



# Fourth Quarter FY 2022 Quarterly Update

Infineon Technologies AG  
Investor Relations



# Infineon at a glance

## Addressing long-term high-growth trends

### Decarbonization

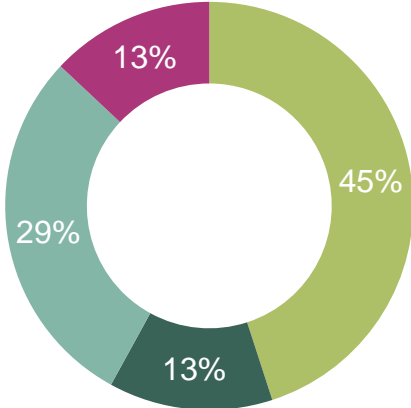
- › CO<sub>2</sub> saving
- › Energy efficiency
- › Sustainability

### Digitalization

- › Productivity
- › Comfort
- › New use cases

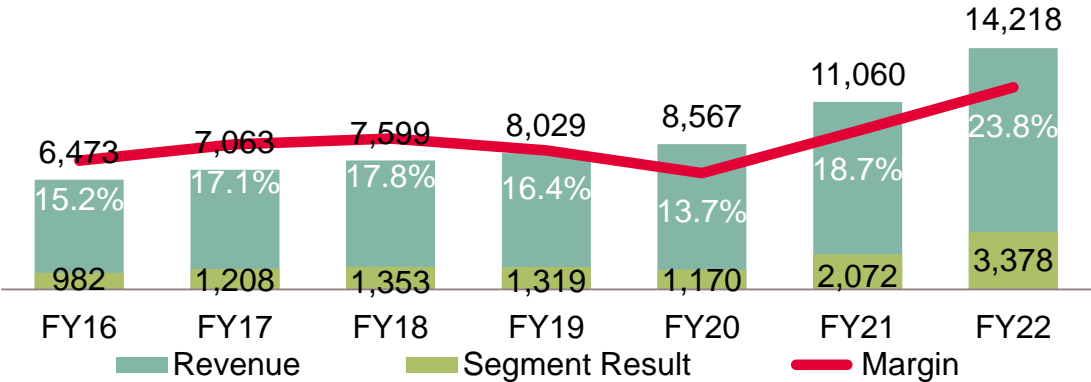
## FY22 revenue by segment

- Automotive (ATV)
- Industrial Power Control (IPC)
- Power & Sensor Systems (PSS)
- Connected Secure Systems (CSS)



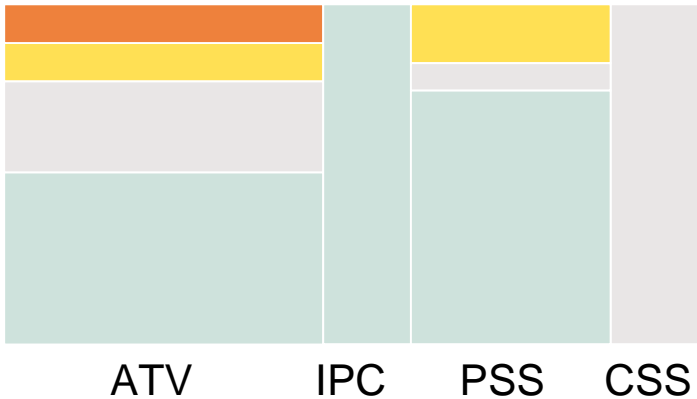
## Financials

[EUR m]



## FY22 revenue by product category

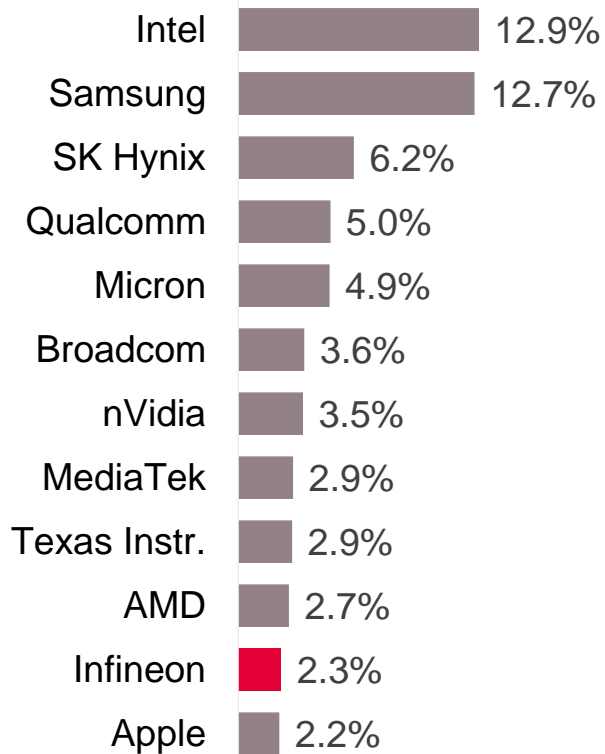
- ~5% memory ICs
  - ~10% RF & sensors
  - ~30% embedded control and connectivity
  - ~55% power semi-conductors
- of total revenue



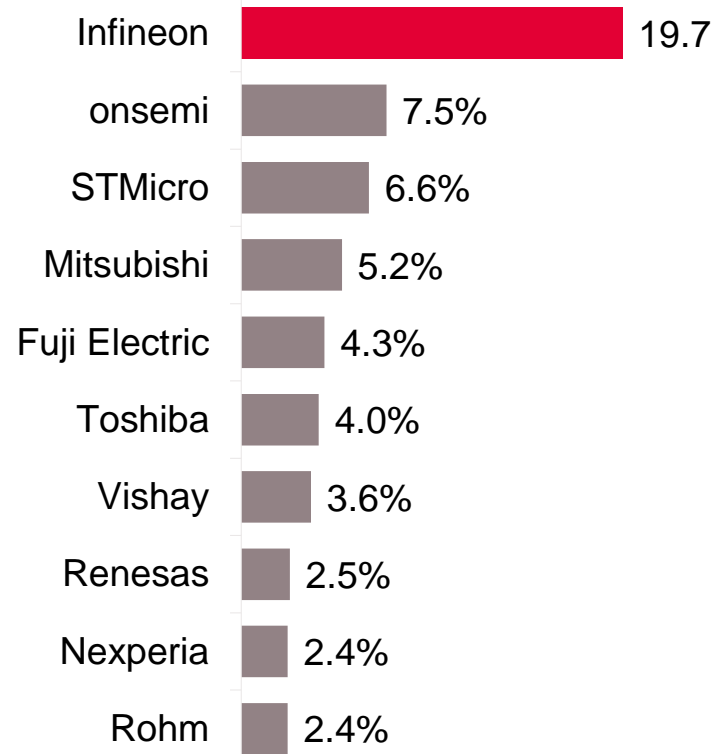
# Infineon is a global player, clear #1 in power semiconductors, and ranked #4 in the overall microcontroller market



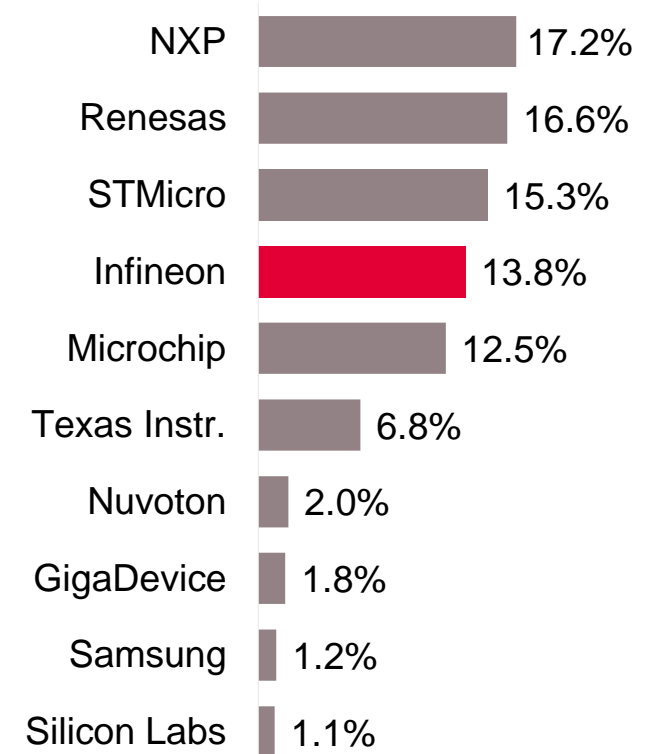
## Semiconductor suppliers 2021 total market: USD 592bn<sup>1</sup>



## Power discretives and modules 2021 total market: USD 27.5bn<sup>2</sup>



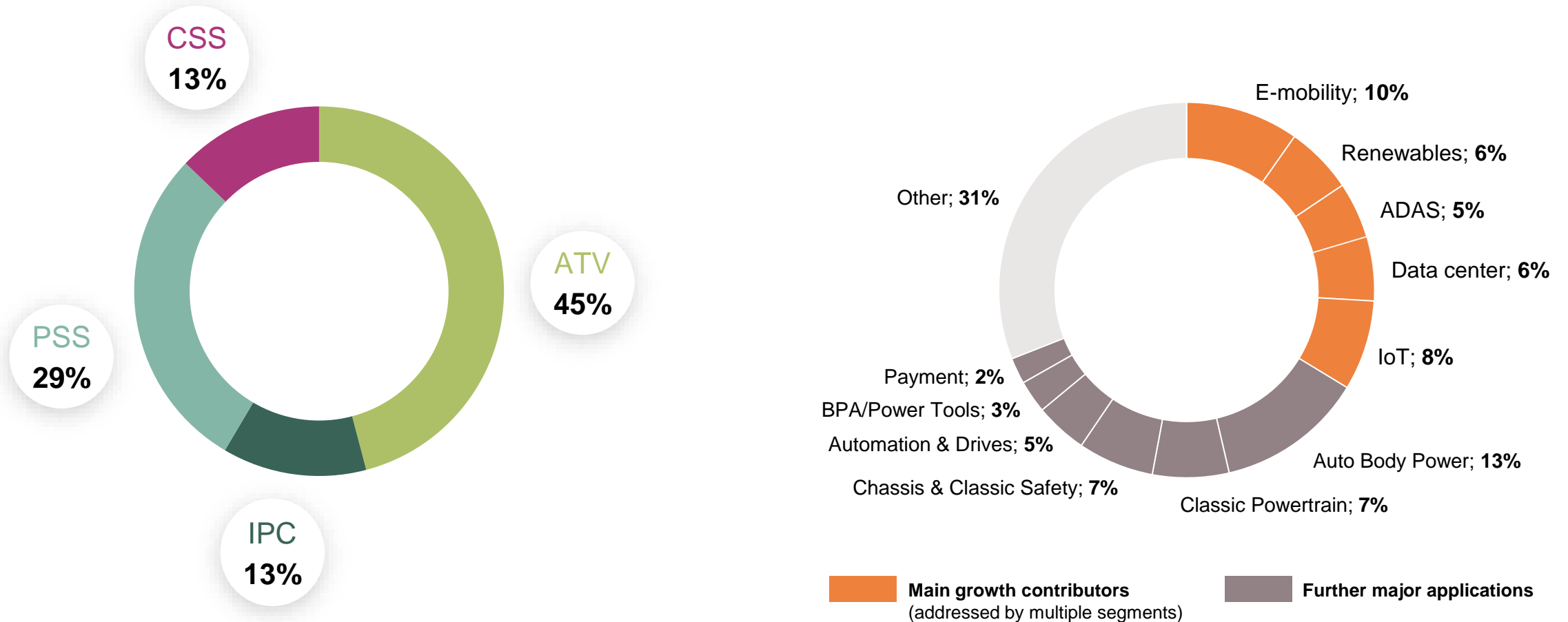
## MCU suppliers 2021 total market: USD 22.0bn<sup>1</sup>



<sup>1</sup> Based on or includes research from Omdia: *Annual 2001-2021 Semiconductor Market Share Competitive Landscaping Tool* – 2Q22. August 2022.  
<sup>2</sup> Based on or includes research from Omdia: *Power Semiconductor Market Share Database – 2021 – Final V2*. October 2022.  
 Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party's own risk.

# Well-balanced portfolio among segments and key applications, highest growth coming from Decarbonization and Digitalization

## FY22 revenue of €14,218m by segment and key application



DECARBONIZATION

DIGITALIZATION



... are accelerating structural growth of Infineon's target markets

## Infineon serving all target markets as Leader in Power Systems and IoT

Supported by ...



From product thinking to  
system understanding

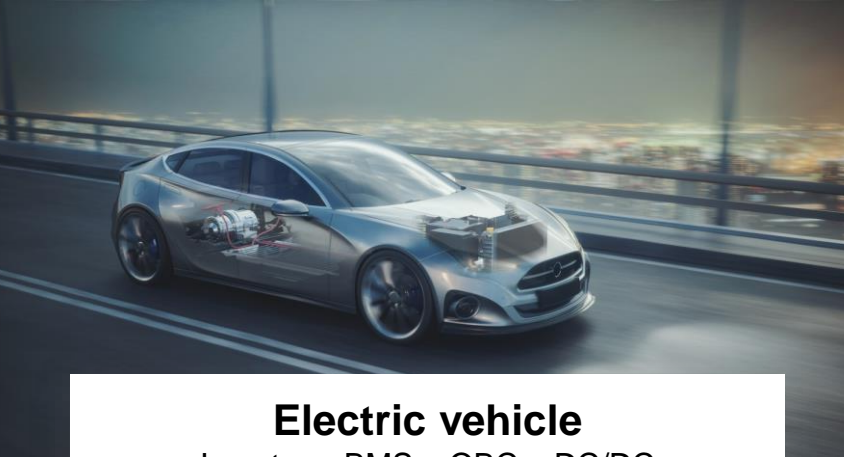


Software capability



Digital marketing and sales  
Eye-level strategic partnerships

# Leader in Power Systems: Infineon enabling decarbonization by delivering maximum value to customers with holistic system approach



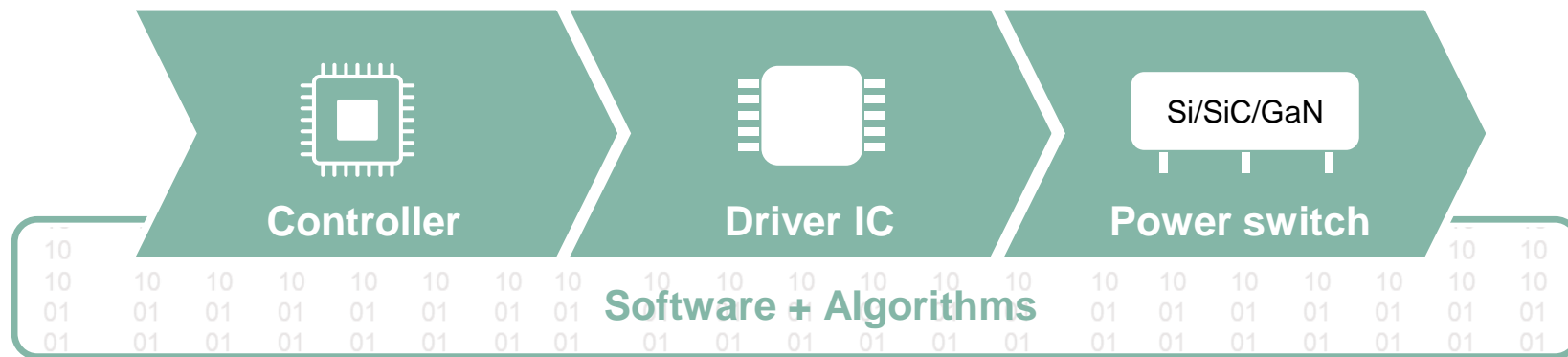
**Electric vehicle**  
Inverter – BMS – OBC – DC/DC



**Solar inverter**  
DC/DC – DC/AC



**Server power**  
AC/DC – DC/DC – PoL – Power stage



PoL (point of load): PMIC + Driver IC + MOSFETs | Power stage: Driver IC + MOSFETs

