High Power, High Voltage, High Speed: GaN and SiC Electrify Our World™

Pure-Play, Next-Gen Power Semiconductors

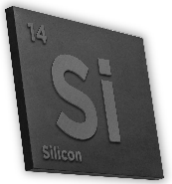
Navitas

Navitas

GaNFast™

GeneSiC™

Up to 20x	Up to 3x	Up to 40%	Up to 3x	Up to 3x	Up to 25%
Faster Switching(1)	Smaller & Lighter(1)	Energy Savings(1)	Higher Power Density(1)	Faster Charging(1)	Lower System Cost(2)



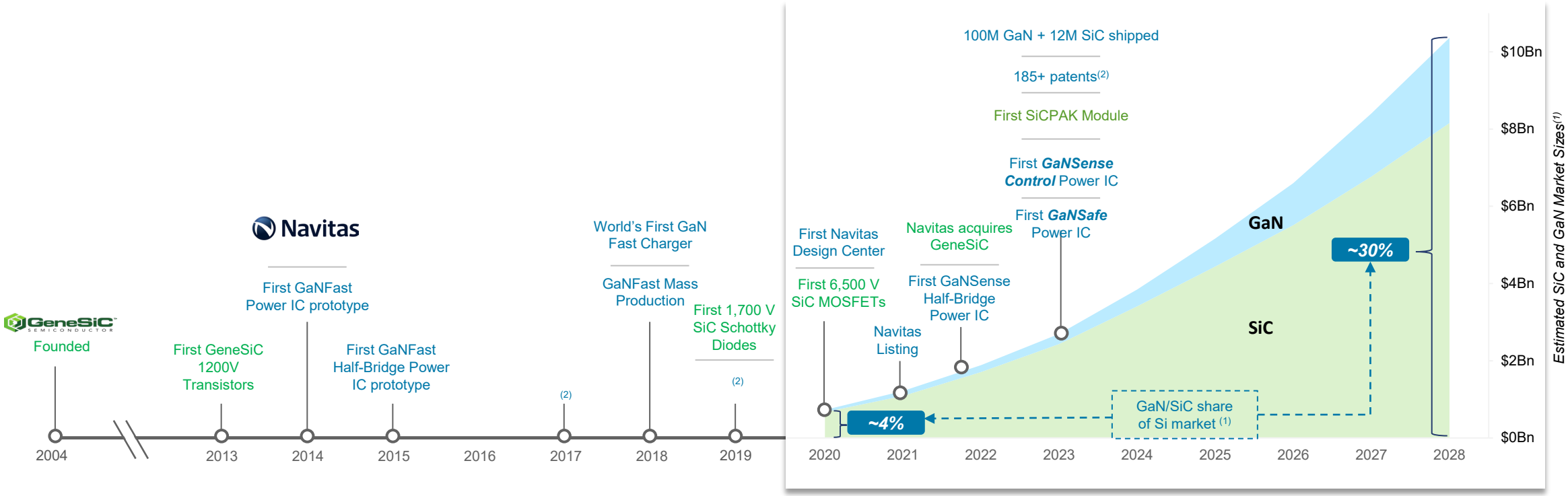
GaN and SiC replacing Si in next-generation power applications

1. Statistical data is based on Navitas estimates of GaN-based systems compared to Si-based estimates in the 2024-2025 timeframe. Based on Navitas measurements of select GaN-based mobile wall chargers compared to Si-based chargers with similar output power, incl. 2019 study of 65W fast chargers, 2022 customer statement re 2.7 kW data center AC-DC
2. Navitas estimates based on customer feedback as the expected system cost saving overtime as of April 2023

Right Time, Right Technology, Right Company

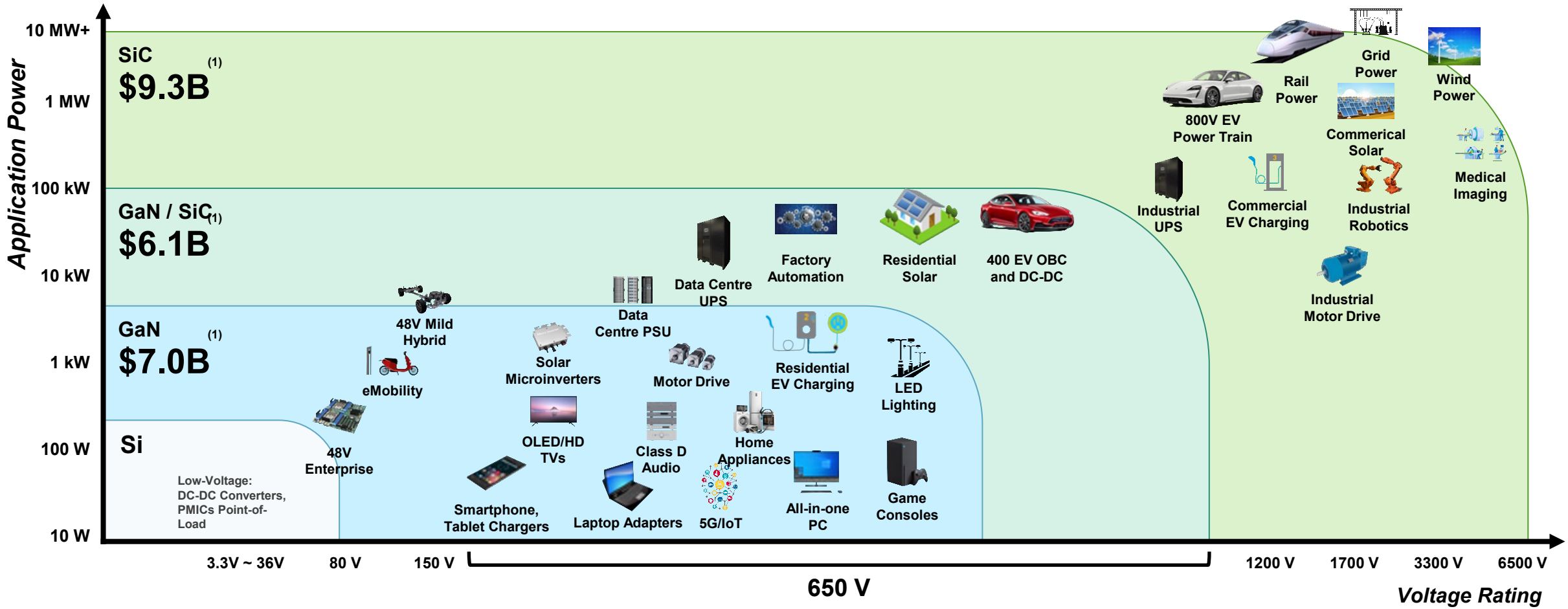
Navitas

Technology Development | **Validation** | **Mass Adoption**



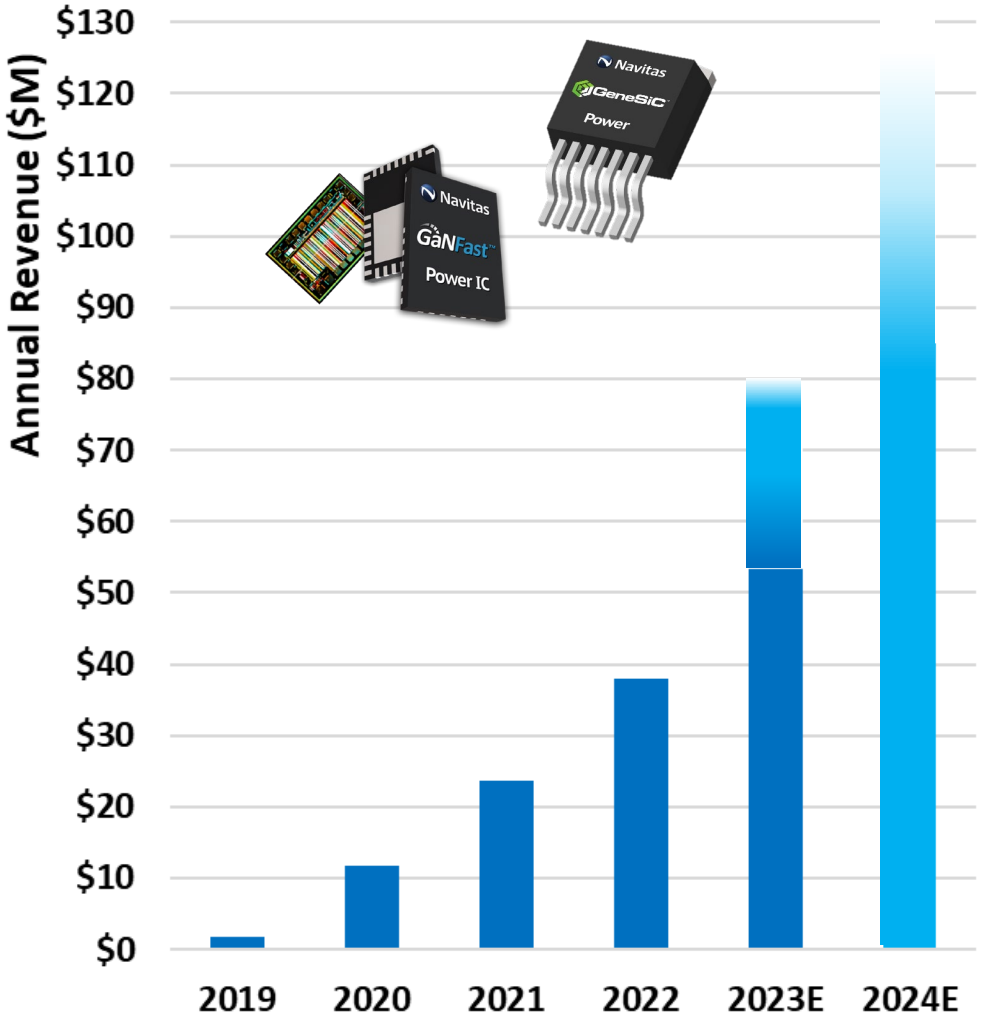
1. Estimated based on Power SiC/GaN Compound Semiconductor Market Monitor, Q1 2023, Yole Intelligence
2. Granted or pending

Target Markets: $22B/year



1. Navitas company estimates, potential market opportunity in 2026 is $22B+ for GaN and SiC, replacing certain of the silicon market share. Axes not to scale

