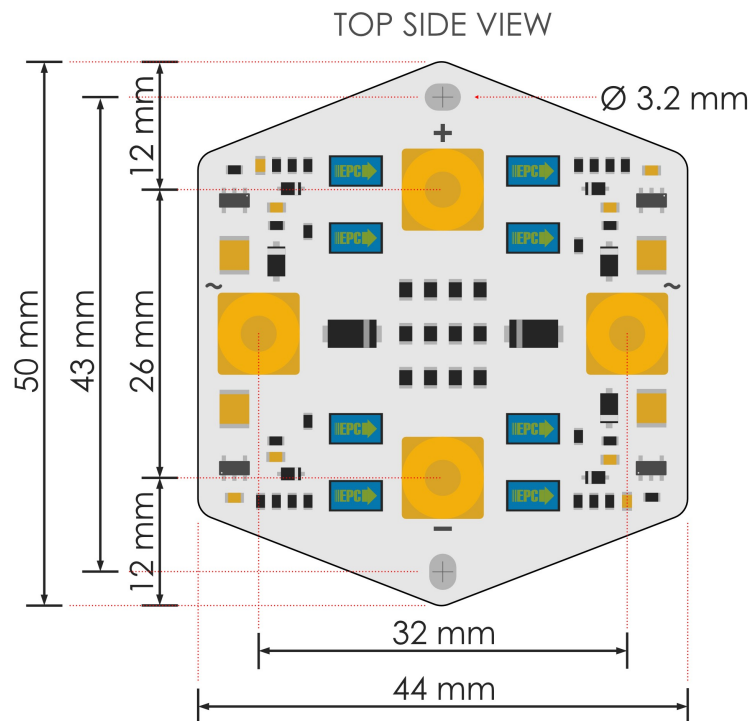
## SPECIFICATIONS

- Operates from DC to 1000Hz
- AC operating voltage: from 4 Vac to 140 Vac
- DC operating voltage: from 5 Vdc to 200 Vdc
- Low quiescent current = 10 mA
- Continuous load current up to 50A without ventilation
- Over 400A pulsed current at Ta = 25 Celsius (Max R<sub>θjc</sub> = 1.0C/W, pulse duration ≤100 μs, duty cycle ≤1%)

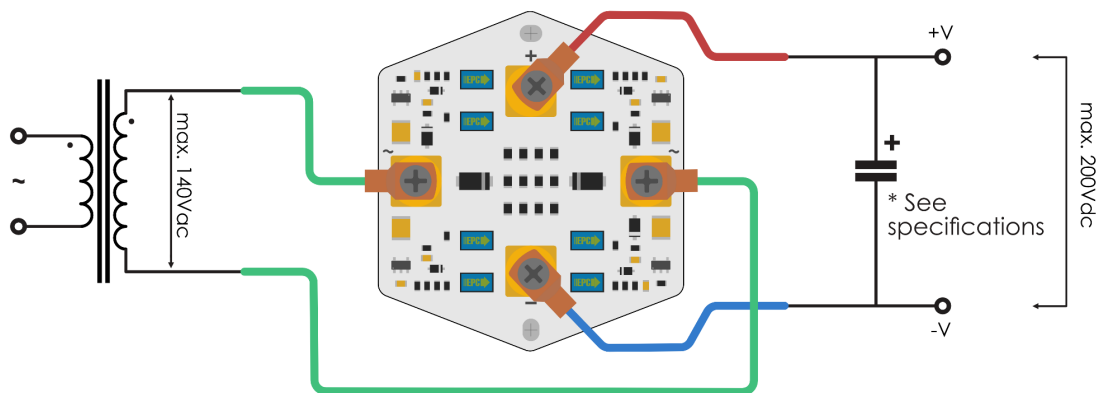
For more information see <https://evotronix.eu/>

- Require a minimum 2000uf output capacitor. For every 1A load, add at least 2000uF. E.g At 20A load a minimum 40.000uF is recommended
- Support center tapped transformer

