

# GATE DRIVERS



# SINGLE / DUAL CHANNEL GATE DRIVERS

This family of high-speed Gate drivers is configured in single and dual formats for efficient and reliable driving of MOSFETs or IGBTs.

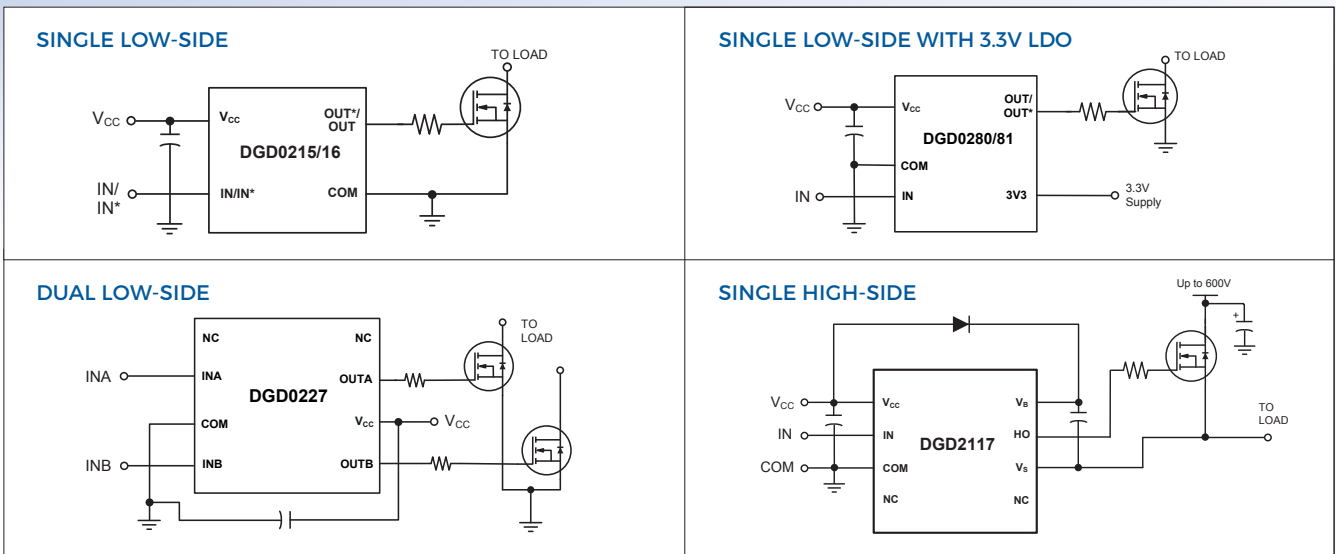
The low side drivers are offered in both single and dual channels whereas the high-side devices are single channel.

Inverting and non inverting input configurations are available.