# Infineon at the core of IoT – driving digitalization by serving strongly growing multi-application markets



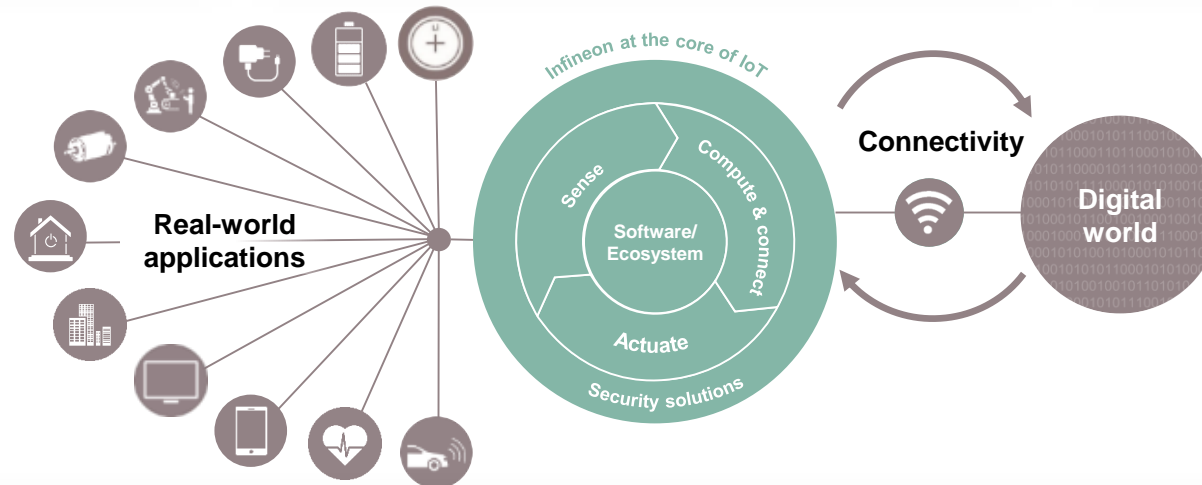
**Consumer IoT**



**Industrial IoT**



**Automotive IoT**



Products: MCU – Connectivity (Wi-Fi, BLE, NFC) – Sensors – Security – Power supply & switches

# Upgraded Target Operating Model: committing to more ambitious financial goals and being the sustainability leader



## Target Operating Model through cycle



Revenue growth

**>10%**

Previously

9%+



Segment Result Margin

**25%**

19%



Adj. Free Cash Flow  
Margin<sup>1</sup>

**10-15%**

Invest-to-sales

13%



**Sustainability leader – CO<sub>2</sub> neutrality 2030**

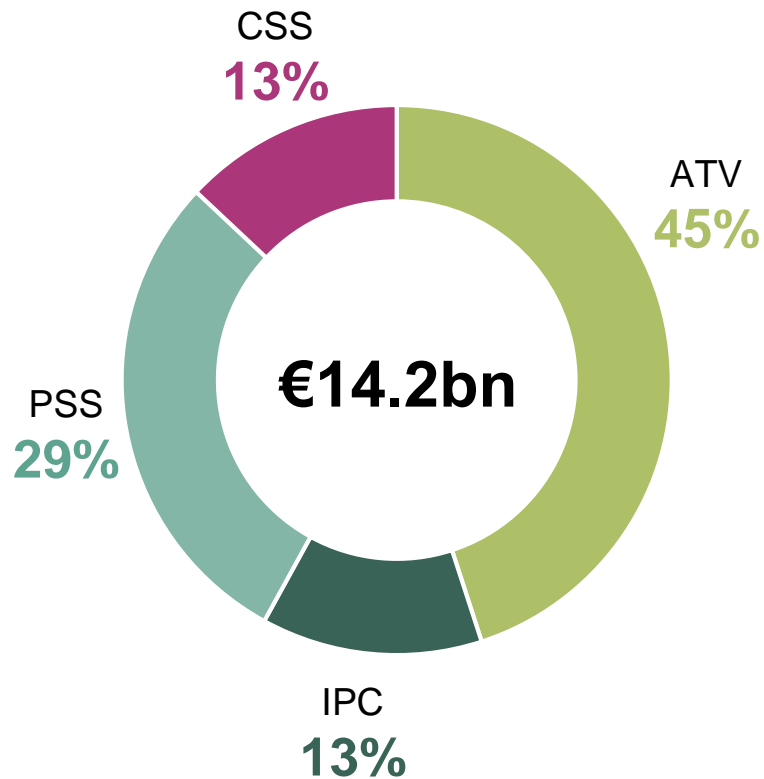


<sup>1</sup> Excluding major frontend buildings



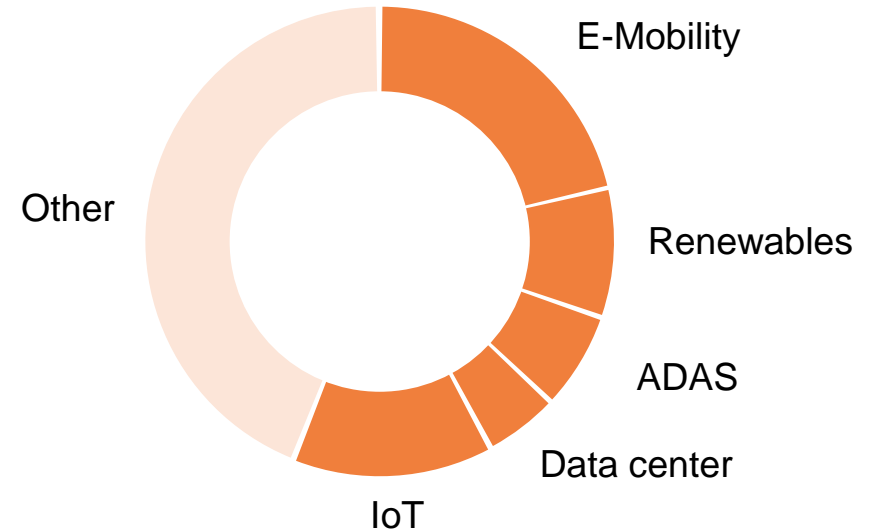
# Double-digit growth ahead – five key applications account for ~60% of growth; well-diversified divisional split

FY22  
Revenue by division



**>10%**  
CAGR

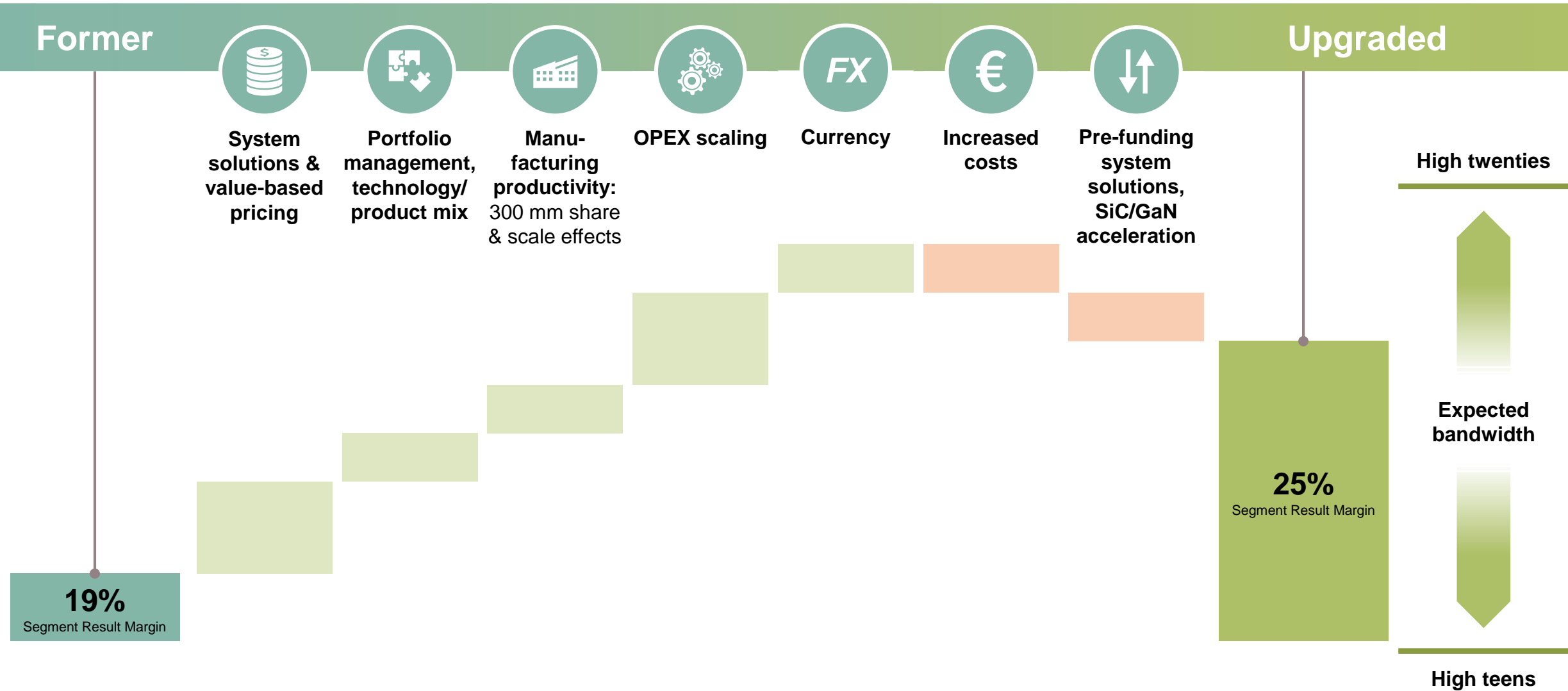
FY22-27e  
Revenue growth contribution by driver



Through-cycle growth rates by division

ATV	IPC	PSS	CSS
>10%	>10%	~10%	~10%

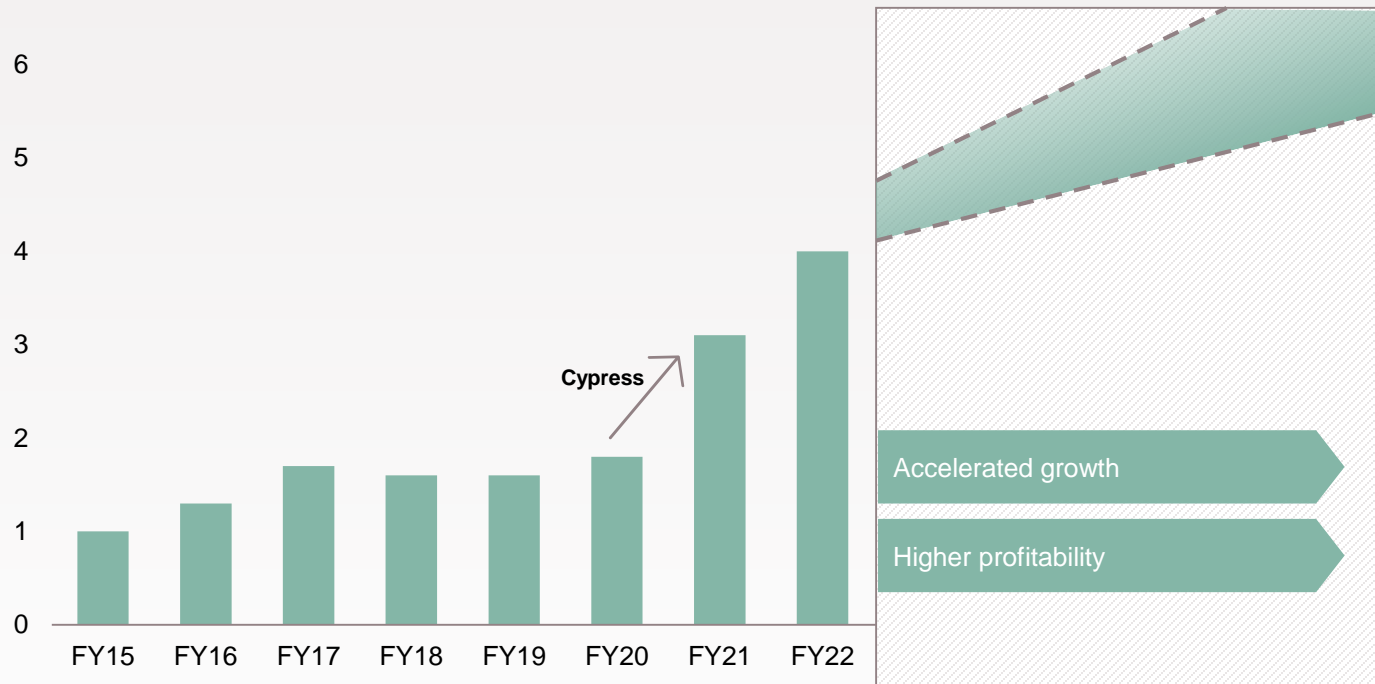
# Upgraded Target Operating Model: Significant margin expansion through the cycle



# Free Cash Flow generation increasing over the cycle, driven by profitable growth and better asset efficiency

[€ bn]

## Operating cash flow strongly rising



- › Accretive investments into high organic growth
- › Operating cash flow expected to outgrow investments
- › Differentiated in-house manufacturing complemented by ~40% outsourcing share over time
- › FY23-27: ~€3.5bn cum. investments into major frontend buildings

Adj. Free Cash Flow target: 10-15% of sales, excl. major frontend buildings



# Putting it all together – Upgraded Target Operating Model leads to superior value creation

## Target Operating Model through cycle



Revenue growth  
**>10%**

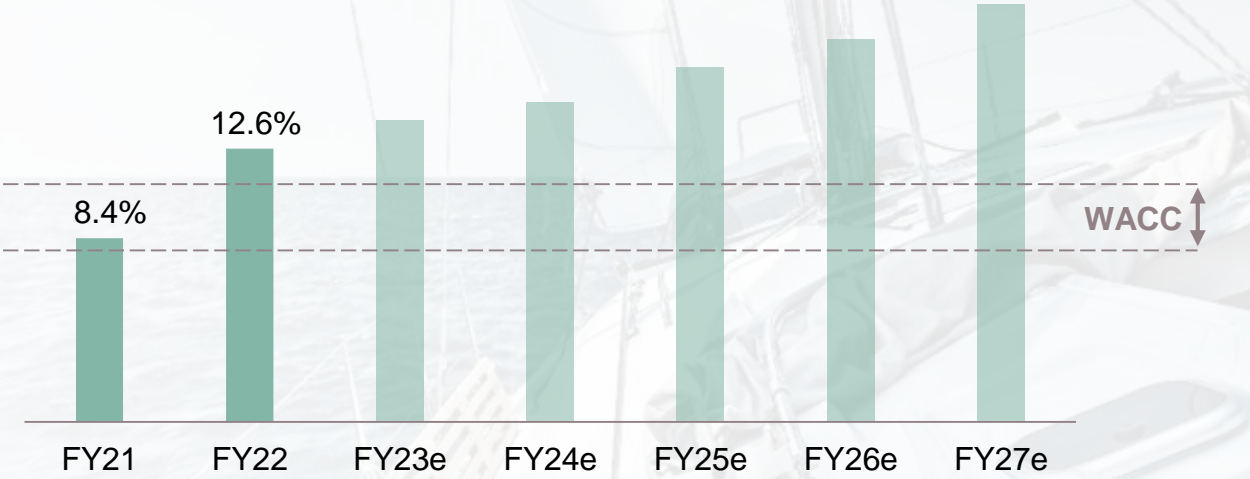


Segment Result Margin  
**25%**



Adj. Free Cash Flow Margin<sup>1</sup>  
**10-15%**

Reported RoCE to reach 2x cost-of-capital level



<sup>1</sup> Excluding major frontend buildings

# Outlook for Q1 FY23 and FY23

	Outlook <b>Q1 FY23<sup>1</sup></b>	Outlook <b>FY23<sup>1</sup></b>
Revenue	~ €4.0bn	€15.5bn +/- €500m
Adj. Gross Margin		~ 45%
Segment Result Margin	~ 25%	~ 24%
FCF/adj. FCF		~ €0.8bn / ~ €1.5bn
Investments		~ €3.0bn
D&A		~ €1.9bn <sup>2</sup>

<sup>1</sup> Based on an assumed average exchange rate of \$1.00 for €1.00

<sup>2</sup> Including the amortization of around 450 million Euros from purchase price allocations



# ESG: targets and achievements



# Our 2030 carbon neutrality goal is aligned with the Paris Climate Agreement's 1.5 °C target



## CO<sub>2</sub> burden<sup>1</sup>

3.0 million tons of CO<sub>2</sub> equivalents

Ratio ~1:33

## CO<sub>2</sub> savings<sup>2</sup>

~100 million tons of CO<sub>2</sub> equivalents



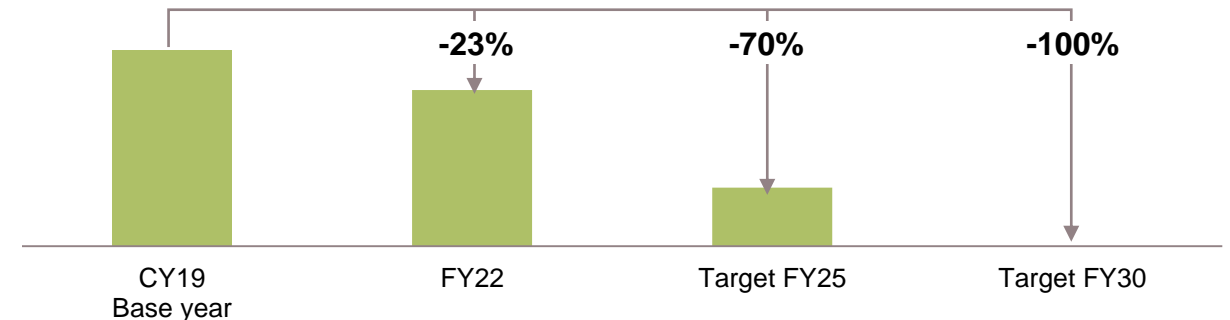
Net ecological benefit: **CO<sub>2</sub> emissions reduction of more than 97 million tons**

