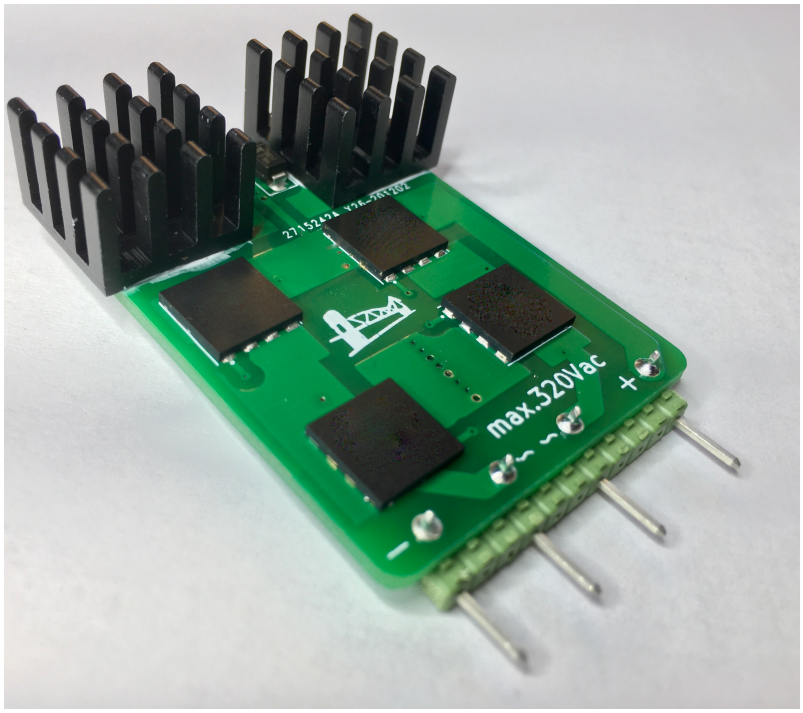



# Saligny HVHF (High Voltage High Frequency)

Design by: eng. Tiberiu Vicol
Ver.1.1 - 05 May 2021

## DESCRIPTION

Saligny HVHF is a diode-less bridge rectifier employing modern MOSFET's. The result is an active bridge that replaces the four diodes in a full-wave bridge rectifier with mili-ohm Rdson MOSFET's, 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 get inserted in power path. This allow 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 have at least 600mV drop at 1A, a low Rdson MOSFET will have as little as 3mV, or less, at same 1A. This is 200 times better than a PN diode and at least 100 times better than any Schottky diode.

## Applications

- Ultra low noise power supply
- High-end audio
- High-voltage rectification in valve amplification
- SMPS input and output rectification
- Diode bridge replacement

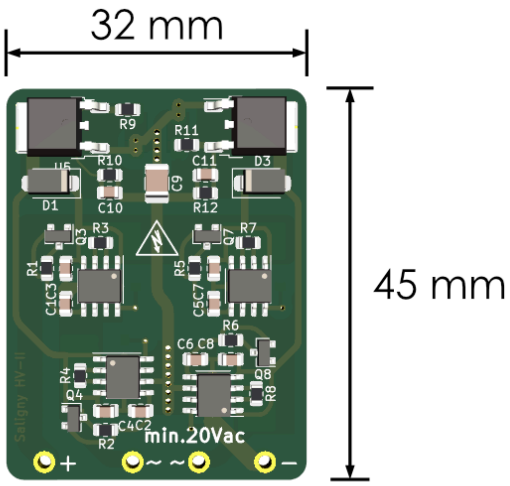
## FEATURES

- Smaller solution size 45mm x 32mm
- Pin compatible with standard diode rectifier (type: KBK, GBJ)
- Better performance than any tube rectifier
- Maximises power efficiency.
- Maximises available voltage and current.
- Eliminate power thermal design problems.
- No heatsink needed.
- Zero switching noise.
- Lower secondary ringing in the transformer secondary.