Orderable Part Number	V <sub>CC</sub> Min / Max	Offset Voltage Max	Inputs	Output Current I <sub>o+</sub> Typ	Output Current I <sub>o-</sub> Typ	t <sub>on</sub> / t <sub>off</sub> Typ	t <sub>r</sub> / t <sub>f</sub> Typ	Package	
	(V)	(V)		(A)	(A)	(ns)	(ns)		
<b>SINGLE CHANNEL LOW-SIDE GATE DRIVERS</b>									
DGD0211CWT-7	4.5 / 18	-	IN, IN*	1.9	1.8	35 / 35	15 / 15	TSOT25	
DGD0211CWTQ-7 ‡	4.5 / 18	-	IN, IN*	1.9	1.8	35 / 35	15 / 15	TSOT25	
DGD0215WT-7	4.5 / 18	-	IN, IN*	1.9	1.8	35 / 35	15 / 15	TSOT25	
DGD0216WT-7	4.5 / 18	-	IN, IN*	1.9	1.8	35 / 35	15 / 15	TSOT25	
<b>SINGLE CHANNEL LOW-SIDE GATE DRIVERS WITH INTEGRATED 3.3V LDO</b>									
DGD0280WT-7	4.5 / 18	-	IN	2.5	2.8	35 / 30	20 / 15	TSOT25	
DGD0280WTQ-7 ‡	4.5 / 18	-	IN	2.5	2.8	35 / 30	20 / 15	TSOT25	
DGD0281WT-7 †	4.5 / 18	-	IN*	2.5	2.8	35 / 30	20 / 15	TSOT25	
<b>DUAL CHANNEL LOW-SIDE GATE DRIVERS</b>									
DGD02271S8-13 †	4.5 / 18	-	INA, INB	1.5	1.5	40 / 35	20 / 20	SO-8	
DGD02273S8-13 †	4.5 / 18	-	INA, INB	2.3	3.3	40 / 35	20 / 20	SO-8	
DGD02272S8-13 †	4.5 / 18	-	INA, INB	2.5	2.5	40 / 35	20 / 20	SO-8	
DGD02275S8-13 †	4.5 / 18	-	INA, INB	2.5	5	40 / 35	20 / 20	SO-8	
DGD0227S8-13	4.5 / 18	-	INA, INB	4	4	40 / 35	20 / 20	SO-8	
<b>SINGLE CHANNEL HIGH-SIDE GATE DRIVERS</b>									
DGD2117S8-13	10 / 20	600	IN	0.29	0.6	125 / 105	75 / 35	SO-8	
DGD2118S8-13	10 / 20	600	IN*	0.29	0.6	125 / 105	75 / 35	SO-8	

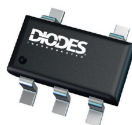
\* = out of phase with output ‡ = Automotive qualified † = Engineering samples available

## TYPICAL CONFIGURATIONS

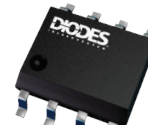


## TYPICAL APPLICATIONS

- Switch Mode Power Supplies
- Line Drivers
- Level Translators
- Motor and Solenoid Drive



TSOT25



SO-8

# LOW VOLTAGE HALF-BRIDGE GATE DRIVERS

The ability to drive two N-Channel MOSFETs in a half-bridge configuration with high-side drive ratings up to 100V. The integrated Bootstrap diodes allow a reduction to the BOM contributing to reduced solution cost.

## THE DIODES™ ADVANTAGE

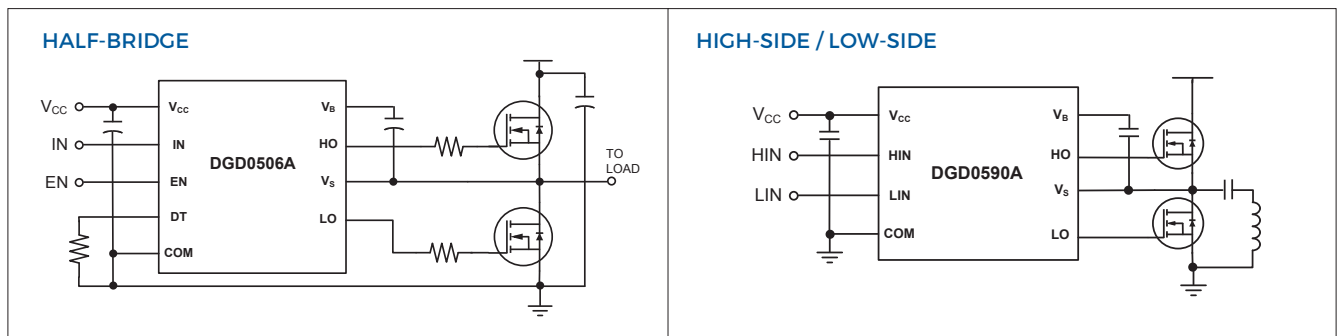
- Sink currents up to 2.5A
- Integrated bootstrap diode
- 3.3v logic input control
- Fast switching
- 3 x 3 mm footprint