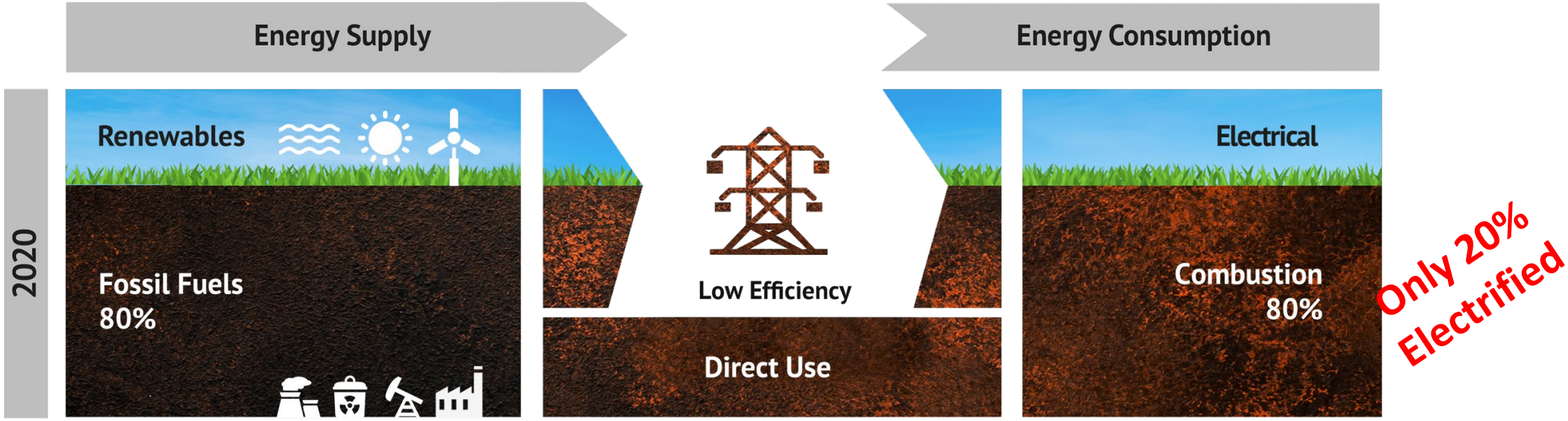
Navitas: Growing Faster than the Market



- Q3 Financial Report (November 9th, 2023)
  - Revenue $22M (+115% yr/yr, +22% Q/Q)
  - Margin 42.1% (+3.7% yr/yr, +0.6% Q/Q)
  - Cash $177M, no debt.
  - >$1B customer pipeline
- Guidance:
  - Q4 $25-$26M, gross margin 42.5% (+/-0.3%)
  - 2023 Revenue = 2x 2022
  - 2024: “Grow at least 50%”

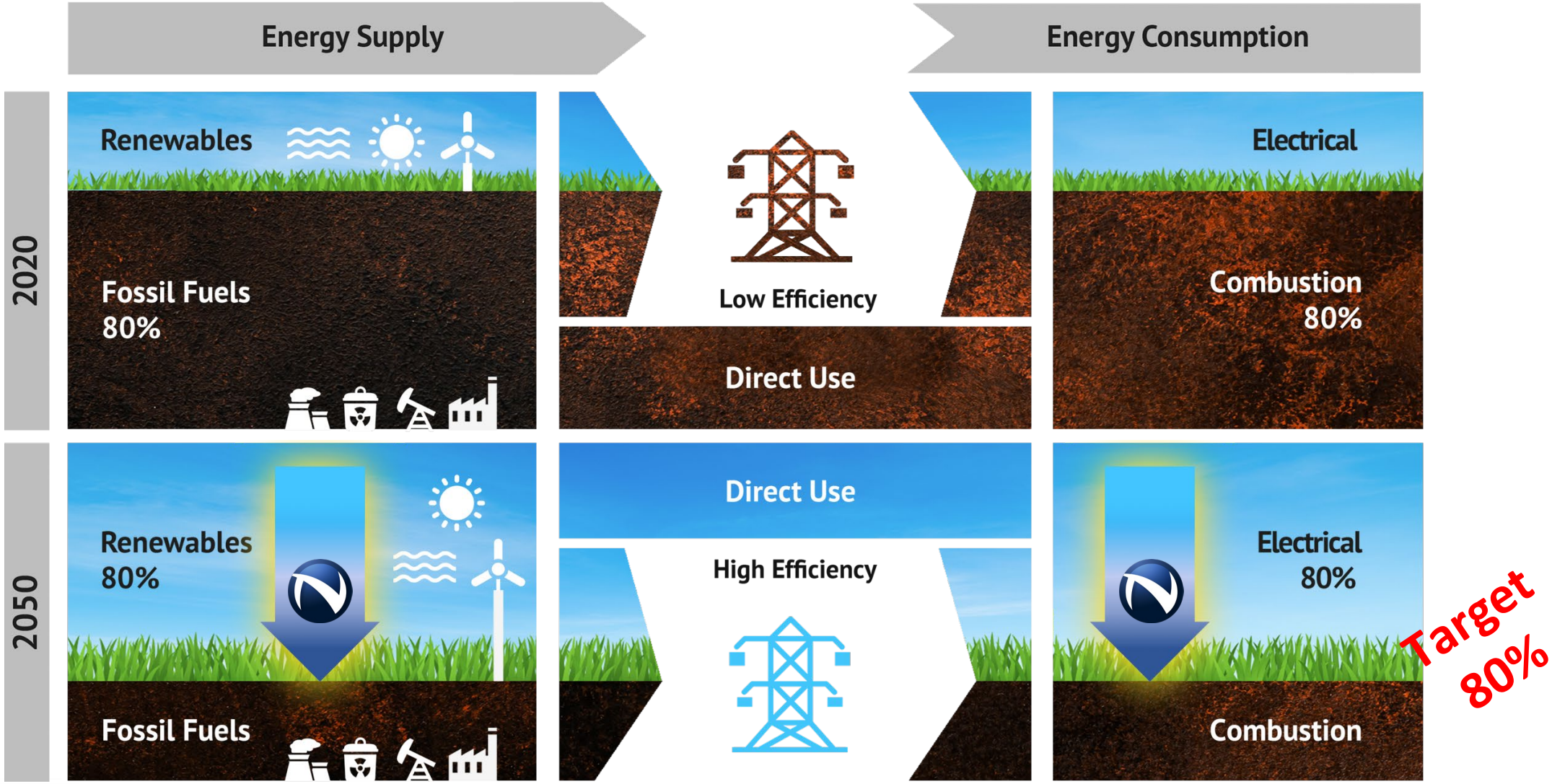
The Fossil Fuel Challenge

Navitas



Electrify Our World™

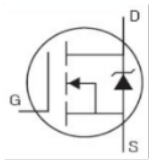
Navitas



GaNSafe™: Ultimate Performance, Reliability

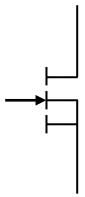
Navitas

Discrete Silicon



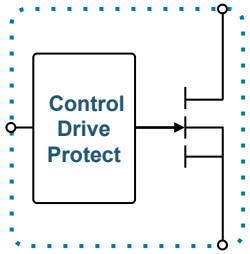
- Old
- Slow
- Low efficiency

Discrete GaN



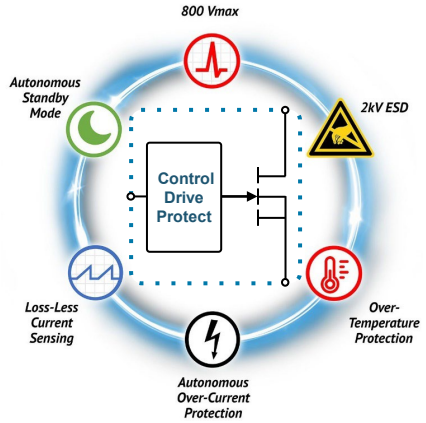
- Vulnerable
- Difficult to use
- Unknown reliability

GaNFast™



- ✓ Robust
- ✓ Easy to use
- ✓ Proven reliability

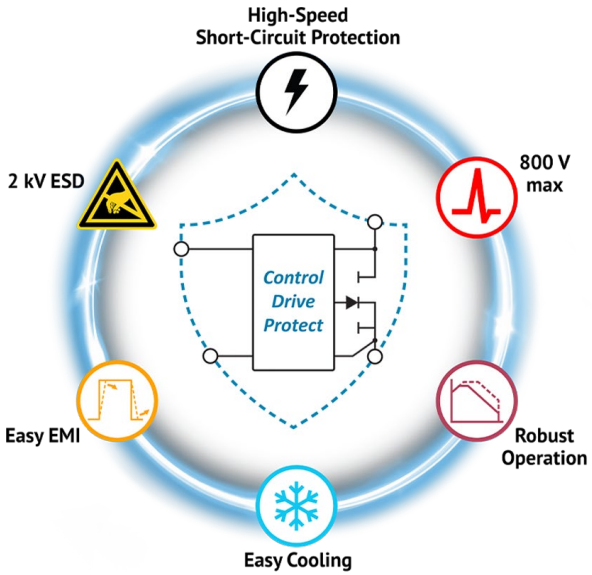
GaNSense™



GaNFast plus:

- ✓ Autonomous protection
- ✓ Loss-less current sensing

GaNSafe™



GaNSense plus:

- ✓ Short-Circuit Detection
- ✓ Ultra-fast autonomous protection
- ✓ Robust, cool packaging
- ✓ Programmable dV/dt turn-ON and OFF

