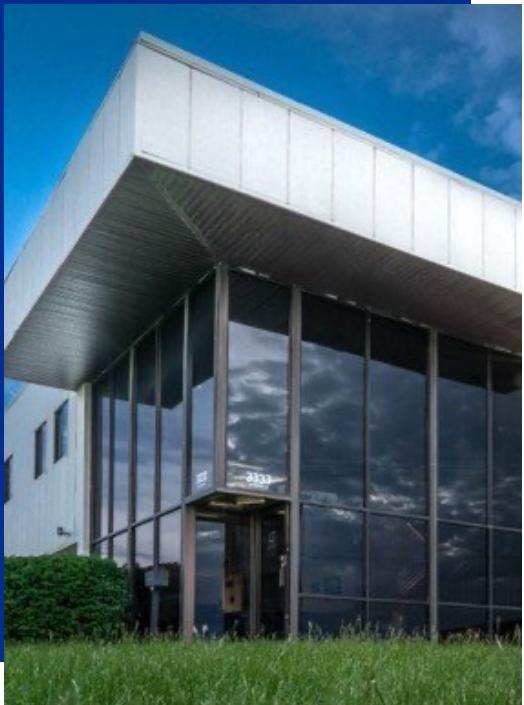




NITRIDE G L O B A L

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HQ: Wichita, Kansas

Nitride Global: Executive Summary



- Advanced materials (for semiconductors) development & manufacturing company with
- The ONLY remaining North American owned company, and one of only four companies globally with this expertise. 8 patents with 2 pending.
- The material of focus (Aluminum Nitride) is now the top choice for next generation semiconductors in use cases such as AI chips, EV, aerospace, and weapons.
- Existing revenue (\$1M) and profitability in one line of business, with 3X growth expected in next 18 months.
- Second line of business is bringing revolutionary thermal management solution to semiconductor market that can double semiconductor life span and improve reliability by as much as 4X



HQ: Wichita, Kansas

Who We Are Nitride Global



Leading global supplier of high purity Aluminum Nitride (AlN) and Aluminum Oxynitride (AlON) materials for advanced electronics, semiconductors, and optical devices.

- We manufacture the **highest purity and highest value polycrystalline AlN** on the market.
- Our new **AlON thermal management product is transformative** for the microelectronics industry, with **global patents on materials**, global exclusivity to manufacturing technology.
- We are expanding our expertise and IP in single crystal AlN for use in non-optical semiconductor devices

We have a significant IP portfolio.

We are a team with extensive breadth and depth of relevant global expertise.

Aluminum Nitrides Advantages

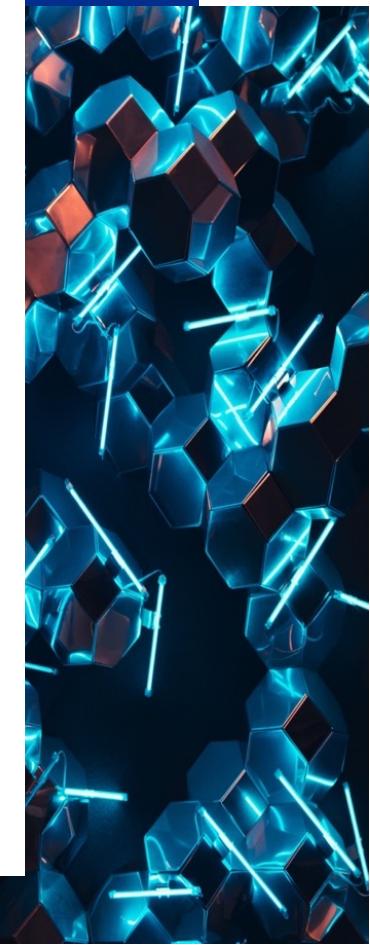
- 10,000x less transmission loss than silicon. [LEARN MORE](#)
- 2x the performance of current material (Gallium Nitride) for electronics and RF. [LEARN MORE](#)
- In Europe, est. 3 terra watt hours of power is lost in conversion for electronic devices. [LEARN MORE](#)
- Power loss expected to be only 5% of Silicon, 35% of Silicon Carbide, and 50% of GaN. [LEARN MORE](#)