## On the road to carbon neutrality<sup>3</sup> we achieved significant milestones by

- > Using green electricity in Europe and North America
- > Completing abatement system in Kulim










## Infineon's CO<sub>2</sub> target<sup>3</sup> by 2025 and 2030

Net CO<sub>2</sub> emissions in million tons of CO<sub>2</sub> equivalents



1, 2, 3: For further explanation see "ESG footnotes" in the appendix

# External recognitions confirm our engagement in contributing to a sustainable society

		Rating/Score	Scale	Date
	MSCI ESG	AA	CCC to AAA	05/2022
	CDP	B climate scoring B water scoring	F to A	12/2021
	Ecovadis	99th percentile “Platinum” award	0 to 100	02/2022
	Dow Jones Sustainability Index	83 Dow Jones Sustainability™ World and Europe Index listing	0 to 100	11/2021
	Ethibel Sustainability Index Excellence Europe”	Index member	-	05/2020
	ISS ESG Corporate Rating	B- Prime Status	D- to A+	01/2021
	FTSE4Good Index	Index member	-	06/2021
	Euronext Vigeo Eurozone 120 Index Euronext Vigeo Europe 120 Index	Indices member	-	05/2021
	Sustainalytics	Top ESG performer	-	01/2022

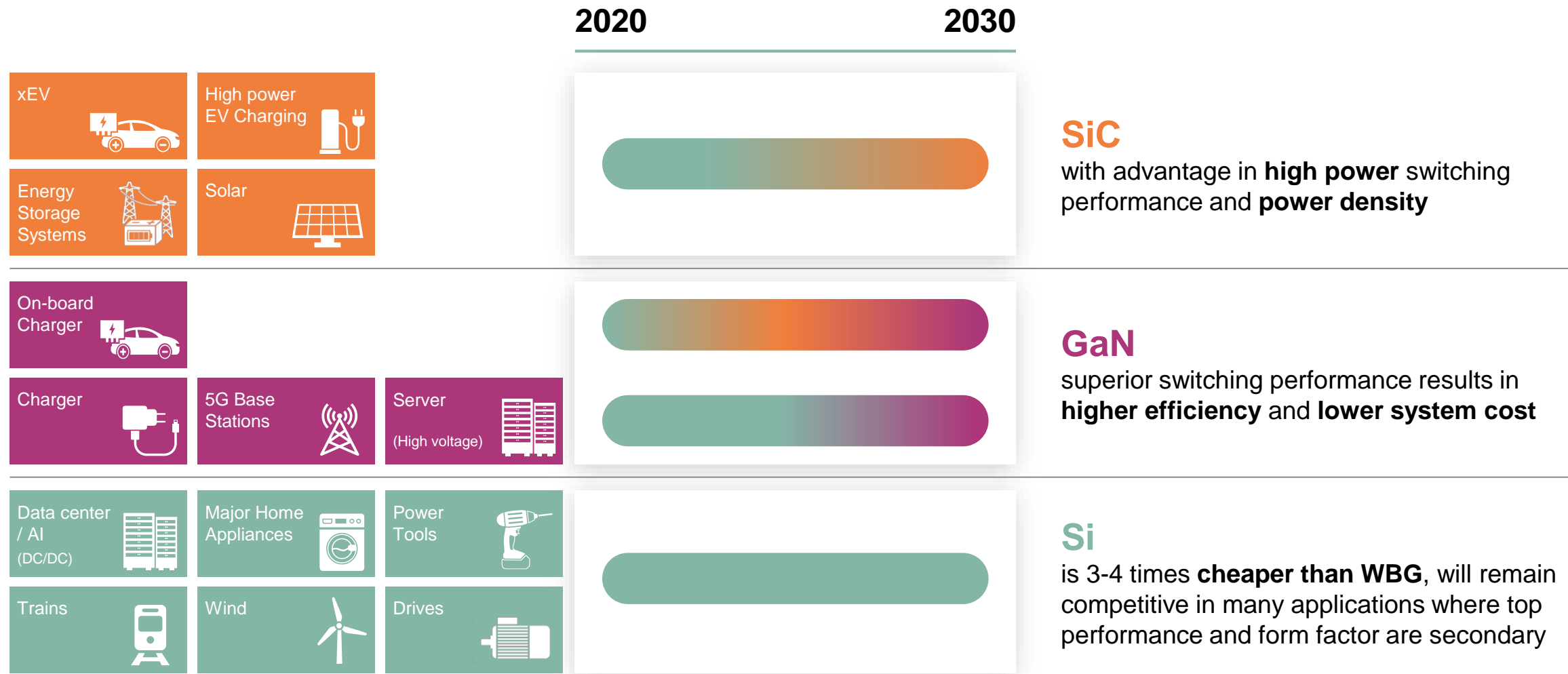




# Infineon's wide bandgap strategy



# Transition to WBG will vastly differ by application with Si expected to remain technology of choice for many of them



**SiC**  
with advantage in **high power** switching performance and **power density**

**GaN**  
superior switching performance results in **higher efficiency** and **lower system cost**

**Si**  
is 3-4 times **cheaper than WBG**, will remain competitive in many applications where top performance and form factor are secondary

■ Si ■ SiC ■ GaN

# 30% market share target in SiC by end of decade underpinned by significant capacity expansion



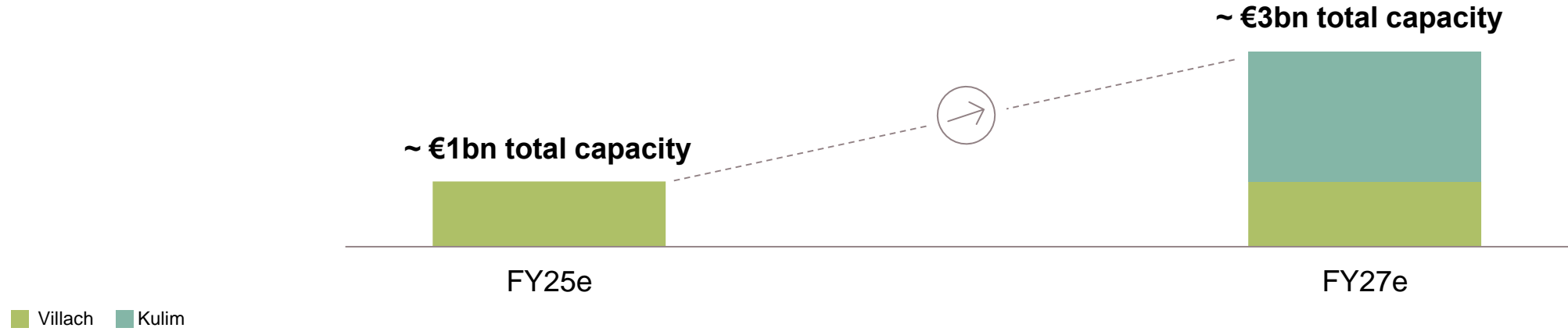
**10x**  
Increase by  
2027 vs.  
today

**Villach**

**Kulim**

## Infineon is well positioned for strong SiC market growth

Steep ramp enables market share gains



# SiC momentum further accelerating: significant new design-wins in auto, continuous leadership in industrial applications



## Most recent automotive SiC design-wins

Stellantis



US OEM



Japanese OEM



Close to **€3bn design-win** volume in last 4 months

## Most recent industrial SiC design-wins



Bloomenergy

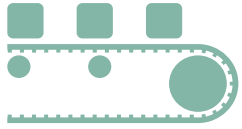


solar**edge**



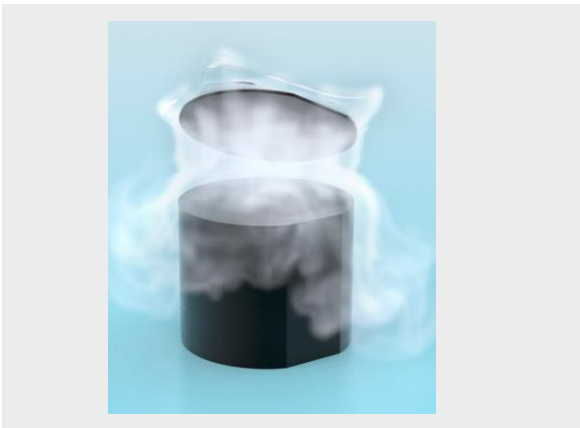
More than **3,600 active customers** being served

# With its comprehensive SiC strategy Infineon is mastering all key success factors



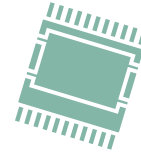
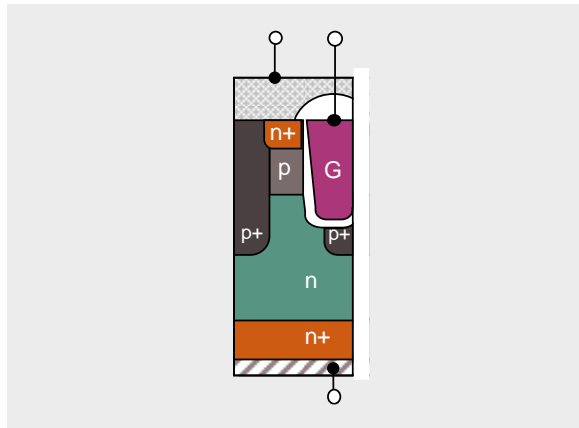
## SiC raw material supply

- > 4 qualified SiC wafer and boule suppliers – more to come
- > Cold Split technology increases productivity, especially in 8 inch



## Superior trench technology

- > 1 – 2 generations ahead of competition
- > 30% more chips per wafer than planar



## Packaging portfolio

- > Best-in-class in-house packaging solutions
- > New .XT technology for highest power density



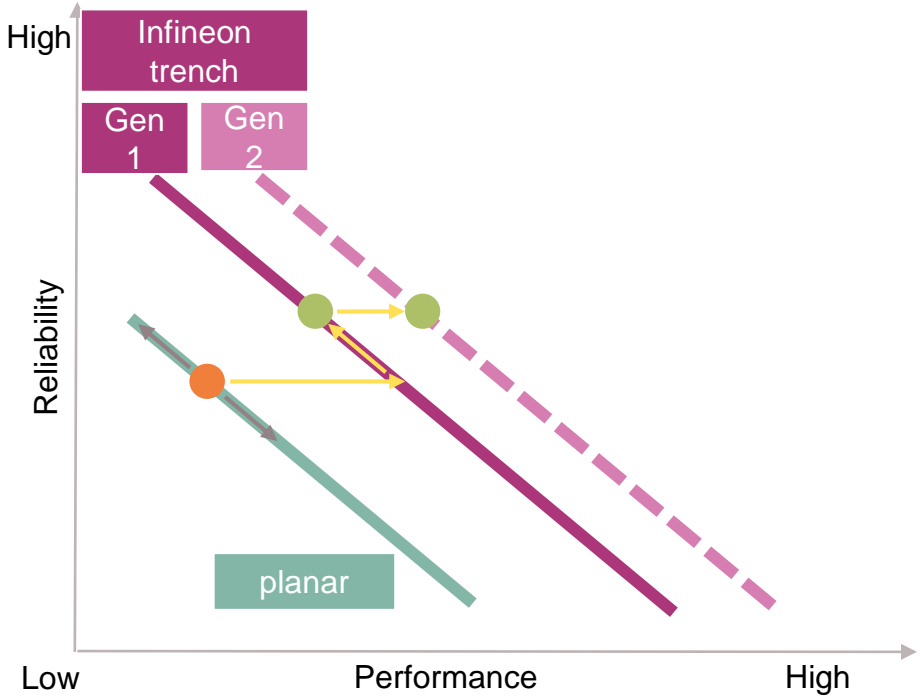
## Deep system understanding

- > Decades of experience in automotive and industrial power
- > Broadest portfolio: off-the-shelf plus customized solutions



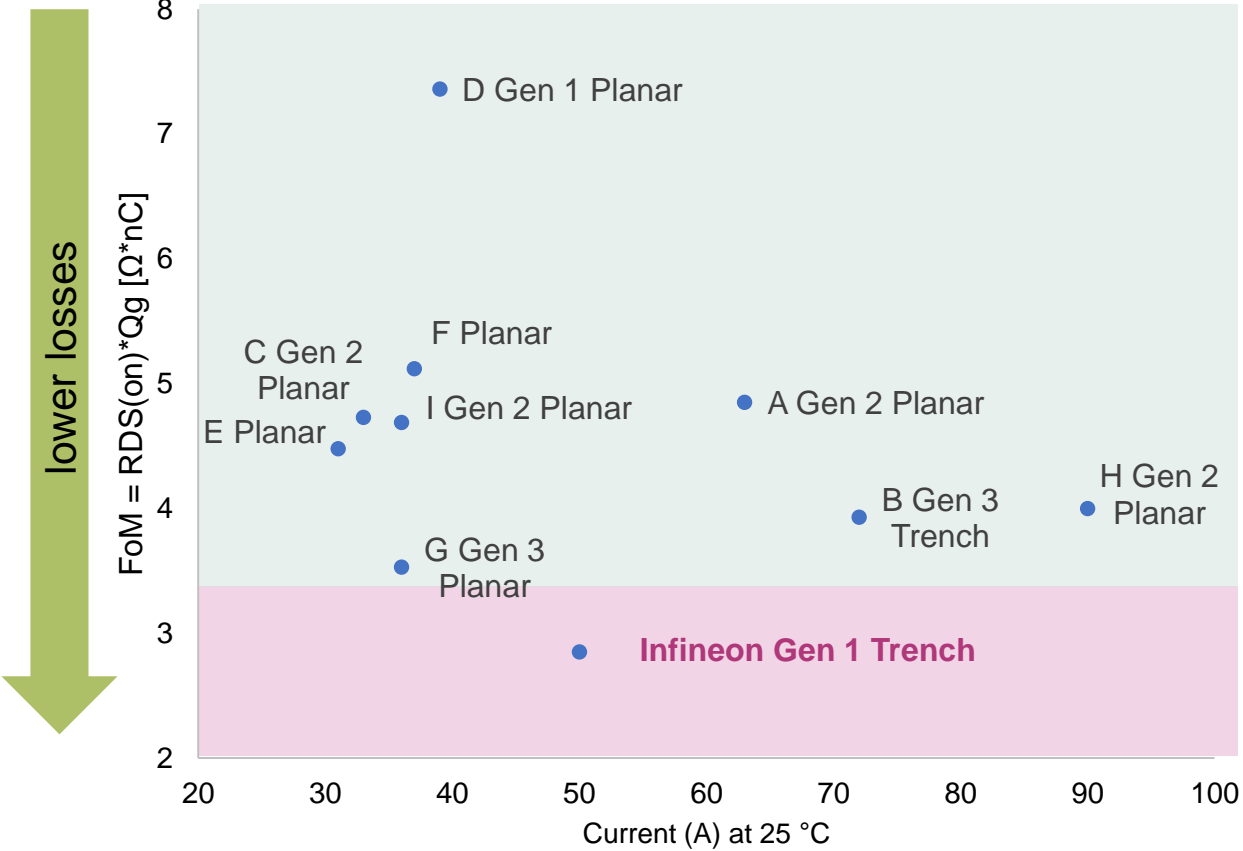
# CoolSiC™ trench design with optimized performance and reliability

## Infineon's trench moves the boundaries



Building on superior reliability Gen 2 will drive performance

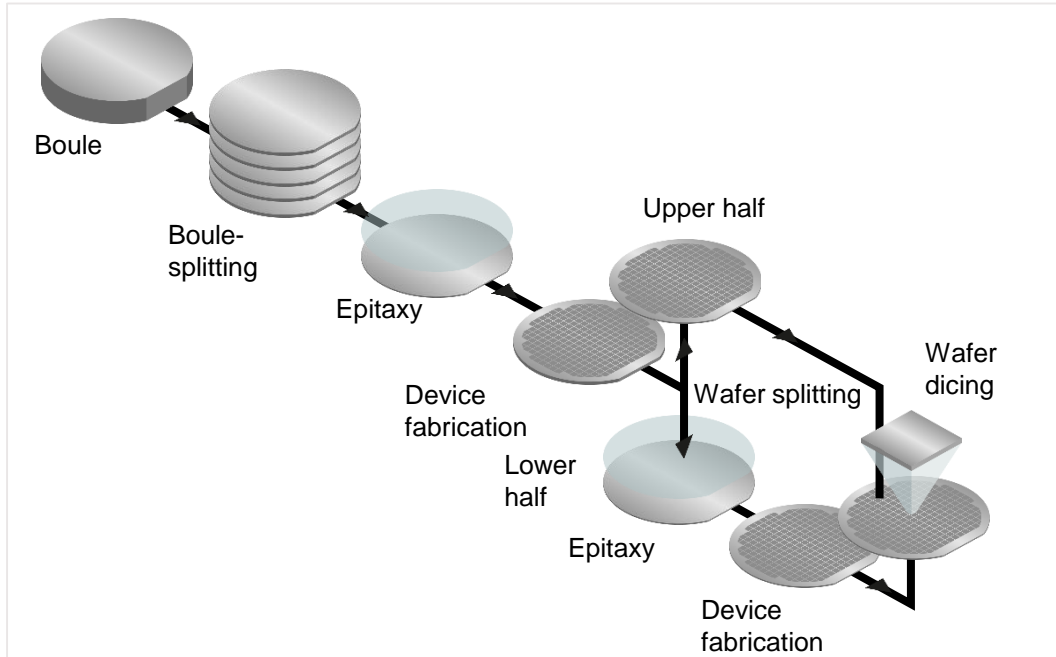
## 1<sup>st</sup> Gen. trench with superior performance



SystemPlus Consulting: "SiC Transistor Comparison 2021". December 2021; Companies with more than one product in the test are shown with the best performing device

# Our Cold Split technology leads to significant reduction of raw material losses during SiC manufacturing

## Cold Split technology



- › First product qualified on Cold Split technology
- › Ramping pilot line and prepare volume production
- › 3 supplier long-term agreements for boules and wafers in place

Crystal	Technology	# of wafers (indexed)
---------	------------	-----------------------

Today



Traditional wire sawing wastes ~75% of raw material!

