

MasterGaN series

High voltage half-bridge gate driver with embedded GaN FETs



MasterGaN series for higher power density and fast go-to-market

MASTERGAN devices get the most out of GaN technology for a wide range of power conversion and charging applications, without requiring major design effort and investment.

The inputs can be connected directly to MCU pins or analog controller, and the compact device manages its extremely fast embedded GaN HEMT switches for best possible performance.

KEY FEATURES & BENEFITS

- 600 V system-in-package integrating half-bridge gate driver and high-voltage power GaN transistors:
 - QFN 9 x 9 x 1 mm package
 - Embedded gate driver easily supplied by the integrated bootstrap diode
 - Overtemperature protection
 - Extended 3.3 to 15 V input range with hysteresis and pull-down
 - Accurate internal timing match
 - Interlocking function
 - -40 to 125°C operating temperature range
 - High switching frequency >1MHz
 - No investment to learn GaN required
 - Fast time-to-market

KEY APPLICATIONS

- Switch-mode power supplies
- Fast chargers
- USB-PD adapters
- PFC, high-voltage DC-DC and DC-AC converters
- UPS systems
- Solar power
- LED lighting

MasterGaN system-on-chip

The MasterGaN series is an advanced power system-in-package integrating a gate driver and two enhancement mode GaN transistors in half-bridge configuration.

The integrated power GaNs feature 650 V drain-source breakdown voltage, while the high side of the embedded gate driver can be easily supplied by the integrated bootstrap diode.

The MasterGaN series allows far greater power supply efficiency and higher power density to drastically reduce the cost of ownership.

The greater power density can help designers develop fast chargers and USB-PD adapters as much as four times smaller and three times lighter.

Thanks to the superior efficiency and frequency performance with respect to conventional Si MOSFET, heatsinks can be either eliminated or heavily reduced in size, translating into immediate weight reduction benefits for fast chargers, USB-PD adapters, LED lighting drivers, TV power supplies and server/telecom power supply designs.

Evaluation ecosystem



EVALMASTERGAN1/2/3/4/5



EVLMG1-250WLLC



EVLMG4-500WIBCK

Part numbers	General description	Supply voltage max (V)	Key features	Output current max (A) @25° C	High side RDS(on) (mΩ)	Low side RDS(on) (mΩ)	Evaluation boards
MASTERGAN1	High power density 600V half-bridge high voltage driver with two 650V enhancement mode GaN HEMT	11	Undervoltage lockout, interlocking function, Over-temperature, Bootstrap diode	10	150	150	EVALMASTERGAN1; EVLMG1-250WLLC; EVLONE140W; STDES-200GANADP
MASTERGAN2				6.5	225	150	EVALMASTERGAN2; STDES-65ACFADP
MASTERGAN3				4	450	225	EVALMASTERGAN3
MASTERGAN4				6.5	225	225	EVALMASTERGAN4; EVLMG4-500WIBCK; EVLONE65W; EVLONEMP
MASTERGAN5				4	450	450	EVALMASTERGAN5