Prospectives for AlN electronics and optoelectronics



Material	E_G (eV)	V_{sat} (10^7 cm/s)	E_{crit} at 10^{16} cm $^{-3}$ (MV)	Thermal conductivity (W/m K)	Baliga FOM (10^6 V 2 / Ω cm 2)	Johnson FOM (10^{12} V/S)	V_{Break} at 10 mW cm 2 (V)	Substrate size (mm)	N-type/P-type?	Light emission?
Si	1.12	1.0	0.3	145	8.8	0.48	100	400	Yes/Yes	No
SiC	3.26	1.9	3.1	490	6270	9.4	3000	~150	Yes/Yes	No
GaN	3.45	1.4	4.9	253	27 900	11.0	5000	~100	Yes/Yes	Yes
β -Ga ₂ O ₃	4.8	1.1	10.3	27	36 300	18.0	6000	~100	Yes/No	No
AlN (Parameter rank)	6.1 (#1)	1.3 (#3)	15.4 (#1)	319 (#2)	336 000 (#1)	31.9 (#1)	20 000 (#2)	~100	Yes/Yes Lately	Yes





Polycrystalline Aluminum Nitride

Current NGI Value Chain



Aluminum Nitride Powder
China/ Taiwan



Aluminum Nitride Crystal Boule
Nitride Global (KS)



