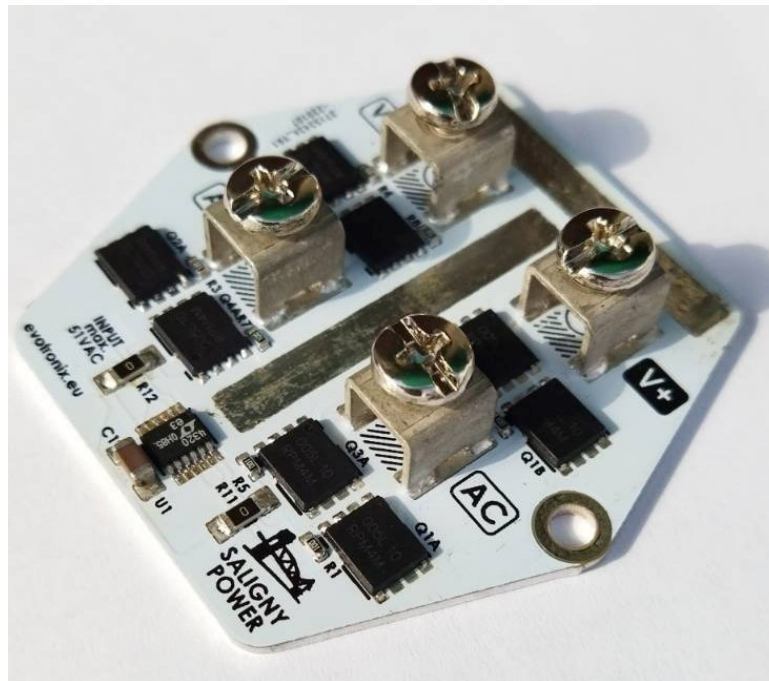


Saligny Power



February 21, 2022

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

DESCRIPTION

Saligny Power is an active bridge rectifier employing modern MOSFETs targeting computer and server state of the art power supply. Saligny Power replaces the four diodes in a full-wave bridge rectifier with a mili-ohm $R_{ds(on)}$ 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 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.

While a normal diode has at least 600mV drop at 1A, a low $R_{ds(on)}$ 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.

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

APPLICATIONS

- 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

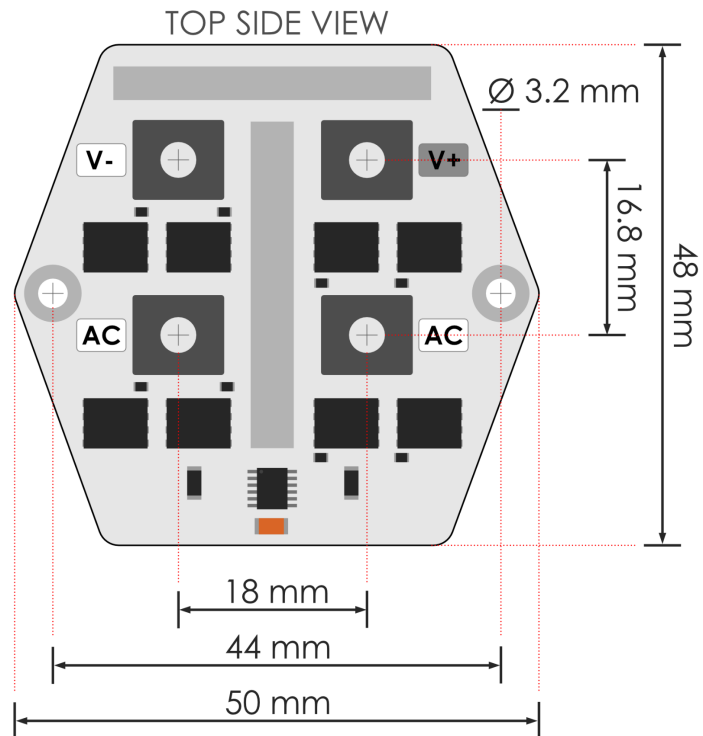
- Smaller solution size – Saligny Power offer small footprint/watt
- Maximizes power efficiency
- Maximizes available voltage and current
- Eliminate power thermal design problems
- Up to 25A no need for a heatsink
- Zero switching noise
- No secondary ringing in the transformer like PN or Schottky diodes
- If power source fails or is shorted a fast turn-off minimizes reverse current transients

