
TGAN
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Leading the GaN Revolution
Fiscal Q3’23 Investor Update
February 23rd, 2023 NASDAQ: TGAN

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Key Focus – Scaling Product Revenue to address $400 million+ Pipeline

1) High Power Leadership / Low Power expansion, 2) Capacity & Supply Chain 3) Product/Tech Leadership

Key focus areas	Achieved
1. Revenue/Products	✓ $3.94M Products, QoQ Up 25%, High Power Revenue > 70% ✓ Total Revenue $4.5M
2. Adapters/Chargers: Design-ins, Production, Solutions (45W – 300W)	✓ Design-Ins: 80+ (10 new) ✓ In Production: 25+ (3 new) ✓ Solutions/Reference designs: 15
3. High power: Design-Ins, Production, Ref. Designs (300W-4kW)	✓ Design-Ins: 55+ (10 new) ✓ In Production: 25 (4 new) ✓ Evaluation kits/Reference designs: 10 (up to 4kW)
4. Product SKUs and Qualification	✓ Total: 17 (AEC qualified: 3) ✓ Continued sampling broad customer set with low power industry pin-pin pkg, TPH performance pkg, and new robust high-power pkgs
5. Capacity Proof Points	✓ Japan Epi-wafer process stabilized, now ready for ramping capacity ✓ New Reactors delivered at Global Wafers (on track) ✓ Developing lower cost high power packaging partners/sub-cons (dual source, improve margins)

Gaining traction, Fortune 100 Wins – Adapters & Chargers (80+ design-ins)

30-45W Class | **60-70W Class** | **90-140W Class** | **150-250W Class**

Wall plug – high efficiency, compact (35 W)

Compact 30 W Power Bar

***New* Ultra slim, light weight 65 W**

***New*, With Display 67 W**

65 W 2C-1A

Compact Power Bar, 65 W 1A-1C

Quick Charge-5, USB C PD (100 W)

Compact 100 W 2C-1A

120 W 2C-2A-Axial

Notebook – small size, 200 kHz (160 W)

Multi out 150 W (2C-1A)

Ultra compact 240 W

HP 65 Watt, 2C High Efficiency,

65W, India Market 2C-1A

Compact USB-C 150 W

NEW DESIGN SNAPSHOTS

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Building momentum in High Power (55+ design-ins, 10 new)

Efficient, Reliable, Highest Performance, East of Drivability and Designability

"The Corsair AX1600i is the **best PSU** that money can buy today, period."

tom's HARDWARE

GaN benefit of low switching loss, 1st gaming psu with GaN in ASUS

Gaming

80 PLUS TITANIUM

"Transphorm's GaN in a totem-pole PFC configuration proved the **most reliable, highest performing** solution possible today"

Server/Computing

"Based largely on the power semiconductors' proven quality and reliability as well as the team's reputation for **successful collaboration**"

TDK

Industrial

3 kVA UPS **2 kVA UPS**

>93% efficient

Smallest (2U->1U) powerful 3kVA UPS – Today, Super GaN® is the only technology that can enable this Solution

Energy

Micro-inverter (PV Solar)

80 PLUS TITANIUM

Server Power

NEW DESIGNS SNAPSHOTS HIGH POWER

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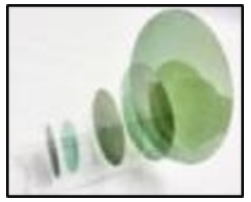
Key Business Update – Strategic Partnerships

Manufacturing Capacity Increase, Partnerships – Expanding to meet strong demand

- **All acquired reactor deliveries completed, Global Wafers (Partner) – Expansion project on track**
- AFSW Fab (Transphorm's JV) – Managing with GaNovation (Financial/Strategic partner)



Transphorm's OBC Reference Solution

Industrial and Automotive

- **Yaskawa** (Industrial) – Secured pending $0.5 million development funding (Jan '23)
- **Nexperia** (Automotive focus) – Continued epi and fab wafer supply, long-term partnership
- **EV 2/3/4 Wheelers: > 10 Asia based customers in discussion for EV 2, 3 Wheelers, 1st win by end CY23**
  - Continuing design-ins with EV 4W, for CY 2024-25, OBC, dc-dc Converter opportunities, initial look at drive train (2026-27 potential)

