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High Voltage Non Isolated Gate Drivers

Public Information

High Voltage Gate Drivers Selection Guide

	Specs/Features								Target Applications				Availability	
									Automotive					
	No. of channels	Package	Isolation	Differential Input	DESAT w/ FLT	Miller Clamp	VEE	Split output	Traction	PTC	OBC	HV DC-DC	Sample	RTM
Non-Isolated Gate Drivers														
NCV5700 /2	1	SOIC−16			V	V	V	V	V	V			V	V
NCV5701 /3A	1	SOIC−8			V	V			V	V	V	V	V	V
NCV5701 /3B	1	SOIC−8			V		V		V	V	V	V	V	V
NCV5701 /3C	1	SOIC−8			V			V	V	V	V	V	V	V
Half Bridge Isolated Gate Driver														
NCV57200 /1	2	SOIC−8									V	V	V	V
Isolated Gate Drivers														
NCV57000 /1	1	SOIC-16(W)*	V	V	V	V	V	V	V	V			V	V
NCV57080A	1	SOIC-8	V	V		V					V	V	V	V
NCV57080B	1	SOIC-8	V	V			V				V	V	V	Apr 2020
NCV57080C	1	SOIC-8	V	V				V			V	V	V	V
NCV57090A	1	SOIC-8(W)*	V	V		V					V	V	V	Apr 2020
NCV57090B	1	SOIC-8(W)*	V	V			V				V	V	V	Apr 2020
NCV57090C	1	SOIC-8(W)*	V	V				V			V	V	V	Apr 2020
NCV57084	1	SOIC-8	V		V					V			V	June 2020
NCV57085	1	SOIC-8	V		CS w/FLT					V			V	June 2020
NCV5725x	2	SOIC-16(W)*	V								V	V	V	May 2020

* (W) – Wide body New Product (V)- Automotive (D)- Industrial

NCV5720x - Half Bridge Gate Driver

- Key Features:
  - High output current(+1.9/-2.3A)
  - CMTI up to 50 kV/us
  - Galvanic Isolated High Side Driver
  - VDD/VB Supply Range up to 20 V
  - AEC−Q100 Qualified and PPAP Capable
- Target Applications:
  - Automotive

- OBC
- PTC Heater
- e−Compressors
- Automotive power supplies

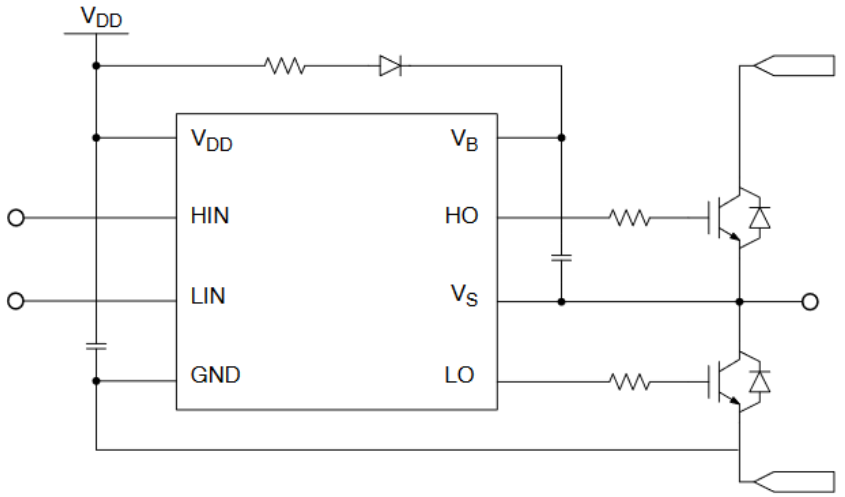
NCV5720x - General Information

Description

NCD5720x is a high voltage gate driver with one non−isolated low side gate driver and one galvanic isolated high or low side gate driver. It can directly drive two IGBTs in a half bridge configuration. Isolated high side driver can be powered with an isolated power supply or with Bootstrap technique from the low side power supply. The galvanic isolation for the high side gate driver guarantees reliable switching in high power applications for IGBTs that operate up to 800 V, at high dv/dt. The optimized output stages provide a mean of reducing IGBT losses. Its features include two independent inputs with dead time and interlock, accurate asymmetric UVLOs, and short and matched propagation delays. The NCD5720x operates with its VCC/VB up to 20 V.

