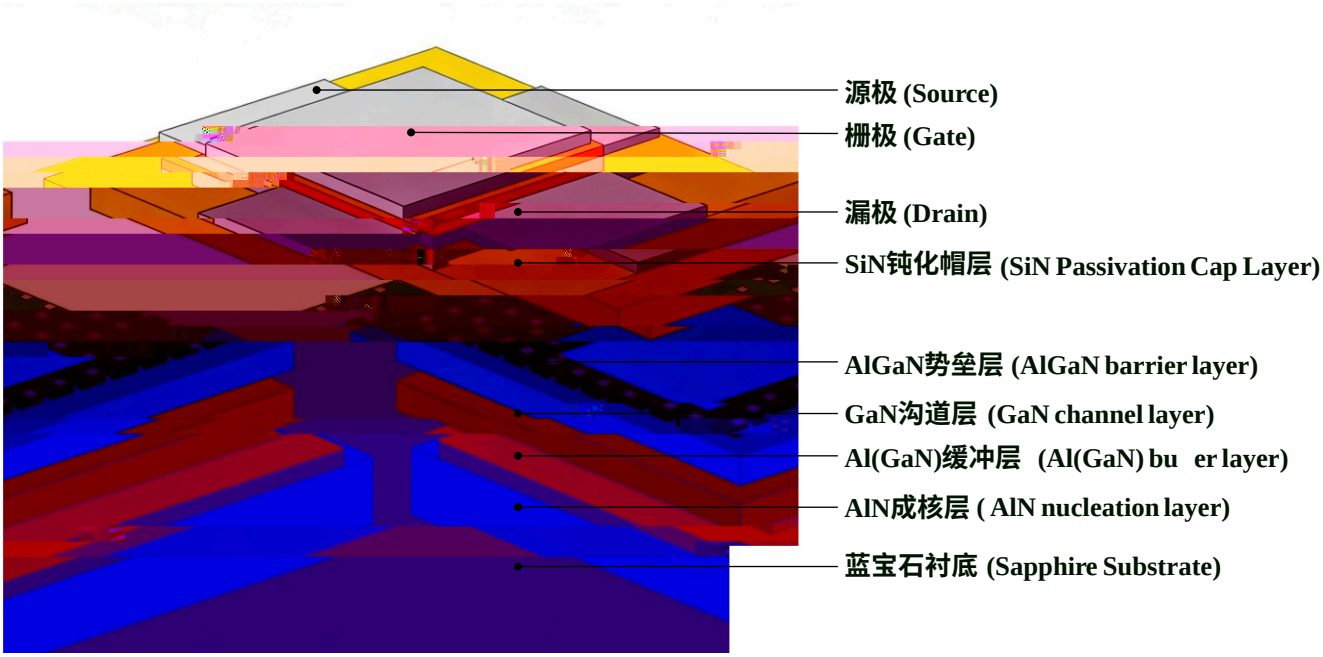
TDG 天通控股股份有限公司
TDG HOLDING CO.,LTD.

股票代码（Stock Code）：600330

GaN 功率器件用蓝宝石衬底
Sapphire Substrate for GaN Power Device

突破功率器件性能极限·高可靠外延与器件制造核心基底

Breakthrough in Performance Limits of Power Devices • Core Substrate for Highly Reliable Epitaxy and Device Manufacturing



高绝缘 | 低寄生 | 高耐压 | 与 GaN 完美匹配

—— 为 650V-8KV 中高压 GaN HEMT / 功率开关量身打造

High Insulation | Low Parasitics |Medium & High Voltage Endurance | Perfectly Matched with GaN
—— Tailored for 650V–8KV High-Voltage GaN HEMTs / Power Switches

GaN 功率器件的理想衬底选择——蓝宝石

The Ideal Substrate Choice for GaN Power Devices–Sapphire

低热失配 | Low thermal mismatch

GaN 16%）

-34%） GaN HEMT 60%

Compared with traditional substrates, sapphire substrate has lower lattice mismatch (16%) and thermal expansion coe cient mismatch (-34%) with GaN, which simplifies the bu er layer design of GaN HEMTs (thickness can be reduced by more than 60%), thus reducing epitaxy cost.

高绝缘性能 | High Insulation Property

> 1011 Ω·cm），

Sapphire substrate has extremely high resistivity (>1011Ω•cm), exhibiting excellent insulation performance, e ectively blocking leakage current, and meeting the stringent requirements of automotive and industrial high-voltage applications. Compared with traditional substrates, sapphire o ers greater safety in high-voltage applications.

高机械强度 | High Mechanical Strength

345~420GPa，

Ultra-high mechanical strength, Young's modulus of 345~420GPa. It e ectively suppresses wafer deformation and warpage during the process, improving the uniformity and yield of epitaxial growth.

低介电常数 | Low Dielectric Constant

9.5，

GaN

Its dielectric constant is approximately 9.5, much lower than that of traditional substrates. This characteristic helps reduce the parasitic capacitance of the device, thereby reducing switching losses, perfectly matching the high-frequency operating characteristics of GaN devices.

GaN 功率器件用蓝宝石衬底规格

Specifications of Sapphire Substrates for GaN Power Devices

性能 Properties	规格 Specification	
	6 inch	8 inch
纯度 Purity	≥99.9998%	
直径 Diameter	150.00mm±0.20mm	200.00mm±0.20mm
厚度 Thickness	1000μm±20μm	1000μm±25μm
a面(11-20)取向 A-Plane o cut	0±0.1°	0°±0.1°
m面(1-100)取向 M-Plane o cut	0.2°±0.05°	0.2°±0.05°
定位面方向 orientation notch&Flat	A-plane±0.25°	A-plane±0.25°
正面粗糙度 Frontside Roughness	Ra≤0.2nm	Ra≤0.2nm
背面粗糙度 Backside Roughness	Ra:0.8μm±0.2μm	Ra:0.8μm±0.2μm
倒角面型 Edge Chamfer Type	T-type	T-type
TTV	≤10μm	≤10μm
WARP	≤15μm	≤20μm
BOW	-15-0μm	-20~10μm

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Remarks: Specs can be customized in SSP or DSP according to customer requirements, specific specs can be optimized for di erent applications.

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(:600330) 1984 2001

TDG Holding Co., Ltd (stock code: 600330) was founded in 1984 and listed on the Shanghai Stock Exchange in 2001.TDG is the first listed company in China that is controlled by individual shareholders. After forty years ofdevelopment, TDG possesses several holding and joint stock companies, and now has formed four major businesssegments: electronic materials, electronic modules, intelligent equipment and green energy. Its business coversthe upstream and downstream of the electronic information material industry chain and it is a high-tech enterprise integrating scientific research, manufacturingand sales.

2014

MicroLED 5G

TDG Yinxia New Material Co., Ltd was established in 2014 and is a wholly-owned subsidiary of TDG Holding Co. Ltd.TDG Yinxia is a leading company in the industry that produces large - sized sapphire crystals using the improved KYcrystal growth method. Its main business is research and development, manufacturing and sales of sapphirecrystals, sapphire ingots and sapphire substrates. Its products are mainly used in industry, pharmaceuticals,integrated circuits, smartphone terminals, new generation Micro minal

天通银厦新材料有限公司 TDG Yinxia New Material Co., Ltd

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