Efficiency

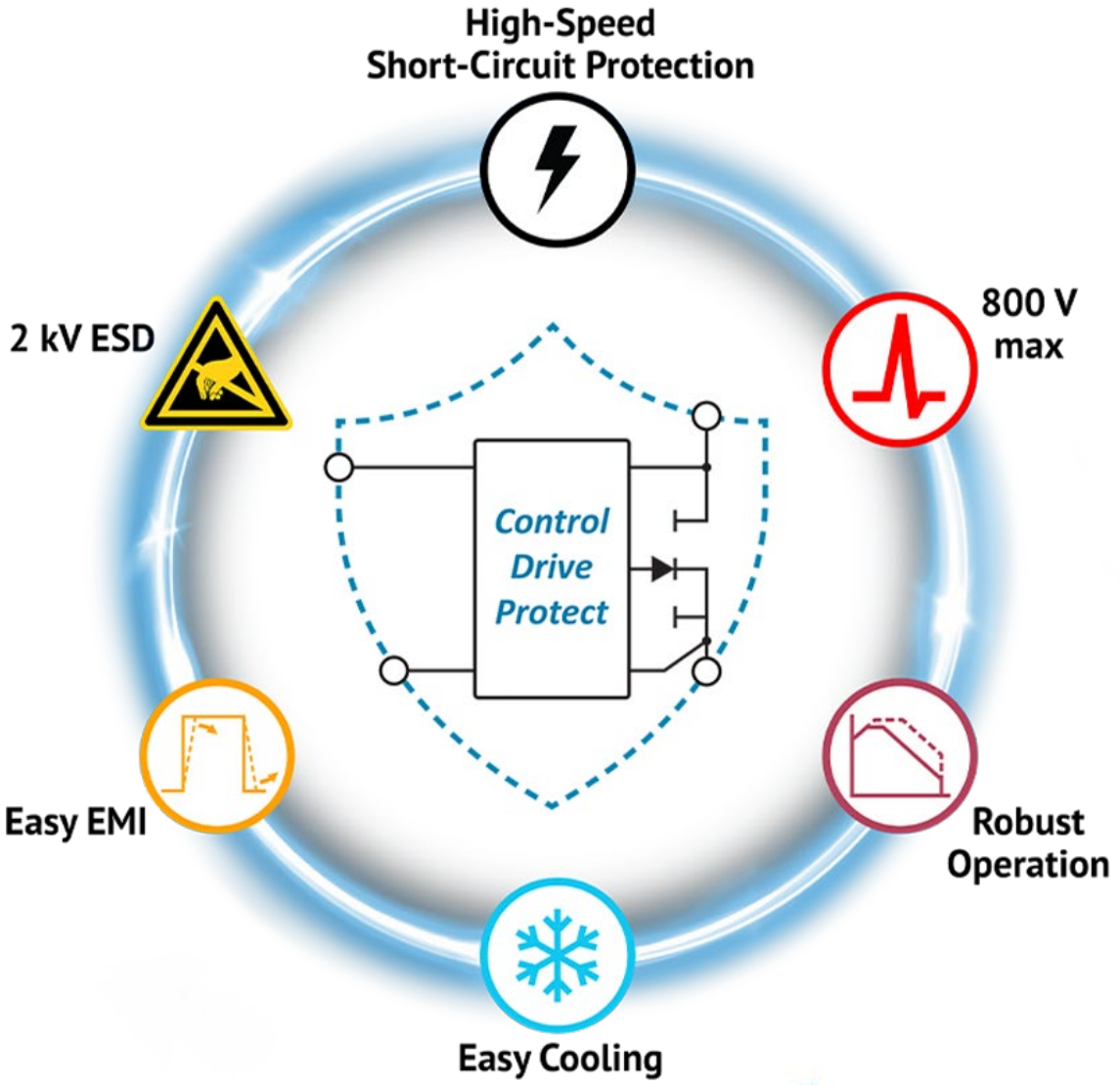
Reliability

Speed

Integration

GaNSafe™: World's Safest GaN Power Semiconductor

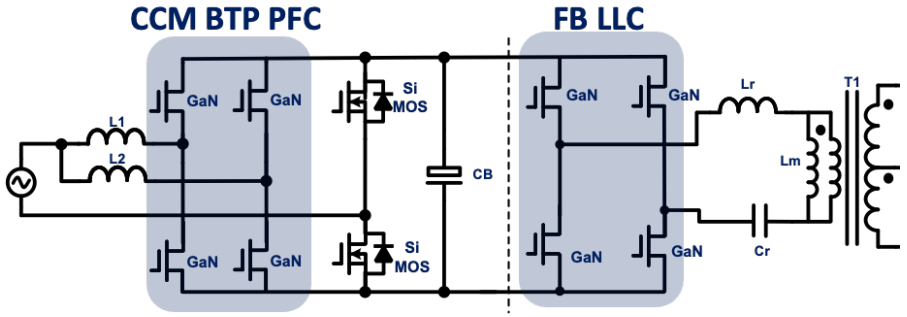
Navitas



GaNSafe™ Accelerating AI / Edge Computing

Navitas

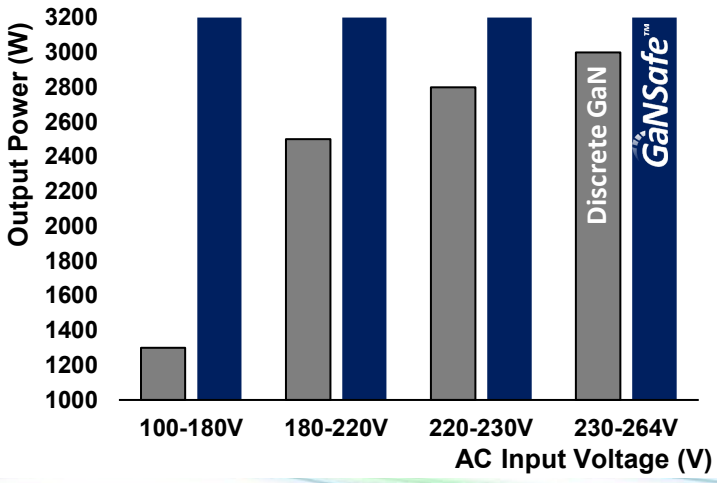
- Data center AC-DC ‘silver box’ (12V)
- CRPS185 form factor



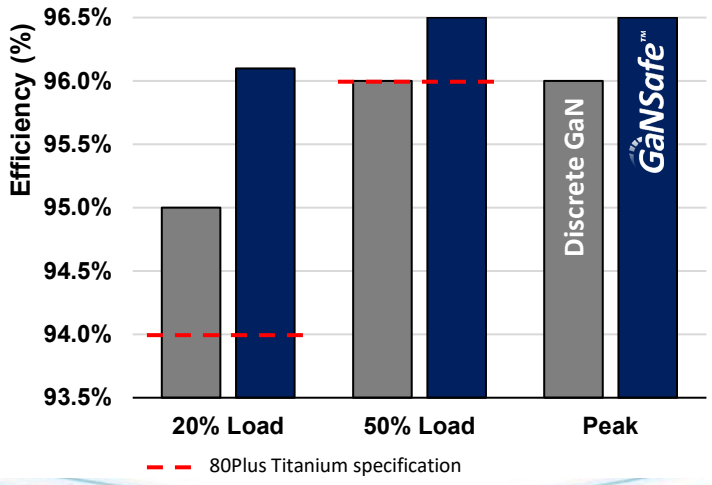
Power	2,800 W	3,200 W
PFC	8 x 32 mΩ	4 x 45 mΩ
DC-DC	4 x 32 mΩ	4 x 55 mΩ
Total	**12** x GaNPX 	**8** x TOLL 

GaNSafe™
33% fewer power components

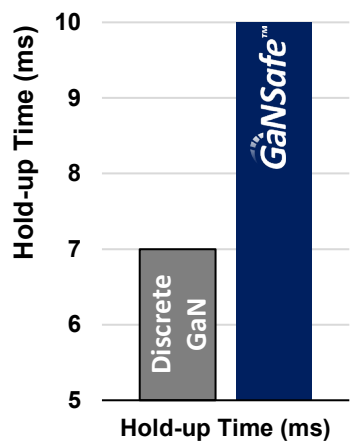
GaNSafe™ **True 3,200W CRPS185**



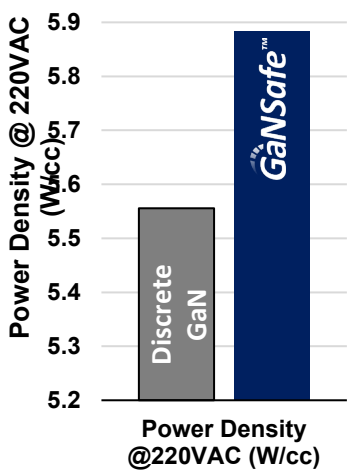
GaNSafe™ **Titanium Plus, *with margin***



