

Product Overview

NCP51820: High Performance, 650 V Half Bridge Gate Driver for GaN Power Switches

For complete documentation, see the data sheet.



The NCP51820 high-speed gate driver is designed to meet the stringent requirements of driving enhancement mode (e-mode) and gate injection transistor (GIT) GaN HEMT power switches in offline, half-bridge power topologies. The NCP51820 offers short and matched propagation delays as well as -3.5 V to +650 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 NCP51820 offers important protection functions such as independent under-voltage lockout (UVLO) and IC thermal shutdown.

Features

- 650 V, high side and low side gate driver
- Fast propagation delay of 50 ns max
- Matched propagation delay of 5 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

- Design margin for AC/DC design
- 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
- Totem pole bridgeless PFC

End Products

- Power supply for OLED TV
- High power gaming adapter
- USD PD cellphone and notebook travel adapter
- Server / Cloud Data-center Offline power
- Industrial inverter and motor drive

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
NCP51820AMNTWG	1.1464	Pb-free Halide free non AEC-Q and PPAP	Active	GaN	2	Half-Bridge	Junction Isolation	650	20	1000 / 2000	1	0.5	50	QFN-15

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

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