## DIMENSIONS



## CONNECTIONS

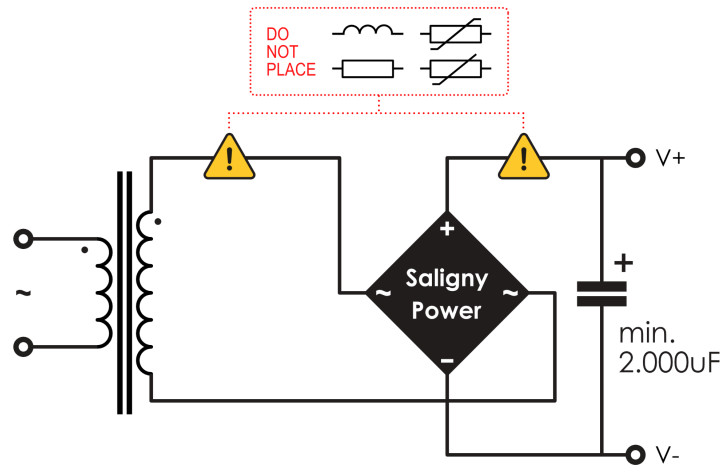


For more information see <https://evotronix.eu/>

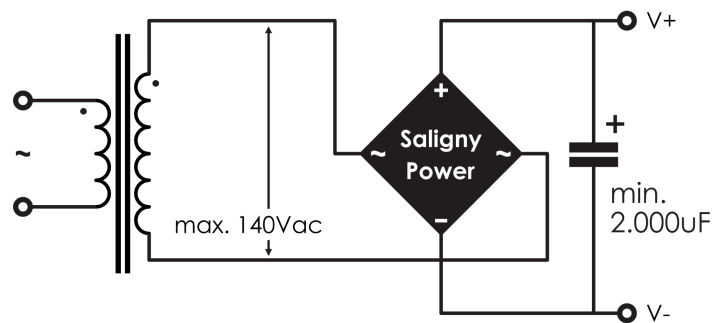
# IMPLEMENTATION



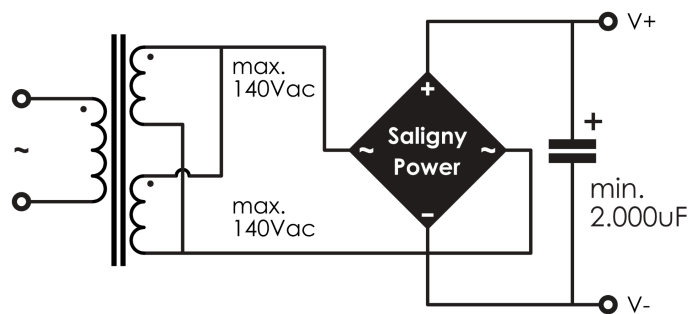
**Important notice:** Do not place any inductor, resistor, varistor or thermistor before or after Saligny Bridge! This will affect the performance of Saligny Bridge.