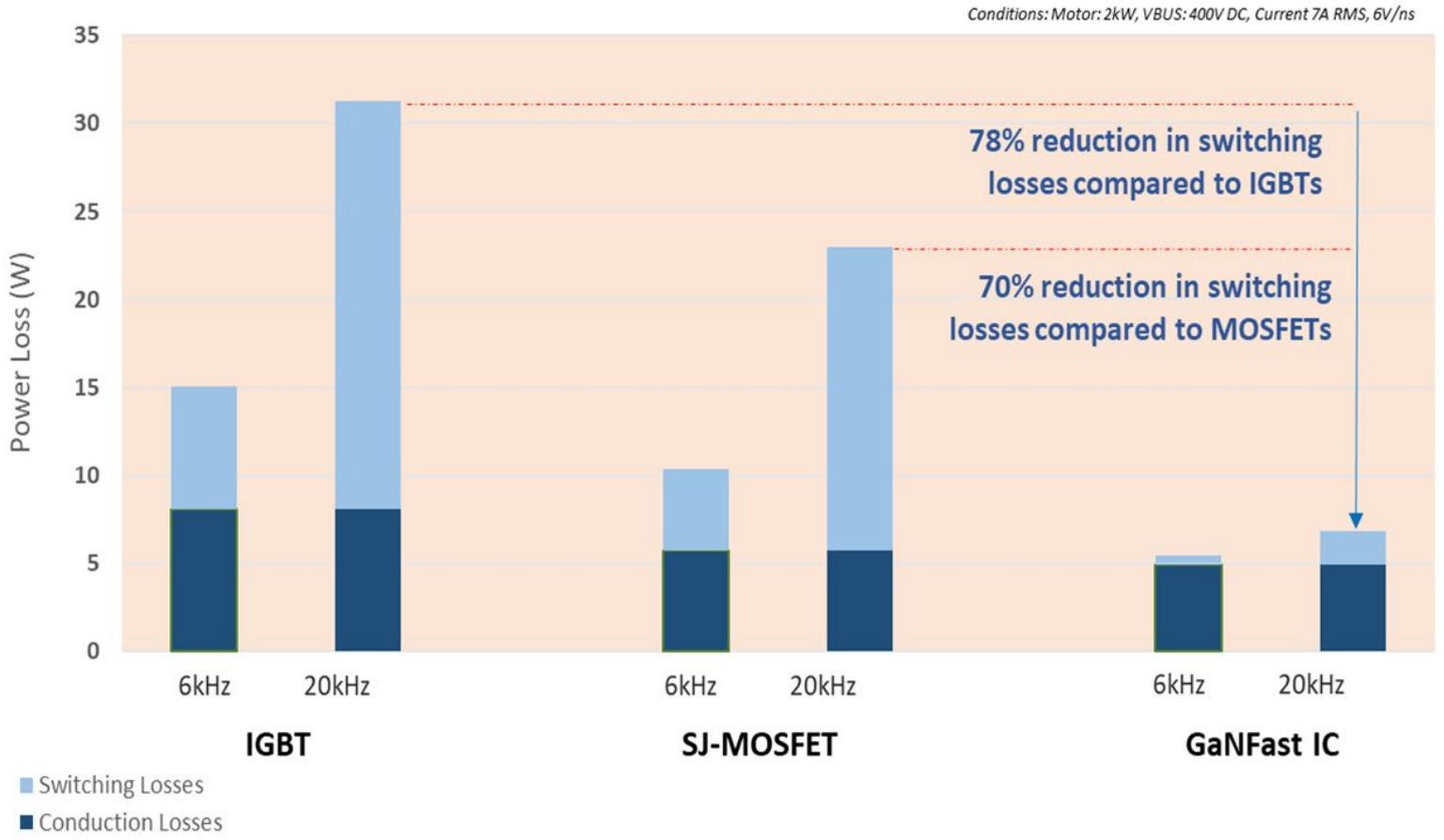
GaNSafe™ **+40% Hold-up**

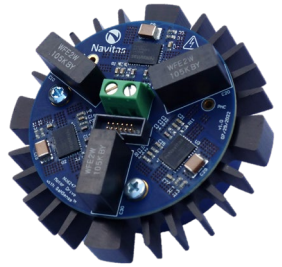


GaNSafe™ **~100W/in³**



GaN Drives Efficiency: Motor Drive Example





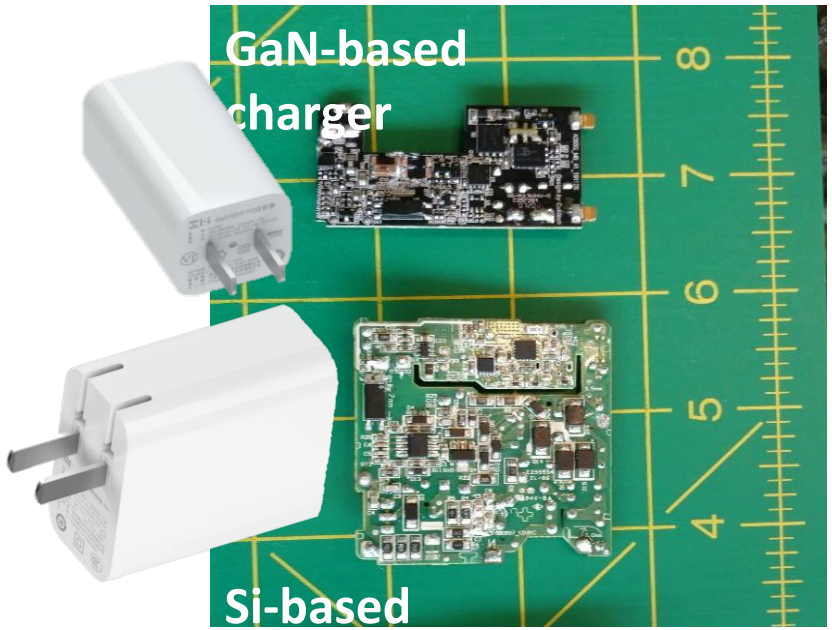
Navitas 400W 3-phase Platform for Inverter-Motor Integration

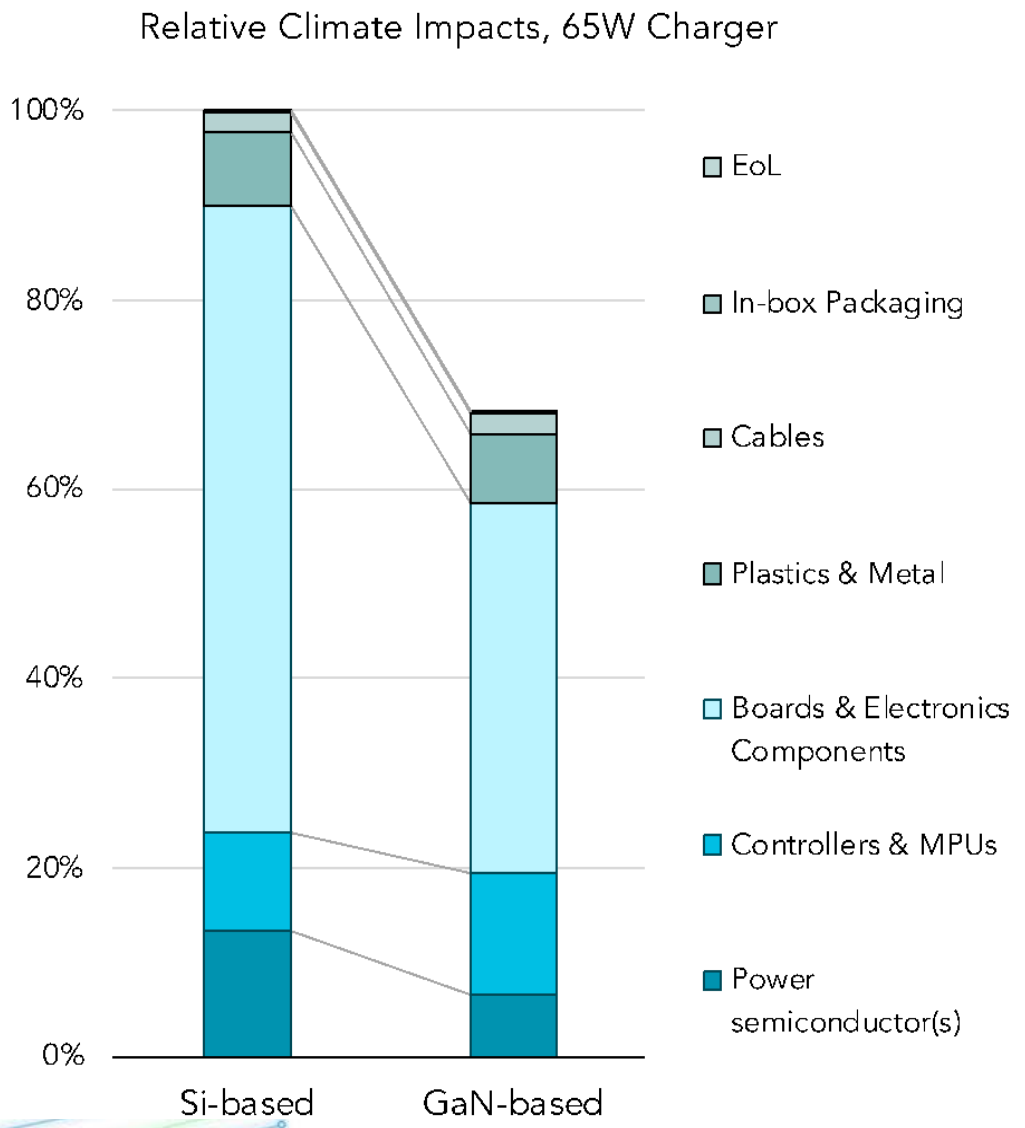
- 2x higher frequency
- >60% fewer components, PCB area
- 95-97% efficiency
- 80% energy savings vs Silicon BLDC
- 90% energy savings vs AC motors
- High reliability
- Fast time to market

65W charger: GaN vs Si Dematerialization

Navitas

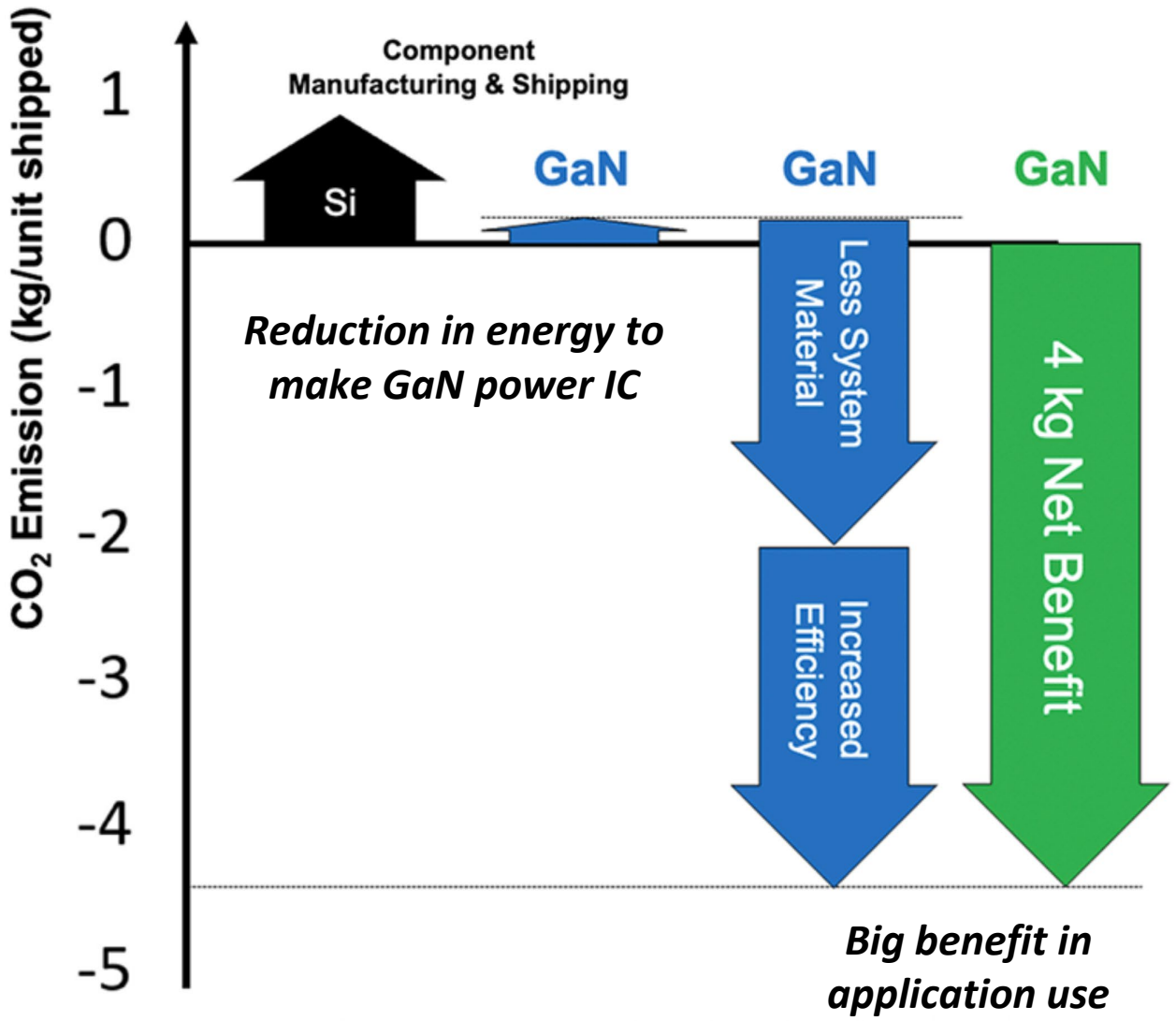
- Higher frequency
  = smaller
  = lighter
  = less material

