Firstly, SiC as the 3rd generation wide-bandgap material, has a very low chance to replace Si in logic chips.

* But it has a great performance as a power chip. It can boost the voltage level of power electronics converters, increase efficiency and reduce the size of converters.
* **Gallium Nitride (GaN)** technology, particularly in **Radio Frequency (RF)** applications. Their GaN-on-Silicon Carbide (GaN-on-SiC) devices have been widely used in RF power amplifiers for telecommunications, aerospace, and defense sectors .​
* SiC can also be used in powering data centers, however, it is facing competition by GaN, another 3rd generation semiconductor material.
  + GaN chips are using a structure called Gallium Nitride High-Electron-Mobility Transistors (*GaN* HEMTs). It is developed based on Si wafer, and therefore, **TSMC** and **TI**, and many other producers can easily manufacture them using the production lines of Si chips.
  + GaN HEMTs are not pure GaN productions, they are smart combinations of Si and GaN. Today, although **Infineon** and **Navitas** are claiming that GaN can be used in data centers, the reliability of GaN at high-power applications is still a question, which is the same concern for EV onboard chargers.
* it can also been used in VR as a replacement for Si-based glass, since it is the highest visibly transparent material. However, this market is still new, but if you believe in VR, then as the only SiC producer in US, Wolfspeed should be in a unique position in the future.

The major concerns in the market about Wolfspeed are two:

EV Supply > Demand, especially the Chinese competitors. This is correct due to the Chinese government subsidy, a lot of Chinese companies are selling SiC chips at a cost price. However, the quality of these chips are poor, so only a few of them can be used on EVs, as the automotive certifications and applications are strict.

* If we look back at Wolfspeed's productions portfolio, the Durham old factories mainly produce industrial and energy production, due to the lack of automotive certifications. In this area, the Chinese SiC chips are playing major roles in the market. Things have changed since MVF opened, and that factory can massively produce automotive chips. What I want to say here is, although Wolfspeed has played in SiC for many years, it is still at the beginning stage to ramp up production for the automotive market.
* In the call of May 8th, I want to check the forecast revenue of next quarter despite the headwind of EV markets.

Debt and investments.

* Wolfspeed has invested 6 billion USD in the factories in NY and NC. Now the MVF is at around 20% utilization, limited by the 8-inch wafers production, which can be supplied by the Durham Building 10 for at most 25%. The rest realization of production capacity at MVF will count on the JP center at Siler City. As investors, the successful ramp up at Siler City is so critical that matter both MVF revenue, and more material contracts.
* As one of the motivations for **Renesas** 2 billion USD investment, it agrees Wolfspeed will supply 8 inch SiC wafers to Renesas for 10 years. **Bosch, Infineon, and STM** are interested to renew or sign new contracts for Wolfspeed 8 inch SiC wafers, since it is still the world only one, who can supply high-quality 8 inch SiC wafers, despite the Chinese competitors.

Operational Risk:

* I don't think the drama in MVF will happen twice. The delay in MVF was because it was the first try for Wolfspeed to run a highly automated Fab, and the cost of learning was expensive.
* The ramp-up of Siler City is optimistic to me, and Wolfspeed is a material company - they perform better on material instead of chips. The people who worked in Durham Building 10 will do similar work for Siler City factory, where they already have the knowledge.

I am optimistic that Wolfspeed will get the Chip fund, and I also believe the borrowers are smarter than me that they can also see the potential ahead of Wolfspeed.

Long History and Deep Expertise

Wolfspeed was founded in 1987 as Cree, Inc. and became Wolfspeed in 2021 to fully focus on silicon carbide (SiC) and gallium nitride (GaN) technologies. Many of the original founders and core engineers are still with the company today. Their decades of experience in power electronics give Wolfspeed a technological depth that very few companies can match.

Institutional Ownership and Confidence

For decades, Wolfspeed has had extremely high institutional ownership. At times, well over 90% of the float was held by mutual funds, pension funds, and strategic investors. Today, institutional ownership is over 110% — mainly due to stock lending activity. The important point: serious money has been invested here for a long time, not just speculative capital chasing hype.

Full U.S.-Based Manufacturing

Wolfspeed manufactures 100% of its critical products inside the United States. Their Mohawk Valley Fab in New York is the world’s first and largest 200mm silicon carbide wafer fab. They are also building the Siler City Crystal Growth Facility in North Carolina, which will dramatically expand SiC crystal production. In an era of global uncertainty and reshoring efforts, Wolfspeed’s local manufacturing gives it strategic importance — both economically and from a national security standpoint.