2021



Boule splitting reduces raw material losses by 50%!

Next step

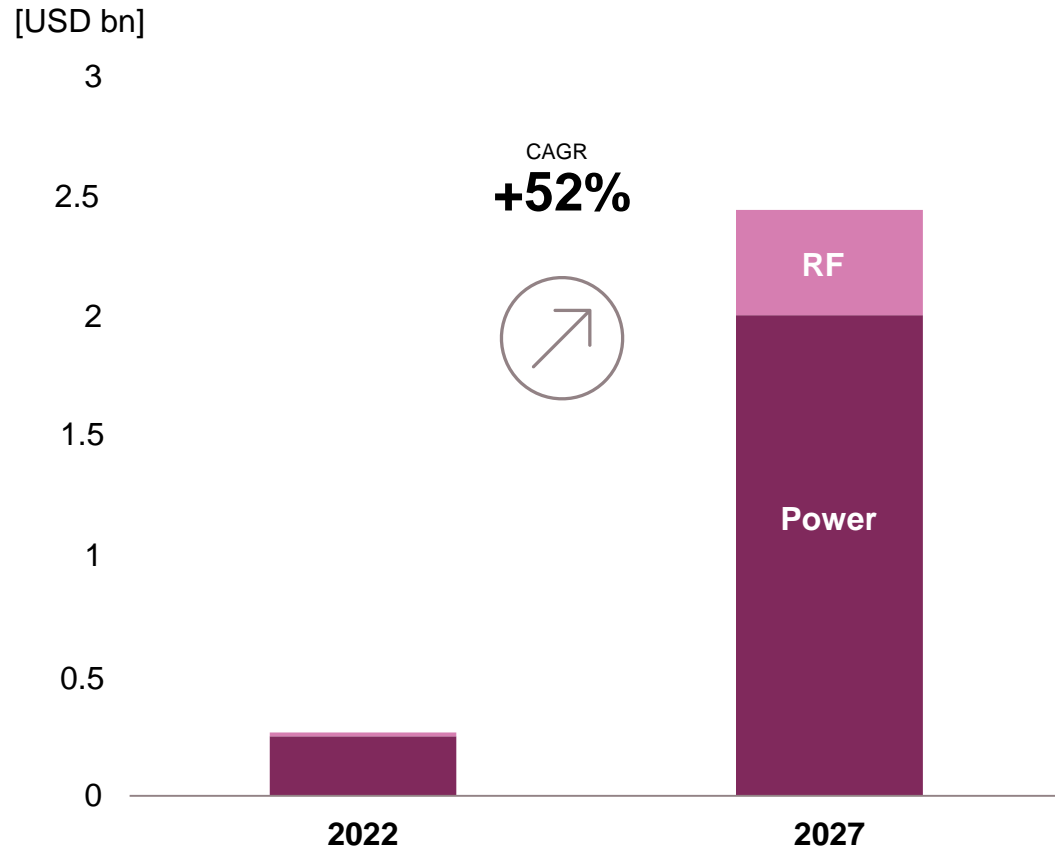


Wafer splitting results in minimal raw material losses!

# GaN: immense market opportunity with Infineon achieving significant design-wins across key power applications

## GaN market overview

for power and RF (GaN-on-Si) applications



Yole Intelligence: *Compound Semiconductor Market Monitor-Module 1 Q3 2022.*

## GaN design-wins of around **€1.5bn**

Strong design-win momentum for power and RF applications



Charger



Adapter



Power antennas  
for 5G



Server  
(High voltage)

## Infineon key success factors

- › Integrated device manufacturer
- › #1 patent portfolio for GaN – around 300 patent families
- › Enable dual-site 8-inch in-house production



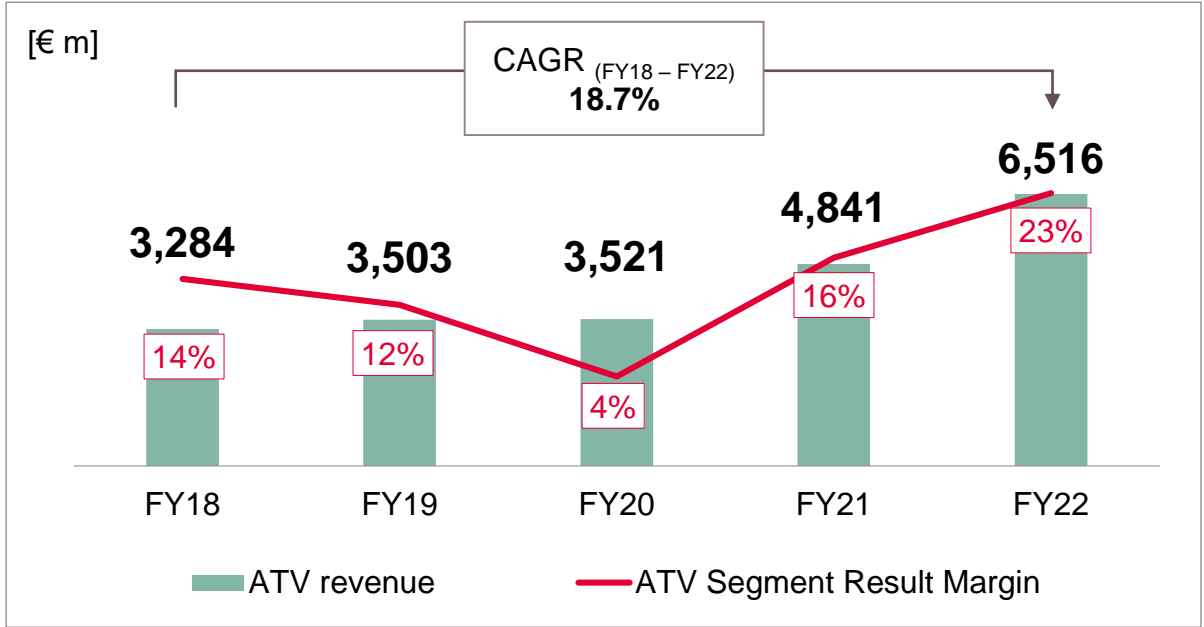


Automotive

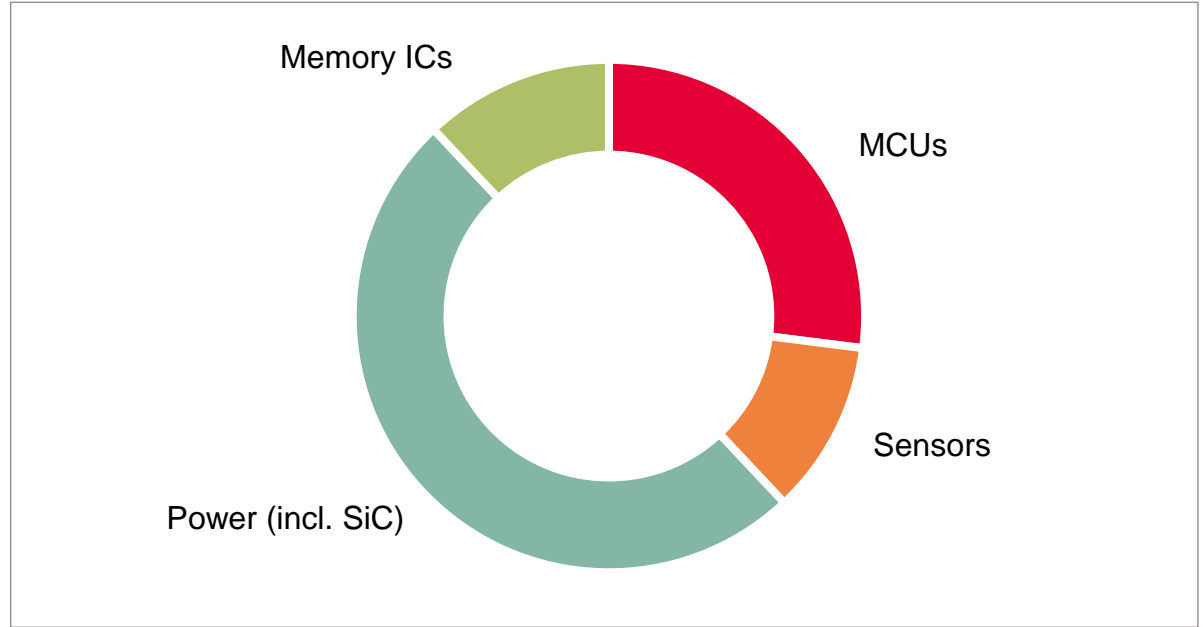


# ATV at a glance

## ATV revenue and Segment Result Margin



## FY22 revenue split by product group



## Key customers


# Automotive semiconductor market expected to continue its growth journey

## Applications

## Market Outlook for CY23



- › Ongoing risks due to
  - a) macro-economic slowdown
  - b) higher energy costs
  - c) weaker consumer confidence
- › However, demand overhang and OEM order backlog should stabilize car production



- › Positive momentum for xEVs expected to continue: more models, denser charging infrastructure, regulations
- › However, further increase in battery raw material contract prices (esp. for Li, Ni, Co) may trigger next round of xEV car price increase

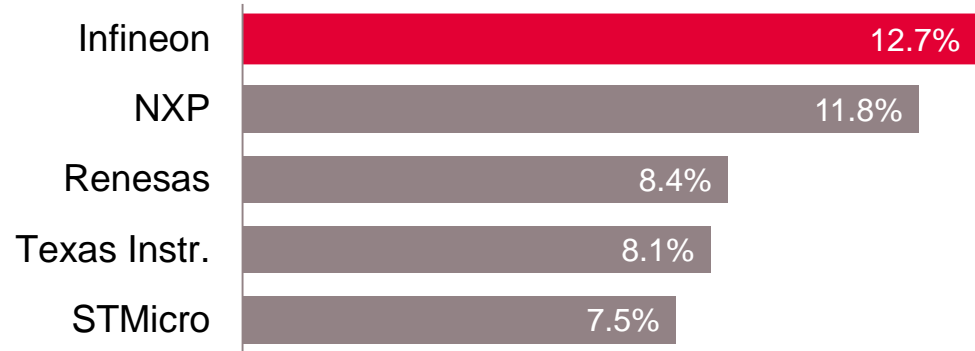


- › Growth of L1, L2 and L2+ expected to continue
- › L3 shipments will grow from a rather small base supported by additional L3 model launches
- › First commercial robotaxi projects in operation; roll-out in more and more cities

# Infineon's top market position is built on system competence based on an industry-leading product portfolio

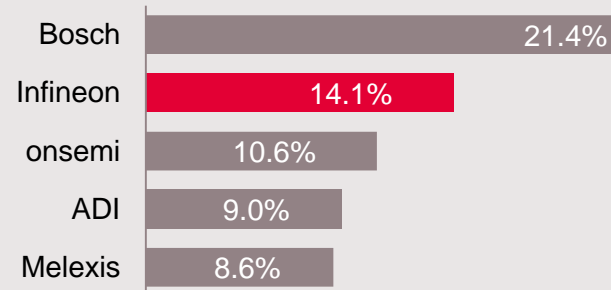


## Automotive semiconductors (2021 total market: \$46.7 bn; +31.5% yoy)

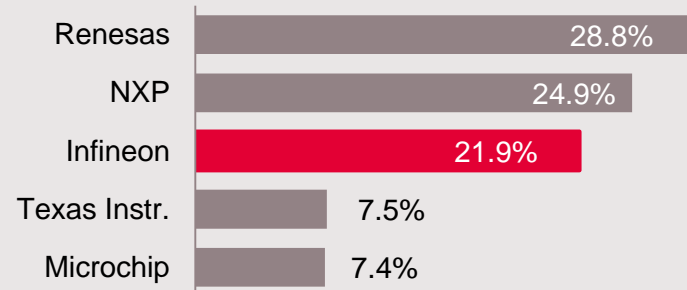


- > total market grew by 31.5% yoy, reaching all-time-high of \$46.7bn, exceeding previous high in 2018 of \$38.2bn
- > growth clearly supported by content-per-car growth
- > #1 in power semiconductors; gaining 1.3%-pt thanks to outstanding position in booming xEV business
- > Undisputed #1 in automotive NOR Flash memory ICs

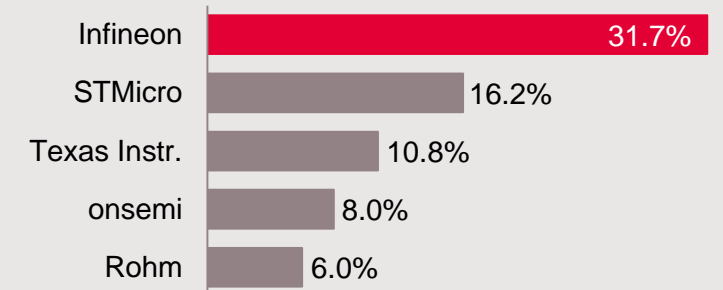
### Sensors



### MCUs



### Power semiconductors

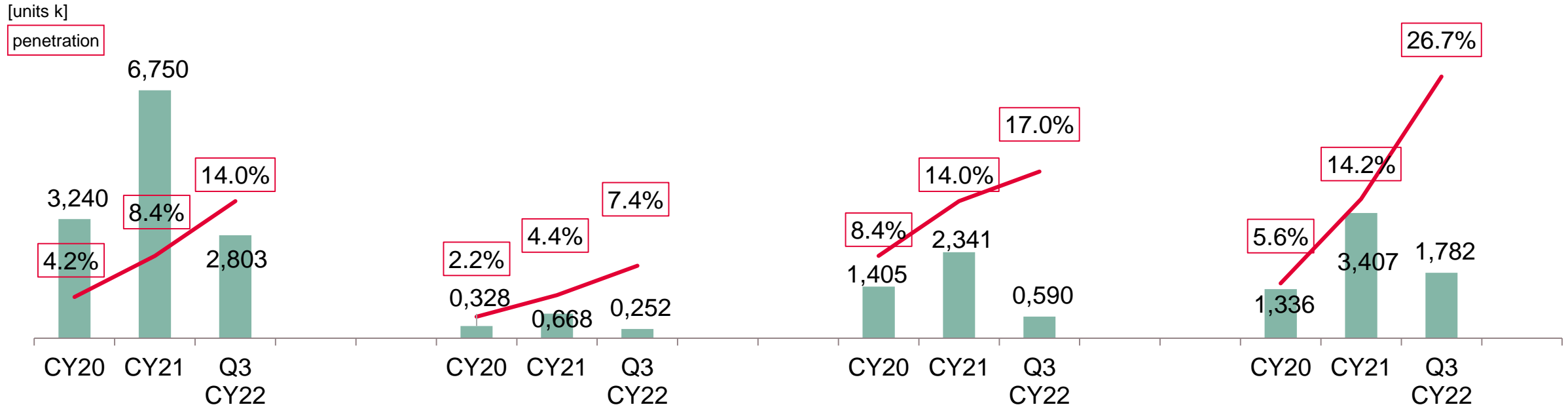




# Electromobility



# xEV (PHEV + BEV) penetration continues on all-time high level globally in Q3 CY22, China with strongest increase

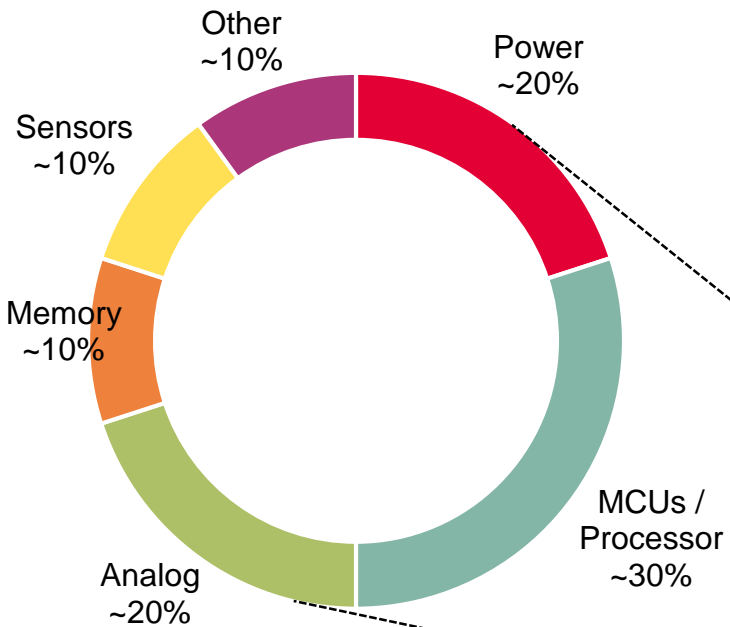


Based on or includes content supplied by S&P Global Mobility. October 2022; EV Volumes. October 2022.