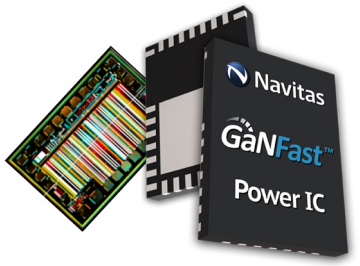




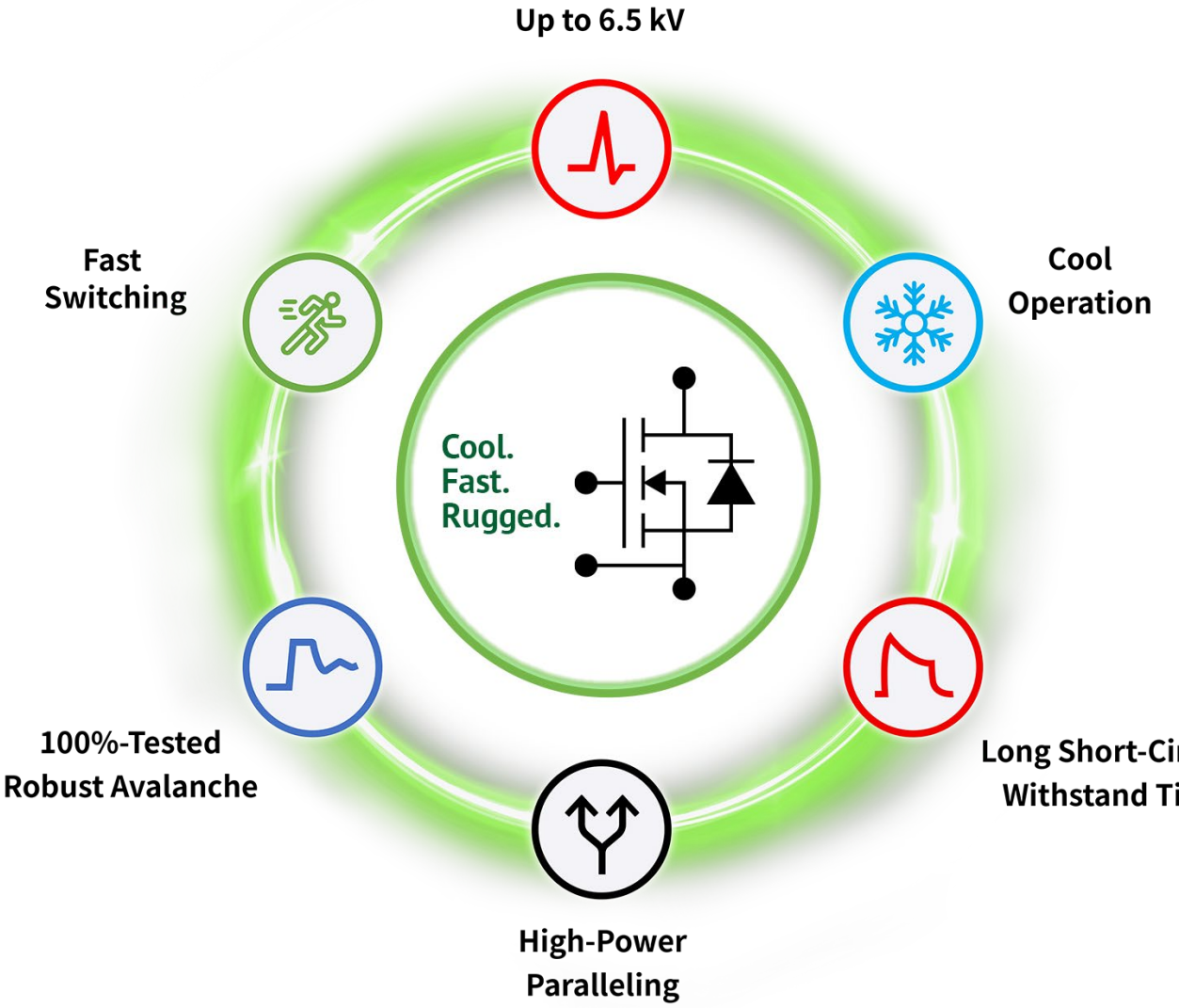
Every GaNFast Power IC Shipped Saves Over 4 kg CO_2

Navitas



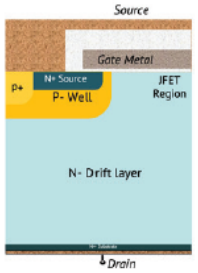
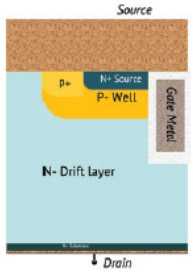
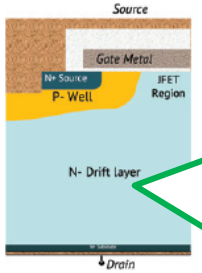


GeneSiC: SiC MOSFETs



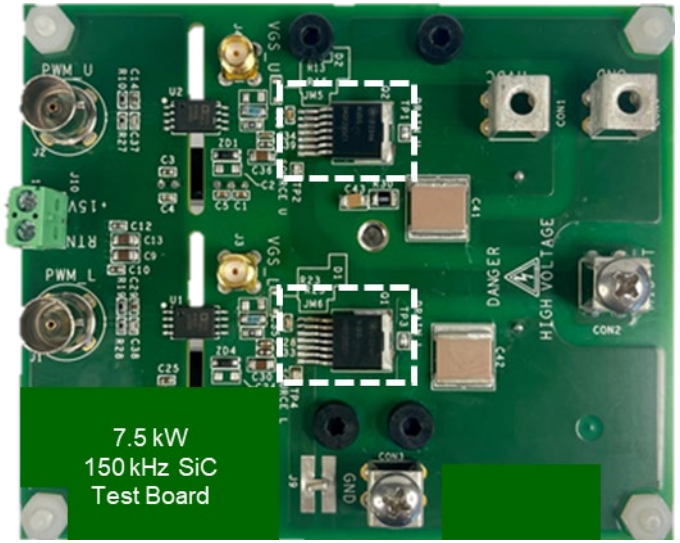
GeneSiC: Trench-Assisted Planar Gate SiC

Navitas

	Planar	Trench	GeneSiC
			
Manufacturability	» *Repeatable* » *High yield* » *Low cost*	» *Inconsistent trench etch* » *Lower yields* » *High cost*	» *Repeatable* » *High yield* » *Low cost*
Performance	» *High $R_{DS(ON)}$ / area* » *Slow switching* » *High $R_{DS(ON)}$ / Δ temp*	» *Lower $R_{DS(ON)}$ / area* » *Faster switching* » *High $R_{DS(ON)}$ / Δ temp*	» *Lower $R_{DS(ON)}$ / area* » *Fastest switching* » *Lowest $R_{DS(ON)}$ / Δ temp*
Reliability	» *Rugged gate oxide (stable V_{TH})*	» *Failures due to non-uniform gate oxide* » *Lower short-circuit capability*	» *Highest 100% tested avalanche* » *Long short-circuit withstand time* » *Rugged gate oxide (stable V_{TH})*

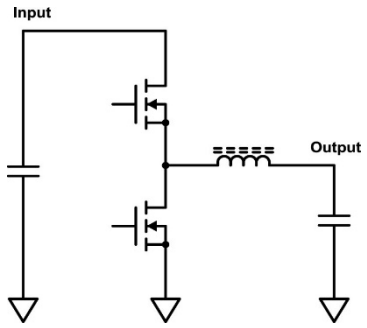
No-Compromise Technology

Faster, Cooler, Longer Lifetime

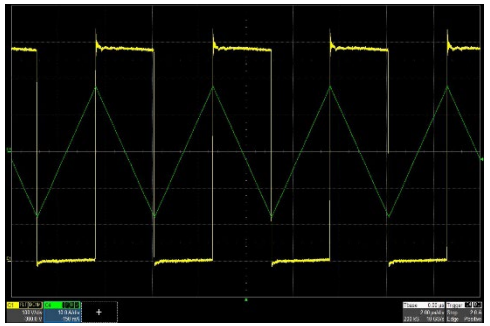


Test Board

- GeneSiC trench-assisted planar FET vs. Competitor SiC FET
  - 1,200 V, 40 mΩ, D2pak in half-bridge
  - Represents 7.5 kW DC-DC converter (e.g. data center, EV)
  - 150 kHz switching = ~10x faster than Si IGBT example
- **>80% energy savings (>3,000 kWh/yr) *vs Si IGBTs***
  -25°C cooler = 3x longer life *vs other SiC*
  (reduced maintenance / repair costs)