**Variant A** - full wave single secondary rectification.

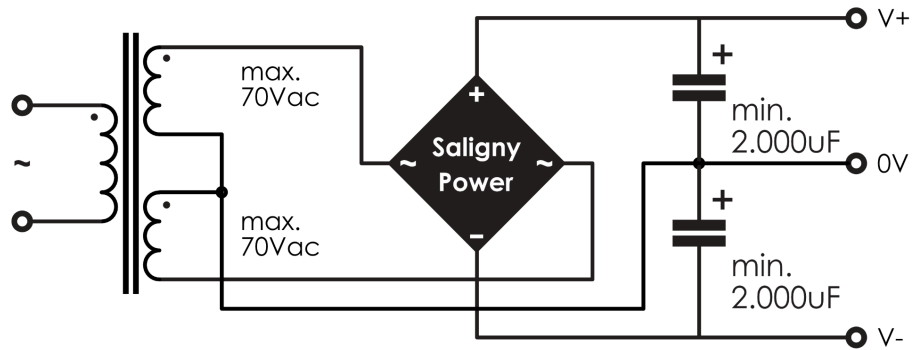


**Variant B** - full wave dual identical secondaries in parallel.

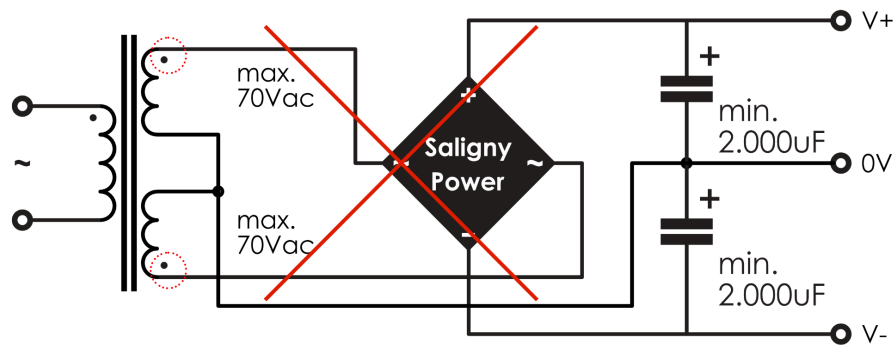


For more information see <https://evotronix.eu/>

### Variant C - center tapped full wave rectification, for differential power supply



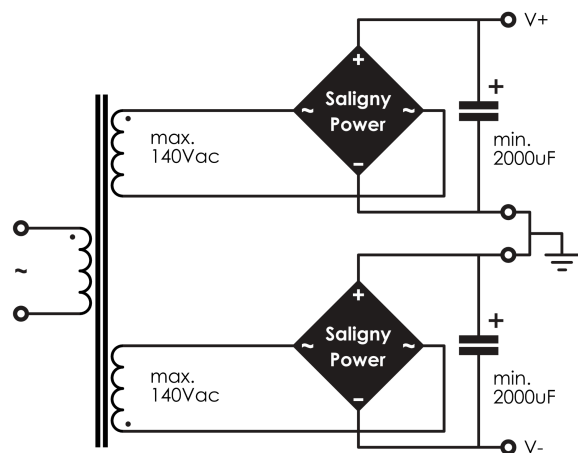
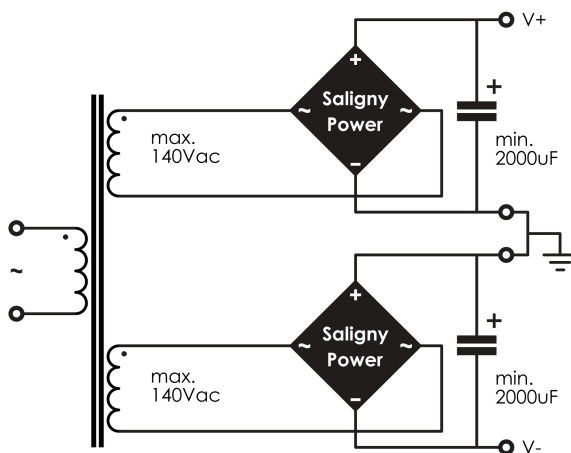
**Important notice:** Not recommended a center tapped transformer with secondaries in anti-phase