Government Revenue and Epi Business

- Navy and Government Programs – Billing $0.5m in FQ3'23, current program completed
  - **Submission for a new $15 million program for next 3 years (expect CY Q1'23 award, start).**
- Manufacturing Funding – Pursuing CHIPS act funding to expand US Epiwafer manufacturing and Microelectronics Commons funding for US based GaN R&D (higher voltage GaN, rf GaN)

TGAN – One Core Platform, Crossing the Power Spectrum

Targeting $3B Power Market Opportunity in 2023, Upside from EV Powertrain 2025+

End customers in Production with TPH GaN– 45W to 4 kW, 100 Billion Field Hours

- Fast charging
- Lower thermals/ smaller form factor
- Lower system cost

- Proven ability to double available power in standardized server/5G telecom form factors
- Enable Titanium-class efficiency EU requirement, Broad IP

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

- 2/3/4 Wheeler EV: Reduces size/weight of on-board chargers, converters and inverters
- Longer distance per charge

Key ESG Impact: Over 300 Tera Watt Hours Electricity Savings next 2 decades

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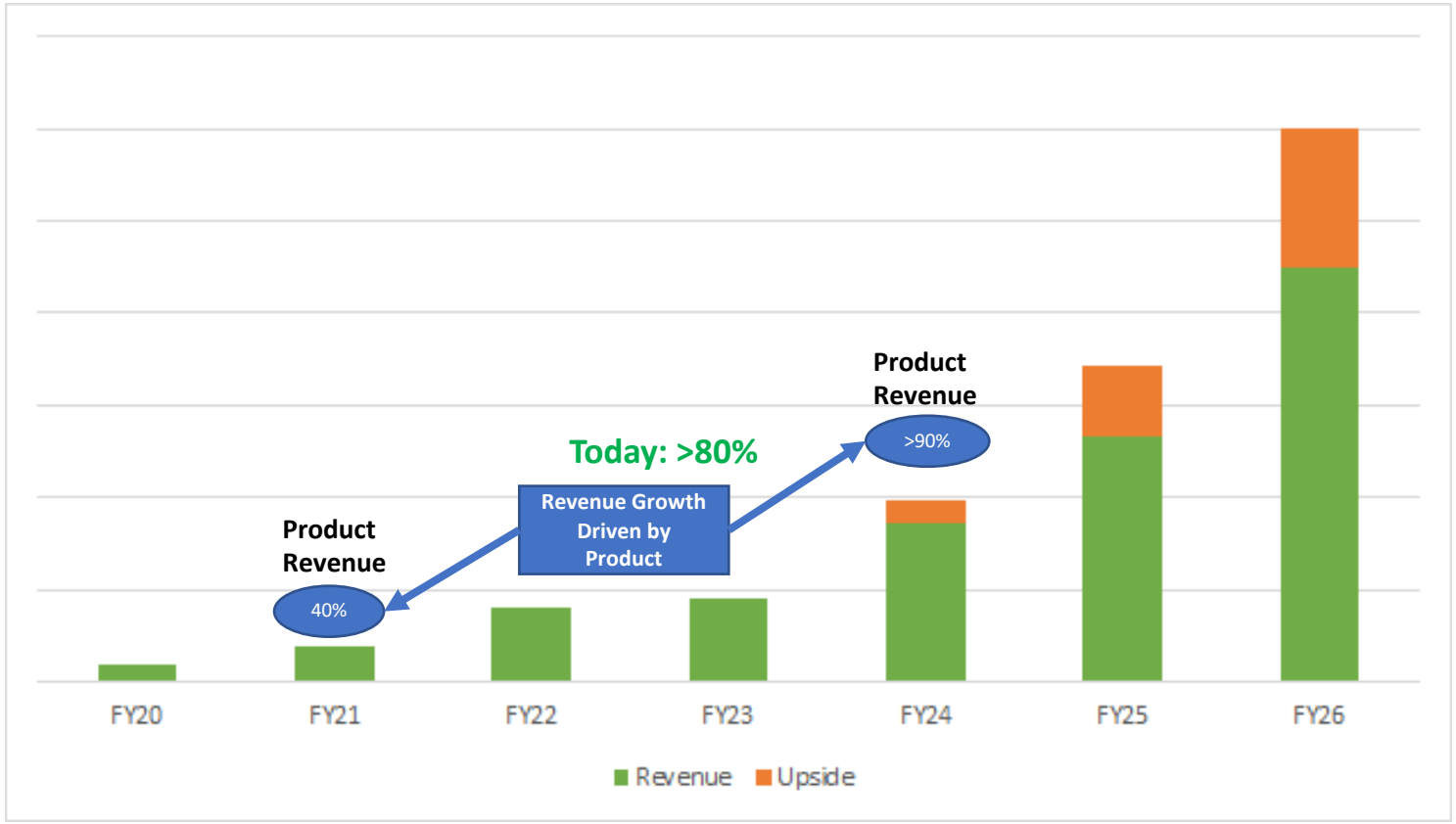
Key Financial Highlights

