



transphorm

OTCQX: TGAN

Leading the GaN Revolution

Quarterly Business Update

May 18, 2021

transphorm

Highest Performance, Highest Reliability GaN



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Leading the GaN Revolution

Disruptive Technology

GaN enables next generation power conversion solutions in rapidly growing, significant markets

Commercially Ramping

Technology and product development completed, set up for 50-80% revenue CAGR

Large Market Opportunity: Electric Vehicle and 5G

Transphorm's GaN Solutions will Enable the Future of Electric Vehicles and fast-charging for 5G

Best-In-Class GaN Technology and Industry's Strongest IP Position

IP portfolio recently appraised in excess of \$200M

Validation From Blue Chip Partners and Customers

Including Nexperia, Marelli, Yaskawa, Microchip and the U.S. Department of Defense (Navy)

Publicly Traded
GaN Company
OTCQX: TGAN

Team Led by World- Renowned GaN Experts

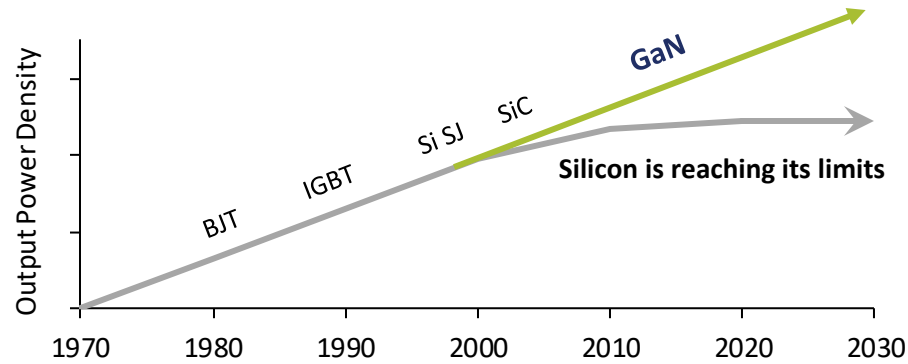
18 PhDs and over 300
Years of GaN Expertise



GaN is the Future of Power Semiconductors

“Moore’s Law” for Power Electronics

GaN Provides the Path to Continue to Scale Power Densities



GaN vs. Silicon & Silicon Carbide

Intrinsic Performance Advantages

- GaN offers higher efficiencies with lowest losses in power conversion at any voltage range
- GaN can operate at much higher frequency

Relative Cost Advantages

- GaN on Silicon less expensive than Silicon Carbide
- GaN offers lower system cost than Silicon
- Roadmap for GaN to approach cost parity with Silicon at device-level