Aluminum Nitride Single Crystal



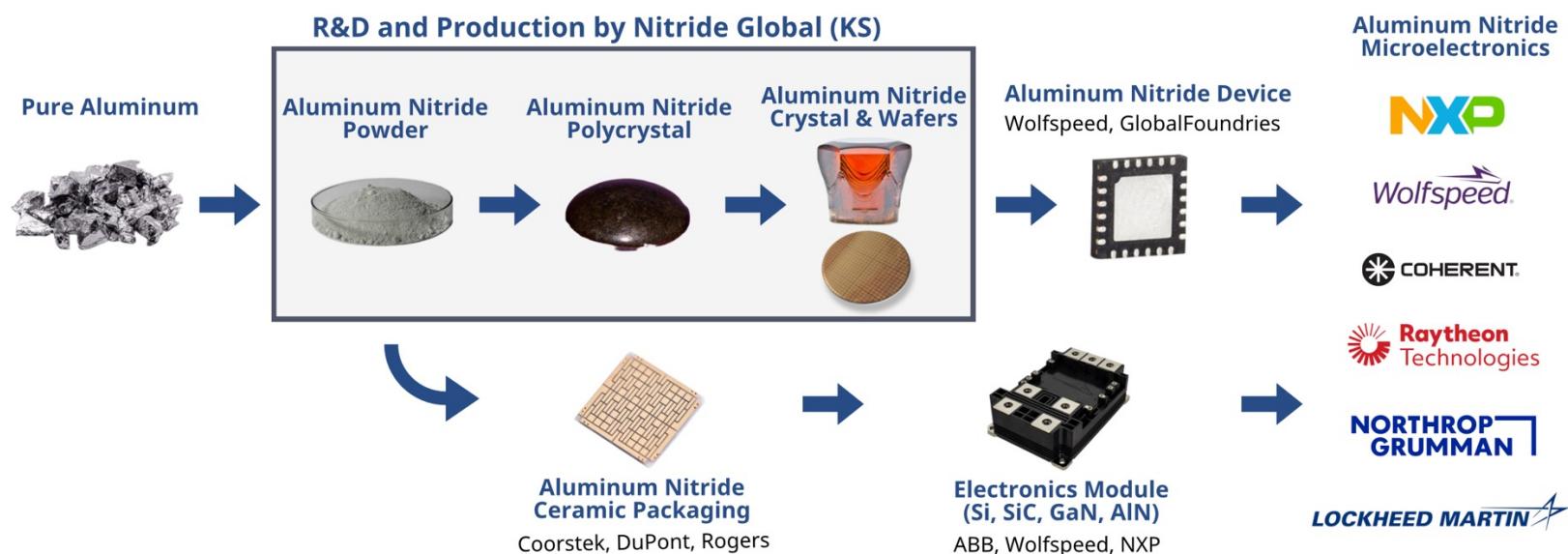
UV-C LED



Opportunity to create the ONLY Fully Domestic Semiconductor Value Chain

- All current semiconductor materials have dependencies on foreign nations.
- Current materials have reached limits in high performance applications.
- AlN (ultrawide bandgap) can more than double the performance of certain microelectronics such as EV platforms, radar/ avionics, and weapons.

Proposed AlN Domestic Value Chain



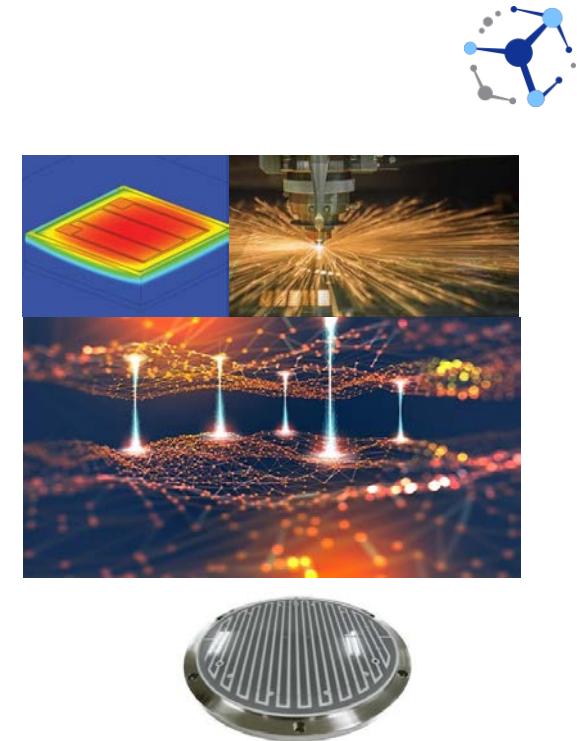
*Not an exhaustive list of potential customers



Aluminum Oxynitride Coating

WHAT IF YOU COULD

- **Improve thermal efficiency of microelectronics by 30%?**
By replacing the unnecessary packaging layers
- **Improve the efficiency of an EV-inverter by 25%?**
By minimizing the heat-soaked induced electrical losses
- **Extend the life of a laser diode by 10,000 hours?**
By lower junction temperature and slowing thermal degradation
- **Improve efficiency of a thermoelectric cooler by 50%?**
By reducing the thickness of the ceramic electrical isolation layer
- **Extend the service duration of a semiconductor e-chuck by 100%?**
By increasing chemical etching resistance of the protective layer



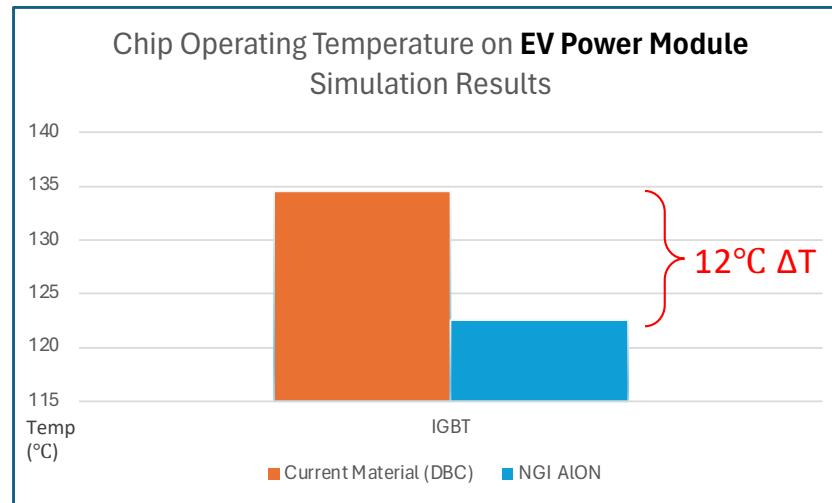
We are Significantly Increasing Reliability and Efficiency of Microelectronics & Semiconductors