	Q3 FY23	Q2 FY23	Commentary
Revenue	**$4.5m** (>85% Product)	**$3.7m** (>85% Product)	• Total Revenue increased 22% from Q2'FY23 • Product revenue increased 25% from Q2'FY23 • Product revenue increased 9% from Q3'FY22
Gross Margin	**(59)%**	**12%**	• One-time EPI-Wafer inventory write-off impacted Gross Margin – excluding write-off comparable to Q2 • GM% - indirect costs flat versus Q2'FY23
OPEX (non-GAAP)*	**$5.9m**	**$5.1m**	• Increased headcount and payroll costs in quarter • Leadership appointments deepening expertise
EPS (non-GAAP)*	**($0.16)**	**($0.09)**	• EPS excluding inventory write-off ($0.11)
Stockholders Equity	**$28.2m**		• $24m cash and cash equivalents • Increased fixed assets, working capital to support growth
Operational Notables			• Capital expenditure to enable larger capacity continued • Strong Design-in momentum

* See appendix for reconciliation to comparable GAAP measures

Target Operating Model

Building a High-Growth, Product Driven Cash Generating Business



Excludes licensing revenue in FY20, FY21, FY22

Operating Guidelines:

- Rapid top-line growth and GaN adoption across multiple 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

GaN Power Semiconductor Pioneer and Leader, addressing multi-billion GaN TAM

Disruptive Technology

GaN Enables Next Generation Power Conversion Solutions – **99% Efficiency**[1], **50% More Compact/Lightweight**, **Lower System Cost**

Large Market Opportunity

Transphorm's GaN Solutions will Enable the Future of **Electric Vehicles** and Fast-charging for **5G** – Contributing to **GaN TAM growing to $6B**[2] in 2026

Validation From Blue Chip Partners and Customers

Including KKR, SAS, Nexperia, Yaskawa, Marelli, Microchip, Diodes and the U.S. DoD(Navy), DOE

Ramping Commercially with Strong Manufacturing Base

Ramped in market, continued innovations in Tech and Product, **Integrated Manufacturing**, $24.1M FY-22 Revenues, Target **>50% LT CAGR**

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

IP Portfolio Appraised around **$200M**[3] Leader in **Quality + Reliability, > 100 Billion Field hours**, Silicon-like Reliability[4]
TGAN FET: Higher performance, easy to interface

Team Led by World-Renowned GaN Experts

Proven Leadership, 100+ team, 15+ PhDs and Over 300 Years of GaN Expertise

1 Measured TGAN >99% efficient power stages, commercial implementations
2 See slide 10 on GaN TAM Analysis
3 2022 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)
4 Based on field performance, low power and high power GaN, FIT (Failure in Time) < 0.2 per Billion hours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Glossary of Terms and Abbreviations