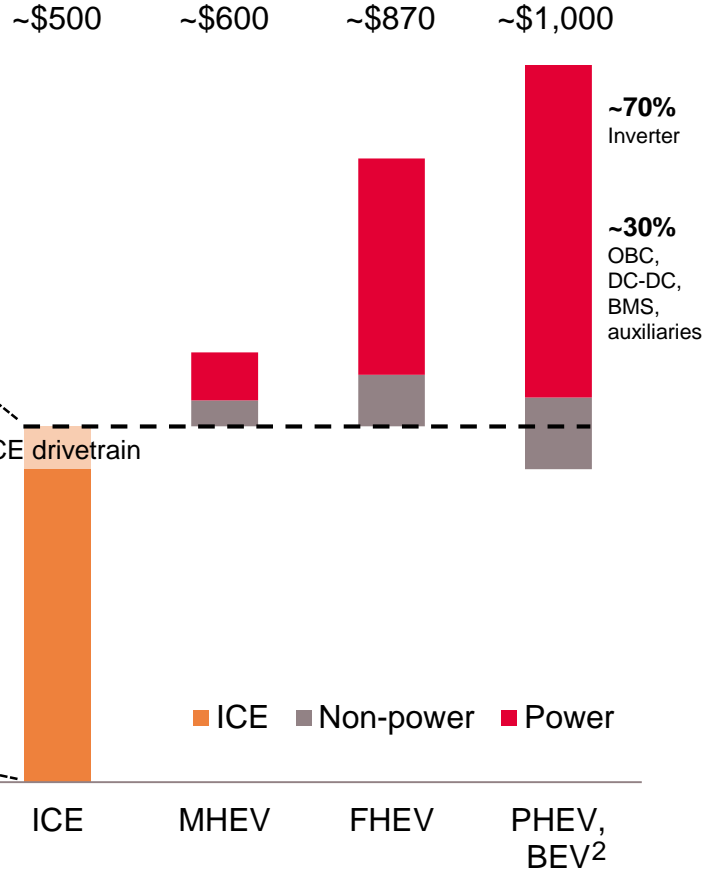
# Infineon addresses 100% of power semiconductors for all drivetrains; BEV semi content expected to grow from ~\$1,000 to ~\$1,500 by 2027



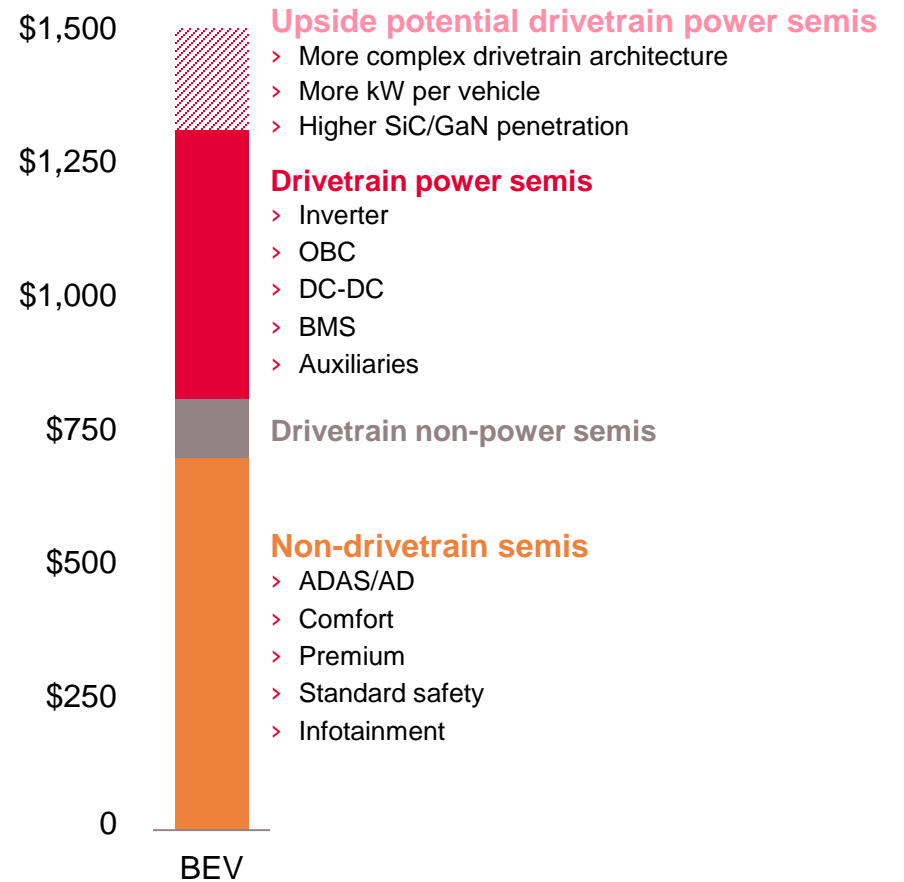
2021 ICE semi content by product<sup>1</sup>



2021 average vehicle semi content<sup>1</sup>



2027 BEV semi content scenario



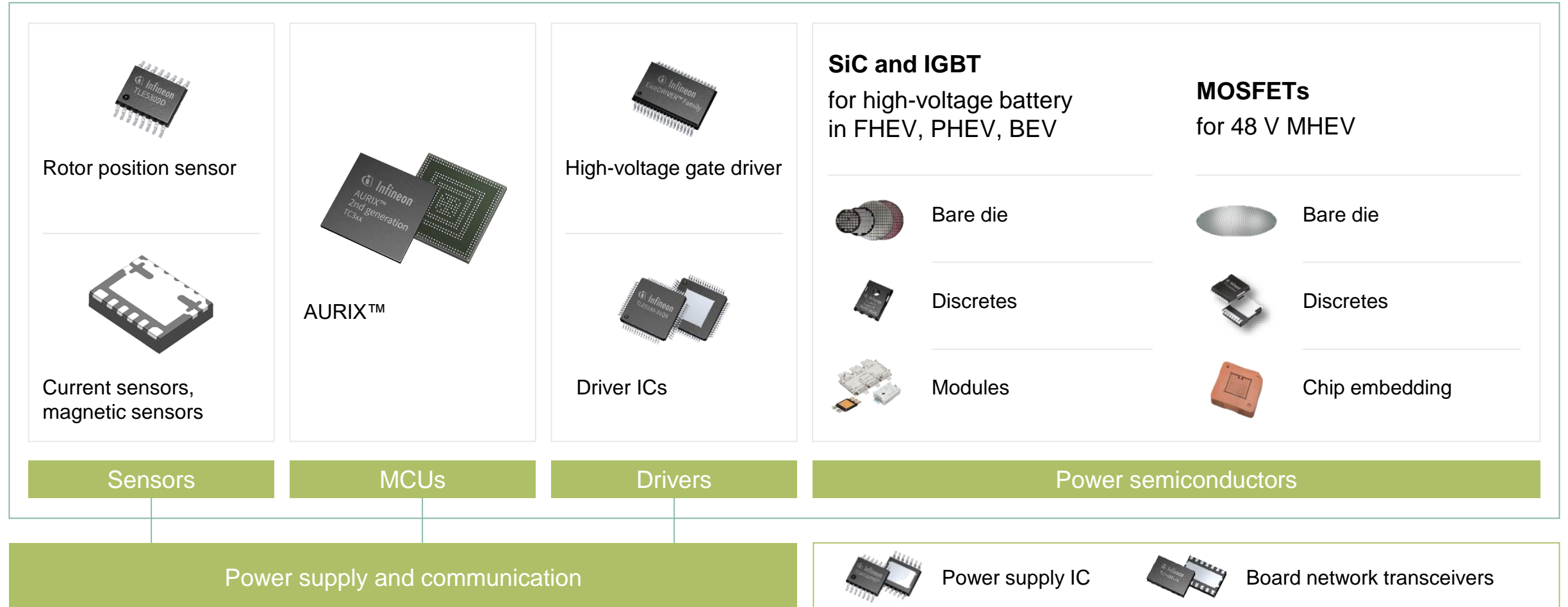
<sup>1</sup> Based on Strategy Analytics: *Automotive Semiconductor Demand Forecast 2019 - 2028*. July 2022; Infineon. "power" includes voltage regulators, ADCs and ASICs.

<sup>2</sup> Due to missing ICE engine in BEV the weighted incremental semiconductor content for PHEV and BEV starts below the "~\$500" line.

# Infineon offers the most comprehensive system solutions addressing all xEV segments: pure EV and all types of hybrids



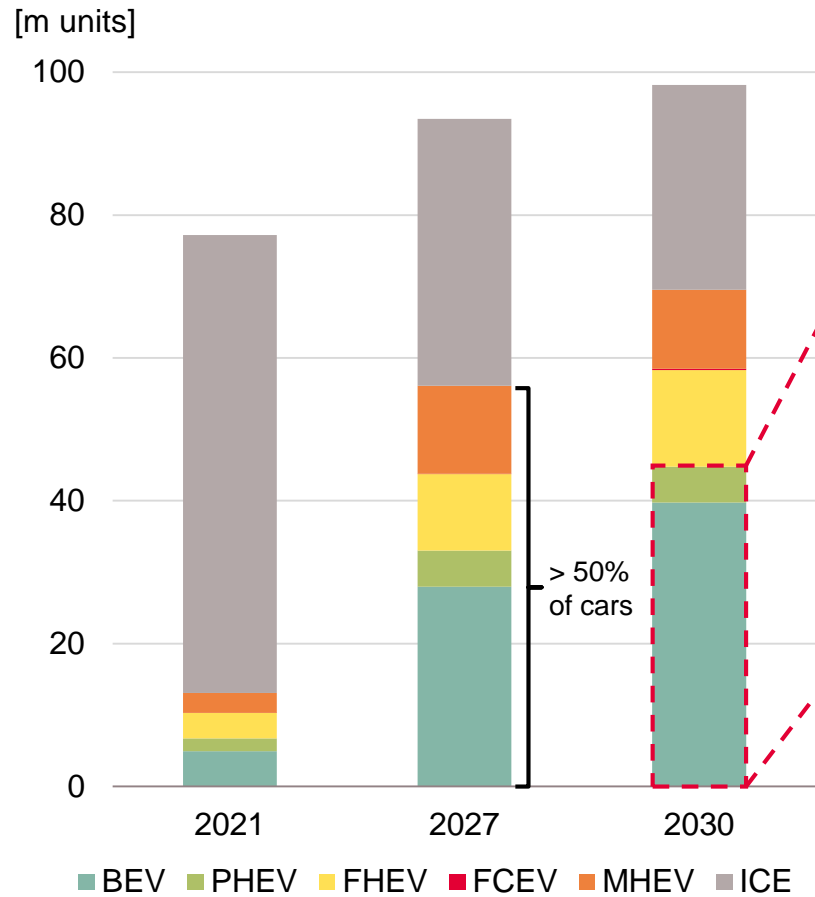
## Infineon offers a full portfolio for the control loop of an electric car



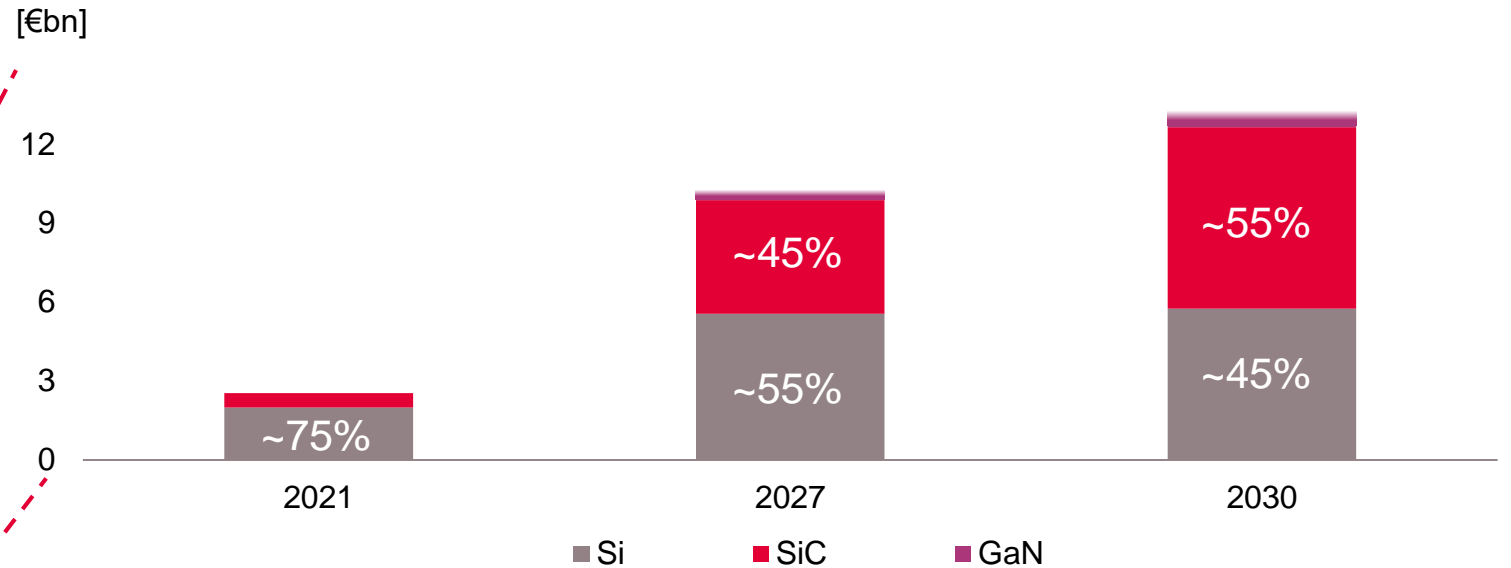


# In 5 years, every second car will be fully or partially electrified; SiC to take lead over silicon in the 2027-2030 period