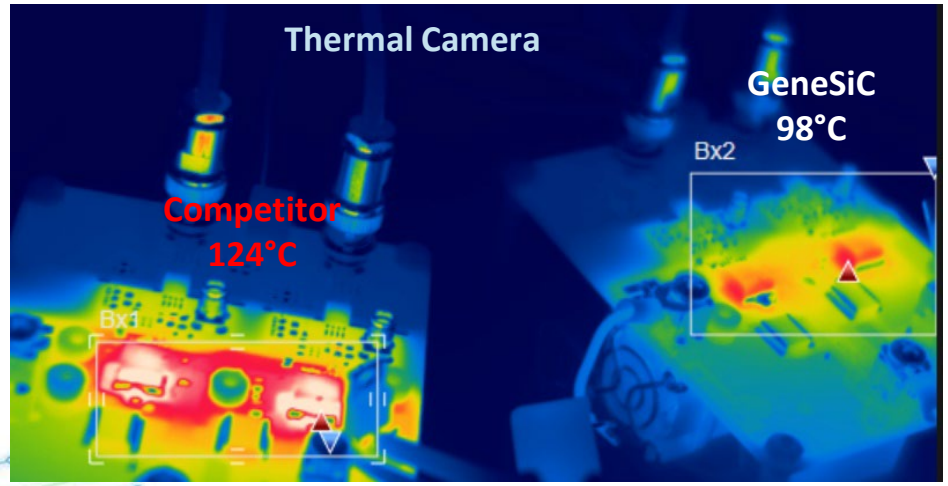
Test Circuit
(1-phase of 3-phase motor drive)



Switching Waveforms
(40 A pk-pk, 20 A turn-off}

Competitor SiC
45 W system loss

GeneSiC
40 W *system* loss
-30% *SiC* loss



Accelerating Renewables: 5 Years Ahead of Schedule

Navitas

China to add 120-140 GW of solar in 2023 (+40% vs 2022)

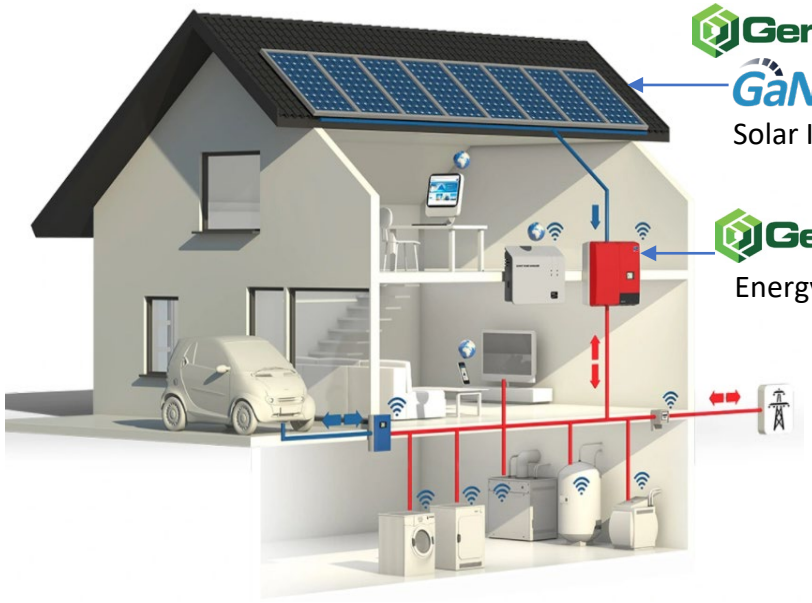
Expect 2x capacity, produce 1,200 GW by wind + solar by 2025
<u>5 years ahead</u> of target (2030)

"Solar will soon become the most economical form of electricity in China, surpassing hydropower to become the largest non-fossil energy source by the end of this year"(1)

(1) "Solar to jump into renewable energy driving seat at home and abroad, as China's capacity just keeps expanding, analysts say", South China Morning Post, 26 May, 2023

GaN and SiC for Solar / Energy Storage

Navitas



GeneSiC GaNFast™ Solar Inverters

GeneSiC Energy Storage

25°C cooler with GeneSiC

Customers in Development, Production

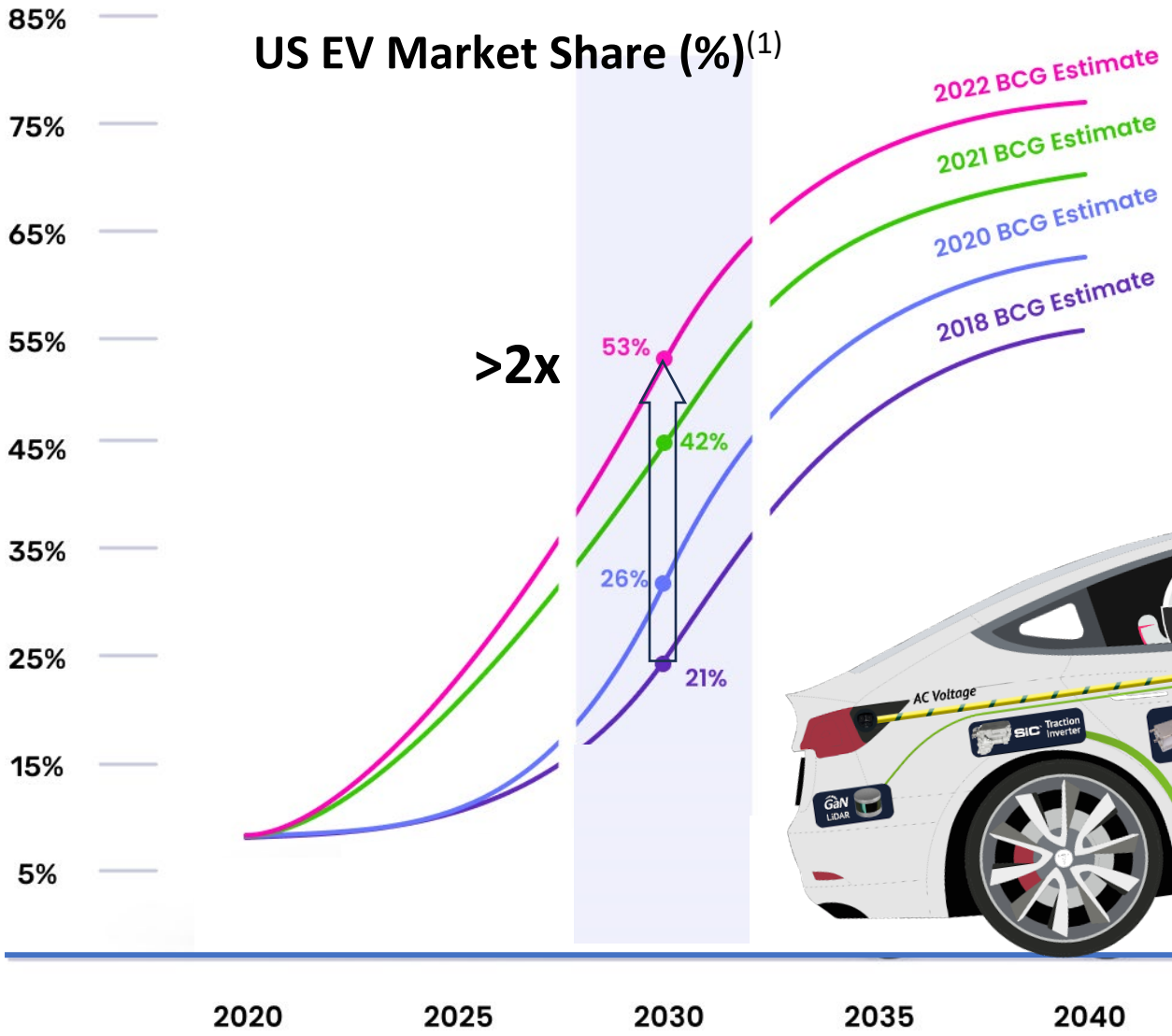
Advanced Energy · Alpha power solutions · ENPHASE. · solaredge · GROWATT · CHINT · GOODWE · steca A KATEK Brand · SUNGROW Clean power for all · EXIDE TECHNOLOGIES · KACO new energy.

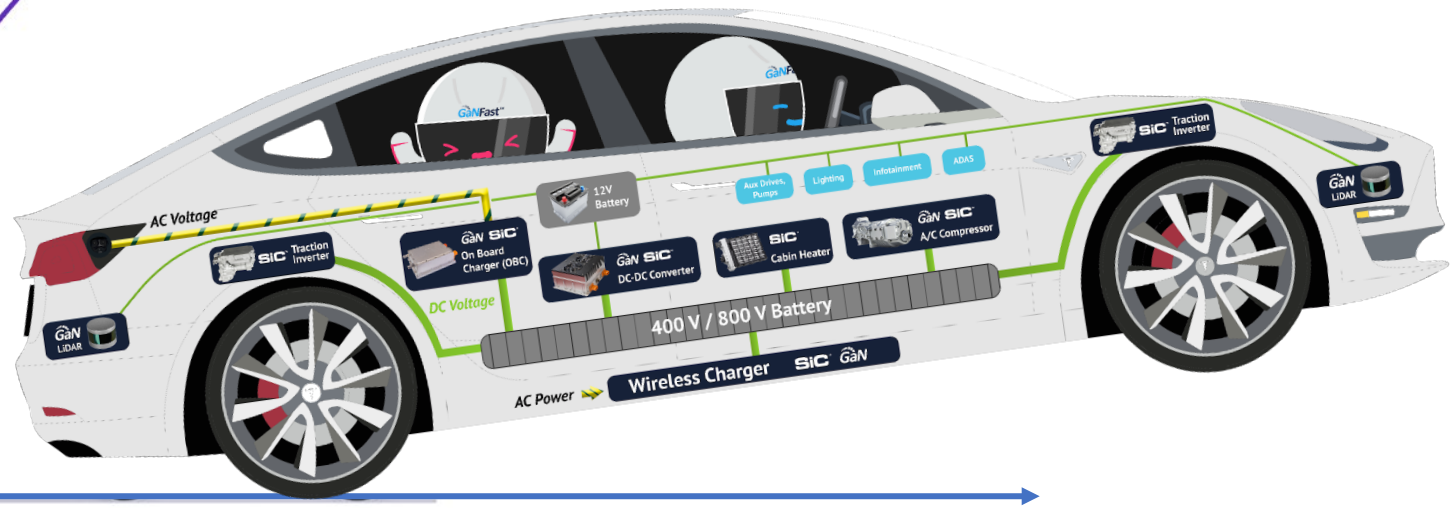
(1) Navitas est. 6.2 kW residential installation with silicon inverter at 97.5%, GaN at 98.5% efficiency. (2) Market estimates for 2030, based on DNV and Navitas analysis. (3) Per Q1'23 earnings report

Accelerating Adoption: EV

Navitas

US EV Market Share (%)(1)





Customers in Production, Engagement(3)

DYNEX Power through Innovation · BYD · BRUSA · INOVANCE Automotive · Rhombus Energy Solutions · ZEEKR · vitesco TECHNOLOGIES · SHINRY 欣锐科技 · ABB · AccoPower · GEELY · DELTA · VINFAST · HYUNDAI MOBIS · TRITIUM · SK signet · alpitronic · LG-MAGNA · chargepoint · AMG · BorgWarner · solaredge

(1) BCG, via https://www.recurrentauto.com/research/ev-adoption-us (2) Company internal estimate 2030, 30M EV/yr, based on DNV and Navitas analysis. Note: Assumes 150 kW traction inverter, 100 kWh battery, $100/kWh battery cost and typical 230 mile range. (3) Represent select potential, engaged customers. Logos do not indicate binding long-term agreements.