SPECIFICATIONS

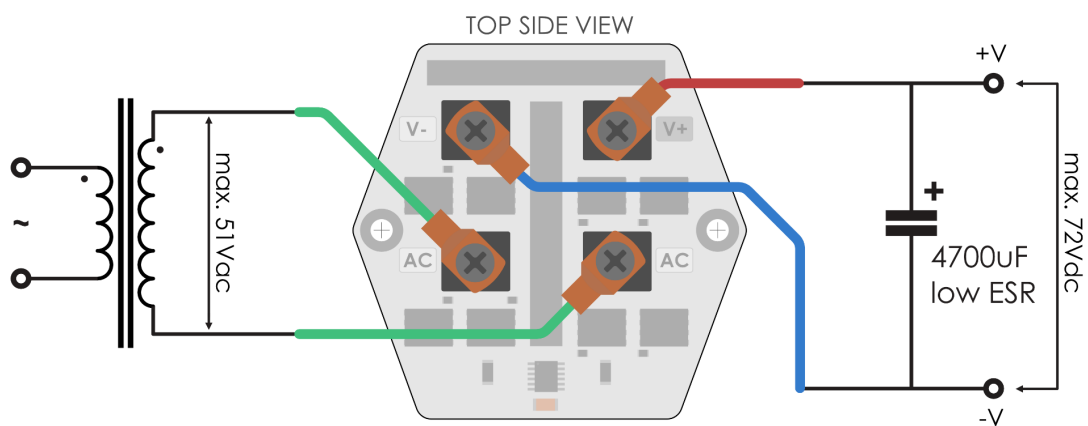
- Operates from DC to 100Hz
- AC operating voltage: from 8 Vac to 51 Vac
- DC operating voltage: from 10 Vdc to 72 Vdc
- Low quiescent current = 1,5mA
- Continuous load current up to 60A
- Over 300A pulsed current at $T_a = 25^{\circ}\text{C}$ (Max $R_{\theta jc} = 1.0^{\circ}\text{C/W}$, pulse duration $\leq 100 \mu\text{s}$, duty cycle $\leq 1\%$)
- For 20A require a minimum output capacitor of 4700uF
- Do not support center tapped transformer

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

DIMENSIONS



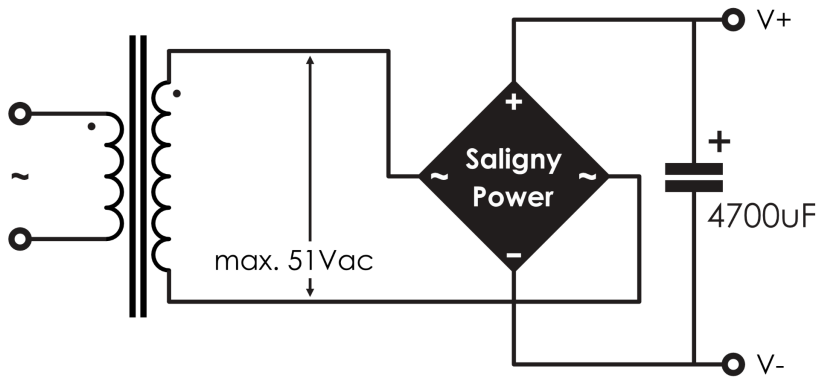
CONNECTIONS



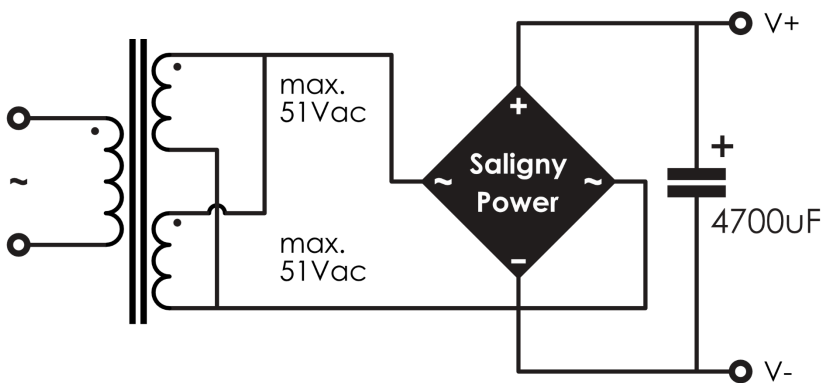
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IMPLEMENTATION

Variant A - full wave single secondary rectification.