## Car production by fuel type



## xEV drivetrain power semiconductor TAM by technology

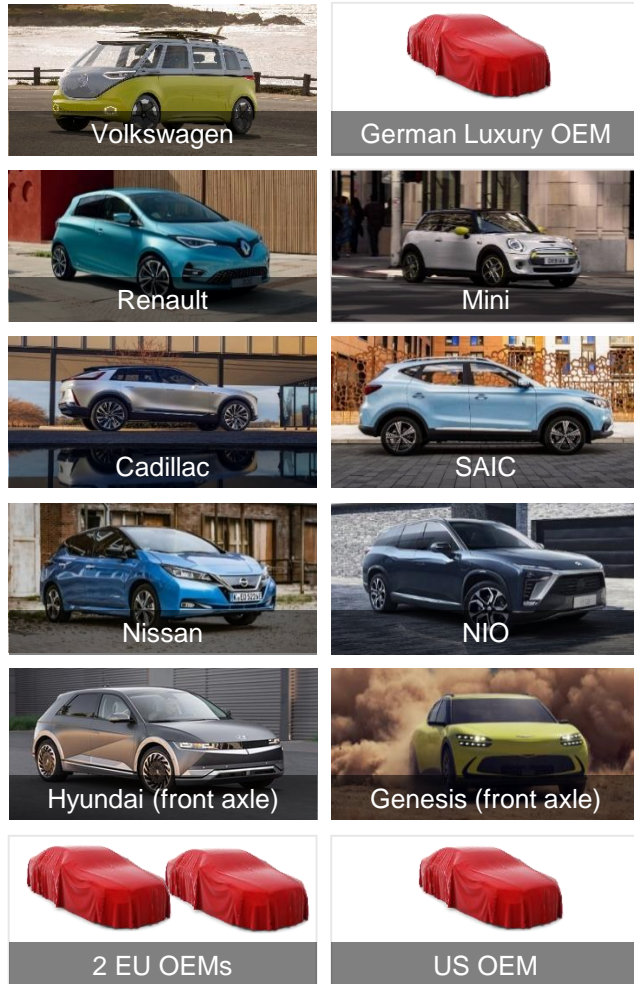


- › By mid-2022, global BEV + PHEV penetration reached 12.4%, led by China (26.5%) and followed by Europe (15.8%) and the US (6.8%)
- › Inverter, OBC, and DC-DC are the three main power semiconductor applications in drivetrains for BEVs and PHEVs; 48 V MOSFETs and DC-DC are the key applications in MHEVs
- › By 2030, SiC will own the lion share; GaN to gain traction in OBC/DC-DC

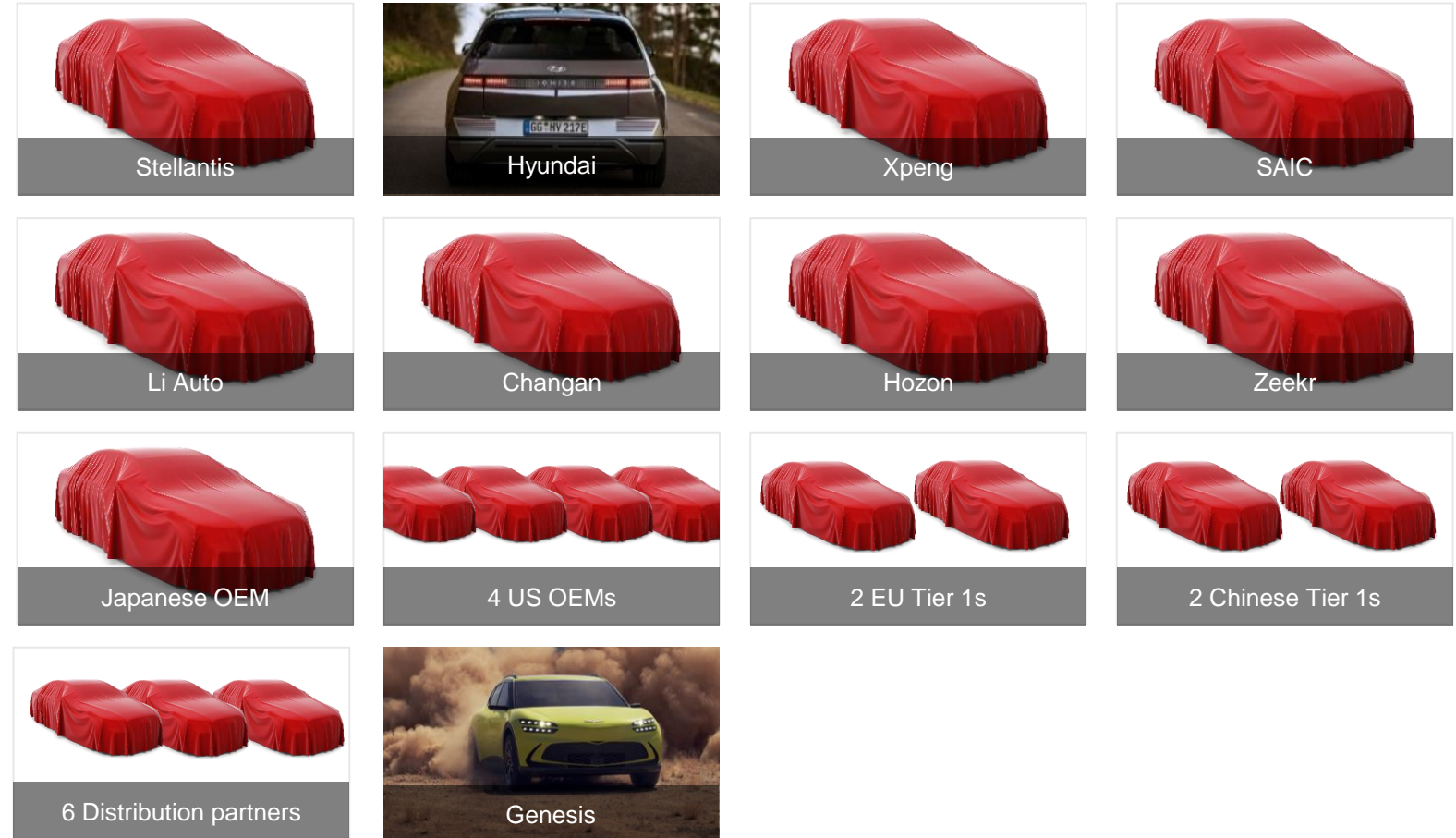
Based on or includes content supplied by S&P Global Mobility. September 2022; Infineon

# Around 20 design-wins in SiC across all auto applications: traction inverter, OBC, DC-DC

## World's leading IGBT supplier



## Latest CoolSiC™ design-wins including traction inverter, OBC, DC-DC



# Rapid execution of our BMS strategy showing great success

## Infineon's comprehensive BMS portfolio

PMIC	Wireless communications ICs	
Transceiver	Battery monitoring ICs	
MCU		
F-RAM		
Power switch		
Pressure sensor		
Gas sensor		
Current sensor		
<b>Auxiliaries for thermal management (e.g., fan, pump etc.)</b>		
MOSFET	Motor control IC	Security IC

## Selected balancing IC customers

	High-volume OEM
	Premium car OEM
	Chinese bus OEM
	NETA Auto
	Japanese OEM

**BMS BoM of ~€100 per vehicle**

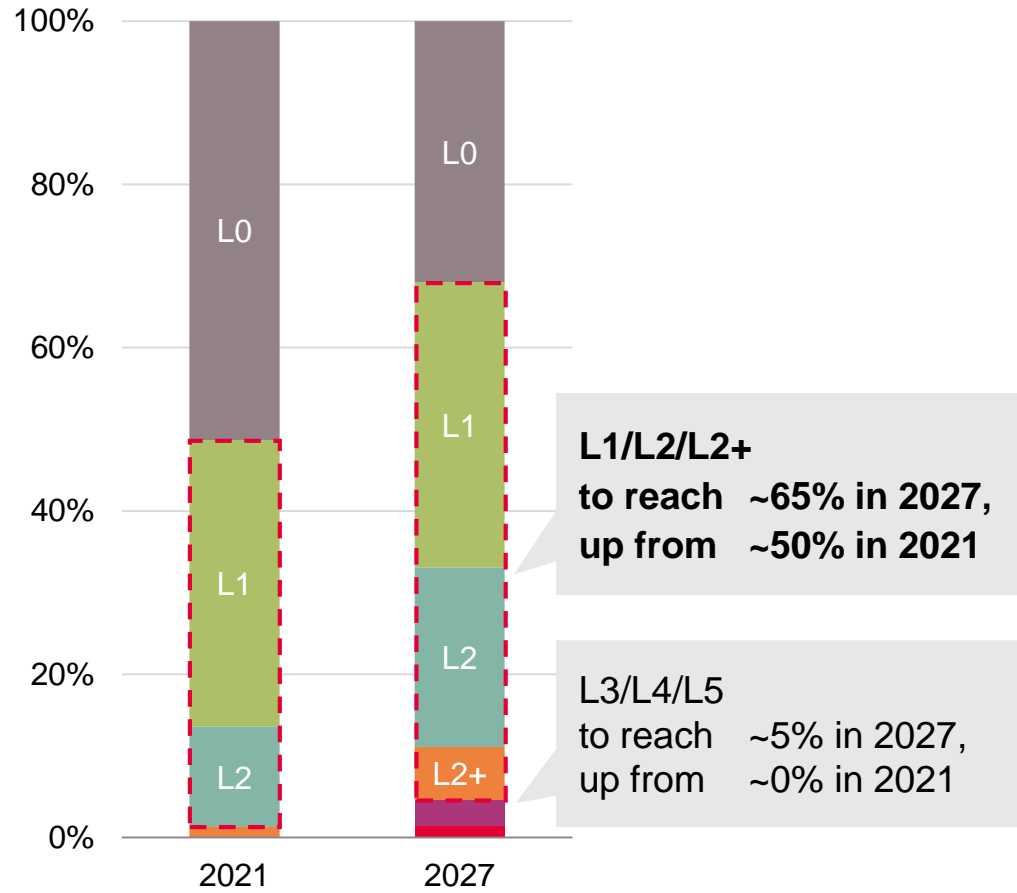


# Automated Driving

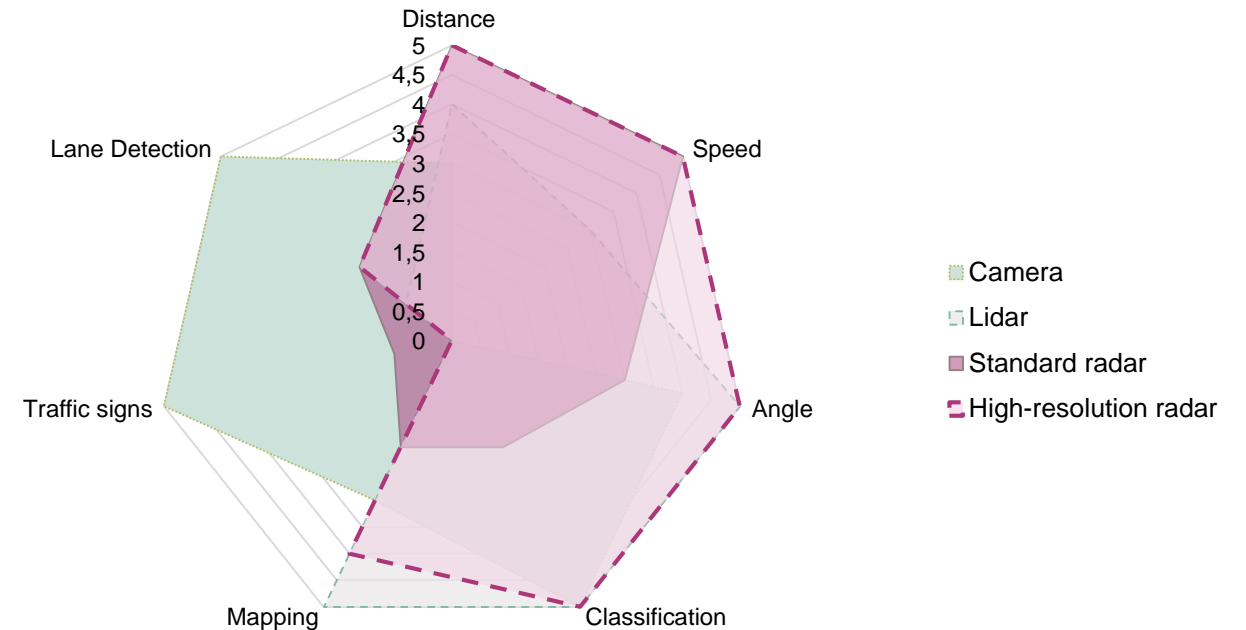


# Growth of L1/L2/L2+ is the main driver of ADAS semiconductor content until 2027

## Car production by degree of automation (SAE level)



## Radar is essential to meet decisive requirements of ADAS/AD



- > Standard radar is **the** technology to detect distance and speed
- > High-resolution radar significantly improves angle and classification

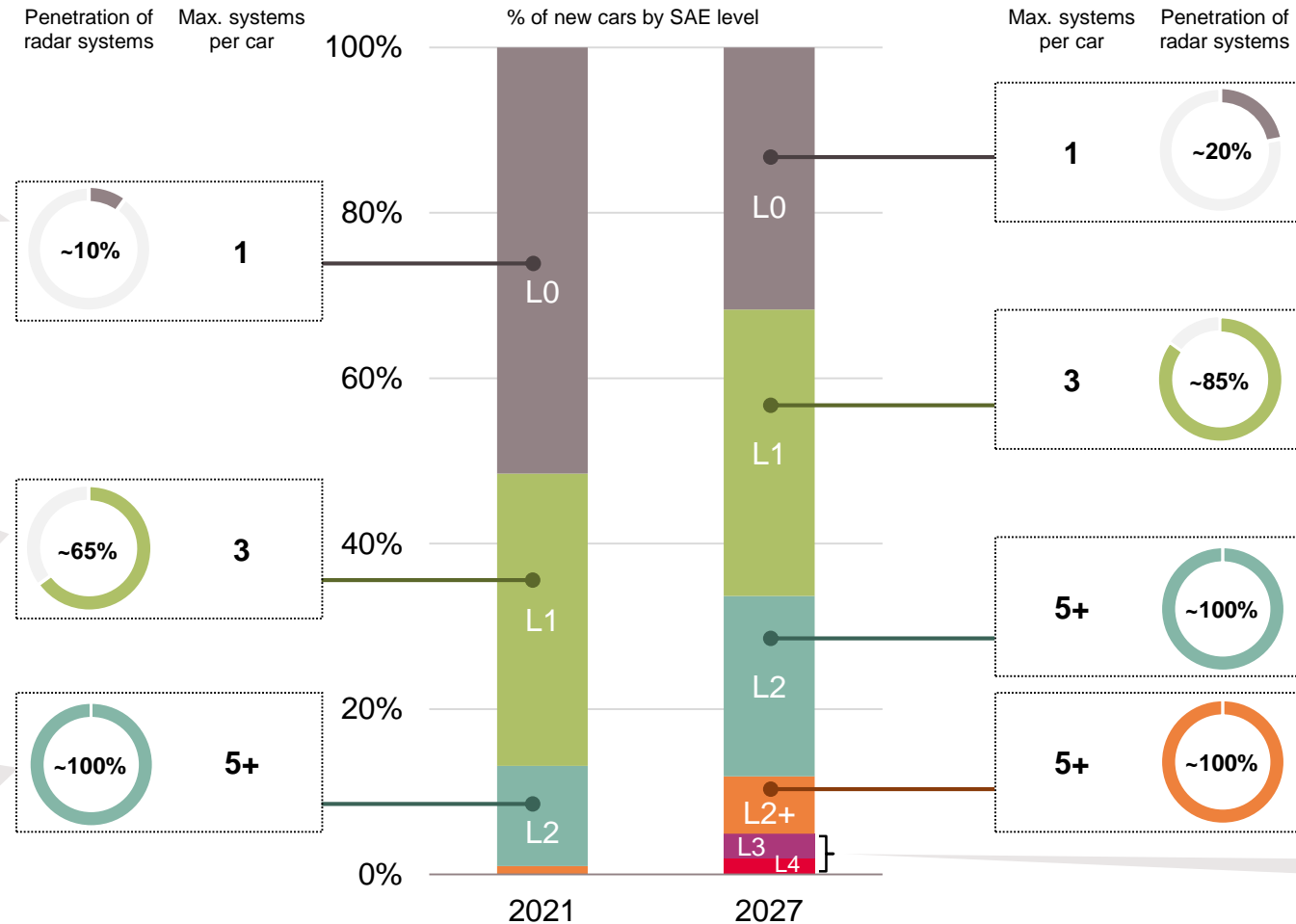
# The number of radar systems is expected to grow by 24% annually, driven by new applications and increasing penetration



## Today

- Total: 55m systems
- > AEB  
> 3m systems
- > AEB  
> Low-speed ACC  
> Blind spot detection  
> 21m systems
- > AEB  
> High-speed ACC  
> Blind spot detection  
> 26m systems

## Penetration of radar systems per SAE level



## Future

- Total: 200m systems; CAGR<sub>(21-27)</sub> = 24%
- > AEB  
> 8m systems; CAGR<sub>(21-27)</sub> = 18%
- > AEB  
> ACC  
> Blind spot detection  
> 70m systems; CAGR<sub>(21-27)</sub> = 22%
- > AEB  
> High-speed ACC  
> Vulnerable road users detection  
> 70m systems; CAGR<sub>(21-27)</sub> = 18%
- > In addition to L2: lane change assist  
> 30m systems; CAGR<sub>(21-27)</sub> = 38%
- > 24m systems; CAGR<sub>(21-27)</sub> = 133%

