

Low-Side GaN and MOSFET Driver Integrated with boost function, 5V, 7A/5A

1 Features

- Integrated with boost function
- 1.25-ns typical minimum input pulse width (220-pF load)
- 3.3-ns typical rising/falling propagation delay
- Up to 50-MHz Operation
- 7-A pull-up and 5-A pull-down current
- 650-ps typical rise/fall time (220-pF load)
- 2-mm x 2-mm DFN package
- UVLO and over-temperature protection
- Single 5-V supply voltage

2 Applications

- LiDAR
- LDS Laser Drivers
- Facial Recognition
- GaN-Based Synchronous Rectifier

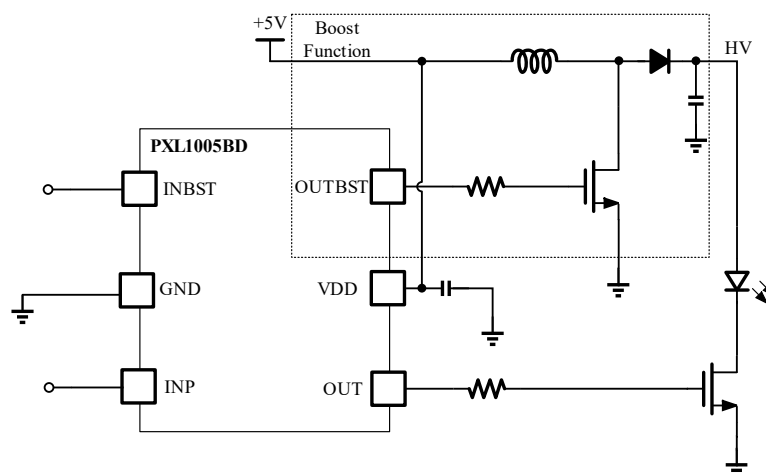
3 Description

The PXL1005BD is a low-side enhancement-mode GaN FET and logic-level MOSFET driver integrated with boost function for high switching frequency applications, including LiDAR, Time-of-Flight (ToF), and Power Converter. The very fast switching frequency combined with the ultra-narrow pulse width significantly enhance the LiDAR and ToF performance. The minimum 1.25-ns input pulse width makes higher power/current allowable in these applications to improve mapping range and resolution. The extremely small propagation delay of 3.3-ns significantly improves the control loop response time and thus overall performance of the power converters. Outputs allow the drive strength and rise/fall time to be adjusted through external resistors between OUT pins and the FET gate. PXL1005BD integrates a boost function, which can generate high voltage through an external MOSFET to power the laser driver circuit.

The driver features undervoltage lockout (UVLO) and over-temperature protection (OTP) to ensure the device is not damaged in overload or fault conditions.

PXL1005BD is available in 2-mm*2-mm DFN package to meet the size and gate loop inductance requirements for high-speed switching applications.

Typical (Simplified) System Diagram



Simplified LiDAR Driver Stage Diagram