Orderable Part Number	Integrated Bootstrap Diode	V <sub>CC</sub> Min / Max	Offset Voltage Max	Inputs	Output Current I <sub>o+</sub> Typ	Output Current I <sub>o-</sub> Typ	Internal Deadtime Typ	t <sub>on</sub> / t <sub>off</sub> Typ	t <sub>r</sub> / t <sub>f</sub> Typ	Package
		(V)	(V)		(A)	(A)	(ns)	(ns)	(ns)	
<b>HALF-BRIDGE GATE DRIVERS</b>										
DGD05463FN-7	Y	4.9 / 14	50	IN, DT, EN	1.5	2.5	70 - 430 #	96 / 22	17 / 12	DFN3030-10
DGD05463M10-13	Y	4.9 / 14	50	IN, DT, EN	1.5	2.5	70 - 430 #	96 / 22	17 / 12	MSOP-10
DGD0506AFN-7	Y	8 / 14	50	IN, DT, EN	1.5	2	70 - 430 #	96 / 22	17 / 12	DFN3030-10
DGD0506AM10-13	Y	8 / 14	50	IN, DT, EN	1.5	2	70 - 430 #	96 / 22	17 / 12	MSOP-10
DGD0503FN-7	N	10 / 20	100	HIN, LIN*	0.29	0.6	430	680 / 150	70 / 35	DFN3030-10
DGD0504FN-7	N	10 / 20	100	IN, SD^	0.29	0.6	430	680 / 150	70 / 35	DFN3030-10
<b>HIGH-SIDE / LOW-SIDE GATE DRIVERS</b>										
DGD0590AFU-7	Y	4.5 / 5.5	40	HIN, LIN	1.0	1.0 / 3.0	-	16 / 17, 12 / 17	27 / 17	QFN3030-8
DGD05473FN-7	Y	4.9 / 14	50	HIN, LIN, EN	1.5	2.5	-	20 / 23	16 / 12	DFN3030-10
DGD05473FNQ-7 ‡	Y	4.9 / 14	50	HIN, LIN, EN	1.5	2.5	-	20 / 23	16 / 12	DFN3030-10
DGD0507AFN-7	Y	8 / 14	50	HIN, LIN, EN	1.5	2.0	-	20 / 23	16 / 18	DFN3030-10
DGD0579UFN-7	Y	6.5 / 18	100	HIN, LIN, EN	1.5	2.5	-	65 / 58	19 / 15	DFN3030-10

\* = out of phase with output    ^ = enable low    # = Adjustable by external resistor    ‡ = Automotive qualified

## TYPICAL CONFIGURATIONS



## TYPICAL APPLICATIONS

- 12V, 24V, 36V and 48V BLDC Motors
  - Power Tools
  - Unmanned Aerial Vehicles (UAV)
  - Robotics
- Wireless Charging



QFN3030-8

DFN3030-10

MSOP-10

# HIGH VOLTAGE HALF-BRIDGE GATE DRIVERS

Covering 150V to 600V for high-side drive, these Gate Drivers are designed for driving high-voltage N-Channel MOSFETs or IGBTs in half-bridge configuration. A variety of inputs are available giving options for synchronous / independent control with inverting or non-inverting outputs.