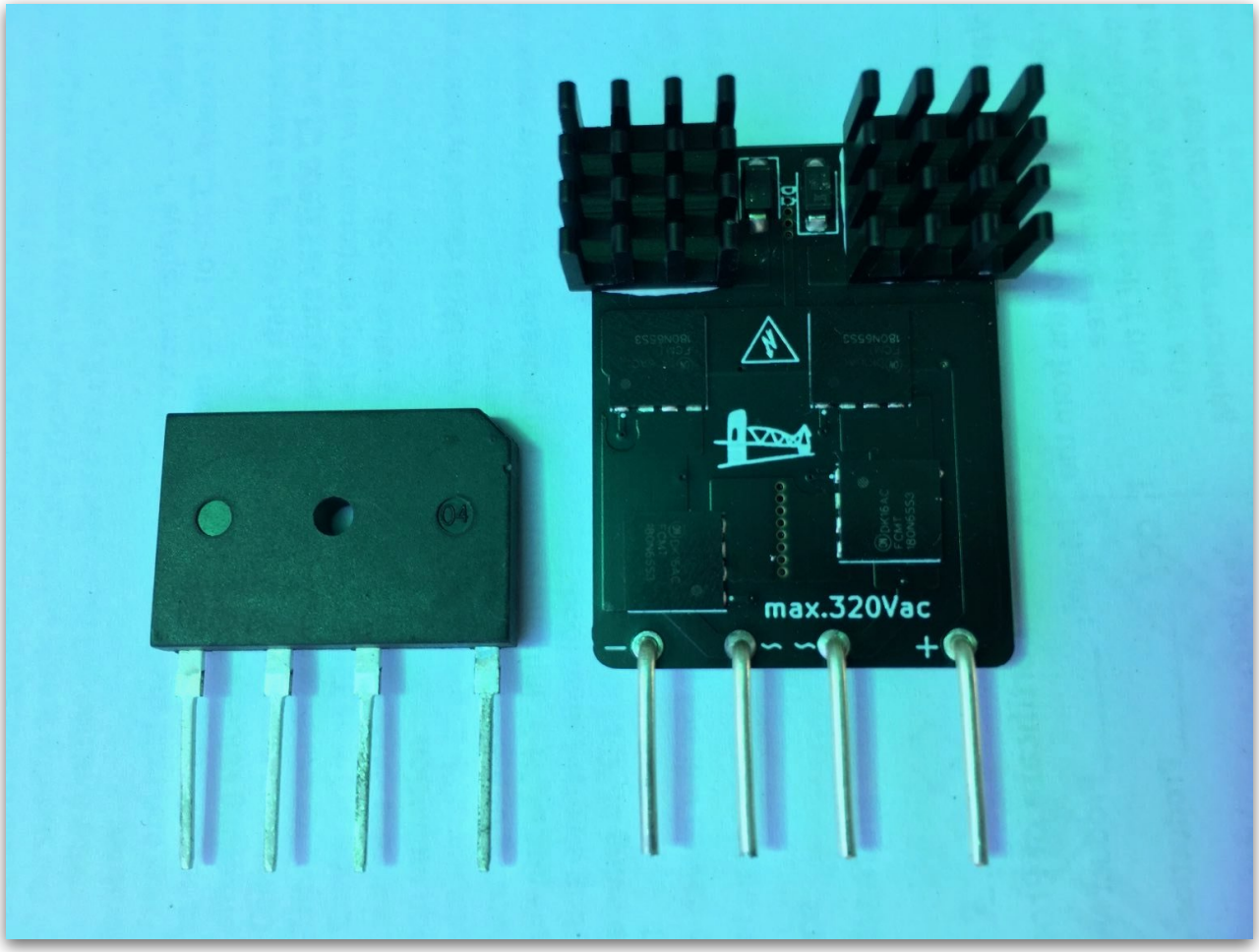
## SPECIFICATIONS:

- Operates from DC to 400KHz
- AC operating voltage 20Vac to 320Vac.
- DC operating voltage 24Vdc to 450Vdc.
- Iq = 20mA.
- Continuous load current up to 4A.
- Over 25A pulsed current at Ta = 25Celsius
- Best for SMPS input
- Optimised for high voltage operation
- Require a minimum output capacitor of 47uF
- Support centre tapped transformer.

