

VIPERGAN50

Innovative PWM controller with 650V GaN HEMT for chargers and power supplies



Advanced, quasi-resonant, high-voltage converter with E-mode GaN HEMT

The VIPERGAN50 high-voltage converter embeds an advanced PWM controller and high-efficiency 650V GaN power transistor in a small QFN 5x6mm package. It offers excellent design opportunities for compact and light fast chargers, adapters, and power supplies up to 50W from a wide input range. The converter is optimized for flyback topology in major home appliance, home & building automation, and air conditioning applications.

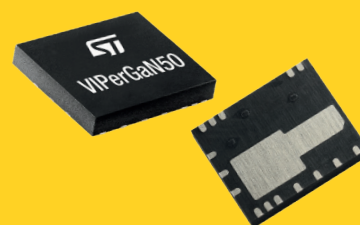
KEY FEATURES & BENEFITS

- Quasi-resonant (QR) flyback controller
- 650V E-mode power GaN transistor (850V transient voltage)
- Minimal standby power consumptions
- Embedded sense FET
- Dynamic blanking time and adjustable valley synchronization delay
- Output OVP protection
- Input voltage feedforward compensation for mains independent OPP variation
- Brown-in and brown-out
- Input OVP protection

- Embedded thermal shutdown
- Frequency jitter for EMI suppression

KEY APPLICATIONS

- USB-PD fast chargers
- Adapters
- Home appliances
- Air conditioning
- Consumer devices
- Industrial applications

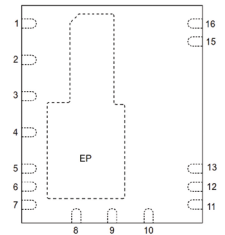


Device description

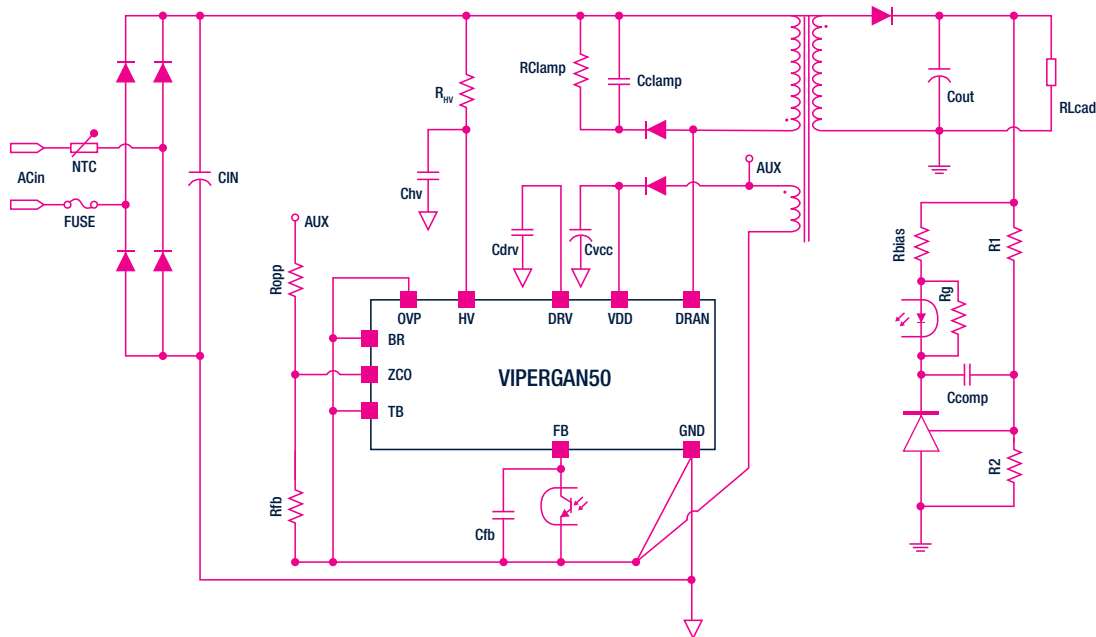
The VIPERGAN50 high-voltage converter is designed for flyback topologies and embeds a PWM controller and 650V GaN power transistor (850V max. transient voltage). It supports a flyback configuration with secondary-side regulation (SSR) using a standard optocoupler. The converter implements quasi-resonant operation with dynamic blanking time and a valley synchronization function to reduce switching losses and maximize overall efficiency across all input line and load conditions.

This highly functional VIPERGAN50 in tiny QFN 5x6 package offers unique design opportunities for extremely light and portable 50W chargers and adapters for personal electronics applications. The number of external components required to integrate the device in existing applications is minimal. This simplifies design and development efforts and contributes to higher power density in power supplies for home appliances, industrial markets, lighting, and air conditioning.

Advanced power management with low quiescent ensure very low standby consumption, and feedforward compensation minimizes input peak power variation over the entire input voltage range. Its very low standby consumption is in line with global energy sector targets regarding energy usage and emissions.



Application block diagram



Main characteristics

Order code	Package	R_{ON} @ 25°C	Max GaN HEMT transient voltage	Max P_{OUT} @ 85-265V _{AC}	Max P_{OUT} @ 185-265V _{AC}	Evaluation Board Order code
VIPERGAN50TR	QFN 5x6 with exposed pad	0.45Ω	850V	50W	75W	EVLVIPGAN50PD*

Note : *Coming soon



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