AC – alternating current
AEC-Q101 – Automotive Electronic Council's electronic components stress qualification standard
AFSW – Aizu Fujitsu Semiconductor Wafer Solution Limited, our joint venture wafer fabrication facility located in Aizu Wakamatsu, Japan
BJT – bipolar junction transistor, a semiconductor device
Bus voltage – voltage into, out of or within connections of a power electronic system
CMOS – complementary MOS (metal oxide semiconductor), widely used semiconductor transistor architecture
D2Pak – a surface mountable version of the TO220 package
DC – direct current
Die/Chip – an individual semiconductor device on the wafer, prior to packaging
EAR – Export Administration Regulation
Epi/Epiwafer/Epimaterials – GaN device layers grown on a substrate, from which active GaN-based devices are subsequently manufactured in a wafer fabrication facility
Fab – fabrication, generally referring to a semiconductor wafer fabrication facility
FET – field effect transistor, a type of switching transistor
Figure of Merit - a quantity used to characterize the performance of a device, system or method, relative to its alternatives
FIT – failure in time, referring to the expected number of device failures per billion hours of operation
GaN – gallium nitride
HEMT – high electron mobility transistor, a type of switching transistor with superior electronic properties
IGBT – insulated-gate bipolar transistor, a three-terminal power semiconductor device primarily used as an electronic switch
JEDEC – Joint Electron Device Engineering Council, an independent semiconductor engineering trade organization and standardization body that represents all areas of the electronics industry
LIDAR – light detection and ranging, a remote sensing method that uses light in the form of a pulsed laser to measure distance
Lossy – in the context of switching devices, subject to loss of power due to switching inefficiencies and other factors
MOCVD – metal organic chemical vapor deposition, a technique for layering GaN layers onto substrates such as a silicon substrate and making the starting GaN semiconductor material (i.e., an epiwafer)
Moore's law – the observation that the number of transistors in a dense integrated circuit doubles about every two years
MOSFET – metal-oxide-semiconductor field-effect transistor, a type of transistor
Normally Off – default position is off
Power converters / Inverters – electronic systems used to convert electricity from AC to DC (such as a charger), DC-AC (such as an inverter) or in some cases AC-AC or DC-DC within the systems converting from one voltage level to another
PQFN – power quad flat no lead package, a compact surface mountable package used in power semiconductors
RF – radio frequency
SCR – silicon controlled rectifier, an early semiconductor switching device
Si – silicon
SiC – silicon carbide
TO – transistor outline leaded packages commonly used in power semiconductors (such as TO220, TO247)

Income Statement

Exceeded Consensus Revenue Target

	Three Months Ended			Nine Months Ended	
	December 31, 2022	September 30, 2022	December 31, 2021	December 31, 2022	December 31, 2021
Revenue, net	$ 4,493	$ 3,670	$ 4,604	$ 13,319	$ 19,123
Cost of goods sold	7,162	3,232	3,935	14,444	8,741
Gross (loss) profit	(2,669)	438	669	(1,125)	10,382
Operating expenses:					
Research and development	2,325	1,830	1,609	5,895	5,023
Sales and marketing	1,447	1,066	976	3,596	2,488
General and administrative	3,457	3,044	2,852	9,818	8,309
Total operating expenses	7,229	5,940	5,437	19,309	15,820
Loss from operations	(9,898)	(5,502)	(4,768)	(20,434)	(5,438)
Interest expense	184	184	187	550	611
Loss in joint venture	799	684	712	2,065	3,294
Changes in fair value of promissory note	—	—	—	—	(605)
Other income, net	(421)	(375)	(1,503)	(1,241)	(3,502)
Loss before tax expense	(10,460)	(5,995)	(4,164)	(21,808)	(5,236)
Tax expense	—	—	—	—	—
Net loss	**$ (10,460)**	**$ (5,995)**	**$ (4,164)**	**$ (21,808)**	**$ (5,236)**
Net loss per share - basic and diluted	**$ (0.18)**	**$ (0.10)**	**$ (0.08)**	**$ (0.38)**	**$ (0.12)**
Weighted average common shares outstanding - basic and diluted	**56,739,450**	**56,619,662**	**49,147,630**	**55,926,828**	**43,671,321**