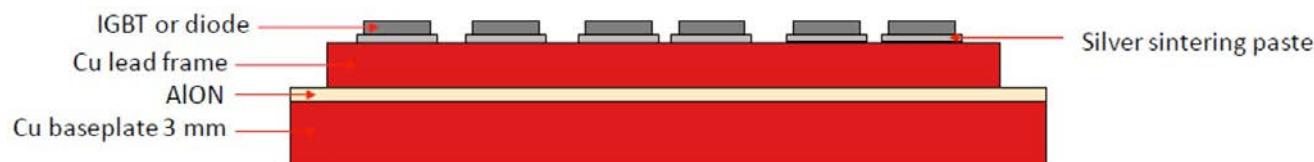
Fachhochschule Kiel
Hochschule für Angewandte Wissenschaften



SEMIKRON
DANFOSS

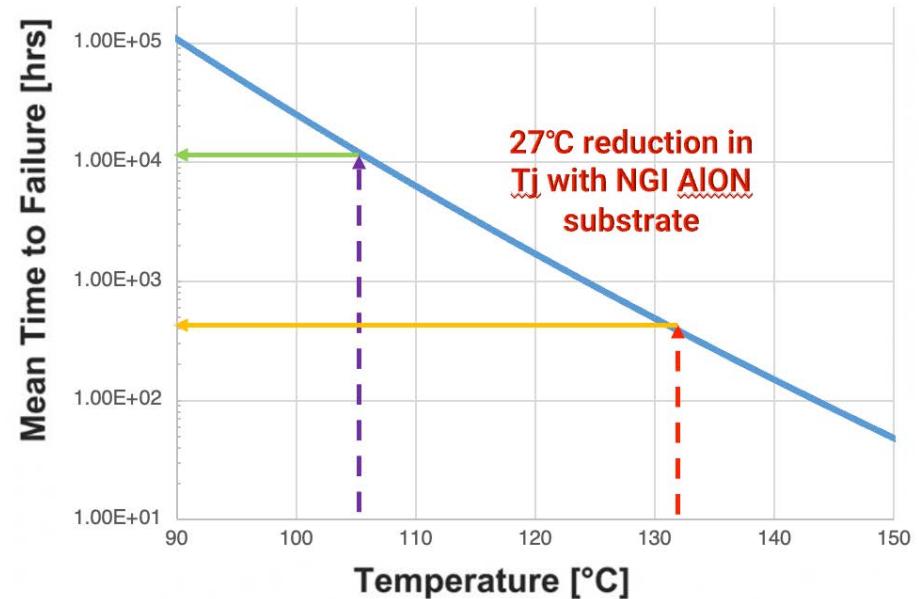
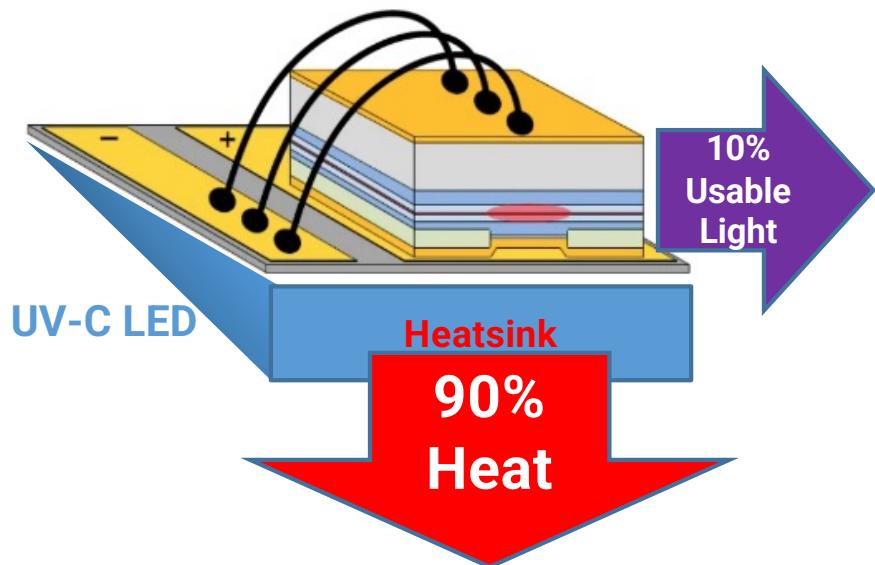


