



DGD2136 Gate Driver

Three-Phase Half Bridge Gate Driver Simplifies BLDC & PMSM Motor Drive

The DGD2136 is a 3-phase gate driver IC designed for driving three half-bridges configured from N-channel MOSFETs and IGBTs. With its floating high-side drivers, bootstrap operation allows the DGD2136 to switch up to 600V while standard logic level inputs down to 2.4V ensure an easy control interface.

The increased use of BLDC and PMSM motors reflects industry directives to improve the efficiency of electrical motors and achieve the goal of zero maintenance in order to minimize the total cost of ownership. The DGD2136 assists in this as it is designed for >100W 3-phase motor drive applications such as those commonly found in household appliances, power tools, and industrial motors.

Encompassing 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} supply to avoid malfunction under low supply voltage.



The Diodes Advantage

The DGD2136 is a fully integrated 3-phase 600V gate driver capable of driving N-channel MOSFETs and IGBTs in a half-bridge configuration.

- **Overcurrent Protection**
Turns off the output drive if overcurrent is sensed to protect the MOSFET/IGBTs
- **Safeguarding Features**
Increased reliability and reduced EMI by preventing shoot through as operates with Schmitt trigger inputs, shoot-through protection, matched propagation, UVLO
- **Logic Input Level > 2.4V**
PWM control directly from 3.3V MCU while the output steps up to the V_{cc} supply (10 to 20V) to minimize conduction losses in the switch.
- **Fault Signal Output and RC Input Pin**
Enables monitoring of the driver stage and an adjustable reset time.

Applications

Motor Inverter Driver

- >100W 3-phase PMSM/BLDC Motor:
 - Household Appliances (White Goods) including: Washing Machine, Refrigerator, Sewing Machines
 - Air Conditioner, Fans
 - Industrial Motor Inverter including Robotics
 - Garden Tools, Power Tools, Mitre Saw



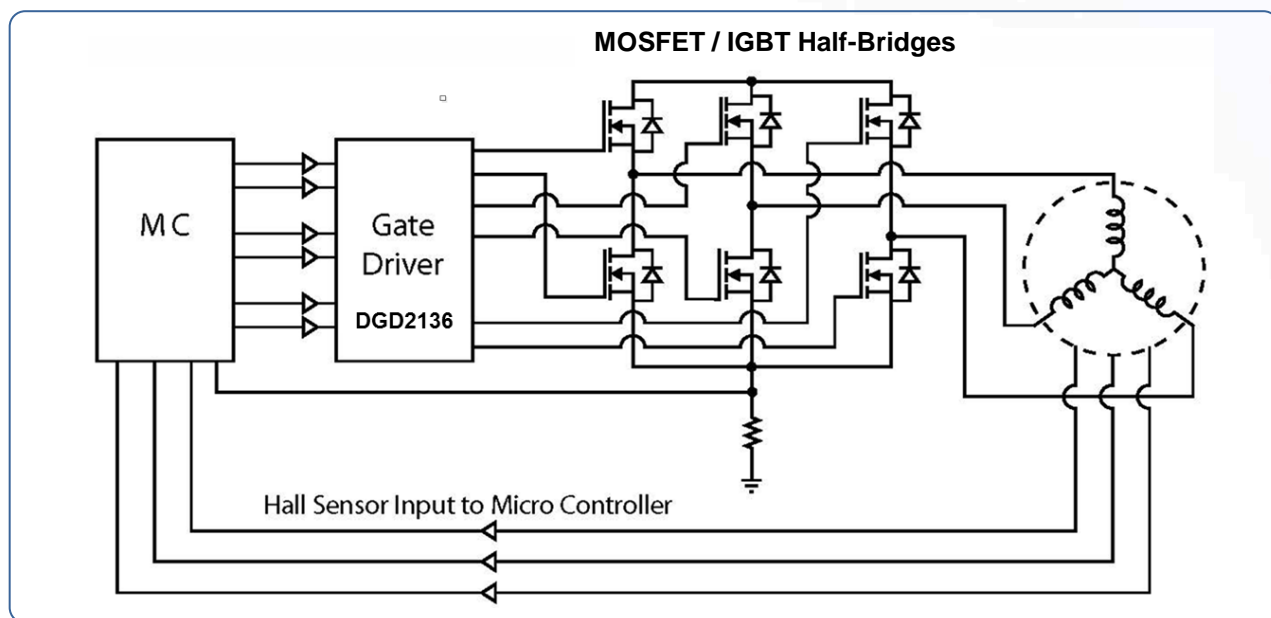
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3-Phase Gate Driver

Part Number	Offset Voltage Max(V)	Inputs	Output Current I _{o+} typ (mA)	Output Current I _{o-} typ (mA)	Internal Deadtime typ (ns)	t _{on} / t _{off} typ (ns)	t _r / t _f typ (ns)	Package
DGD2136S28	600	HIN*, LIN* ITRIP, EN	200	350	290	330 / 330	90 / 35	SO-28

* = Out of phase

3-Phase BLDC/PMSM Motor Application Example



Cross Reference

Manufacturer's Part Number	Diodes Inc. Exact Equivalent	Diodes Inc. Nearest Equivalent
IR2136STRPBF	DGD2136S28-13	-
SDH2136	DGD2136S28-13	-
FAN73894MX	-	DGD2136S28-13