99%

Efficiency

40%

Higher Power Density

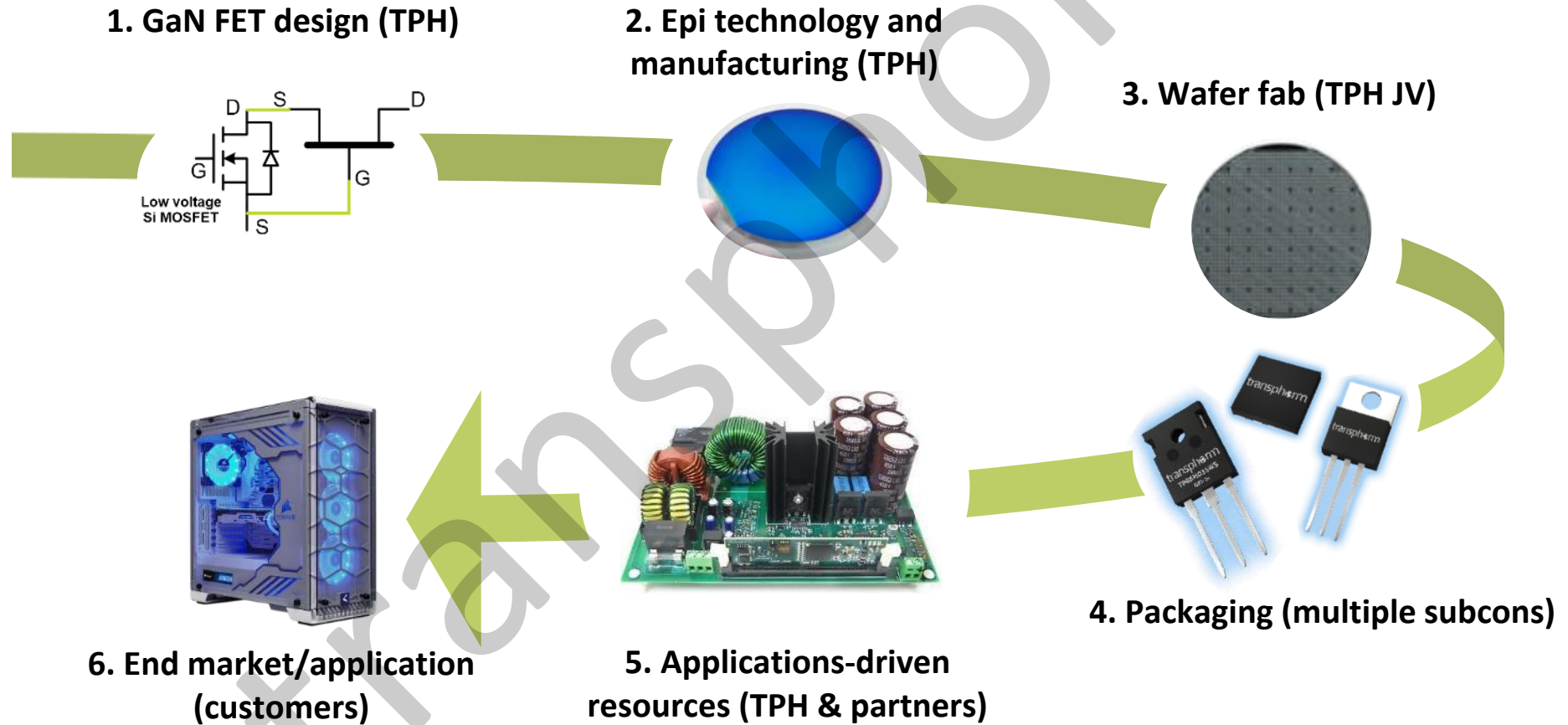
20%

Lower System Cost

Smaller, Lighter, and Cooler Power Systems Drives Increased Functional Value

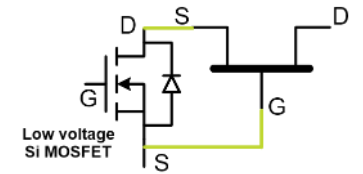
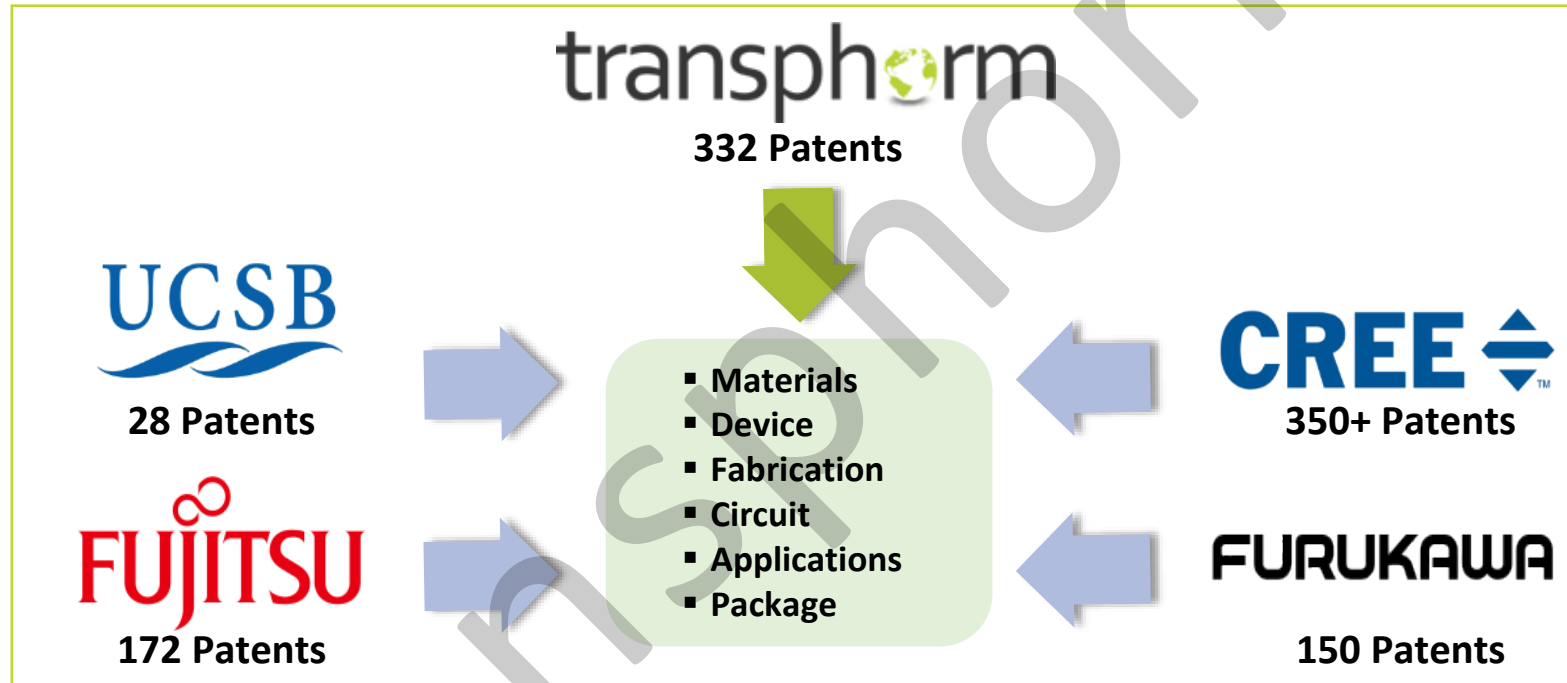
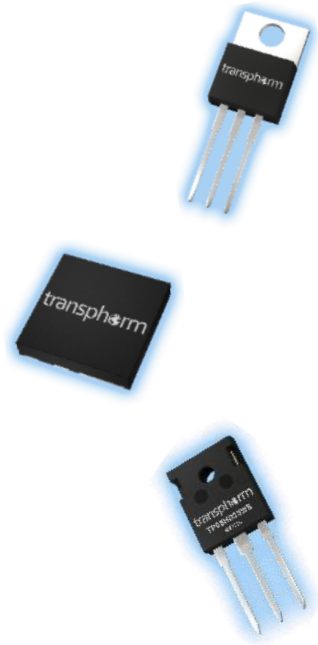
In-House Capabilities Span Complete Value Chain