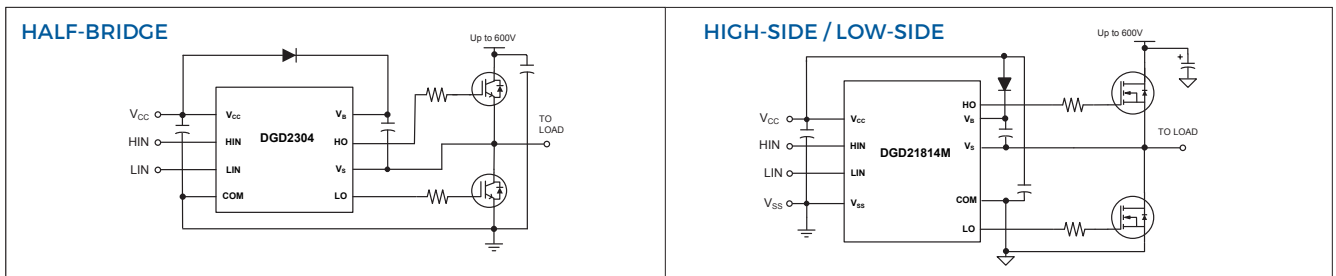
## THE DIODES™ ADVANTAGE

- Up to 4.5A source and sink current
- Operational up to an offset voltage of 600V
- Dead-time and cross-conduction prevention logic
- Variety of input options for synchronous or independent operation
- Tolerant to negative voltage transients



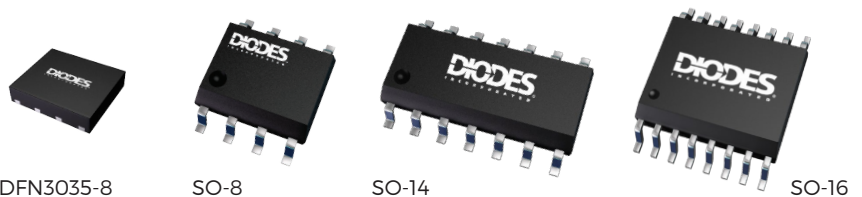
Orderable Part Number	Integrated Bootstrap Diode	Vcc Min / Max (V)	Offset Voltage Max (V)	Inputs	Output Current	Output Current	Internal Deadtime Typ (ns)	ton / toff Typ (ns)	tr / tf Typ (ns)	Package
					I <sub>o+</sub> Typ (A)	I <sub>o-</sub> Typ (A)				
<b>HALF-BRIDGE GATE DRIVERS</b>										
DGD1003FTA-13	N	10 / 20	150	HIN, LIN*	0.29	0.6	420	680 / 150	70 / 35	DFN3035-8
DGD2003S8-13	N	10 / 20	200	HIN, LIN*	0.29	0.6	420	680 / 150	70 / 35	SO-8
DGD1504S8-13	N	10 / 20	250	IN, SD^	0.29	0.6	430	680 / 150	70 / 35	SO-8
DGD2103MS8-13	N	10 / 20	600	HIN, LIN*	0.29	0.6	420	680 / 150	70 / 35	SO-8
DGD2104MS8-13	N	10 / 20	600	IN, SD^	0.29	0.6	420	680 / 150	70 / 35	SO-8
DGD2304S8-13	N	10 / 20	600	HIN, LIN	0.29	0.6	100	95 / 100	70 / 35	SO-8
DGD2184MS8-13	N	10 / 20	600	IN, SD^	1.9	2.3	395	680 / 270	40 / 20	SO-8
DGD2184MS14-13	N	10 / 20	600	IN, SD^	1.9	2.3	400 - 5000 #	680 / 270	40 / 20	SO-14
<b>HIGH-SIDE / LOW-SIDE GATE DRIVERS</b>										
DGD2005S8-13	N	10 / 20	200	HIN, LIN	0.29	0.6	-	220 / 200	100 / 35	SO-8
DGD2110S16-13	N	10 / 20	500	HIN, LIN, SD	2.5	2.5	-	105 / 94	15 / 13	SO-16
DGD2113S16-13	N	10 / 20	600	HIN, LIN, SD	2.5	2.5	-	105 / 94	15 / 13	SO-16
DGD2101MS8-13	N	10 / 20	600	HIN, LIN	0.29	0.6	-	160 / 150	70 / 35	SO-8
DGD2106MS8-13	N	10 / 20	600	HIN, LIN	0.29	0.6	-	220 / 200	100 / 35	SO-8
DGD21064MS14-13	N	10 / 20	600	HIN, LIN	0.29	0.6	-	220 / 200	100 / 35	SO-14
DGD2181MS8-13	N	10 / 20	600	HIN, LIN	1.9	2.3	-	180 / 220	40 / 20	SO-8
DGD21814MS14-13	N	10 / 20	600	HIN, LIN	1.9	2.3	-	180 / 220	40 / 20	SO-14
DGD2190MS8-13	N	10 / 20	600	HIN, LIN	4.5	4.5	-	140 / 140	25 / 20	SO-8
DGD21904MS14-13	N	10 / 20	600	HIN, LIN	4.5	4.5	-	140 / 140	25 / 20	SO-14