**Every 10°C reduction
DOUBLES lifespan**



We are Significantly Increasing Reliability and Efficiency of Microelectronics & Semiconductors

Heat generated as a result of thermal barriers reduces efficiency



And for every 10 °C the temperature is reduced the lifetime doubles.

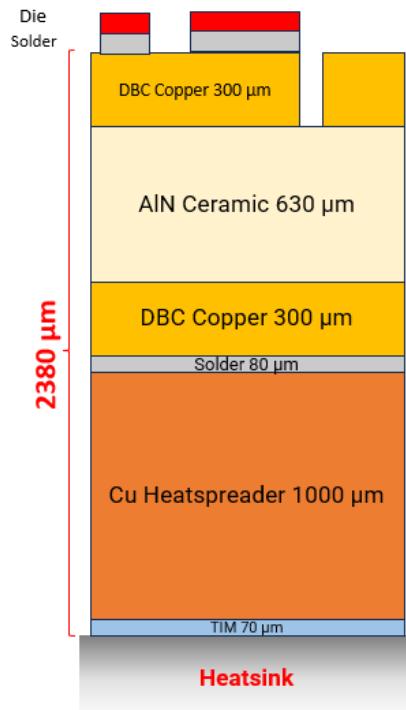
Advanced packaging can increase device power and lifetime

Aluminum Oxynitride in Devices

Revolutionary Thin Film Packaging for Power and RF Devices



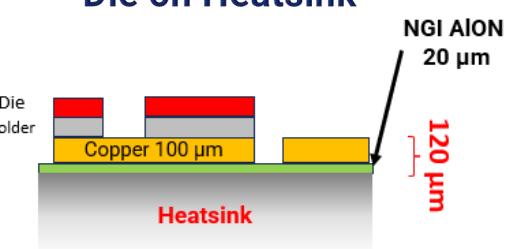
Current Industry Standard "Die on DBC"



NGI AION Copper Package Characteristics	
Low temperature deposition	< 300 °C
Excellent V_{BD}	up to 540 V/μm
High chemical etching resistance	7x > SiO_2 from NF_3
Thermal Conductivity	2 W/m-K – 30 W/m-K
Flexible but mechanically robust	210 Gpa
Very high reliability	> 1000 cycles @ -50°C to 150°C
Suitable for high temp. applications	< 300 °C

Moving Beyond Ceramic Substrates

NGI AION Concept "Die on Heatsink"



