

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 \pm 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 \pm voltage lockout (UVLO) and IC thermal shutdown.

Features

- 150 V, high side and low side gate driver
- Fast propagation delay of 50 ns max
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- 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)	Rise Time (ns)	Fall Time (ns)	Drive Source Current Typ (A)	Drive Sink Current Typ (A)	Turn On Prop. Delay Typ (ns)	Turn Off Prop. Delay Typ (ns)	Delay Matching	Package Type
NCP51810AMNTWG	0.7	Pb-free Halide free non AEC-Q and PPAP	Active	GaN	2	Half-Bridge	Junction Isolation	150	20	2	1.5	1	2	25	25	10	QFN-15

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