\* = out of phase with output ^ = enable low # = Adjustable by external resistor



## TYPICAL APPLICATIONS

- Home Appliances
- Refrigerator Compressors
- Industrial Motor Control
- Telecom Power
- Inverters



DFN3035-8

SO-8

SO-14

SO-16

# 3-PHASE GATE DRIVERS

Highly integrated 3-phase Gate Drivers designed to drive 6 x N-Channel MOSFETs or IGBTs in half-bridge configuration. Cross conduction prevention logic, overcurrent protection and undervoltage lockout functions are incorporated into the devices to ensure reliable operations.

## THE DIODES™ ADVANTAGE

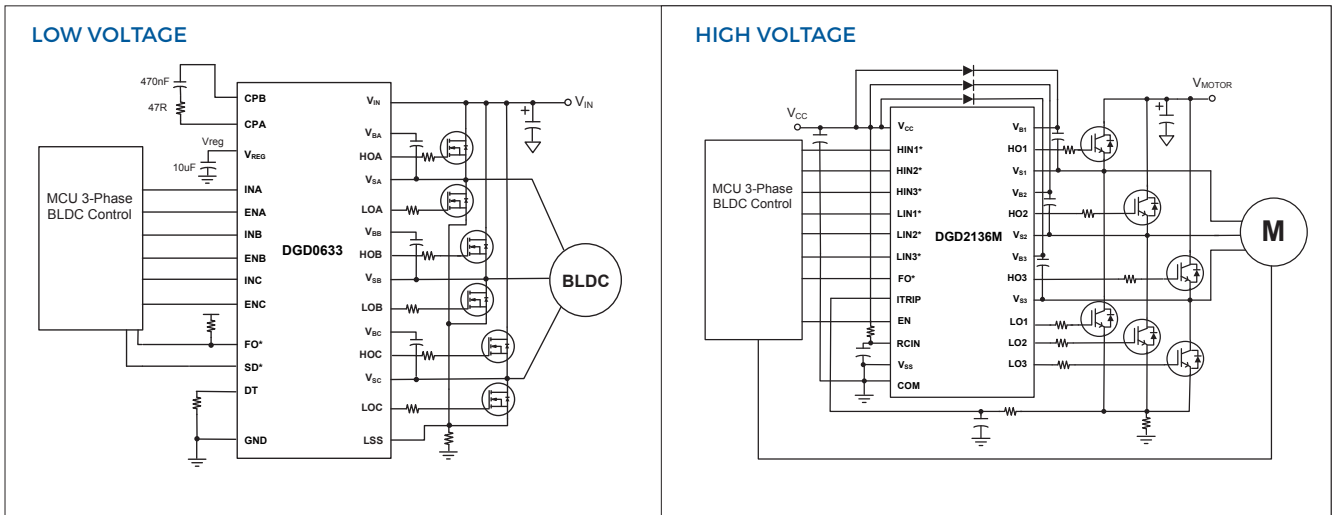
- Floating channel bootstrap operation
- Three independent half-bridge drivers
- Matched propagation delays
- Overcurrent shutdown
- 3.3V logic input compatible



