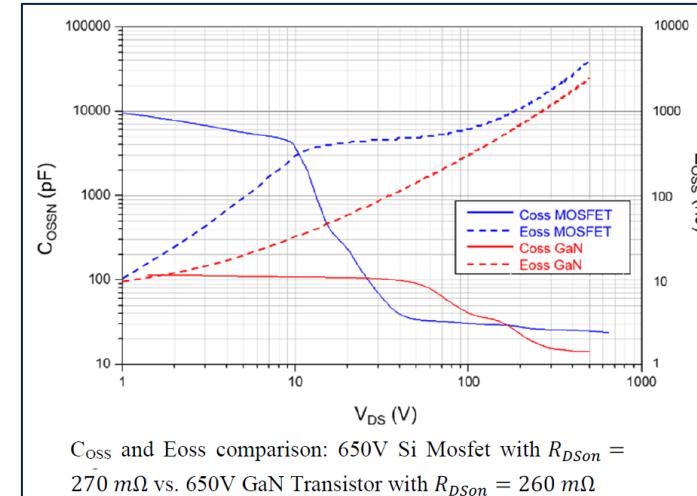




# MasterGaN系列

# 氮化镓 vs. 硅基功率管

- 氮化镓高电子迁移晶体管（简称GaN晶体管）属于宽禁带半导体材料的一种，近年来在电力电子领域的应用取得了很大的发展。与传统硅基晶体管相比，它在高频率开关电源中更有优势并能提供更高的效率和功率密度。



	GaN	Silicon	Comments
Qg-栅极电荷	低	高	GaN具有更低的驱动损耗以实现高频 & 高效率
Coss-输出电容	低	高	GaN具有更低的开关损耗以实现高频 & 高效率
Qrr-反向恢复	低	高	GaN更适合于高频 & 高效率应用场合
Vgs- 驱动信号	复杂	容易	GaN需要更好的驱动电路及PCB设计
Vsd-寄生二极管反向导通压降	高	低	GaN 需要更好的死区时间控制

# MasterGaN® 系列

## QFN 9x9 mm<sup>2</sup> pin-to-pin

MasterGaN系列提供半桥结构各种Rds(on)的选择



From 45 up to 400 W

MasterGaN1

对称结构

150 + 150 mΩ

量产

MasterGaN2

非对称结构

150 + 225 mΩ

量产

MasterGaN3

非对称结构

225 + 500 mΩ

开发中

MasterGaN4

对称结构

225 + 225 mΩ

开发中

MasterGaN5

对称结构

500 + 500 mΩ

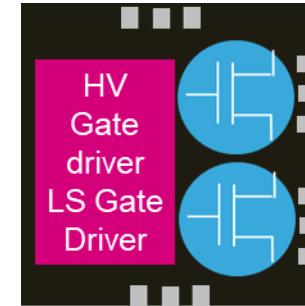
开发中

整个系列预计于2021上半年量产

# MasterGaN的应用及主要优势



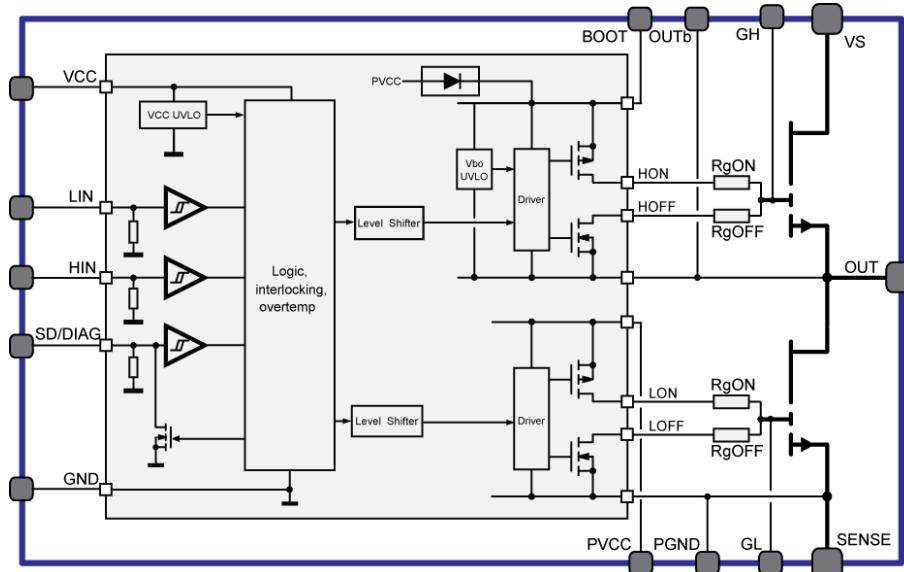
应用领域
通讯/服务器电源
5G 通讯基站电源
EV/HEV充电站
UPS储能系统
DC-AC太阳能逆变器
电脑电源，OLED TV电源
高功率密度AC-DC适配器 USB-PD 快充电源