In fact, Wolfspeed recently secured millions of dollars of contracts with the U.S. Department of Defense to supply critical components for directed energy applications. This shows the U.S. government sees Wolfspeed’s technology as essential.

Strategic Importance

In 2016, Infineon Technologies, one of the largest semiconductor companies in the world, attempted to acquire Wolfspeed’s Power Division.

The deal, valued at $850 million, was signed in 2016. However, it was ultimately blocked by the Committee on Foreign Investment in the United States (CFIUS) in 2017.

The U.S. government determined that Wolfspeed’s technology — particularly in silicon carbide and gallium nitride for high-power, high-frequency applications — was too strategically important to allow foreign control.

This move highlights just how critical Wolfspeed’s capabilities are, not just for commercial markets like EVs and renewable energy, but also for defense, aerospace, and national infrastructure.

The fact that Wolfspeed was protected from foreign acquisition underscores its role as a strategic asset for the United States — something that becomes even more important in today’s environment of supply chain security and technological independence.

Why 200mm Silicon Carbide Wafers Matter

The transition from 150mm to 200mm SiC wafers is a game-changer:

Higher Yield: Larger wafers allow more chips per wafer, improving production output.

Lower Costs: Higher volumes and better yields reduce the per-chip cost, making Wolfspeed’s products more competitive.

Industry Leadership:

Wolfspeed is years ahead of competitors in 200mm SiC, giving them a strong advantage in scaling for future demand.In a market where demand for EVs, renewables, and industrial electrification is growing rapidly, the ability to scale cost-effectively is critical.

Automotive Customers

Their customers include: • Lucid Motors • General Motors • Mercedes-Benz • Jaguar Land Rover • Renault • Hyundai • STMicroelectronics (which itself supplies companies like Toyota) • Renesas Electronics (supplying Nissan, Honda, and others)

Design-Ins, Design-Wins, and Why Wolfspeed’s Future is Structurally Secure

Wolfspeed has achieved approximately $2.8 billion in design-ins, with about 80% tied to electric vehicle (EV) applications — the highest total in the company’s history. They also secured $870 million in new design-wins in the latest quarter.

In the automotive and industrial world, the production cycle is long. From initial design-in to actual mass production can take 2 to 4 years, due to the rigorous requirements for quality, reliability, and lifetime performance testing. Once a design-win is secured, it typically locks Wolfspeed into the supply chain for the entire vehicle or product life — often 5 to 7 years of steady revenue.

Today, Wolfspeed has design-wins across over 125 car models from more than 30 major automakers. This creates a multi-year visibility into future growth — a rare and valuable position for any semiconductor company.

VERY VERY IMPORTANT. ATTENTION! ⬇️⬇️⬇️

While many Chinese companies and other new entrants are racing to build silicon carbide capacity, entering the automotive supply chain is not as simple as building a factory. It requires years of qualifying processes, certifications, and lifetime reliability testing to meet the standards of global car manufacturers. Wolfspeed already has these certifications, relationships, and real-world production experience in place — which gives them a major competitive moat as the SiC market expands.

Intellectual Property and Technological Moat

Wolfspeed holds over 4,500 patents across silicon carbide and power semiconductor technologies. They are one of the only companies globally that can grow their own SiC crystals at scale — and fabricate final devices — in-house. This vertical integration, backed by decades of IP, creates a technological moat that’s extremely hard for new entrants to replicate.

In June, 2018, the Prior CEO (of both CREE & Wolfspeed) proclaimed that his goal was: “At a high level, our vision is to do the same with silicon carbide with regard to silicon as CMOS did with regard to bipolar some 30 years ago. We want to convert the power industry from silicon to silicon carbide.” <https://www.elektroniknet.de/international/wolfspeed-is-no-more-our-ugly-duckling.154917.html>

Adoption of SIC driven by electric vehicles, renewable energies like photovoltaic, as well as 4G and 5G base stations.

power semiconductor manufacturers like Infineon, ON Semiconductor or STMicroelectronics

***manufacturing only planar SiC MOSFETs while competitors like***[***Rohm***](https://www.elektroniknet.de/anbieterkompass/rohm-semiconductor-gmbh.25440/index.html)***and Infineon are offering trench SiC MOSFETs. When will we see the first trench SiC MOSFETs from Wolfspeed***

***Wolfspeed is specialized on SiC for power and on [GaN for RF](https://www.wolfspeed.com/rf" \o "https://www.wolfspeed.com/rf" \t "_blank).***

In 2019, Wolfspeed announced that it would spin off its Lighting Division (CREE) and become the Worlds’ first pure-play Silicon Carbide (SiC) company and that they were planning to start construction on the Mohawk Valley Fab in Upstate New York. Their “plan” was to build out Mohawk Valley and John Palmour in Siler City, North Carolina to “*generate up to a 30-fold increase in SiC wafer fabrication capacity and 30-fold increase in SiC materials production to meet the expected market growth by 2024.”* - and to be clear....that is not a 30% increase....that is 30 TIMES!!!