Orderable Part Number	Integrated Bootstrap Diode	V <sub>CC</sub> Min / Max	Offset Voltage Max	Inputs	Output Current I <sub>O+</sub> Typ	Output Current I <sub>O-</sub> Typ	Internal Deadtime Typ	ton / toff Typ	t <sub>r</sub> / t <sub>f</sub> Typ	Package
		(V)	(V)		(A)	(A)	(ns)	(ns)	(ns)	
<b>LOW VOLTAGE 3-PHASE GATE DRIVERS</b>										
DGD0633FIC-13 <sup>+</sup>	Y	5 / 35	50	INA,B,C, ENA,B,C, SD <sup>+</sup> , DT, FO <sup>+</sup>	0.45	0.65	30 - 5000 #	54 / 28	30 / 25	QFN4040-28
DGD0636MS28-13	N	10 / 20	100	HIN <sup>1,2,3</sup> , LIN <sup>1,2,3</sup> , EN, ITRIP	0.2	0.35	290	330 / 330	90 / 35	SO-28
<b>HIGH VOLTAGE 3-PHASE GATE DRIVERS</b>										
DGD2136MS28-13	N	10 / 20	600	HIN <sup>1,2,3</sup> , LIN <sup>1,2,3</sup> , EN, ITRIP	0.2	0.35	290	330 / 330	90 / 35	SO-28
DGD2388MS20-13	N	10 / 20	600	HIN1,2,3, LIN1,2,3	0.42	0.75	315	120 / 120	45 / 25	SO-20

\* = out of phase with output # = Adjustable by external resistor + = Engineering samples available

## TYPICAL CONFIGURATIONS



## TYPICAL LV APPLICATIONS

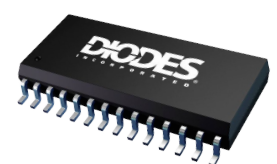
- 12V and 24V BLDC Motors
- Power Tools
- Unmanned Aerial Vehicles (UAV)
- Light Electric Vehicles (LEV)
- Robotics

## TYPICAL HV APPLICATIONS

- Home Appliances
- Refrigerator Compressors
- Industrial Motor Control
- Telecom Power
- Inverters



QFN4040-28



SO-28



**CORPORATE HEADQUARTERS AND AMERICAS SALES OFFICE**

4949 Hedgcoxe Road  
Suite 200  
Plano, Texas 75024, USA  
Tel: (+1) 972-987-3900  
Email: [inquiries@diodes.com](mailto:inquiries@diodes.com)

**SILICON VALLEY OFFICE**

1545 Barber Lane  
Milpitas, California 95035, USA  
Tel: (+1) 408-232-9100

**EUROPE SALES OFFICE**

Kustermann-Park  
Balanstrasse 59, 8th Floor  
D-81541 Munchen, Germany  
Tel: (+49) 89-45-49-49-0  
Email: [inquiries-europe@diodes.com](mailto:inquiries-europe@diodes.com)

**ASIA SALES OFFICES**

Email: [inquiries-asia@diodes.com](mailto:inquiries-asia@diodes.com)

**DIODES-CHINA**

**SHANGHAI OFFICE**

Room 3001-3002,  
International Corporate City,  
No. 3000 Zhongshan North Road,  
Shanghai 200063, China  
Tel: (+86) 21-5241-4882

**SHENZHEN OFFICE**

16th Floor Skyworth Semiconductor  
Design Building East Wing,  
No.18 Gaoxin South 4th Road,  
Nanshan District,  
Shenzhen 518057, China  
Tel: (+86) 755-8828-4988

**DIODES-JAPAN**

8F Humax Ebisu Bldg  
1-1-1 Ebisu-Minami, Shibuya-ku  
Tokyo 150-0022, Japan  
Tel: (+81) 3-6871-9388

**DIODES-KOREA**

1601 ho, ParkView Tower  
Jeongja 1 dong,  
Bundang-gu, Seongnam-si,  
Gyeonggi-do 463-811, Korea  
Tel: (+82) 31-786-0434

**DIODES-TAIWAN**

7F, No. 50, Min-Chuan Road  
Hsin-Tien District  
New Taipei City 23141,  
Taiwan, R.O.C.  
Tel: (+886) 2-8914-6000

For further information please visit [www.diodes.com/salesupport](http://www.diodes.com/salesupport)



**diodes.com**

September 2022