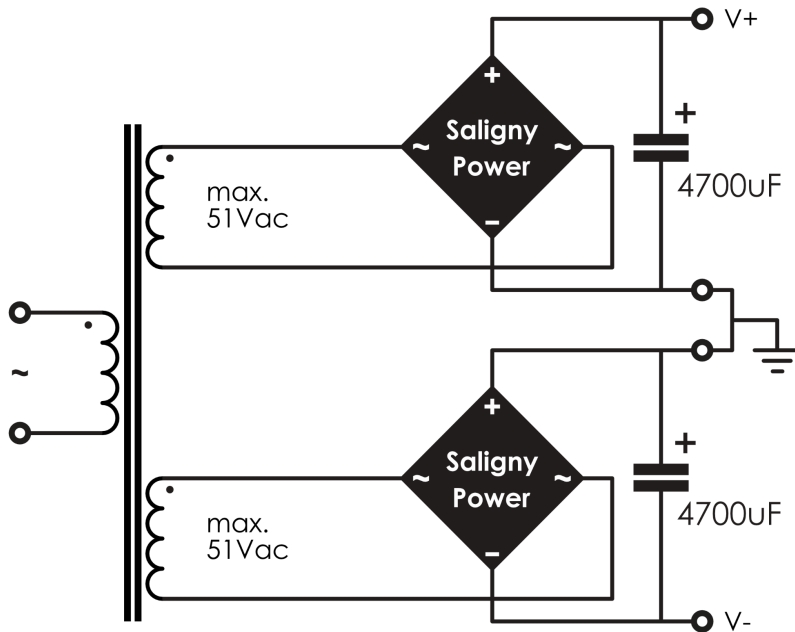
Variant B - full wave dual identical secondaries in parallel.



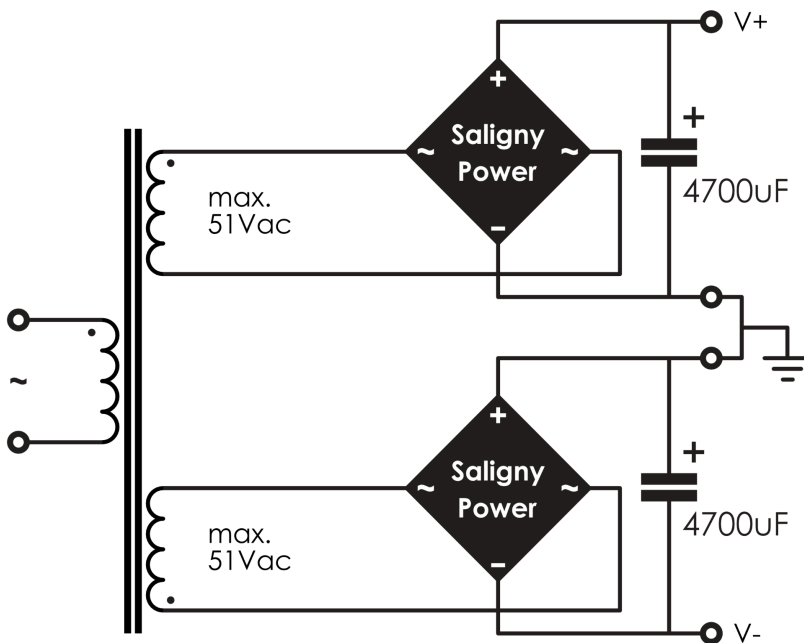
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Variant C - Full wave rectification, for differential power supply, with two secondaries.