## 主要优势

- 体积小，便于PCB设计
- 减少外围器件数量，集成化设计包含了GaN驱动电路
- 可靠的解决方案：集成了GaN晶体管和半桥驱动电路
- 封装：GQFN 9x9
- 应用灵活，简便
- 同系列提供30-500W P2P兼容方案可选

## 集成驱动电路的高功率密度半桥 650V GaN

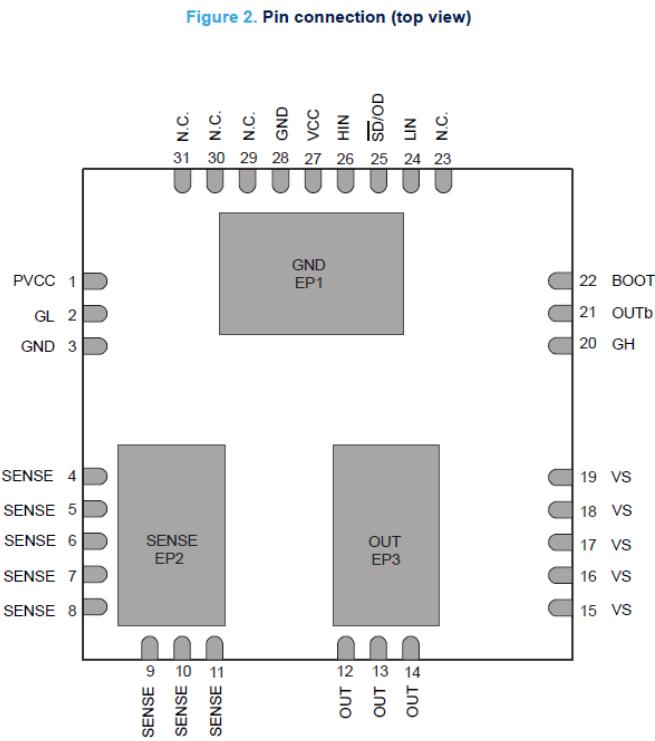


GQFN 9x9

### 特点

- 此功率芯片集成了驱动电路和两个高压GaN晶体管：
  - $BVDSS = 650 \text{ V}$
  - $RDS(\text{ON})$  值
    - $\text{MASTERGAN1} = 150 \text{ m}\Omega$
    - $\text{MASTERGAN2} = 150 \text{ m}\Omega \text{ (LS)} + 225 \text{ m}\Omega \text{ (HS)}$
  - $IDS(\text{MAX}) = 10 \text{ A}$
- 反向电流能力
- 没有反向恢复损耗
- 高压和低压侧的欠压保护
- 内部集成了泵压二极管
- 驱动互锁功能
- 有使能功能的控制脚
- 精确的时序控制
- 输入信号兼容3.3 V 到 15 V
- 过温保护
- 有效减小外围电路
- PCB设计简单
- 应用灵活，简便

## Pin脚功能



Pin Number	Pin Name	Type	Function
15, 16, 17, 18, 19	VS	Power Supply	High voltage supply (high-side GaN Drain)
12, 13, 14, EP3	OUT	Power Output	Half-bridge output
4, 5, 6, 7, 8, 9, 10, 11, EP2	SENSE	Power Supply	Half-bridge sense (low-side GaN Source)
22	BOOT	Power Supply	Gate driver high-side supply voltage
21	OUTb	Power Supply	Gate driver high-side reference voltage, used only for Bootstrap capacitor connection. Internally connected to OUT.
27	VCC	Power Supply	Logic supply voltage
1	PVCC	Power Supply	Gate driver low-side supply voltage
28, EP1	GND	Power Supply	Logic ground
3	PGND	Power Supply	Gate driver low-side driver reference. Internally connected to SENSE.
26	HIN	Logic Input	High-Side driver logic input
24	LIN	Logic Input	Low-Side driver logic input
25	SD/OD	Logic Input-Output	Driver Shutdown input and Over-Temperature
2	GL	Output	Low-Side GaN gate.
20	GH	Output	High-Side GaN gate.
23, 29, 30, 31	N.C.	Not Connected	Leave floating



