



MasterGaN series

600 V enhancement mode GaN half-bridge with integrated driver



MasterGaN series to enhance efficiency, power density, and ease of use

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 an analog controller, and the compact device manages the extremely fast embedded GaN HEMT switches for the best possible performance.

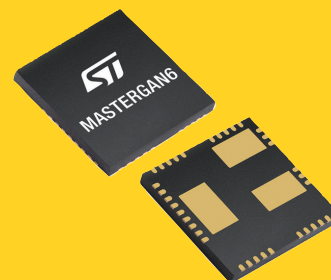
KEY FEATURES & BENEFITS

600 V system-in-package embedding a GaN half-bridge with high-voltage driver:

- Embedded gate driver easily supplied by the integrated bootstrap diode
- Integrated linear regulators for a stable driver supply voltage
- Full set of protections, including overtemperature, undervoltage, and interlocking function
- 3.3V to 15 V input pins voltage range
- Dedicated standby, shutdown, and fault pins
- QFN 9 x 9 x 1 mm package
- -40 to 125°C operating range
- High switching frequency >1 MHz

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 two enhancement-mode GaN transistors in a 600 V half-bridge configuration, with an embedded high-frequency gate driver optimized for high voltage operation.

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

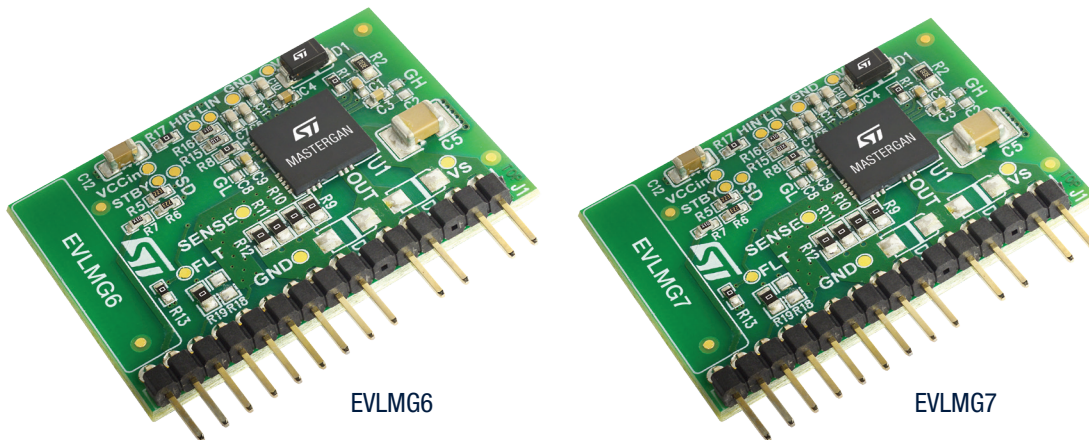
The MasterGaN series further expands functionality by adding dedicated pins for fault indication and standby control. These features enable smart system management and improved power savings. The devices integrate LDOs and a bootstrap diode to ensure optimal gate driving and reduce the number of external components.

Engineered with very fast timing, the new advanced driver allows high-frequency operation thanks to its low minimum

on-time and propagation delays, helping designers minimize circuit footprint. Moreover, its ultra-fast wake up time enhances burst-mode operation for optimal low-load efficiency.

With a full set of protections, including cross conduction, thermal shutdown and under-voltage lockout built-in, the devices let engineers achieve a low bill of materials, compact PCB size, and simplified circuit layout. This series offers significant improvements in frequency and power density 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. The MasterGaN series is available in a compact 9 x 9 x 1 mm QFN package.

Evaluation ecosystem



Product table

| 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 |
|-------------------|---|------------------------|---|-------------------------------|------------------------|-----------------------|-------------------|
| MASTERGAN6 | 600 V enhancement mode GaN half-bridge with integrated driver | 18 | Embedded gate driver, full set of protections, integrated LDOs & bootstrap diode, 3.3 V to 15 V input voltage range | 10 | 150 | 150 | EVLMG6 |
| MASTERGAN7 | | | | 6 | 270 | 270 | EVLMG7* |

*Available Q3 2026

© STMicroelectronics - May 2026 - Printed in the United Kingdom - All rights reserved
 ST and the ST logo are registered and/or unregistered trademarks of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. In particular, ST and the ST logo are Registered in the US Patent and Trademark Office.
 For additional information about ST trademarks, please refer to www.st.com/trademarks.
 All other product or service names are the property of their respective owners.