Revenue of $4.5m in Quarter

- Exceeded consensus ($4.4m)
- Product revenue of $4.0m (up 25% q/q)

Gross Margins

- Negative in Q3 – impacted by strategic inventory write-off

Operating Expenses

- OPEX increased q/q driven by increased staffing costs, and stock-based compensation

Balance Sheet

Solid Stockholders Equity Position

	December 31, 2022 (unaudited)	March 31, 2022 (audited)
Assets		
Current assets:		
Cash and cash equivalents	$ 23,149	$ 33,435
Restricted cash	500	500
Accounts receivable	3,704	2,558
Inventory	7,476	6,330
Prepaid expenses and other current assets	1,570	1,971
Total current assets	36,399	44,794
Property and equipment, net	5,367	1,649
Operating lease right-of-use assets	3,173	—
Goodwill	1,097	1,180
Intangible assets, net	395	617
Investment in joint venture	647	143
Other assets	2,167	263
Total assets	**$ 49,245**	**$ 48,646**
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 4,016	$ 3,588
Deferred revenue	—	346
Accrued interest	184	180
Accrued payroll and benefits	1,657	1,171
Operating lease liabilities	536	—
Revolving credit facility	12,000	—
Total current liabilities	18,393	5,285
Revolving credit facility, net of current portion	—	12,000
Operating lease liabilities, net of current portion	2,670	—
Total liabilities	**21,063**	**17,285**
Commitments and contingencies		
Stockholders' equity:		
Common stock	6	5
Additional paid-in capital	229,954	211,190
Accumulated deficit	(200,446)	(178,638)
Accumulated other comprehensive loss	(1,332)	(1,196)
Total Stockholders' equity	**28,182**	**31,361**
Total liabilities and stockholders' equity	**$ 49,245**	**$ 48,646**

Notables

- Cash and cash equivalents of $23.6m
  - Increased burn in quarter due to timing of revenue shipments and collection
- CAPEX - Overall Equipment increase in FY23 driven mainly by reactors purchases
- Revolving credit facility ($12m) – due Q1FY24

GAAP to NON-GAAP Reconciliation

	Three Months Ended			Nine Months Ended	
	December 31, 2022	September 30, 2022	December 31, 2021	December 31, 2022	December 31, 2021
GAAP net loss	$ (10,460)	$ (5,995)	$ (4,164)	$ (21,808)	$ (5,236)
Adjustments:					
Stock-based compensation	1,123	636	848	2,341	1,856
Depreciation	180	165	142	497	399
Amortization	74	74	74	222	222
Changes in fair value of promissory note	—	—	—	—	(605)
Other income	—	—	(1,222)	—	(2,677)
Total adjustments to GAAP net loss	1,377	875	(158)	3,060	(805)
Non-GAAP net loss	$ (9,083)	$ (5,120)	$ (4,322)	$ (18,748)	$ (6,041)
GAAP net loss per share - basic and diluted	$ (0.18)	$ (0.10)	$ (0.08)	$ (0.38)	$ (0.12)
Adjustment	0.01	0.01	(0.01)	0.04	(0.02)
Non-GAAP net loss per share - basic and diluted	$ (0.16)	$ (0.09)	$ (0.09)	$ (0.33)	$ (0.14)

	Three Months Ended			Nine Months Ended	
	December 31, 2022	September 30, 2022	December 31, 2021	December 31, 2022	December 31, 2021
GAAP operating expenses	$ 7,229	$ 5,940	$ 5,437	$ 19,309	$ 15,820
Adjustments:					
Stock-based compensation	1,035	583	796	2,161	1,738
Depreciation	180	165	142	497	399
Amortization	74	74	74	222	222
Total adjustments to GAAP operating expenses	1,289	822	1,012	2,880	2,359
Non-GAAP operating expenses	$ 5,940	$ 5,118	$ 4,425	$ 16,429	$ 13,461

Non-GAAP OPEX higher in the quarter

Personnel additions (Primarily Sales, Apps)

SBC increased in quarter

New options approved in Q2

Depreciation slightly higher

Ongoing CAPEX investment