End-to-End Process Drives Innovation and Leadership in GaN Technology



Industry's Strongest GaN IP Position

1,000+ Worldwide Owned and Licensed Patents Valued in Excess of \$200 Million⁽¹⁾



“Transphorm today has the **dream patent portfolio** for all those who want to **benefit** from strategic advantages in **GaN power electronics** market...”⁽²⁾

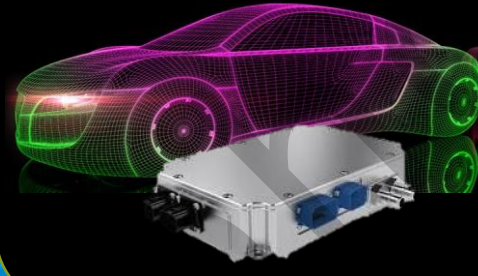
1) 2021 Analysis done for GaN portfolio using Intracom Group Intellectual Property Solutions’ patent valuation models based on 27 independent criteria, value consists of Transphorm’s owned or exclusively licensed patents (non-exclusive patents not included)
 2) KnowMade Patent and Technology Intelligence report, “Power GaN intellectual property (IP): high-voltage power semiconductor leaders, a core set of strong IP players and numerous newcomers.”

Mega Market Trends Driving Growth for GaN

~500M 5G handsets
in 2021⁽¹⁾



~30M Electric Vehicles
in 2025⁽²⁾



\$800M+ GaN RF
Market in 2021⁽³⁾



Smartphone/5G

- Smartphones & Tablets
- Laptops & Gaming Consoles
- Crypto-Mining

Electric Vehicles

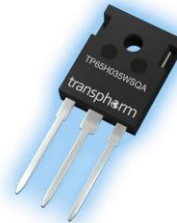
- On-board Chargers
- Power Converters
- Power Inverters

5G – RF Devices

- Infrastructure
- High-Frequency Broadband
- DoD



GaN Power FETs



Epiwafer

Notes:

1) BofA Global Research.

2) Department of Industry, Innovation and Science (2019).

3) Strategy Analytics: RF GaN Market Forecast: 2018 – 2023.