GaNSafe™ Delivers Highest Power Density

Navitas

Combination 6.6 kW OBC + 3 kW DC-DC:

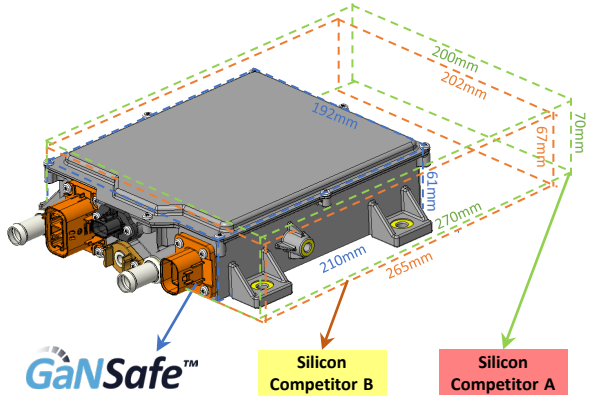
- **AC Input:** 90~265 V_{AC} up to 32 A
- **DC Output:** 470~860 V_{DC}, full load
- **Power Output:** 6.6 kW charging, 6.0 kVA discharging
- **Efficiency:** ≥ 95% @ Full Load
- **DC-DC Output:** 9~16 V_{DC}

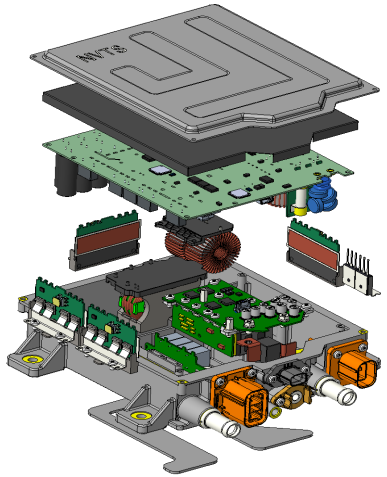
Mechanical:

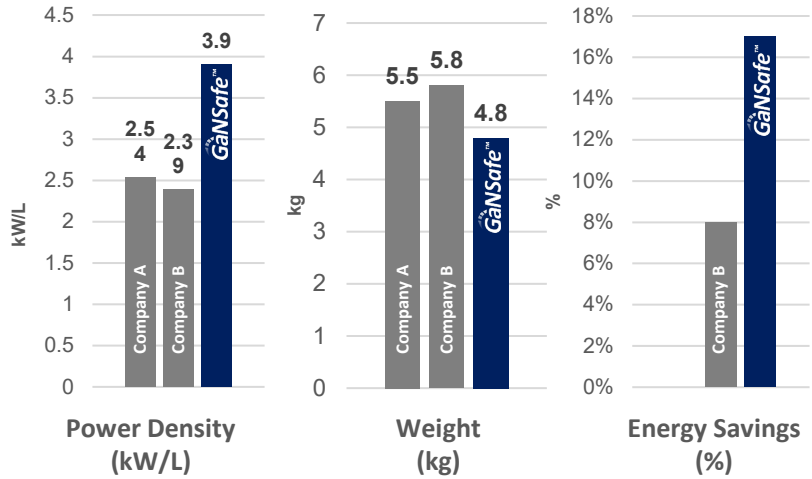
- **Dimensions:** 210 x 192 x 61mm (≤ 2.5 litre)
- **Cooling:** -40 to +65°C (Cold Plate)
- **Communication:** IP 67, CAN Bus interface

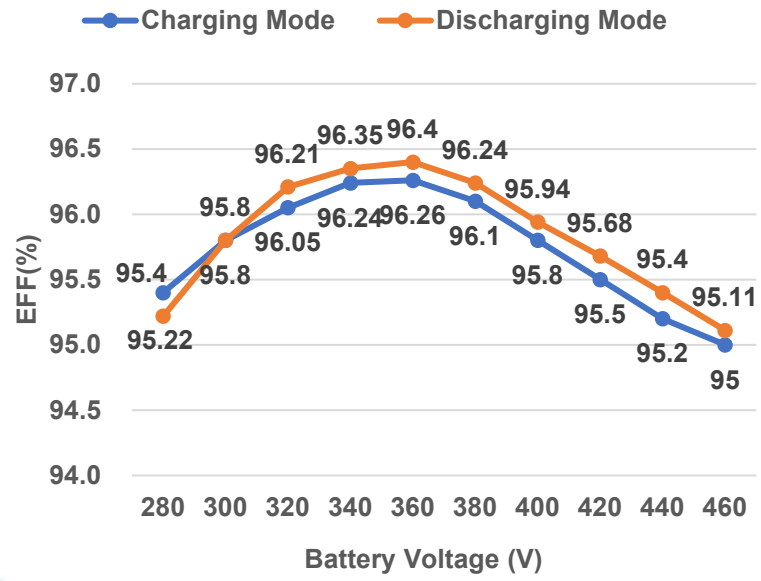
GaNSafe™

Power density +50%
to 3.9 kW/litre



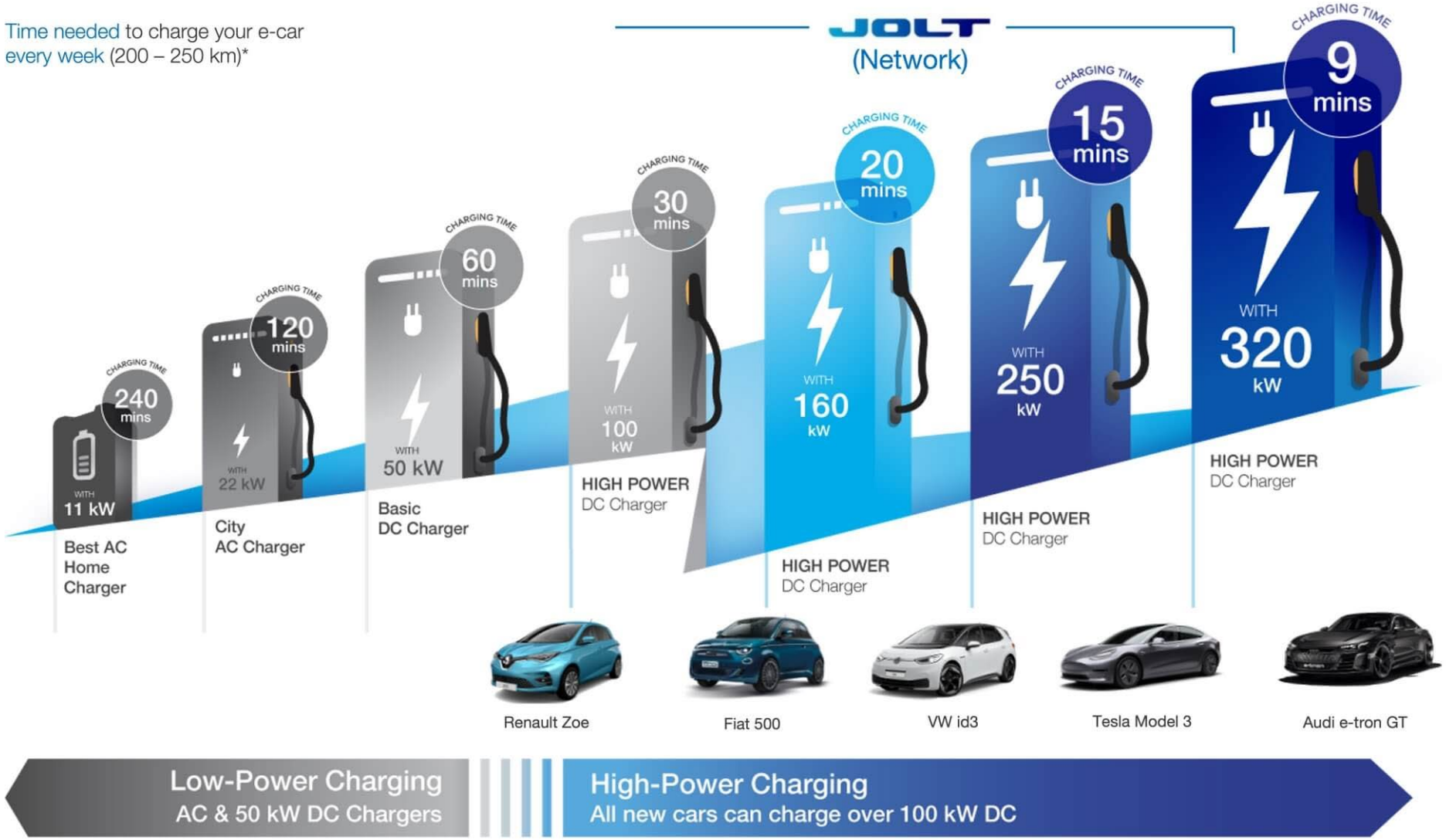






Accelerating Charging

Navitas



"10-80% charge in only 18 minutes!"(2)