life.augmented

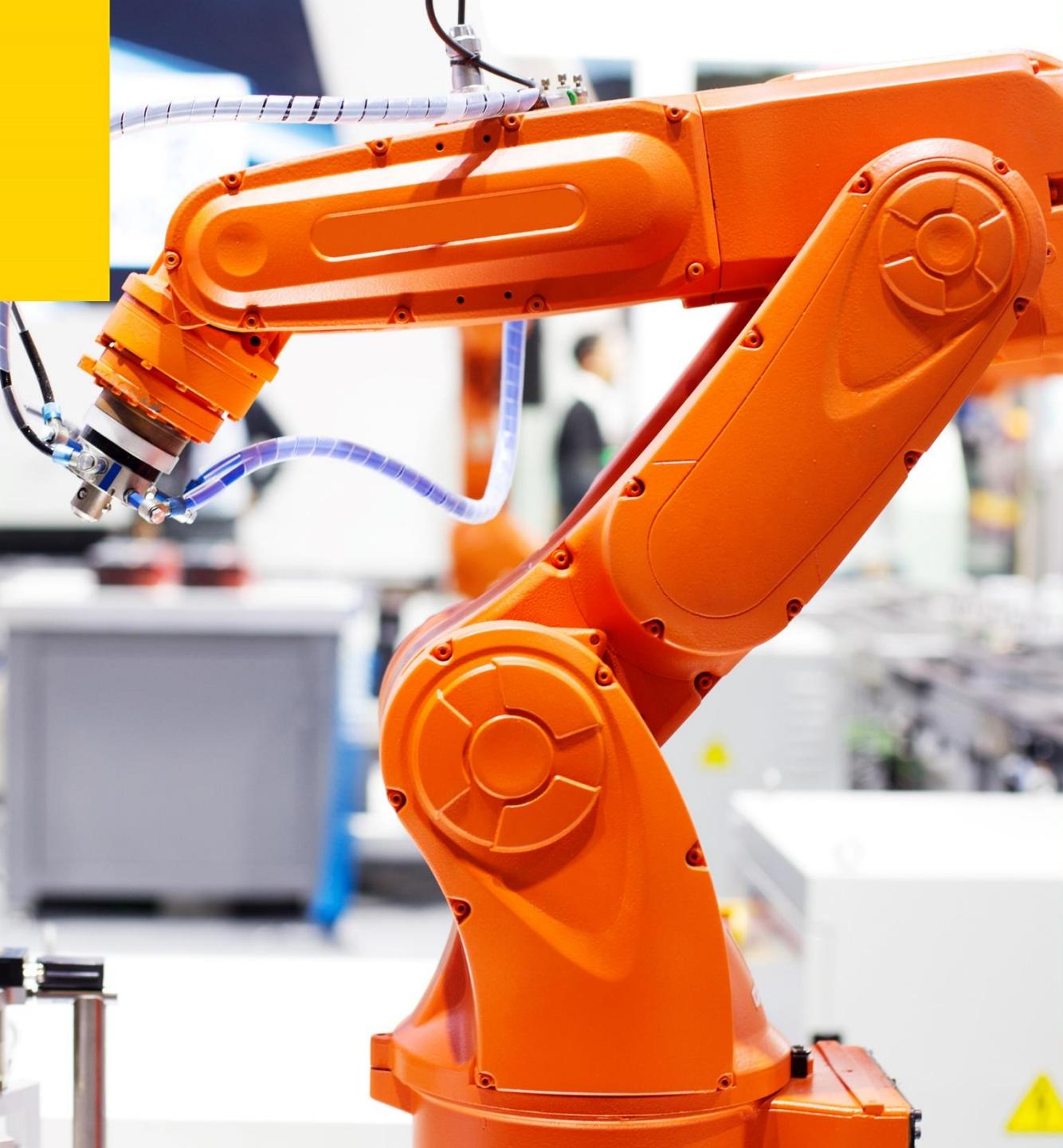
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获得功率及模拟产品更多资讯



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能以致动子网站



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