Targeting \$3 Billion Market Opportunity

Upside to TAM Expected From Electric Vehicle Powertrain Starting in 2025

End Market Applications and GaN Benefits

Near Term

Power Adapters | Compute



- Fast Charging
- Lower thermals/improved power density/smaller form factor
- Lower system cost

Data Center | Comm Infrastructure | Crypto-Mining



- Ability to double available power in standardized server and 5G telecom form factors
- Enable Ti-class efficiency EU requirement

Broad Industrial



- Reduces size/weight of systems
- More efficient charging for battery and/or battery-powered equipment and vehicles

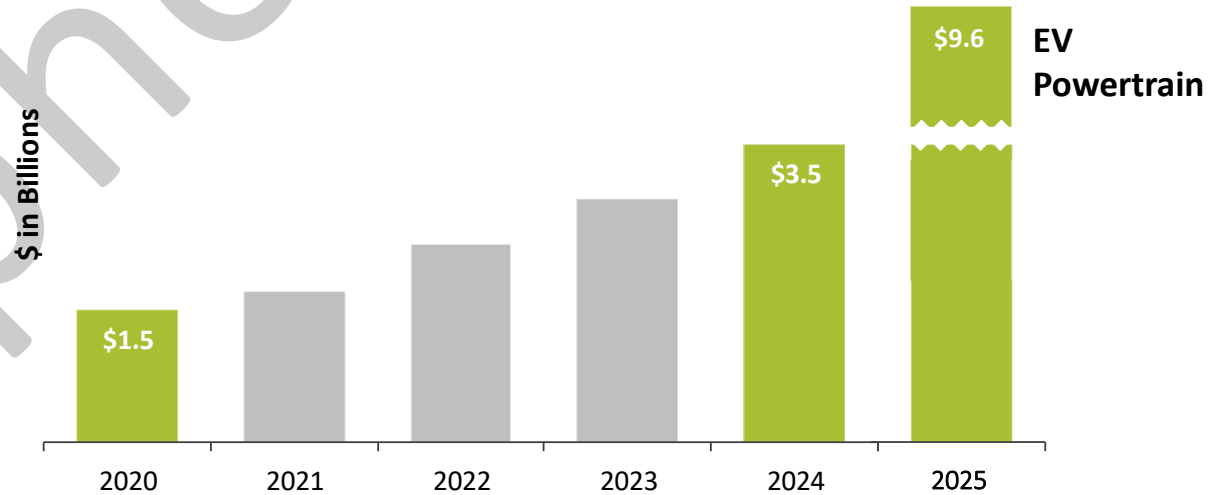
Long Term

Automotive EV and Charging | EV Powertrain (2025)



- Reduces size/weight of on-board chargers, power converters and power inverters
- Resulting in longer distance per charge

