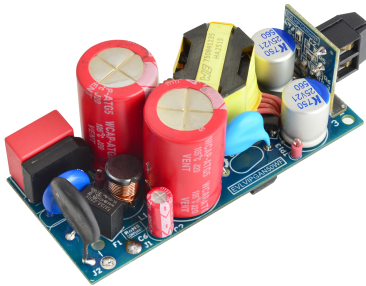


15 V / 50 W QR flyback converter based on VIPERGAN50W



Features

- Universal input mains range: 90 – 265 V_{AC}
- Frequency: 50-60 Hz
- Output voltage: 15 V
- Output current: 3.35 A
- Stand-by mains consumption: < 85 mW at 230 V_{AC}
- Average efficiency: > 90%
- Tight line and load regulation over the entire input and output range
- Meets IEC55022 Class B conducted EMI even with reduced EMI filter, thanks to the frequency jittering feature
- RoHS compliant

Applications

- High-efficiency auxiliary power supply for appliances, industrial, and consumers



Product status link

[EVLVIPGAN50WF](#)

Product label



Description

The **EVLVIPGAN50WF** evaluation board implements a 15 V / 50 W SSR isolated flyback converter developed for general-purpose applications, operating from 90 to 265 V_{AC}.

The reference design is built around the **VIPERGAN50W**, a new advanced offline high-voltage converter by STMicroelectronics with the following features:

- 700 V PowerGaN with embedded senseFET (Si) and HV startup;
- QR operation with dynamic blanking time and adjustable valley synchronization delay functions, to maximize efficiency at any input line and load conditions;
- Valley-lock to ensure constant valley skipping;
- Input voltage feedforward compensation for mains-independent OPP intervention;
- Adaptive burst mode for advanced power management in light load conditions;
- Frequency jittering for EMI suppression.

Enhanced system reliability is ensured by the built-in soft-start function and by the following set of protections:

- Input OVP (settable);
- Brown-in and brown-out (settable);
- Output OVP (settable);
- Output overload;
- OCP LEB;
- Embedded thermal shutdown.

The **EVLVIPGAN50WF** is composed of a main board and a daughter board, with schematics shown in [Figure 1](#) and [Figure 2](#) respectively.

The main board contains a diode bridge for double wave rectification, an input pi filter for EMI, a flyback transformer, the **VIPERGAN50W** and all the related components needed for polarization and feature setting on the primary side. On the secondary side, it contains the output capacitors and the output rectifier, realized by a Power MOSFET driven by a synchronous rectifier for efficiency optimization.

1 Schematic diagram

Figure 1. EVLVIPGAN50WF schematic (main board)

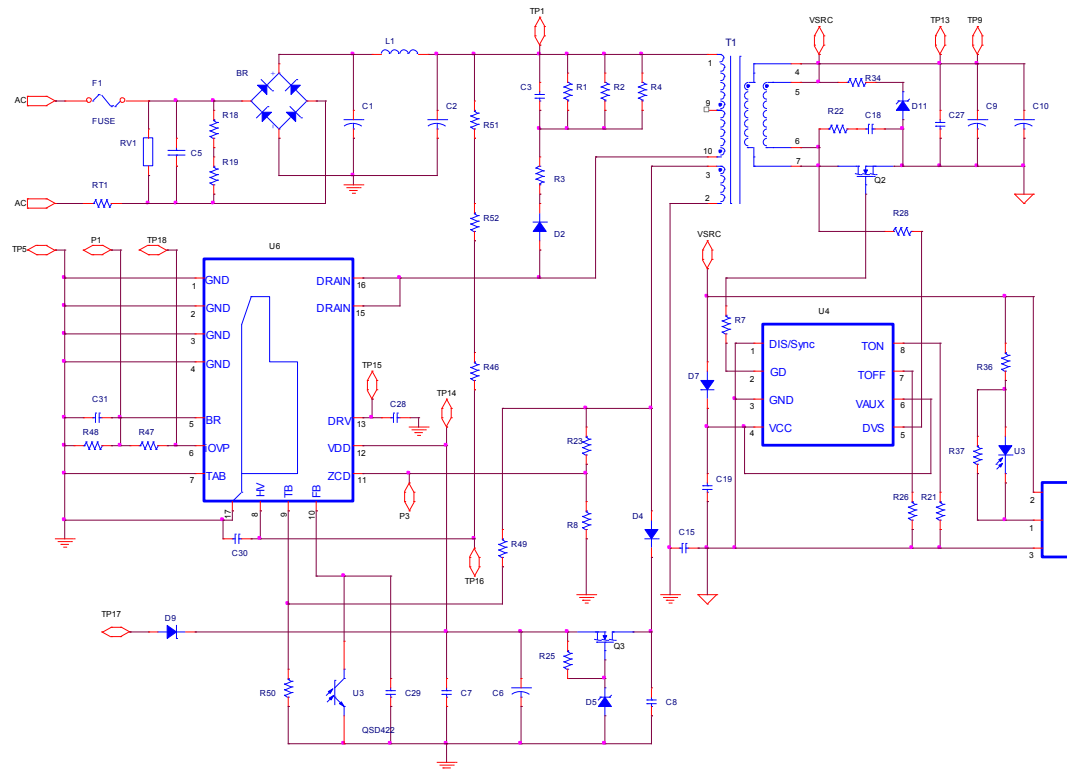
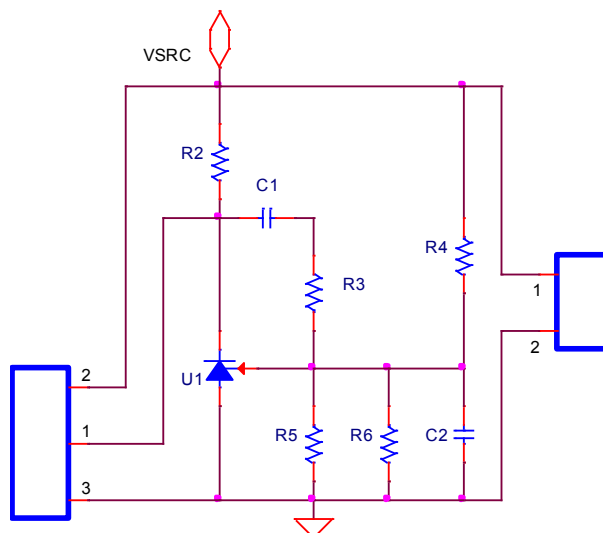


Figure 2. EVLVIPGAN50WF schematic (daughter board)



Revision history

Table 1. Document revision history

Date	Version	Changes
22-Sep-2025	1	Initial release.



Contents

1	Schematic diagram	2
	Revision history	3
	List of tables	5
	List of figures.....	6



List of tables

Table 1.	Document revision history	3
----------	-------------------------------------	---



List of figures

Figure 1.	EVLVIPGAN50WF schematic (main board)	2
Figure 2.	EVLVIPGAN50WF schematic (daughter board).	2

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