



## Description

The MPQ18831 is an isolated half-bridge gate driver solution with up to a 4A source and 8A sink peak current capacity. The gate driver is designed to drive power switching devices with a short propagation delay and pulse-width distortion.

By utilizing MPS's proprietary, capacitive-based isolation technology, the driver can provide up to 5kV<sub>RMS</sub> of isolation voltage (per UL 1577) with a wide-body SOIC package. In addition, the common-mode transient immunity (CMTI) between the input side and output driver exceeds 150kV/ $\mu$ s. With these advanced features, the drivers operate with high efficiency, high power density, and robustness across a wide variety of automotive power applications.

The MPQ18831 integrates dual-channel gate drivers in one package. Each output can be grounded to separate grounds or connected to a positive or negative voltage reference. The secondary topology can be configured as a half-bridge high-side (HS) or low-side (LS) driver that is controlled by two independent input signals. To prevent shoot-through in the half-bridge driver, the MPQ18831 provides a configurable dead time (DT) set by an external resistor.

A wide primary-side VDDI supply range makes the driver well-suited to be interfaced with 3.3V or 5V digital controllers. The secondary-side driver accepts up to 30V supply, and all of the supply voltage pins feature various under-voltage lockout (UVLO) protections.

The MP18831 is available in a narrow-body or wide-body SOIC-16 package (SOIC-16 NB or SOIC-16 WB, respectively), an SOIC16-14 (3mm creepage) package, or an LGA-13 (5mmx5mm) package.

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## Features & Benefits

- ✓ Dual-Input Half-Bridge Driver
- ✓ Up to 5kV<sub>RMS</sub> Input to Output Reinforced Isolation (SOIC-16 WB Package)
- ✓ 1850V<sub>DC</sub> Functional Isolation between Two Secondary-Side Drivers (SOIC16-14 WB Package)
- ✓ 1500V<sub>DC</sub> Functional Isolation between Two Secondary-Side Drivers (SOIC-16 NB/WB Packages)
- ✓ 700V<sub>DC</sub> Functional Isolation between Two Secondary-Side Drivers (LGA-13 Package)
- ✓ Common-Mode Transient Immunity (CMTI) >150kV/ $\mu$ s
- ✓ 2.8V to 5.5V Input VDDI Range to Interface with Transistor-to-Transistor Logic (TTL) and CMOS-Compatible Inputs
- ✓ Up to 30V Output Drive Supply with Several Under-Voltage Lockout (UVLO) Protection Options
- ✓ 4A Source, 8A Sink Peak Current Output
- ✓ 50ns Typical Propagation Delay with Short  $\pm$ 5ns Distribution from Part to Part
- ✓ Overlap Protection and Configurable Dead Time (DT) Control
- ✓ -40°C to +150°C Operating Junction Temperature Range
- ✓ Available in AEC-Q100 Grade 1
- ✓ UL 1577 Certified:
  - SOIC-16 NB Package: 3kV<sub>RMS</sub> Isolation for 60s
  - SOIC-16 WB Package: 5kV<sub>RMS</sub> Isolation for 60s
  - LGA-13 (5mmx5mm) Package: 2.5kV<sub>RMS</sub> Isolation for 60s
- ✓ DIN EN IEC 60747-17 (VDE 0884-17): 2021-10 Certification (Pending)
- ✓ CQC Certification Per GB4943.1-2011 (Pending)