Total Addressable Market for GaN⁽¹⁾

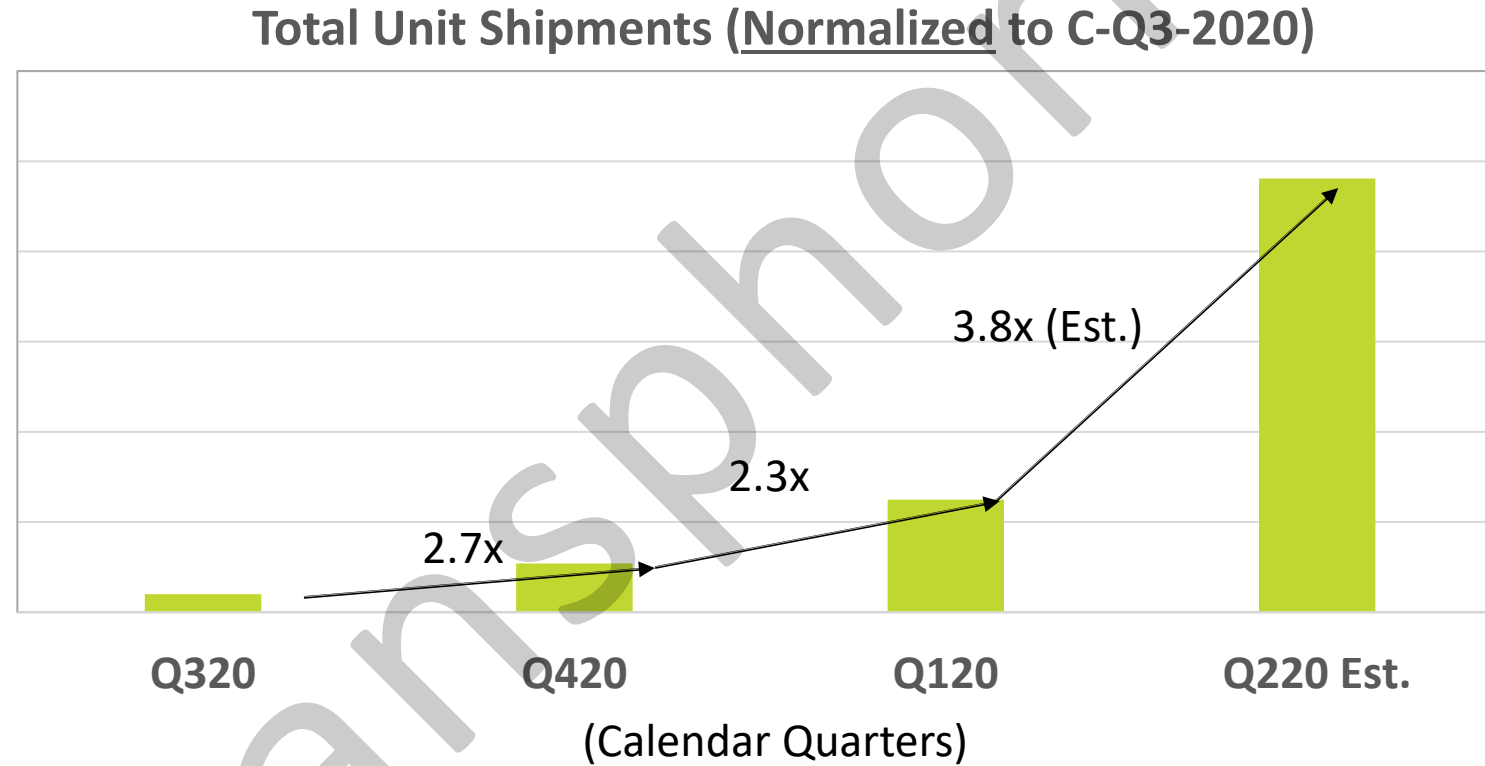


Notes:

1) Sources: IDC (Data Center / Comm Infrastructure); Counterpoint Research, Mordor Intelligence (Power Adapters / Compute); Yole, IHS (Broad Industrial); Department of Industry, Innovation and Science (2019) (Automotive). TAM values are then calculated based on available technology, competition and value add to market.

Rapid Expansion in Shipments of Power Products

188% CAGR (Est.) from July 2020 to June 2021



Transphorm's rapid expansion driven by growth in Adapter/Charger market with Superior Technology

+

Sustained shipping in higher power gaming/server/crypto-mining segments

TGAN Advantage – Externally Validated Superiority

in 65W adapters over e-mode GaN



Active Clamp Feedback (ACF)

Silanna – Transphorm 65W ACF

- Outpacing today’s Si and other GaN devices with:
 - Power density of **30 W/in³***
 - Efficiency **> 94 percent** ($V_{ac} = 230V$, $V_{out} = 20V$)
- Minimal accessory components needed for our GaN FET devices (vs. e-mode GaN)
- Smaller ACF controller footprint
- Best-in-class Q+R with Transphorm GaN



SuperGaN™



* Pre enclosure or open frame

Quasi-Resonant Flyback (QRF)

HELPERS LAB 65W USB-C Power Adapter



Quote: “Compared with 175 mΩ (*larger*) GaN of other companies, Transphorm of the United States adopts 300 mΩ (*smaller*) GaN and still achieves high efficiency” – [Changdiantou](#)

