The DGD2003/2005 and DGD2012 are 200V gate driver ICs designed for driving two external N-channel MOSFETs in a half-bridge configuration.

Featuring both high-side and low-side output drive capability, with simple logic level input, enables an easy interface between the MCU and the power MOSFET switches. Supporting up to 200V via a floating high-side suits a wide range of motor driving in battery-operated applications.

These gate drivers encompass self-protection features such as dead-time and matched delays to evade shoot-through issues, Schmitt triggered inputs to avoid false triggering, gate drive tolerance to negative transients caused during high dV/dt switching, and undervoltage lockout (UVLO) protection on the V_{CC} and V_{BS} supply to avoid malfunction under low supply voltage.

### The Diodes Advantage

The DGD2003, DGD2005 and DGD2012 are 200V gate drivers capable of driving N-channel MOSFETs in half-bridge configuration.

- **Source & Sink Currents (0.29A, 0.6A DGD2003/5; 1.9A, 2.3A DGDG2012)**
  - Increasing system efficiencies by minimizing switching time of power MOSFETs

- **Logic Level Input > 2.5V**
  - PWM control directly from 3.3V MCU while the output steps up to the Vcc supply (8 to 14V) to ensure the MOSFET is fully enhanced to reduce losses

- **Shoot-Through Prevention Logic**
  - To protect the MOSFET from shoot-through, these gate drivers have matched delays.

- **SO-8 Footprint**
  - Standard package and pinout for ease of use

### Applications

- **Motor Drive**
  - Brushless DC (BLDC) motor driving up to 200V, especially in battery operated applications:
    - Cordless power tools, garden tools and domestic appliances.
    - Light Electric Vehicles (LEVs)
    - Robotics
    - Drones

- **Power Conversion**
  - Inverter Drives
Product Information

<table>
<thead>
<tr>
<th>Orderable Part Number</th>
<th>Integrated Boot Strap Diode</th>
<th>Vcc Min / Max (V)</th>
<th>Offset Voltage Max (V)</th>
<th>Inputs</th>
<th>Output Current Io+ Typ (A)</th>
<th>Output Current Io- Typ (A)</th>
<th>Internal Deadtime Typ (ns)</th>
<th>ton / toff Typ (ns)</th>
<th>tr / tf Typ (ns)</th>
<th>Package</th>
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<tbody>
<tr>
<td><strong>Half-Bridge Gate Drivers</strong></td>
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* = Out of phase

Pin Assignments

**Typical Configuration**