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POWER X
博尔芯半导体科技

PXM120HBR003

100V, 3mΩ GaN Half-Bridge Power Stage

1 Features

- Integrated 3mΩ half-bridge GaN FETs and driver
- Supports 3.3V and 5V input logic levels
- High-Side Floating Bias Voltage Rail Operates up to 100 VDC
- Gate driver capable of up to 10MHz switching
- Excellent propagation delay (10ns typical) and matching (2ns typical)
- Internal bootstrap supply voltage clamping to prevent GaN FET Overdrive
- UVLO and over-temperature protection
- Single 5-V supply voltage
- 5.5mm*4.5mm QFN package with extra-low parasitic inductance

2 Applications

- Buck, boost, buck-boost Converters
- LLC converters
- Motor Drive
- Class-D audio amplifiers

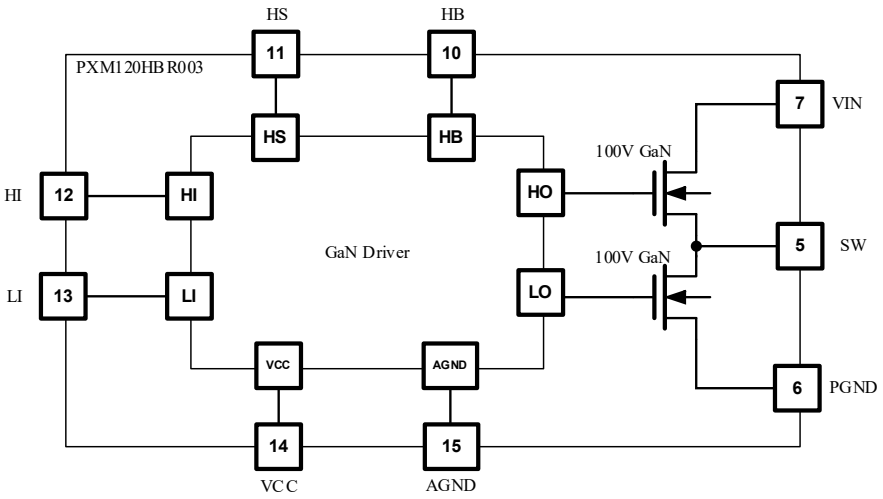
3 Description

PXM120HBR003 is a 100V, 3mΩ half-bridge power stage with integrated gate-driver and enhancement-mode Gallium Nitride (GaN) FETs. The device consists of two 100V GaN FETs driven by one high-frequency 100V GaN FET driver in a half-bridge configuration.

The device offers significant advantages for power conversion, featuring zero reverse recovery and extremely low input capacitance (CISS) and output capacitance (COSS). All components are mounted on a bond-wire-free package platform, minimizing package parasitic elements. The device comes in a 5.5mm × 4.5mm QFN package and can be easily mounted on PCBs.

The TTL logic-compatible inputs support both 3.3V and 5V logic levels, independent of the VCC voltage. The high-side bias voltage is generated using a bootstrap technique and is internally clamped at 5 V, which prevents the gate voltage from exceeding the maximum gate-source voltage rating of enhancement mode GaN FETs.

Simplified Block Diagram



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