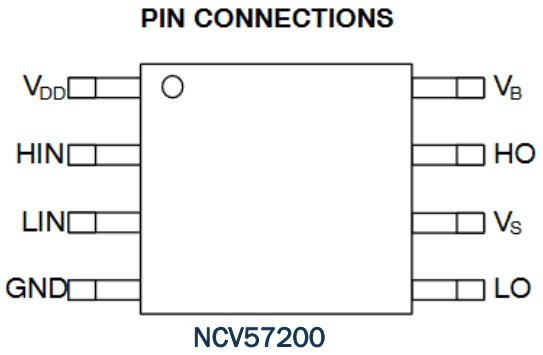
Features

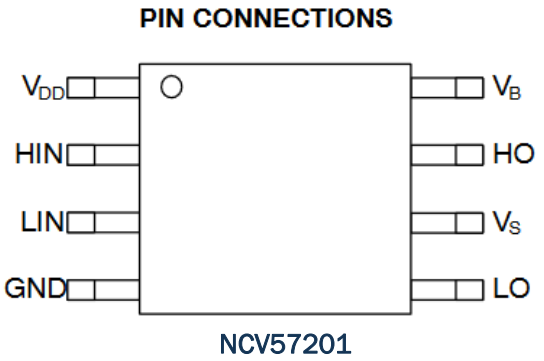
- High Peak Current Output (+1.9 A / −2.3 A)
- Secured Output Low State without VDD/VB
- Floating Channel for Bootstrap Operation up to +800 V
- CMTI up to 50 kV/us
- Reliable Operation for VS Negative Swing to −800 V
- VDD & VBS Supply Range up to 20 V
- 3.3 V, 5 V, and 15 V Logic Input
- Asymmetric Under Voltage Lockout Thresholds for High Side and Low Side
- Matched Propagation Delay 90 ns
- Built−in 20 ns Minimum Pulse Width Filter (or Input Noise Filter)
- Built−in 340 ns Dead−Time and High and Low Inputs Interlock
- Output in Phase with Input Signal

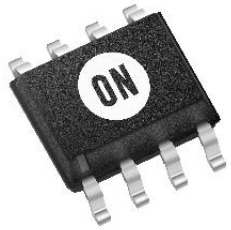


NCV5720x

NCV5720x - Product details and Line up







SOIC-8 Narrow Body or die sale for the IPM version

Part#	Interlock	Dead time	Input Filter Time	P2P Xref
NCV57200	Yes	300ns	20ns	IR2101S, IRS2301S. IRS2001SPbF
NCV57201	No, Independent Channels	No	20ns	

Marketing Positioning

Exceptional dynamic performances by improved efficiency:

- 10% of E_{ON} reduction

(600V, 3xIGBT40A in parallel, Double Pulse Test)

- 17% of E_{OFF} reduction for IH,

(2kW IH system, single ended resonant topology, DC bus single phase voltage)

- 5% of E_{CON} reduction, or >0.1V $V_{CE(SAT)}$ reduction

(Double Pulse Test)

Wide set of protections for higher reliability and function safety in design:

- Robustness against negative voltage spikes at half bridge node, tight UVLOs on both power supplies
- Low pulse-width distortion, Low part-part variation in delay times

System level optimization and lower cost of ownership:

- Lower cost solutions with non-isolated drivers family
- Flexible and highly integrated solutions with isolated drivers
- Elimination of buffers for most applications

Reference Boards

Eval Board for NCV57200