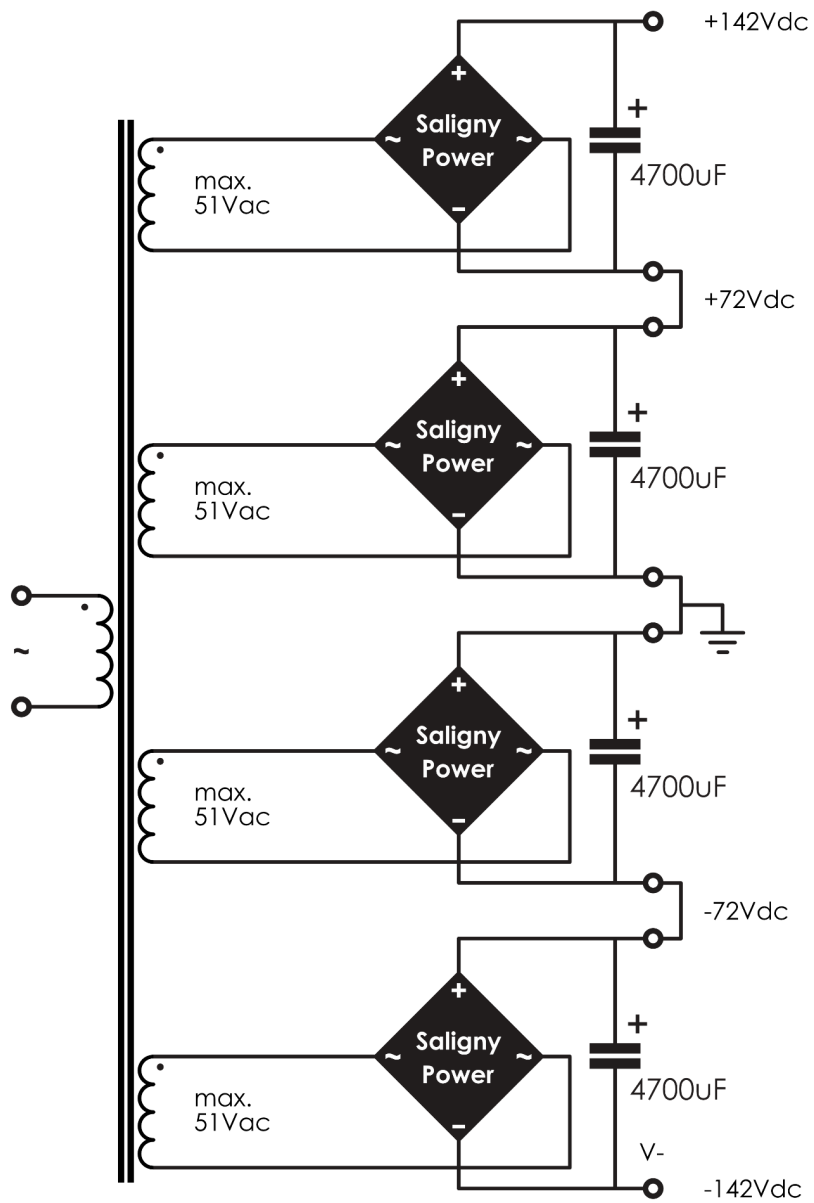
1. secondaries are in phase



2. secondaries are in anti-phase



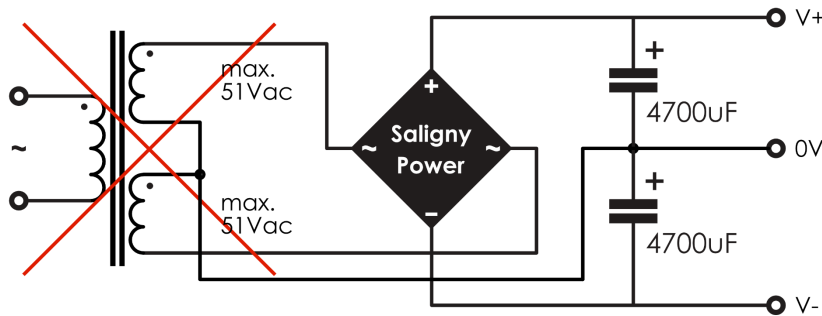
For more information see <https://evotronix.eu/>

Variant D - Symmetric power supply with 4 secondaries for high voltage differential

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

NOT SUPPORTED

Center tapped full wave rectification, for differential power supply, is not supported.
Please refer to **Saligny HVHF** for such implementation.



EXTERNAL RESOURCES

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

SALES INFORMATION

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DOCUMENT HISTORY

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1.0	2022-02-21	Initial release

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