Higher Efficiency/Power Density

Lower Temperature Rise

Less BoM Components

Proven Performance for Higher Power

Industry leading Transphorm GaN: >25% lower loss vs. SiC FETs

Lowest R_{on} /Highest current 650V GaN in a Package
Delivers 12 kW / 98.5%



VS

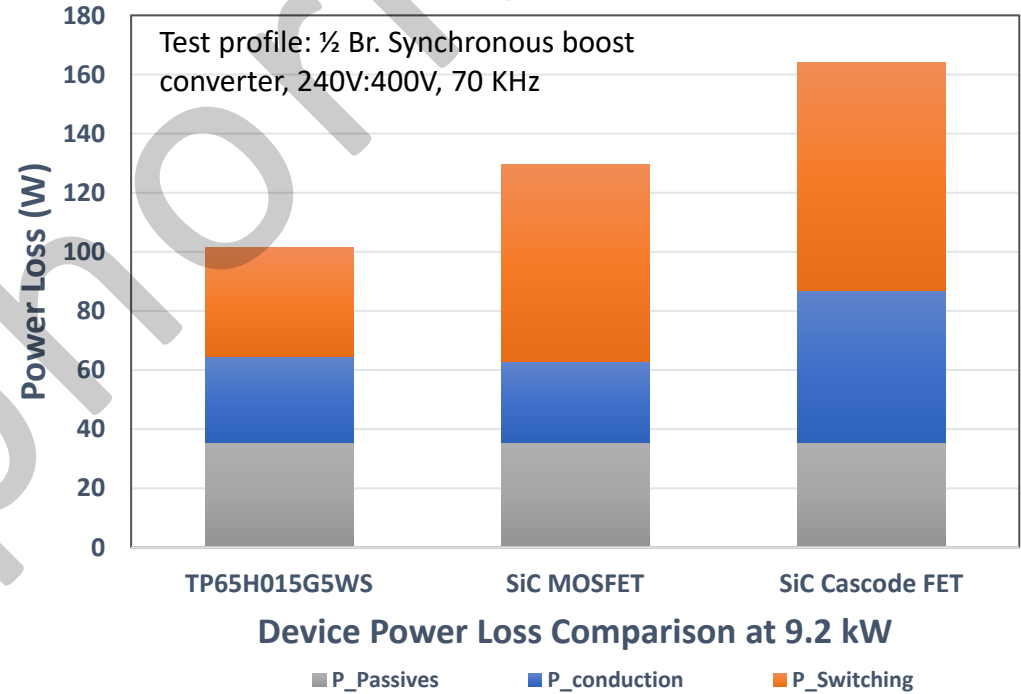


Higher Efficiency

Cooler Operation

Higher Power

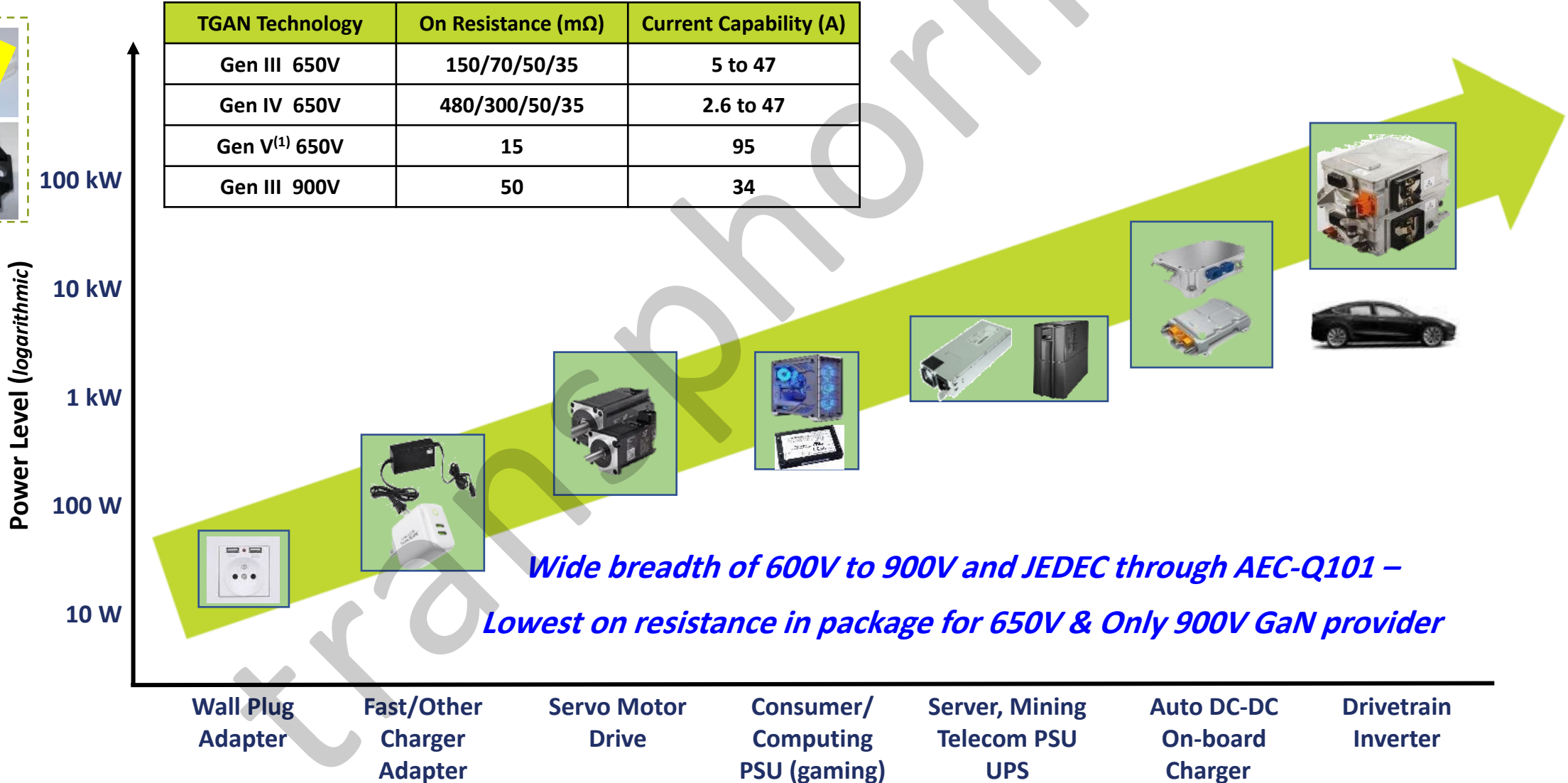
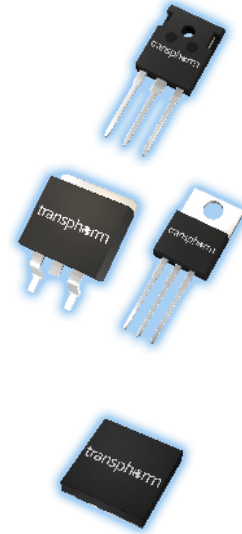
Lower Losses