## DIMENSIONS:

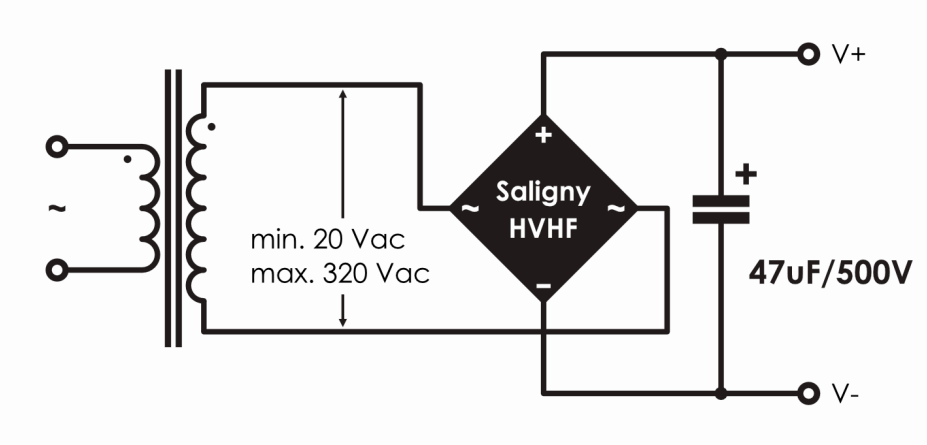



Pin size is 1,5mm in diameter.
SALIGNY HVHF MKII can directly replace a standard KBK diode bridge.

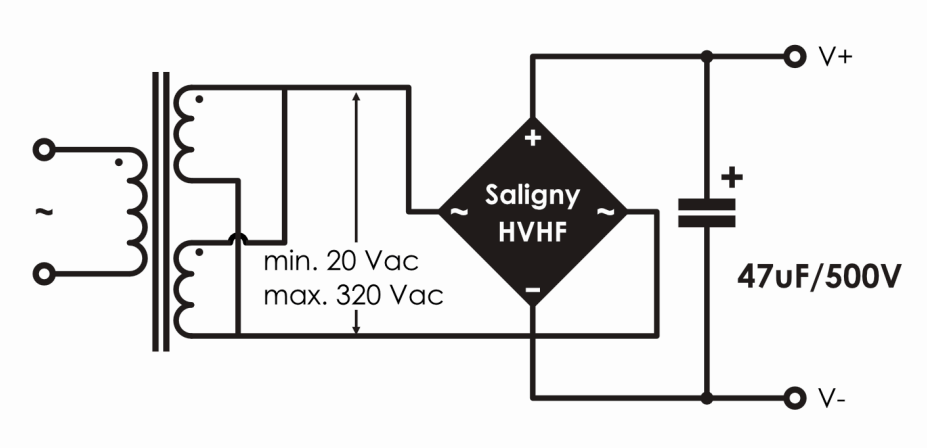


## IMPLEMENTATION:

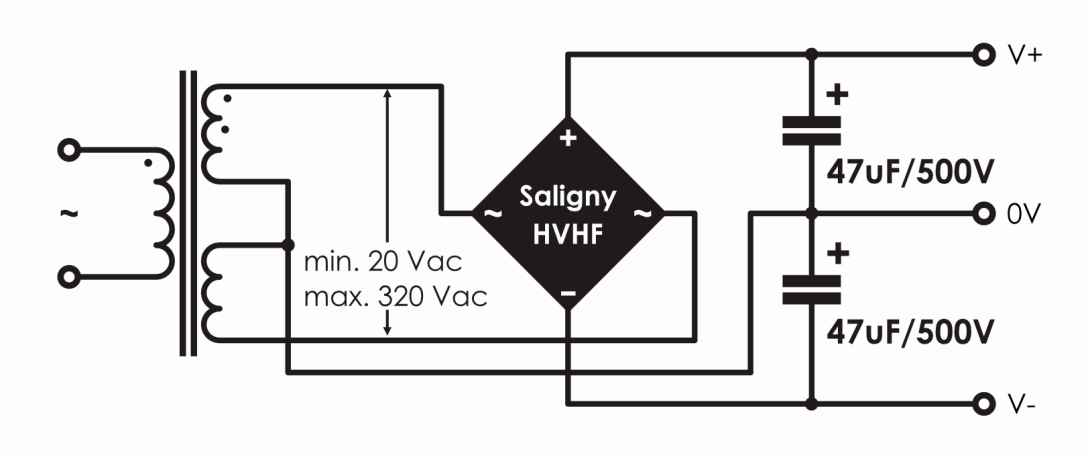
- Variant a) - Full wave single secondary rectification.