Market research companies; Infineon

# We are shaping the transition to CMOS-based radar solutions; leader in radar ICs today and in MCUs by 2026



## Growth of Infineon's CMOS-based radar ICs

- › Infineon's 28 nm CMOS radar IC is currently sampling
- › Overwhelming customer feedback regarding key performance indicators, especially signal-to-noise ratio and linearity which improves the operating range and object separability
- › CMOS radar IC market will take off by mid of the decade
- › Different partitioning options allow for tailor-made solutions

## All major OEMs decided for Infineon radar solutions



Yole Intelligence: Radar for Automotive Database 2022. May 2022; Infineon

# User experience meets electrical/electronic (E/E) architecture

## Software-defined car

E/E architecture | MCUs | sensors | actuators



## Digital cockpit

MEMS sensor technology | MEMS microphones



## Car of the future



## Premium Matrix light



## Comfort

Motor control ICs | MOSFETs

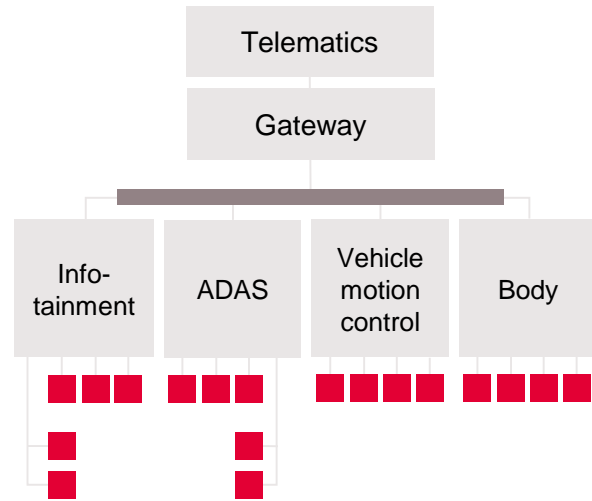




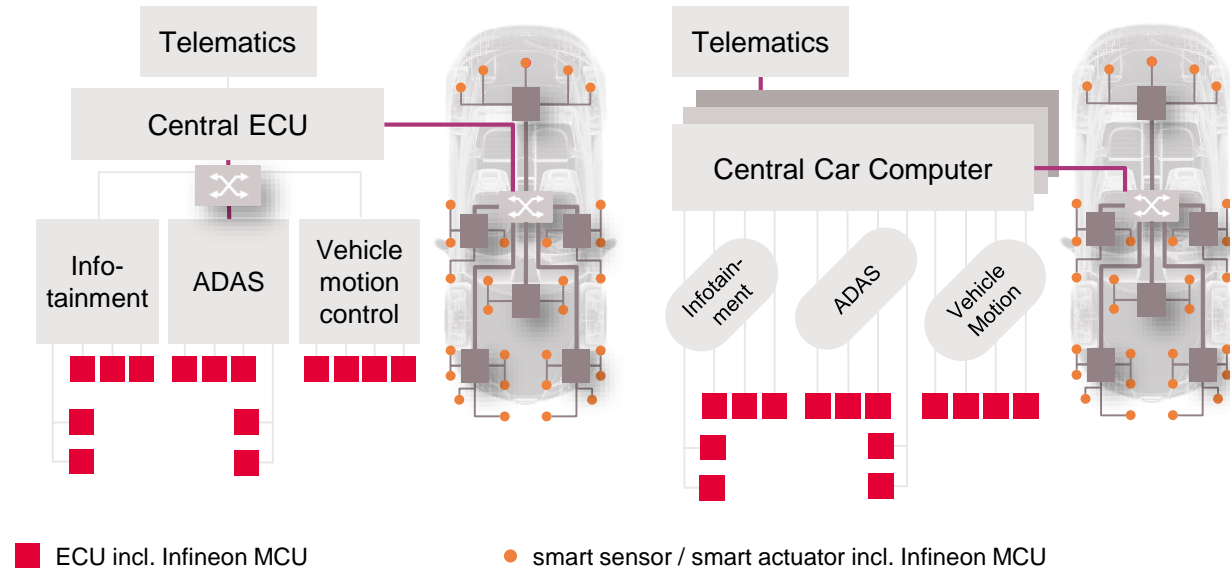
# Software-defined cars will become a reality through architectural transformation; Infineon's MCUs to win big here



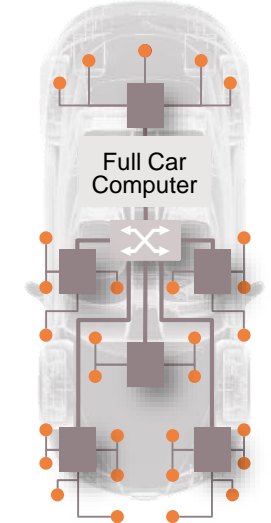
## Domain architecture



## Mixed domain/zone architecture



## Full car computer



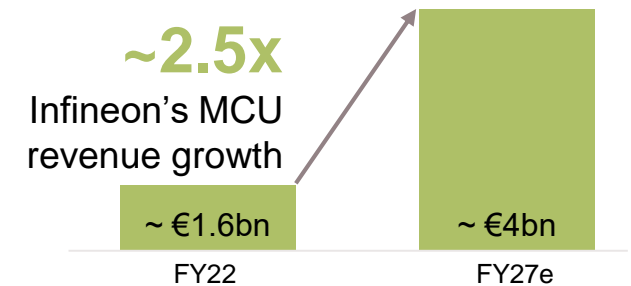
## New E/E architectures offer benefits of

- > Hierarchical software
- > Fail-operational power distribution
- > Optimized power management
- > Reduced wiring harnesses

## ... leading to

- > More smart actuators
- > More smart sensors
- > Higher redundancy
- > Dependable electronics

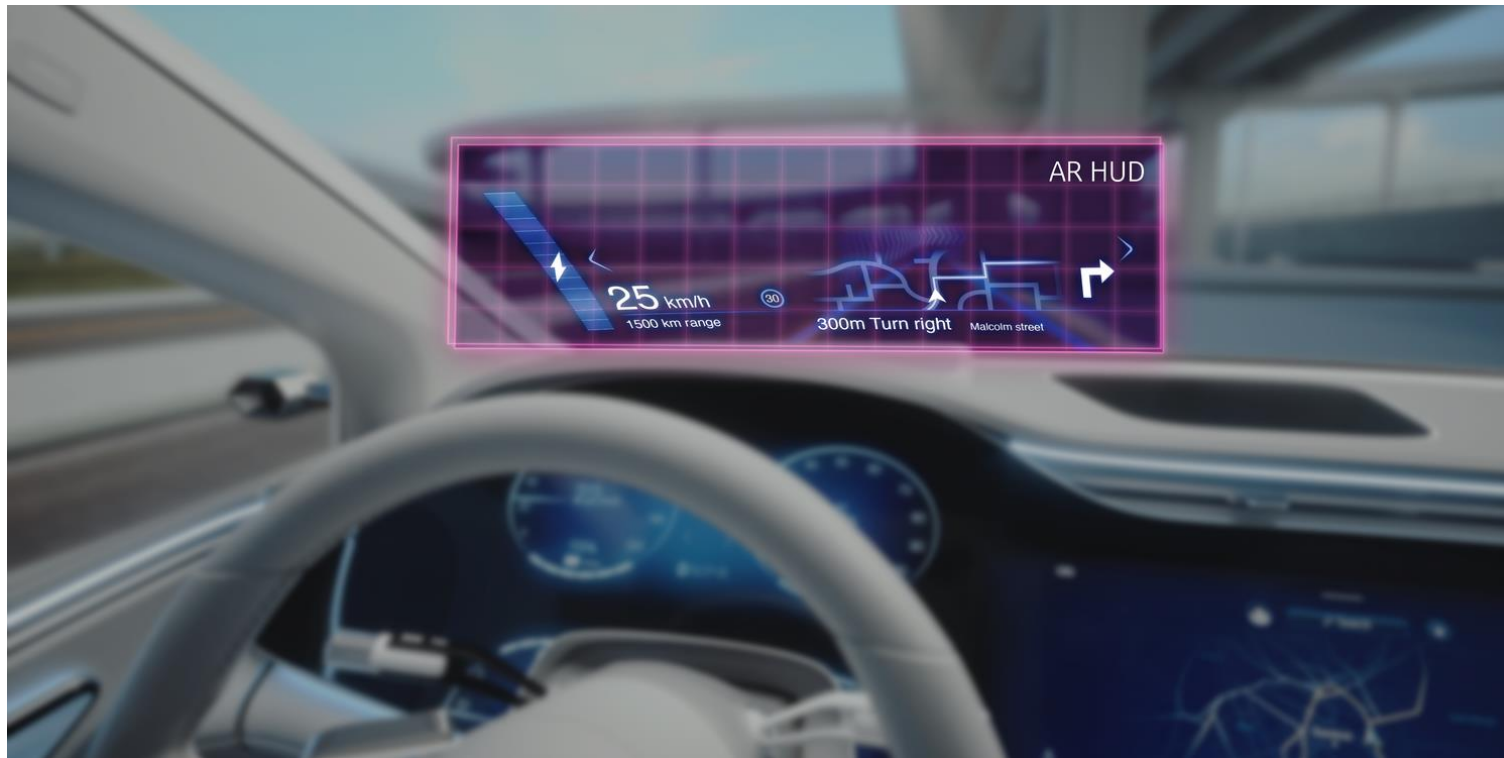
## ... further fueling Infineon's MCU growth



# Game changing innovations from Infineon are defining the digital cockpit of tomorrow



## Augmented head-up display based on MEMS mirrors



## Internal and external MEMS microphones



**Example #1**  
Active noise cancellation



**Example #2**  
Emergency vehicle detection

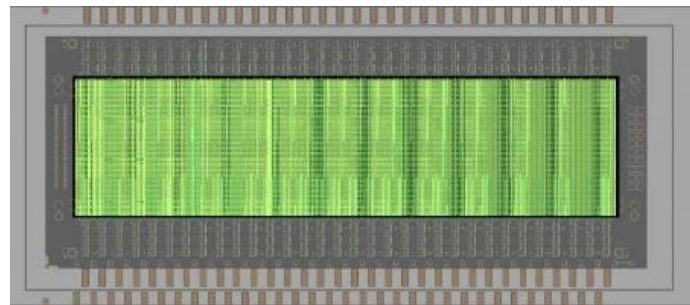
# Industry-leading, premium lighting technology offers enhanced user experience on the road



## Key facts

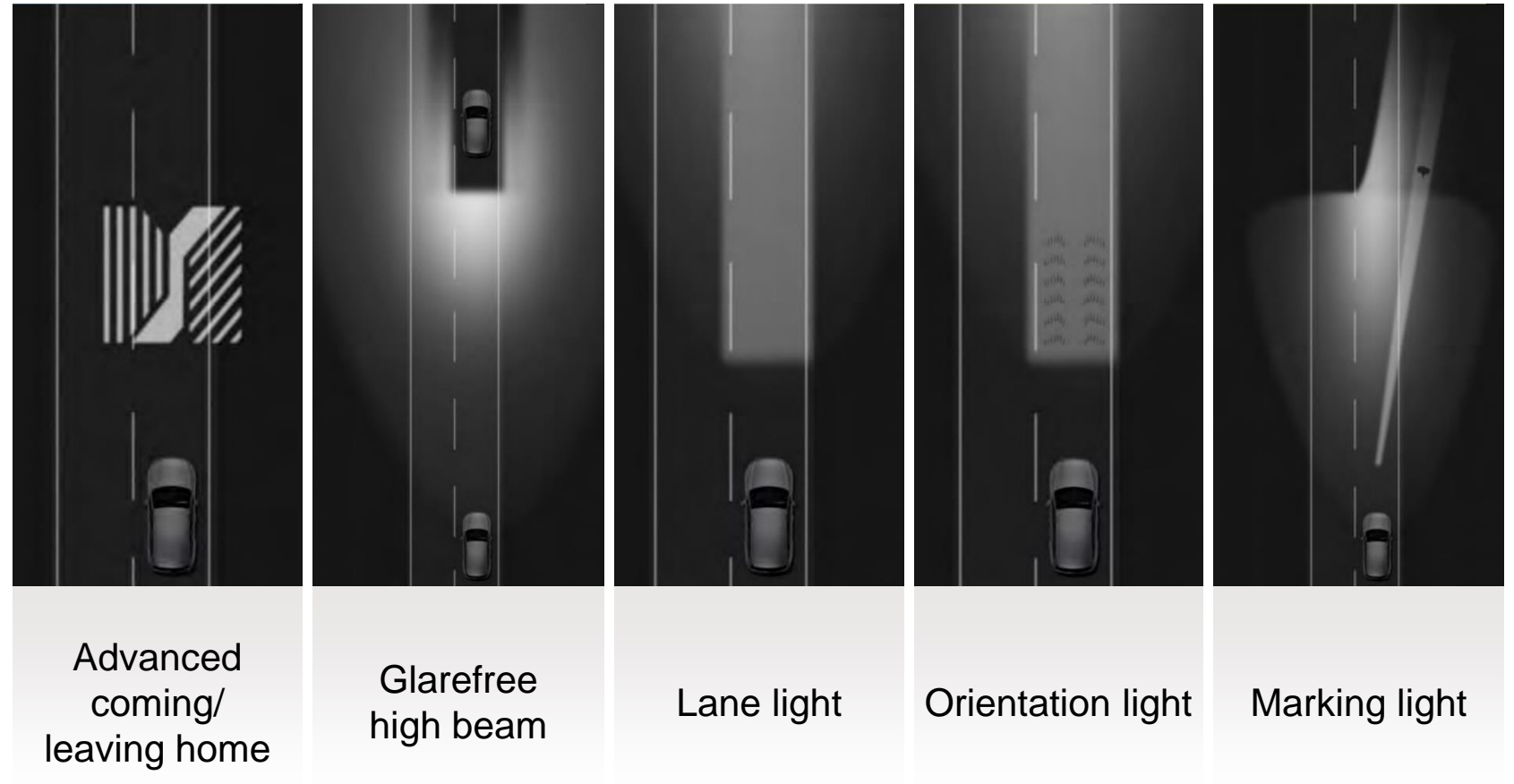
- › Infineon driver IC controls each of the 16K  $\mu$ LEDs individually with outstanding luminous intensity
- › Lead customer: EU premium OEM (“Best light ever!”)
- › Start of production: early 2023

Nichia high-definition micro-pixel light source (HD  $\mu$ PLS)



Courtesy: Nichia

## Advantages: Enhanced driving experience, higher safety, more energy efficient



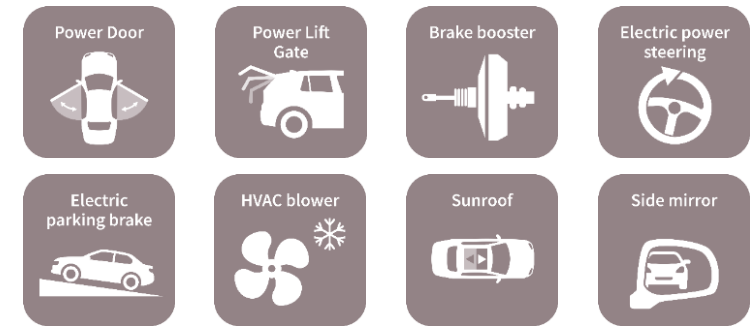
Courtesy: Audi AG

# Infineon's suite of motor control ICs lead the way to address fast-growing comfort features

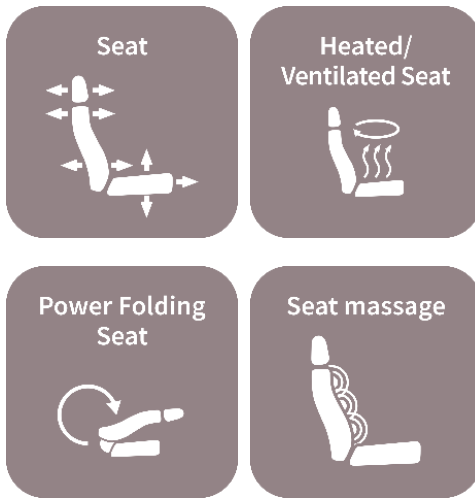
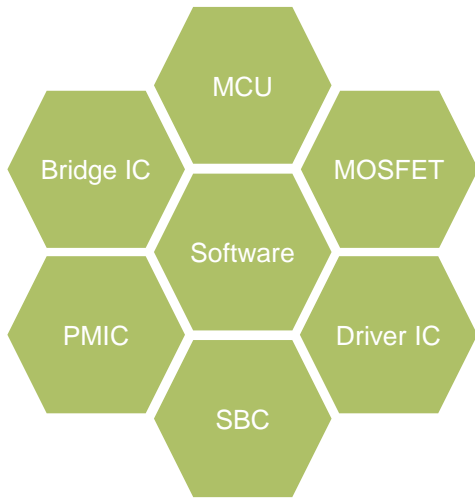


