

Product Overview

NCP51810: High Performance, 150 V Half Bridge Gate Driver for GaN Power Switches

For complete documentation, see the data sheet.

The NCP51810 high-speed gate driver is designed to meet the stringent requirements of driving enhancement mode (e⁻mode) GaN HEMT power switches in offline, half-bridge power topologies. The NCP51810 offers short and matched propagation delays as well as -3.5 V to +150 V (typical) common-mode voltage range for the high⁻side drive. To fully protect the gate of the GaN power transistor against excessive voltage stress, both drive stages employ a dedicated voltage regulator to accurately maintain the gate-source drive signal amplitude. The NCP51810 offers important protection functions such as independent under⁻voltage lockout (UVLO) and IC thermal shutdown.

Features

- 150 V, high side and low side gate driver
- Fast propagation delay of 50 ns max
- Fast propagation delay of 50 ns max
- 200 V/ns dV/dt Rating for all SW and PGND Referenced Circuitry
- Separate source and sink output pin
- Regulated 5.2 V gate driver with independent UVLO for high side and low side output stages
- QFN 4 mm x 4 mm 15 pin packaging and optimized pin out

Benefits

- Support 48 V input design with sufficient safety margin
- Suitable for high frequency operation
- Increased efficiency and allow paralleling
- Robust design for high switching frequency application
- Allow control of rise and fall time for EMI tuning
- Optimum driving of GaN power switches and simplify design
- Small PCB foot print, reduced parasitic, suitable for high frequency operation

Applications

- Resonant converters
- Half bridge and full bridge converters
- Active clamp flyback converters
- Non isolated step down converters

End Products

- Data center 48 V to low voltage intermediate bus converter
- 48 V to PoL converter
- Industrial power module

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Power Switch	Number of Outputs	Topology	Isolation Type	V _{in} Max (V)	V _{CC} Max (V)	Drive Source / Sink Typ (mA)	Rise Time (ns)	Fall Time (ns)	t _o Max (ns)	Package Type
NCP51810AMNTWG	0.9333	Pb-free Halide free non AEC-Q and PPAP	NEW	GaN	2	Half-Bridge	Junction Isolation	150	20	1000 / 2000	2	1.5	50	QFN-15

For more information please contact your local sales support at www.onsemi.com.

Created on: 12/2/2020