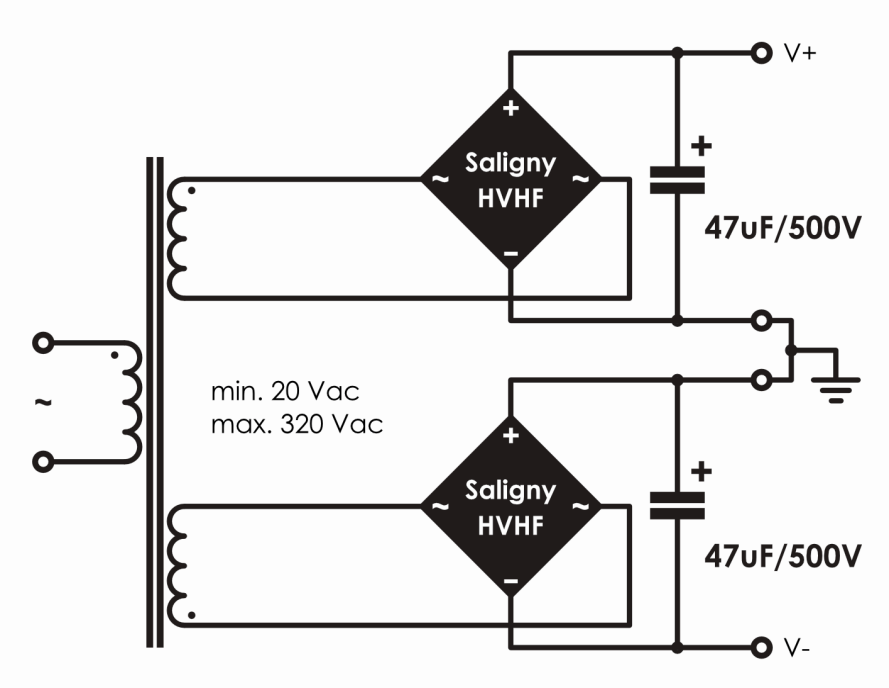

- Variant b) - Full wave with dual identical secondaries in parallel.

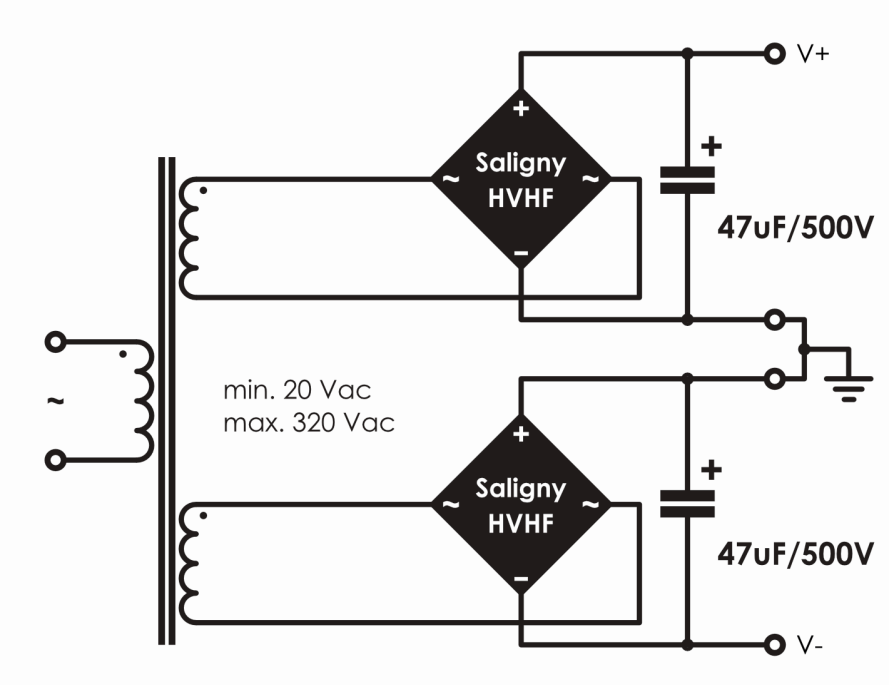



- Variant c) - Centre tapped full wave rectification, for differential power supply, is SUPPORTED by Saligny HVHF.



- Variant d) - Full wave rectification, for differential power supply, with two secondaries. Top image: secondaries are in phase, bottom image: secondaries arein anti-phase.



## EXTERNAL LINKS:

- Active rectification on wikipedia
- Synchronous rectification in high-power converter design by TI

Versioning

1.0 - document initial release

1.1 - added picture KBK vs HVHF