- Up to 38% power loss reduction at 9.2 kW
- Approximately 20% lower junction temperature with GaN
- Highest combination of power & efficiency

Comprehensive GaN Product Portfolio: 45W to 10kW

Enables market growth across multiple target verticals



Business Update – Execution on Key Priorities - 1

Record Revenues in Jan-March 2021 of \$2.4M (non licensing)



Fast Chargers/Adapters – Mobile and Notebook

- 10 designs released in production, secured additional 7-figure unit POs
- 10+ *design-ins ongoing* – TPH GaN FET for better efficiency, reliability, simpler BoM vs. e-mode GaN
- Complete adapter reference designs – In-house and with reputed controller company partners
 - *2-3 targeted by end June*
- On track for > 1 million/month capacity in C4Q '21
 - *Release production at 2nd packaging source, 24x7 Epiwafer manufacturing*



Higher Power Products – Gaming / Crypto / Server / UPS

- Gen4 (TO247) production ships into crypto-mining win
- Doubled higher power TO247 ships in C1Q '21 vs. C4Q '20, with 5 key customers in production
- Demonstrated record low 15 mohm R_{on} (highest current) 650V GaN in package
 - *Release in C3Q '21 (Gen 5)*



Epi-wafer Products – Government and RF Customers

- Multiple customers with repeat orders for Gallium Polar & Nitrogen Polar RF Epi (unique TPH IP)
 - *Establish 5-6 repeat customers*
- First pilot shipment of std. GaN RF epi to large commercial entity, *1 std. commercial win by end 2021*



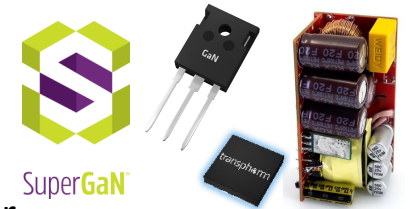
Business Update – Execution on Key Priorities - 2

New products/designs on target, Strong execution on Partners/Government



New Products and Reference Designs to Enhance Revenue Ramp

- GaN Power products: 2-3 additional Gen 4 for 45-100 Watt+ adapters and higher power kW class
- Adapter reference designs: *Total 4-6 complete designs (45W – 150W) in 2nd half of calendar year*
- Automotive – *Sample Gen4 high power and continue Gen5 auto-qualification (highest power discrete GaN)*



Execution on Strategic partnerships

- Yaskawa (Industrial) – Product development on track, *Meet milestone, secure \$0.75M NRE*
- Nexperia (Automotive focus) – *Extension of long-term cooperation agreements, technology milestones and wafer sales*
- Marelli (Automotive) – \$1M incremental equity investment in March '21 (\$5M in total), *continue product development with multiple Marelli entities*



Securing Government Program Revenue (complementing Epi business, internal R&D)

- Navy program revenues (*>\$3M in CY'21*), continued capability for CA Epi manufacturing
- *Complete negotiations on new DARPA program, \$1m/18 mths, focused on RF GaN Epi*