### Variant D - Full wave rectification, for differential power supply, with two secondaries.

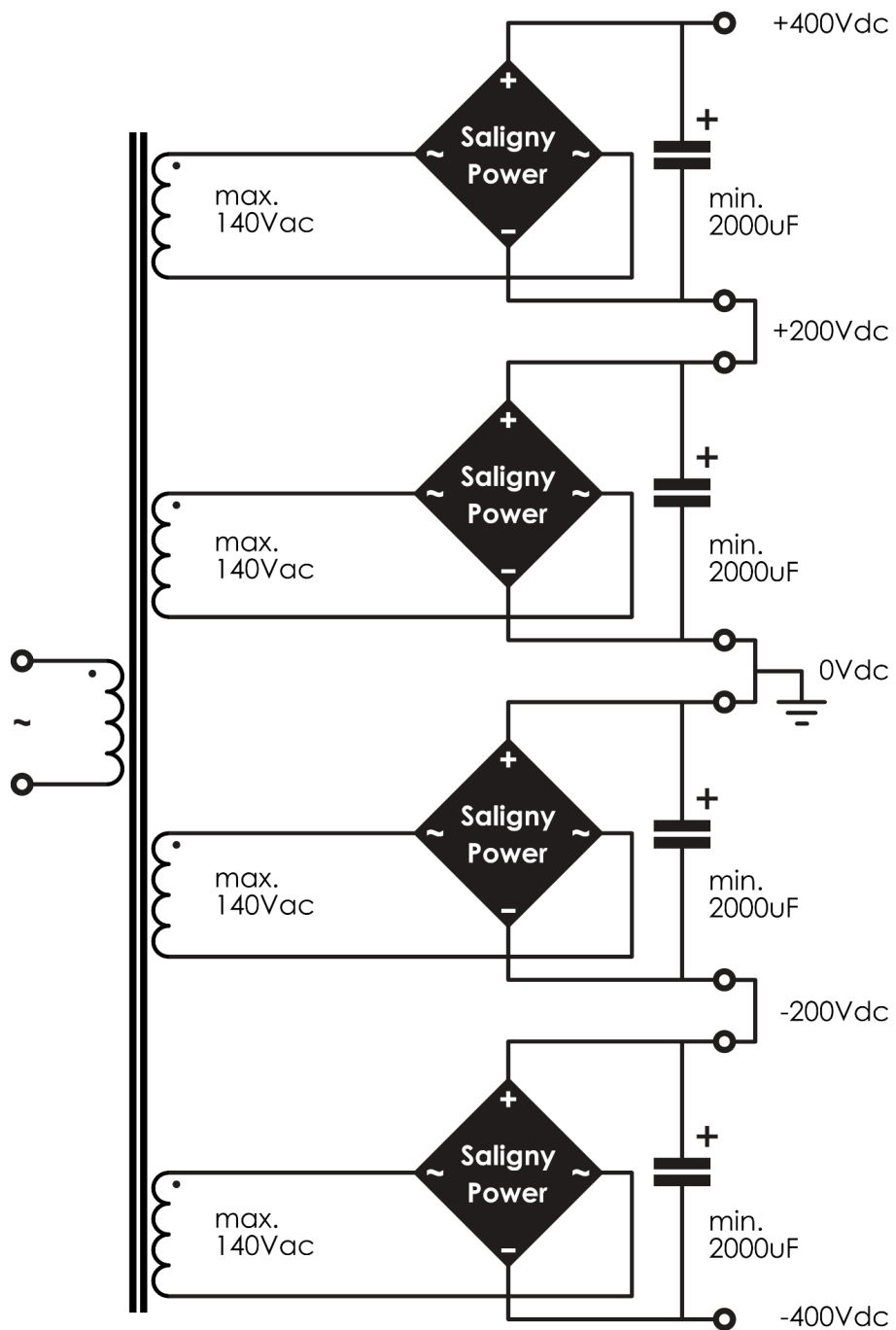
1. secondaries are in phase

2. secondaries are in anti-phase



For more information see <https://evotronix.eu/>

**Variant E** - High power differential supply with 4 secondaries for high voltage & high current applications



For more information see <https://evotronix.eu/>

## EXTERNAL RESOURCES

- [Active rectification on Wikipedia](#)
- [Synchronous rectification in high-power converter design by TI](#)

## SALES INFORMATION

Evotronix SRL, Romania  
Ana Ipătescu nr. 71, Ploiești, 100337  
[office@evotronix.eu](mailto:office@evotronix.eu) [info@evotronix.eu](mailto:info@evotronix.eu)  
+407 5 230 3791

EU VAT: RO40877103  
CIF: J29/1396/2019

## DOCUMENT HISTORY

Document version	Date	Description
1.0	2023-09-07	Initial release
1.1	2023-09-19	Revised drawings errors
1.2	2023-10-08	Added some board dimensions

For more information see <https://evotronix.eu/>