

Single-Channel GaN Driver

1. Features

- Wide 6V to 20V Operating Voltage Range
- Dual Inverting and Non-Inverting PWM Inputs
- Independent Pullup and Pulldown Outputs for Adjustable Turn-on and Turn-off Speeds
- Strong 1.3-Ω Pullup and 0.5-Ω Pulldown Resistance
- Fast Propagation Delay with Input Deglitching
- User Programmable Gate Driver Supply Voltage
- Integrated 5V LDO for supplying Digital Isolator
- Built-In UVLO, OVP, OTP Protection

2. Applications

- Switch-Mode Power Supplies
- AC-DC, DC-DC Converters
- Boost, Flyback, and Forward Converters
- Half-Bridge and Full-Bridge Converters
- Synchronous Rectification
- Solar Inverters, Motor Control, UPS

3. Description

The INS1001 is designed to drive single-channel GaN FET(s) in either low-side, high-side, or secondary-side SR applications. It has both non-inverting and inverting PWM inputs, working with controller, opto-coupler, and digital isolator flexibly. The gate driver has two separate outputs, allowing independent adjustment of turn-on and turn-off speeds. The driver voltage can be adjusted through an external resistor divider, tailoring for different gate voltage requirements of GaN FETs. Integrated 5V LDO can supply digital isolator or other circuitry in high-side applications. The strong driving capability and fast propagation delay, along with input noise deglitching and built-in UVLO, OVP, OTP protection features, make the INS1001 extremely suitable for high power, high frequency, and robust power GaN applications. The INS1001 is available in thermally enhanced DFN3x3-10L package.

4. Typical Application

