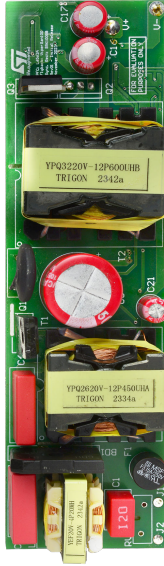


## Reference design 12.7 V/100 W flyback converter based on VIPERGAN100 for chargers and industrial applications



Fully assembled board developed for performance evaluation only, [not available for sale](#)

### Features

- Offline quasi-resonant flyback converter with dynamic blanking time feature and valley synchronization function
- Reduction of the switching losses
- Maximization of the overall efficiency at any input line and load conditions
- Current-mode PFC controller operating in transition mode
- Adaptive synchronous rectification controller to increase the system efficiency
- Input voltage: from 90 to 265 Vac with 47 to 63 Hz
- Output power: 100 W nominal, limited to <110 W
- Peak efficiency: >91% at max load and 230 V ac
- Power factor value: > 0.96 over the wide input voltage range and at maximum load
- Board dimensions: 39.5 x 142.24 mm
- PCB copper thickness: 2oz

### Description

The **STDES-VPGAN100F** is an isolated 100 W quasi-resonant SMPS based on **VIPERGAN100**.

This controller is a high voltage converter designed for medium power flyback converters. It can provide an output power up to 100 W in the European range or with a PFC in the front-end.

The device offers protection features that considerably increase the end-product's safety and reliability: output voltage protection, overtemperature protection (OTP), overload protection (OLP), brown-in/out protection. All these protections are in auto restart mode.

A PFC based on **L6562A** reduces the AC input current distortion in a wide-range-mains operation with extremely low THD.

Synchronous rectification based on the **SRK1000B** at secondary side is used to increase the system efficiency.

The secondary side uses an **LM2904D** operational amplifier to regulate the output voltage and to limit the maximum output current.

The **STDES-VPGAN100F** helps designers to develop adapters with a short bill of materials to obtain a cost-effective solution and a fast time to market design.

Product summary	
12.7V/100W flyback converter based on VIPERGAN100 for chargers and industrial applications	<b>STDES-VPGAN100F</b>
Advanced quasi-resonant offline high voltage converter with E-mode GaN HEMT	<b>VIPERGAN100TR</b>
Transition-mode PFC controller BCD technology	<b>L6562AD</b>
Adaptive synchronous rectification controller for flyback converter	<b>SRK1000BTR</b>
Applications	<b>AC-DC Converters</b>

# 1 Schematic diagrams

Figure 1. STDES-VPGAN100F circuit schematic (1 of 2)

