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High-voltage GaN Power Device Technology and Market Status

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报告人简介 (Aboutspeaker) : 吴毅锋博士于1985获清华大学学士学位, 1994/1997获加州大学圣芭芭拉分校机械工程硕士/电气工程博士学位。从1995至2008年他在加州大学、Nitres和CREE公司开拓GaN微波器件技术, 做出文献上第一颗GaN大信号射频器件(1996)并引领十年GaN射频器件技术革命, 功率密度提升40倍。从2008至2021年他在Transphorm公司开发高压GaN电力电子器件产品, 在2013/2017分别推出业界首批600V和900V商用GaN-on-Si器件产品。吴博士因为在氮化镓微波和功率转换器件领域做出的原创性和拓展性贡献因而入选2021年IEEE Fellow。他拥有112项美国专利, 撰写的250发表物在谷歌学者引用量超过17,000次。吴博士现任珠海镓未来科技(GaNext) CTO, 进一步推动氮化镓功率电子产业化进程。

摘要 (Abstract) : High-voltage GaN power devices have gone through their development phase and are now steadily entering the power electronics market. Exciting news includes public availability of attractive compact GaN PD adapters that can quickly charge a power-hungry 5G cellphone in a mere 30min as compared to 2+hrs before. GaN makers are further targeting higher-power applications for extended impact. This presentation offers a comprehensive look at the status of 650V GaN products superior to the state-of-the-art Si devices. Topics to cover include GaN's physical advantages as a power semiconductor, device designs, properties and performance, competitiveness of GaN over Si and SiC counterparts, as well as reliability lessons learnt and market status of GaN product makers in China and over the world.

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http://www.phy.pku.edu.cn/icmp/xsjl/njtwl__bjdxlt.htm