Transphorm Inc. Leading the GaN Revolution

Financial Update
May 18, 2021

transphorm

Highest Performance, Highest Reliability GaN



Financial Overview

	Q1 2020	Q4 2020	Q1 2021
<i>(numbers in thousands, \$k)</i>			
Revenue, net	1,100	2,013	~ \$2.4m, ~20% increase from Q4'2020
Operating expenses:			
Cost of goods sold	1,595	1,936	
Research and development	1,283	1,453	~ 10% increase from Q4'2020
Sales and marketing	518	581	
General and administrative	3,136	2,490	
Total operating expenses	6,532	6,460	
Loss from operations	(5,432)	(4,447)	
Other (income)/expenses	(1,245)	265	
Loss before tax expense	(4,187)	(4,712)	

Audit procedures are still ongoing – as such the numbers for Qtr/End March 31st are preliminary and are subject to change

Revenue ~20% increase

- Increased adoption of our GaN power device products for fast chargers/adapters
- Increased demand from power supply manufacturers in support of crypto-mining power, gaming and data-center applications

OPEX ~10% increase

- Increased headcount to support Manufacturing, Sales/Applications and G&A
- R&D higher due to lower ONR absorption
- G&A increase driven by annual compliance requirements

General Comments

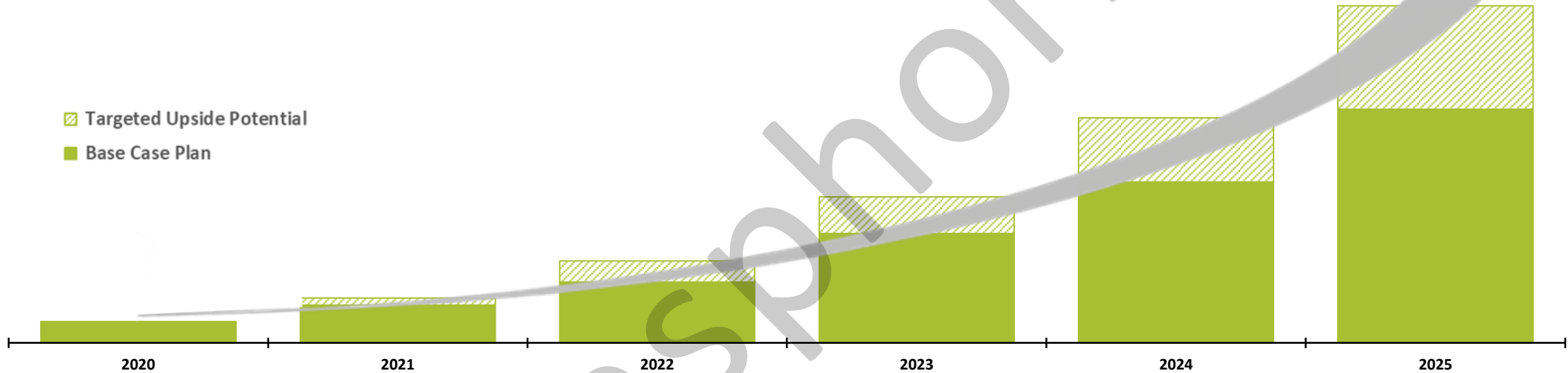
- R&D spend offset by Governmental activity - absorbing a proportion of costs
- G&A costs include Company leadership, Finance, HR and other support functions
- G&A Q1 2020 higher due to 1-off incremental APO and related costs.
- G&A base costs higher due to increased ongoing compliance, personnel & insurance costs.

Additional Updates

- **Balance Sheet Notables**
 - Cash Balance - \$9.5m
 - Increased inventory to support revenue growth
 - Marelli completed \$1m investment in the quarter
 - Other assets and liabilities remain largely stable
- **Company changed Fiscal Year to March 31, 2021**
 - Form 8-K submitted
 - Audit procedures are progressing towards a 10-KT filing in mid-June
 - This change is a component toward the company's stated desire to up-list onto Nasdaq
- **TGAN invited to trade on the OTCQX market**

Long-Term Growth

Building a High-Growth, Cash Generating Business



Operating Guidelines

- Accelerating top-line growth and GaN adoption across all target end markets
- OpEx for continued development of best-in-class products and IP portfolio
- CAPEX investment for increased scale

Target Model:

- 5-year CAGR range: **50%+**
- Gross Margin: **40%+**
- Operating Margin: **20%+**
- Free Cash Flow: **10%+**

Key Investment Highlights

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Years of GaN Expertise