(1) https://jolt.energy/whats-the-difference-between-ac-dc-and-ultra-fast-charging/
(2) Level 3 800V 350 kW DC charger 10-80% in 18 minutes for Genesis GV70 SUV

HV Long-Haul Trucks Need HV SiC

- In 2022:
  - Small share ~60k in 5 million/year
  - 110 new models
- COP27:
  - 30% ZEV sales by 2030
  - 100% by 2040
- “Megawatt Charging System”
- SAE J3271
- Up to 3.75 MW
- 1,250 V cable

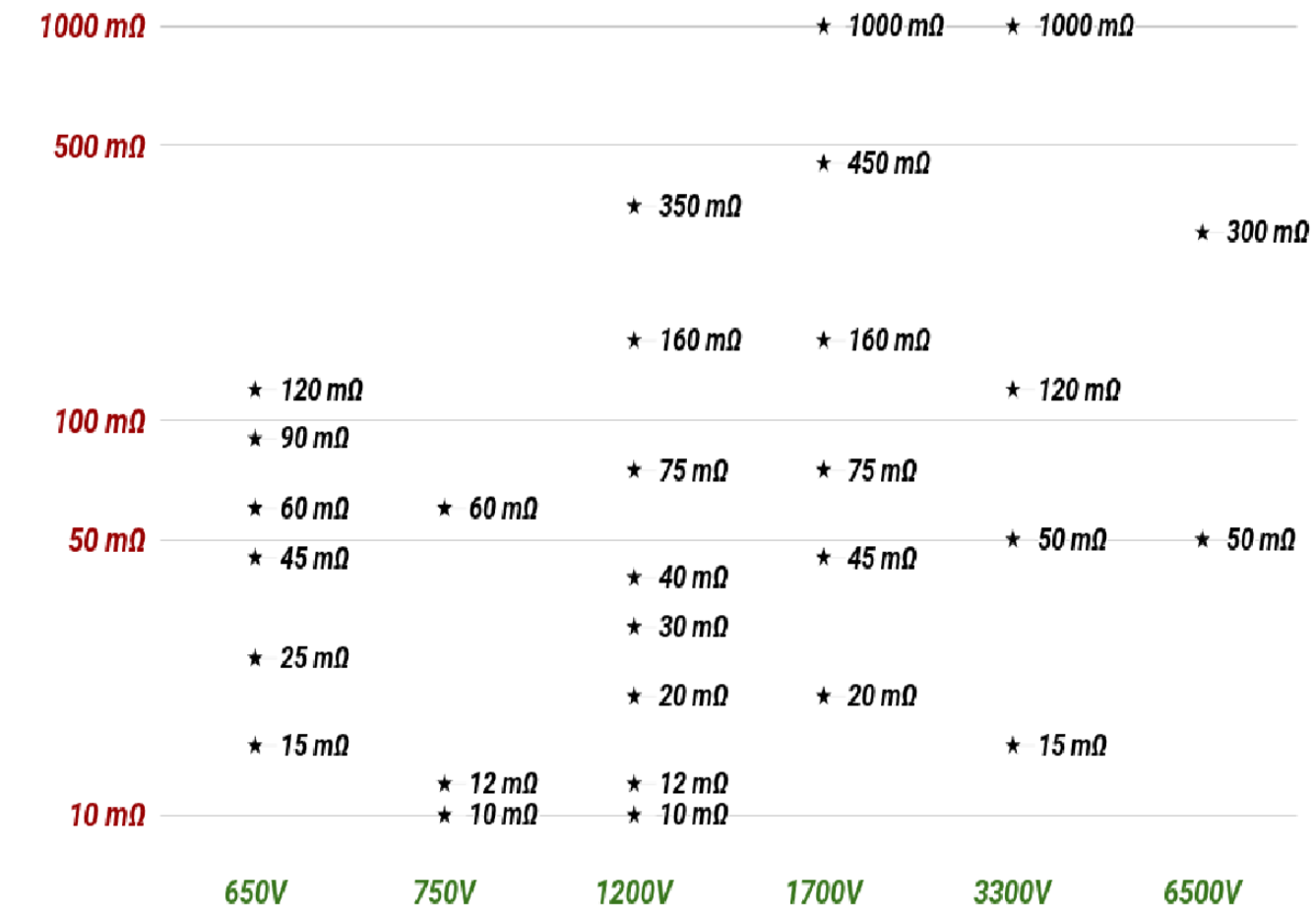
DC Fast-Charger Specifications	Passenger / LDV	HDV J3721 (non-cooled)	HDV J3721 (actively-cooled)
Power (max, kW)	350	440	3,750
Voltage (max, V)	920	1,250	1,250
Current (max, A)	500	350	3,000
Vehicle Battery (nom, V)	400 / 800	800, 1200	800, 1200
SiC Device Voltage (nom, V)	**750 / 1,200**	**1,200 / 1,700**	**1,700**

HV Bus = HV SiC

HV bus:

- *Low I^2R conduction losses*
- *High combined motor-inverter efficiency*
- *Small size electric drive for same power levels*
- *No AC-DC conversion losses*

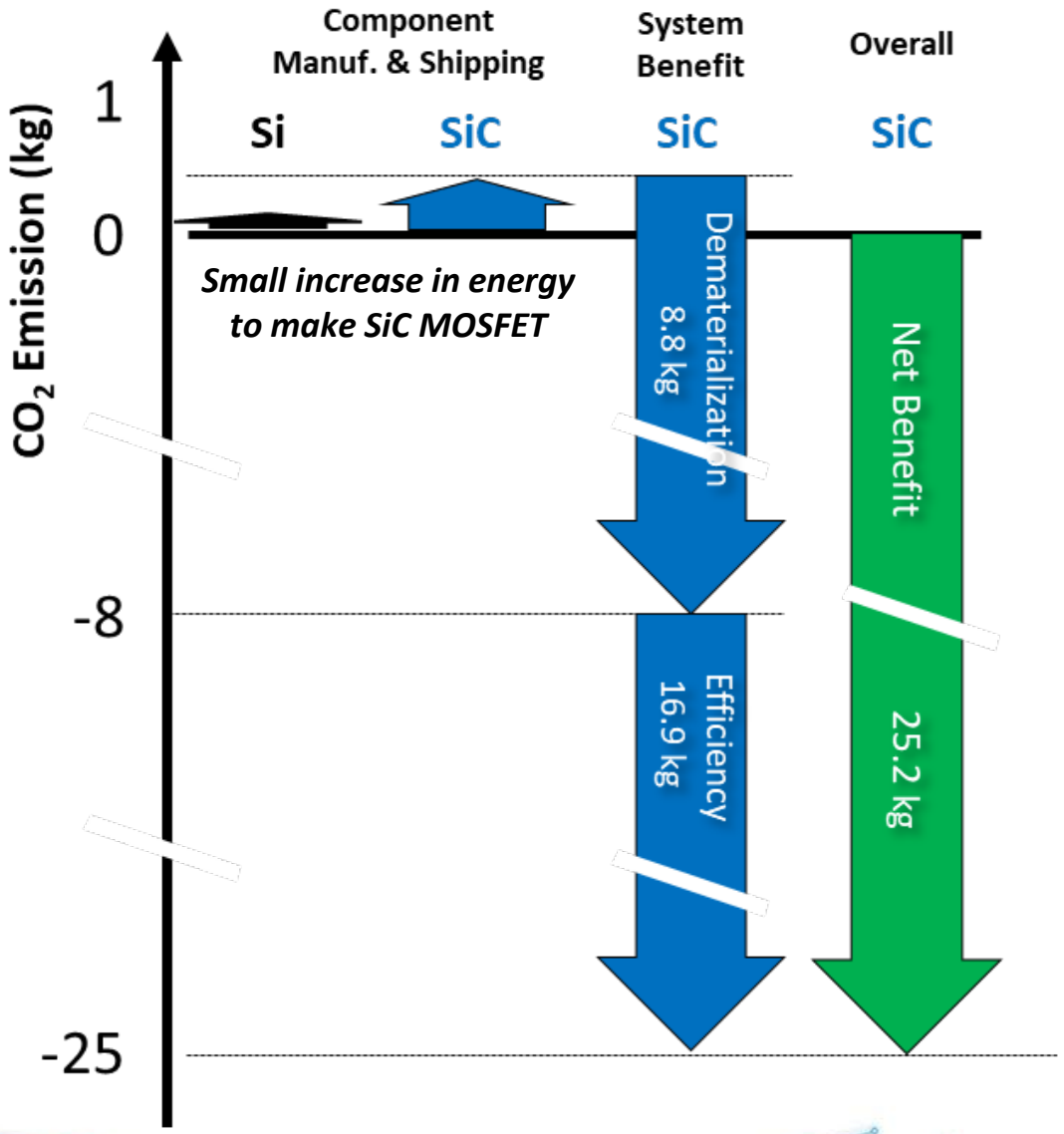
- *GeneSiC range 650V-6,500V*

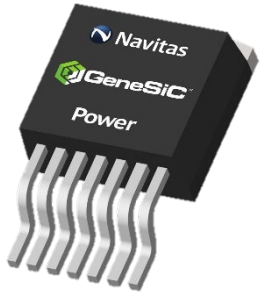


(1) Oak Ridge Nat. Lab. & National Renewable Energy Lab. Medium- and Heavy-Duty Vehicle Electrification: An Assessment of Technology and Knowledge Gaps (December 2019) ORNL/SPR-2020/7

Every GeneSiC MOSFET Shipped Saves Over 25 kg CO_2

Navitas





Huge benefit in application use

Accelerating Sustainability

Navitas

Every GaNFast™ IC saves

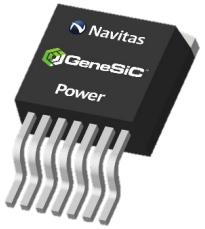
4 kg CO_2

>50 GWh energy savings
Saved >225 metric tons of CO_2

GaN + SiC save
6 Gton / year by 2050

Every GeneSiC FET saves

25 kg CO_2



May '22 World's first semiconductor company CarbonNeutral® certified

August '22 First 100,000 tons CO_2 saved
(Over 200,000 as of November 2023)

October '22 Recognized for industry-leading sustainability reporting

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