<https://www.wolfspeed.com/company/news-events/news/cree-to-invest-1-billion-to-expand-silicon-carbide-capacity/>

Between 2020 – 2021, upon the announcement of this expansion, Institutional Shareholders could not buy enough of this stock. In fact, the Institutions bought up 100% of every single share that was outstanding, and the stock price jumped from $30/share to about $142/share in less than a year and in late 2021, Wolfspeed began trading on the Exchange under the new name and ticker: WOLF

In Q4 2021 after Wolfspeed hit $142/sh, there were people who thought the Company was over-valued, and this is when the shorting began.

And they have now been shorting the stock for 3.5 years.

Wolfspeed has subsequently completed both the MV and the JP and they are just putting finishing touches by adding the final tooling in each of the facilities to be able to ramp both facilities to full production. These projects have cost somewhere around $6 - $7 billion and Wolfspeed is carrying about $6 billion in debt on their balance sheet. And this is not an ideal situation.

By about Q4 2023, whoever was shorting Wolfspeed had gotten the stock price down to about $40 - $50/sh and I thought that they would probably quit at some point, but boy was I wrong….

Here are a few links to get you started:

<https://www.reddit.com/r/wolfspeed_stonk/comments/1g4mvsj/for_all_of_you_that_are_new_here_i_am_going_to/>

<https://www.reddit.com/r/wolfspeed_stonk/comments/1gybetv/for_all_of_the_new_members_here_welcome/>

<https://www.reddit.com/r/wolfspeed_stonk/comments/1fuj6x8/if_you_are_new_here_i_am_going_to_propose_that/>

And GO, GO, GO Wolfspeed!!!!

**What is a semiconductor company — and what it’s not: Why Wolfspeed’s story unfolds in years, not quarters.**

As someone with experience in the semiconductor industry, I wanted to share some context that might help frame how companies like Wolfspeed operate — especially for those coming from outside the space or newer to investing in this sector.

Semiconductors — particularly in power electronics and wide-bandgap materials like SiC (silicon carbide) — operate on fundamentally different timelines than most other industries. These aren’t fast-turnaround, direct-to-consumer products. **They’re built into complex systems after long design and validation cycles.**

A few key points that define how this industry works:

**• Design Cycles Are Measured in Years, Not Months**:

Once a semiconductor component is “designed in” to a customer’s system (whether automotive, industrial, or energy-related), it becomes part of a certified and validated architecture. These components are not easily swapped out. Recertification, reliability testing, and customer sign-offs take significant time and resources. This means design-ins today often translate into revenue 1–2 years later.

• **Design Wins ≠ Immediate Invoicing**:

Wolfspeed has communicated numerous design wins in its earnings calls — these represent contractual commitments or deep customer engagements. But revenue recognition typically lags far behind due to the structure of the product lifecycle. That’s normal in this business.

• Customer Stickiness Cuts Both Ways:

Just as it takes time to win a customer, it also takes time to lose one. A client switching vendors (due to price, supply chain, or policy like tariffs) must go through their own internal processes — re-qualification, risk assessments, redesign efforts. These delays can be 12–24 months or longer, depending on the application. Shifts don’t happen overnight.

• Short-Term Market Reactions Often Miss the Operational Reality:

There has been a lot of focus on short-term challenges — fab utilization, margin compression, tariff exposure, or pricing dynamics. These are valid concerns, but they must be viewed in the context of long-term contracts, fixed supply commitments, and multi-year project ramps. Quarterly fluctuations often fail to reflect the real strategic positioning.

Wolfspeed produces the SiC materials out of Bldg #10 in Durham, and the John Palmour in Siler City, NC. Bldg #10 & JP are where the wafers are cut and ground.

Then the wafers are shipped up to the Manufacturing Fab up in Mohawk Valley, NY. This is where the end products are built (MOSFETS).