NGI AION Coatings for Defense & Commercial Applications



Power Electronics



Laser Diodes



Electronics Cooling



Semiconductor Manufacturing



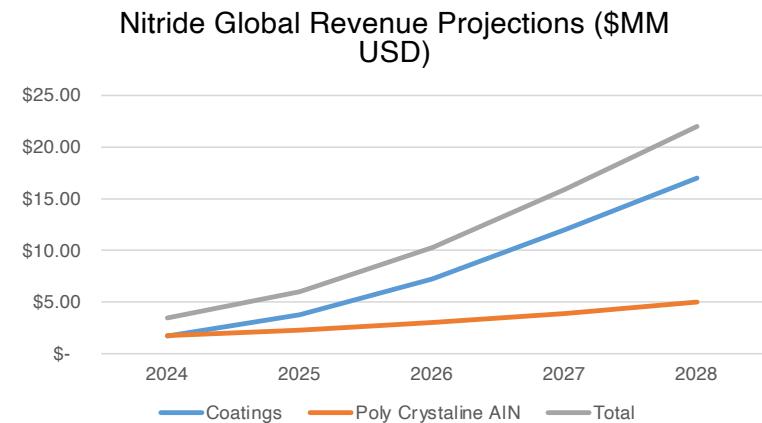
Aerospace & Defense

Our Solutions	AION coatings for MOSFET & IGBT packages	AION coatings for diode packaging	AION coatings for Thermoelectric devices	AION protective coatings for electrostatic, vacuum wafer chunks.	AION Thermal, Insulating, and Protective Coating for high power, high temp, high frequency devices
Customer Applications	EV inverters and power electronics	Cutting, additive manufacturing, 3D sensing (LiDAR)	Telecom, low GHG refrigeration	Deposition, etch tools	Hypersonic Vehicles, Directed Energy, High Frequency/ Resolution Radar, Low Power Satellites
Value Proposition	Longer range, faster charging, lower heat	Faster cutting, better resolution & response time, longer life	80x faster cooling, lower power usage, cost	2X longer tool uptime	A new generation of devices and performance/ reliability metrics
Addressable Market, CAGR	> \$0.2b, 15%	> \$0.4b, 13%	> \$0.6b, 8%	> \$0.5b, 7%	> \$1b, 8%



About Nitride Global

Revenue & Fundraising Summary



Polycrystalline AlN:

- Highly profitable manufacturing operations
- \$1M in revenue with 20%+ net profit for 2023
- Estimated \$3M by 2025 w/ 30% net profit

AlON Coatings:

- Customer funded development projects
- Capability for small scale manufacturing – 2024+
- Licensing revenue

Seeking \$7MM - \$10MM USD in equity or convertible debenture

Capital Expenditure	\$4MM
Technical, Sales, and Marketing Resources	\$2.5MM
Infrastructure & Testing	\$1.5MM
Debt Repayment	\$0.5M
Total	\$8.5M

- Seeking strategic CVC or VC partners
- \$2.5MM USD raised thus far in convertible debenture



Our Leadership Team



Mahyar Khosravi, P.Eng.

Chief Executive Officer

- 20+ years in global technology roles with organizations such as Cisco, Nortel, etc.
- Experienced VC/PE Investor
- Startup to growth scale experience



Matthew D. Healy, Ph.D.

Chief Strategy Officer

- 20+ years experience in Electronic Materials, Product Management, Applications Engineering, and M&A
- Air Products, ATMI, Ferro Corporation, Kurt J. Lesker Company



Jason Schmitt, MS, MBA

VP, Research & Development

- 20+ years of experience in nitride crystal growth, reactor design
- Deep expertise in substrates and thin film coatings



Jeremy Jones, MS, MBA

VP, Business Development

- Vast experience in building global advanced materials businesses
- Motorola, Cabot Microelectronics, Koch Genesis



Advisors & Consultants



Duncan W. Brown Ph.D.

Consultant/ Advisor

- 20+ years of experience consulting with Japanese and American technology companies
- Founder of Pacific Tech Link American and Japanese tech companies
- One of the Founders of ATMI



Mark Kennard Ph.D.

Consultant

- 25+ years in the semiconductor industry with C-level and VP experience
- Author or co-author of 12 patents and more than 30 journal articles
- Lam Research, Soitec, AMAT, Svagos Technik



Haris Basit, MS

Advisor

- 30+ years in the semiconductor and electronics industries. Founder of multiple successful companies.
- Significant expertise in EDA, semiconductors, High-Frequency Trading software, crypto, and licensing IP.



Christian Winkler Ph.D.

Consultant

- Managing Director—Global BA
- Long experience in electronic device and electronic materials market for companies such as Rogers, KCC Corp., Nippon Steel, NGK Electronic Devices.



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