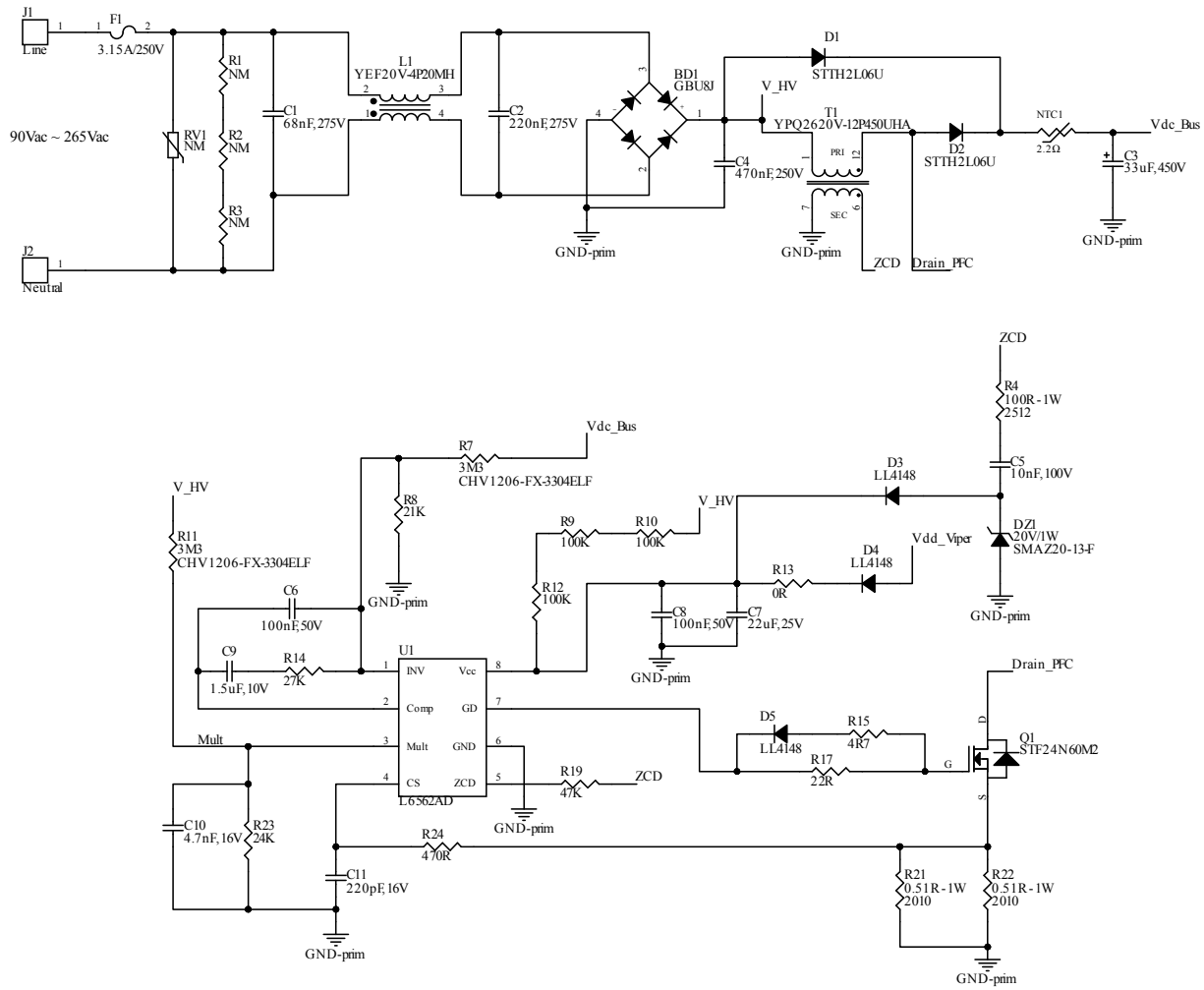
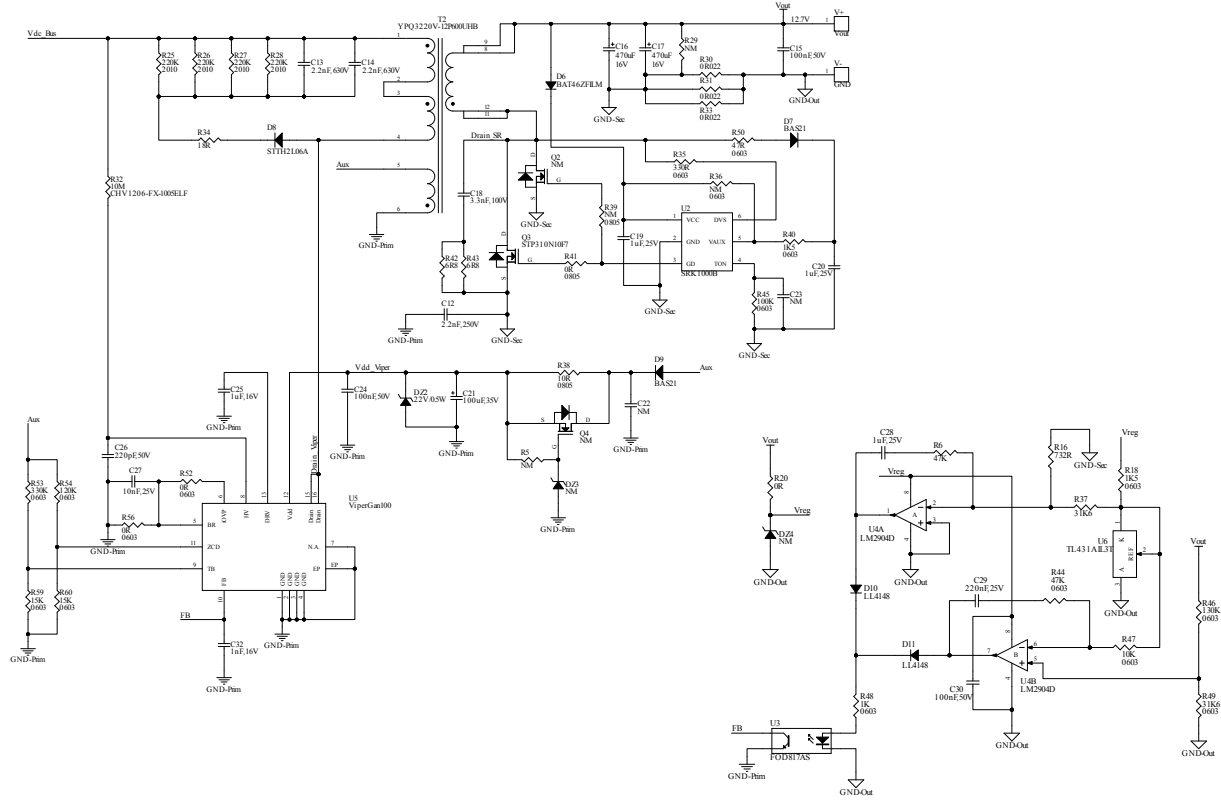


Figure 2. STDES-VPGAN100F circuit schematic (2 of 2)



## Revision history

**Table 1. Document revision history**

Date	Revision	Changes
03-Oct-2024	1	Initial release.
17-Oct-2024	2	Added disclaimer to cover image. Updated product summary.

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