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# **PXHB120P1**

100V, Half-Bridge GaN Driver with Integrated Bootstrap Diode

### **1 Features**

- Independent High-Side and Low-Side TTL Logic Inputs
- 1.2-A Peak Source, 5-A Sink Current
- High-Side Floating Bias Voltage Rail Operates up to 100 VDC
- Split Outputs for Adjustable Turn-on, Turn-off Strength
- Fast Propagation Times (8-ns Typical)
- Excellent Minimum Input Pulse (8-ns Typical)
- UVLO and over-temperature protection
- Single 5-V supply voltage
- 12pin BGA package Low Inductance with low parasitic inductance

## **2** Applications

- Half and Full-Bridge Converters
- Synchronous Buck Converters
- Motor Drive
- Class-D audio amplifiers

### **3 Description**

The PXHB120P1 is designed to drive both the high-side and the low-side enhancement mode Gallium Nitride (GaN) FETs in a synchronous buck, boost, half-bridge or full-bridge configuration. The device has an integrated 100-V bootstrap diode and independent inputs for the high-side and low-side outputs for maximum control flexibility. 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. The inputs of the PXHB120P1 are TTL logic compatible and can withstand input voltages up to 15 V regardless of the VDD voltage. The PXHB120P1 has split-gate outputs, providing flexibility to adjust the turnon and turnoff strength independently.

The PXHB120P1 features fast Propagation Times (8- ns typical) and excellent Minimum Input Pulse (8-ns Typical) to ensure high-frequency applications.

The PXHB120P1 is available in a 12-pin WLCSP package that offers a compact footprint and minimized package inductance.

#### Typical (Simplified) System Diagram and Testing Waveform



Simplified functional Diagram