- › Comfort features making further inroads into cars; e.g., seats in a mid-range car feature about seven motors today
- › Up to ~€80 semiconductor BoM per vehicle for comfort features
- › Infineon's leading suite of motor control ICs fits ideally for all comfort applications

## Application examples



## Infineon's suite of motor control ICs On average ~7 motors per seat



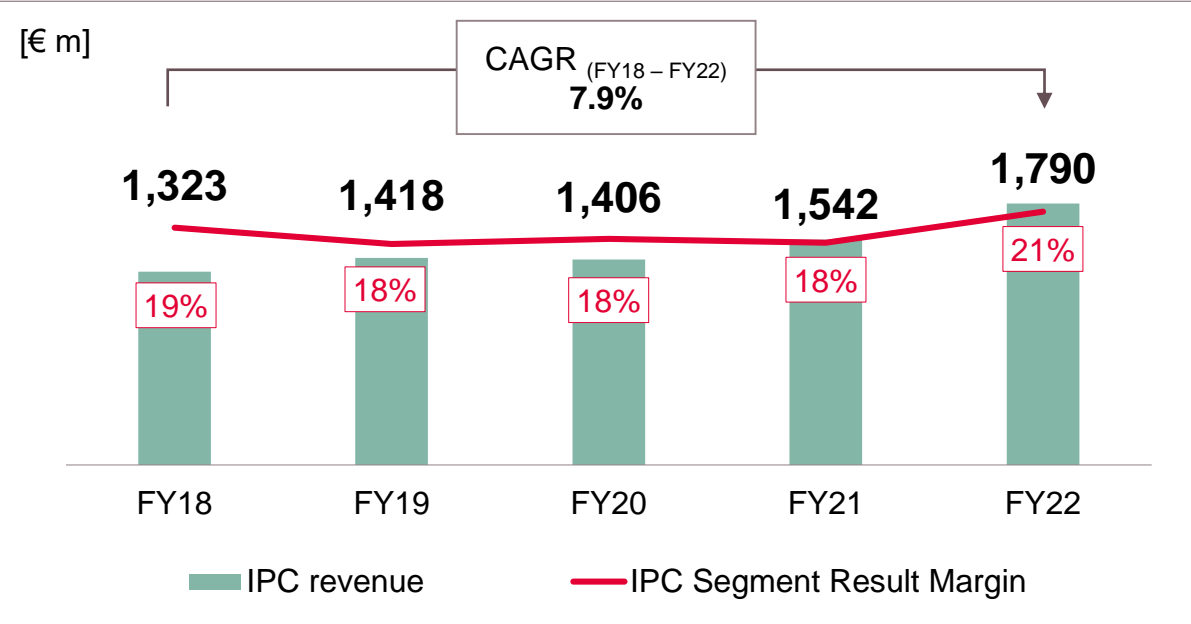


# Industrial Power Control

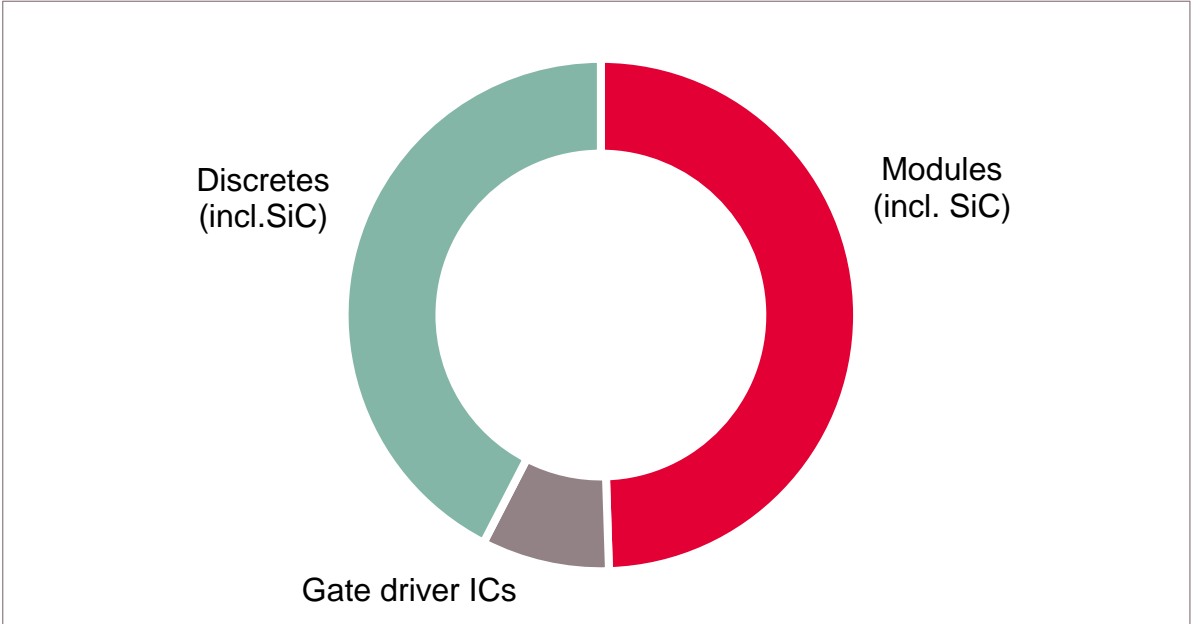


# IPC at a glance

## IPC revenue and Segment Result Margin










## FY22 revenue split by product group



## Key customers

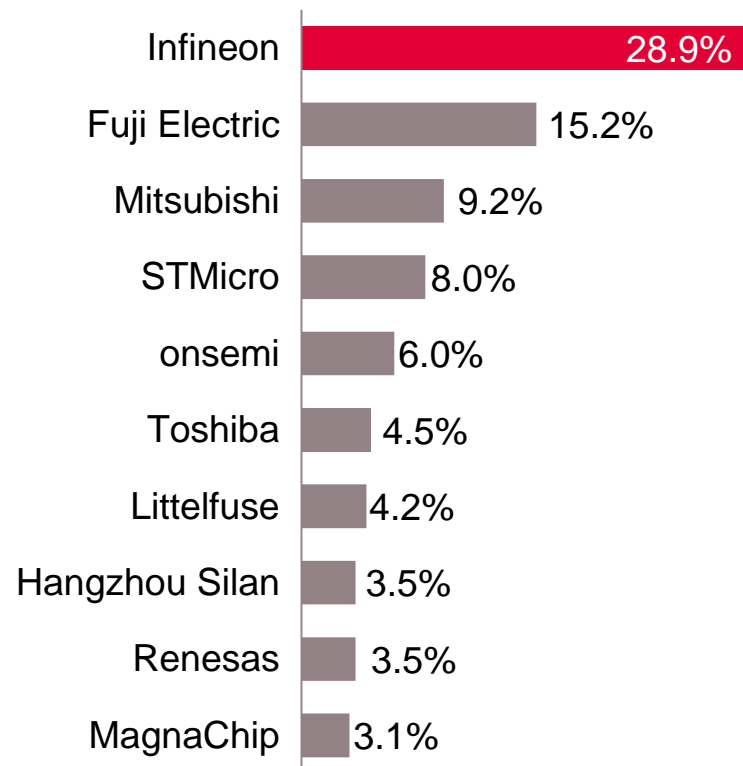


# Renewable energy generation, infrastructure & EV-charging continue to see very strong growth momentum

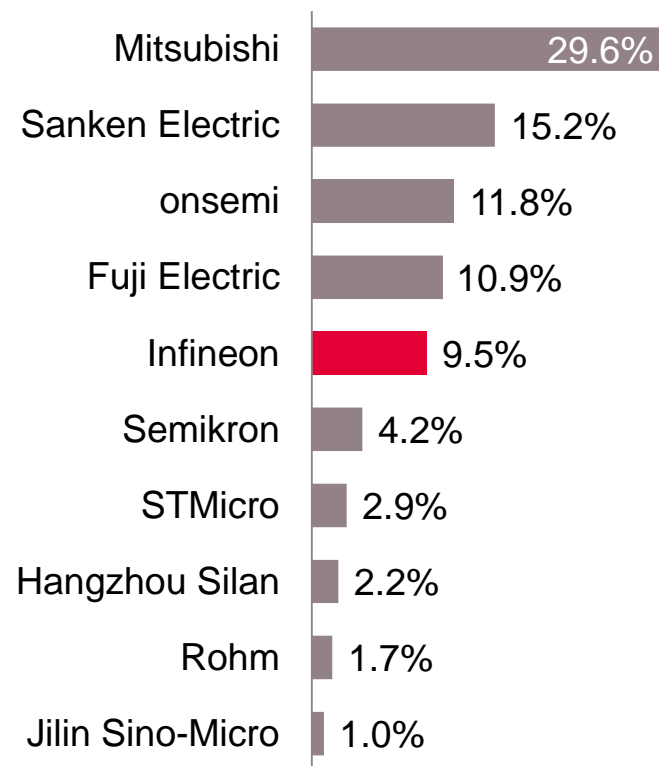
Applications (% of FY22 segment revenue)	Market Outlook for CY23	
 <p>Automation and Drives ~35%</p>		<ul style="list-style-type: none"> <li>› Analysts have reduced unit growth while still forecasting market growth rates above long-term average</li> <li>› Customer market expectations remain optimistic for 2023</li> </ul>
 <p>Renewable Energy Generation ~26%</p>		<ul style="list-style-type: none"> <li>› Growth rates remain strong for PV installations (24% YoY)</li> <li>› Wind growth rates will be weaker compared to PV, but project delays from 2022 are expected to be recovered during 2023 (18% YoY)</li> </ul>
 <p>Power Infrastructure ~10%</p>		<ul style="list-style-type: none"> <li>› Growth in EV charging infrastructure is expected to remain strong (~50% YoY), supported by enhanced government programs</li> <li>› Further growth of ESS (34% YoY) and T&amp;D due to energy infrastructure needs</li> </ul>
 <p>Home appliance ~17%</p>		<ul style="list-style-type: none"> <li>› Strong demand for heat pumps and further potential for inverterisation act as growth drivers</li> <li>› We do not expect overall MHA demand recovery (e.g. global RAC output: -2%YoY)</li> </ul>
 <p>Transportation ~5%</p>		<ul style="list-style-type: none"> <li>› Strong growth opportunities for CAV electrification and OBC expected</li> <li>› Traction market to stabilize, increased demand growth expected beyond CY23</li> </ul>
 <p>Others ~7%</p>		<ul style="list-style-type: none"> <li>› Long-term positive outlook driven by general trend of electrification in emerging applications (e.g. eAviation, eMarine)</li> </ul>

# Clear leader in discrete IGBTs and IGBT modules

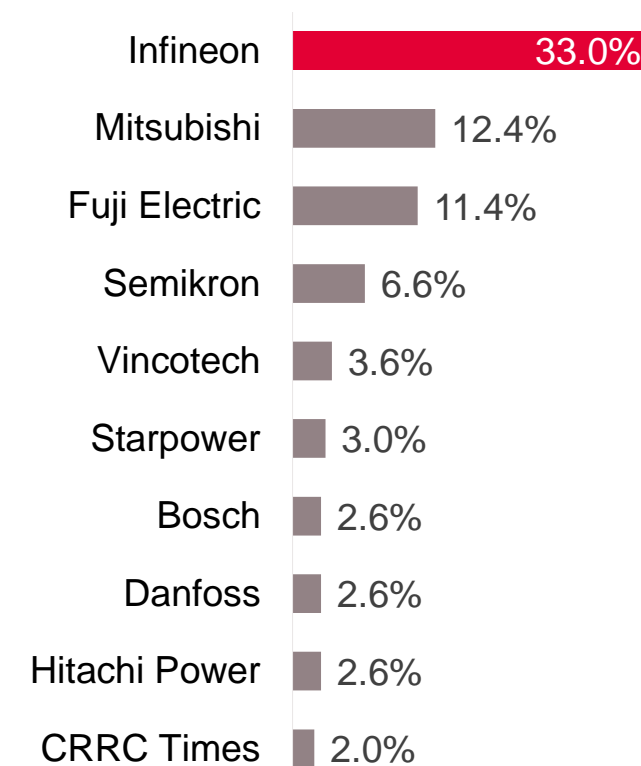
## Discrete IGBTs 2021 total market: \$2.2bn



## IPMs<sup>1</sup> 2021 total market: \$2.0bn



## IGBT modules<sup>2</sup> 2021 total market: \$4.2bn



<sup>1</sup> Including MOSFET-based IPMs and IGBT-based IPMs | <sup>2</sup> Including standard (non-integrated) IGBT modules and power integrated modules (PIMs) / converter inverter brake (CIB) modules.  
Based on or includes research from Omdia: *Power Semiconductor Market Share Database 2021 – Final V2*. October 2022.  
Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party's own risk.



# Infineon is the key enabler for Power Systems that are needed at every step of the entire power transformation chain



## Renewable energy generation

### #1 semi enabler

powering ~50% of currently installed wind/solar capacity

## Energy infrastructure

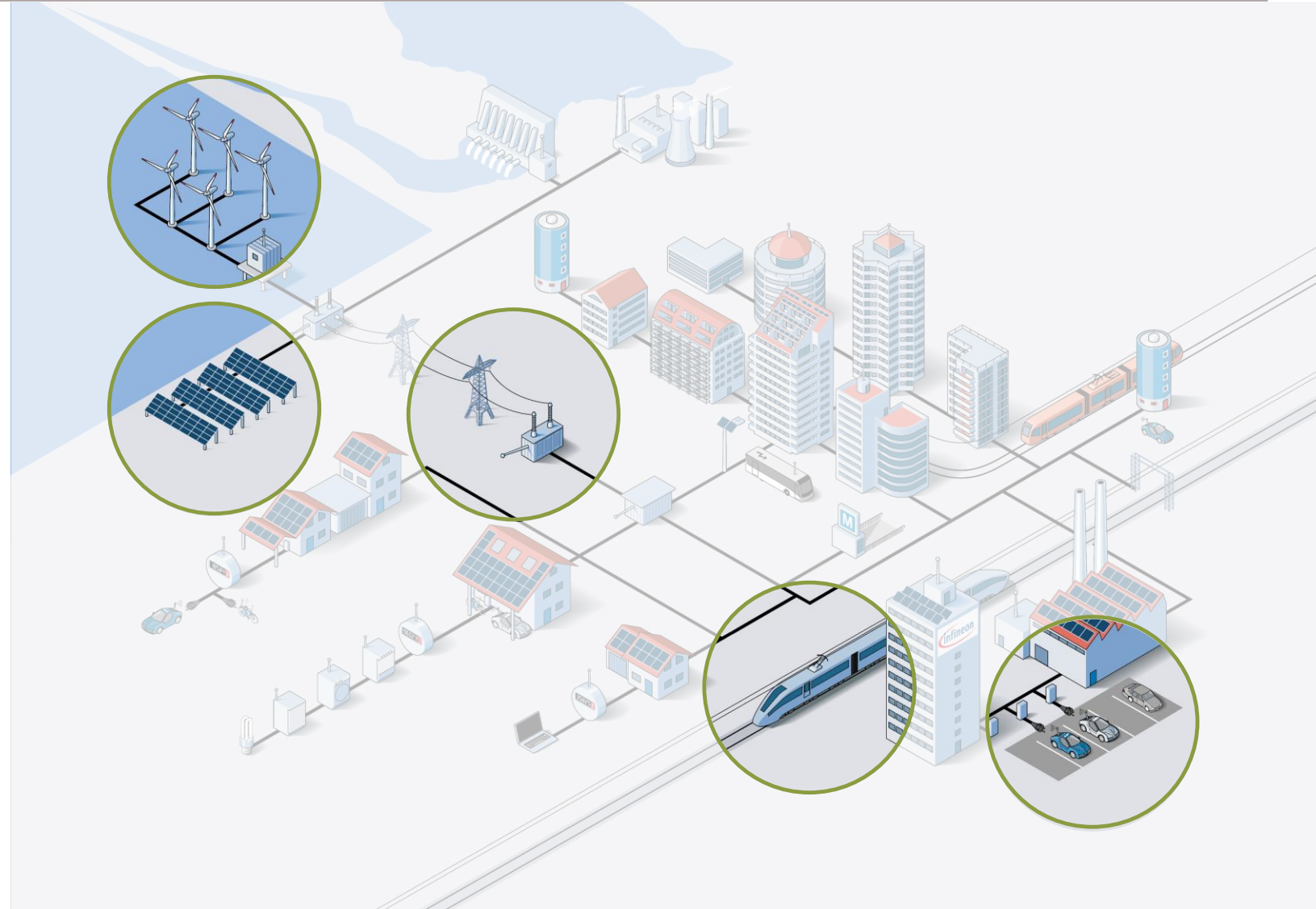
### #1 semi enabler

for ~2/3 of grid infrastructure incl. EV charging

## Energy conversion and usage

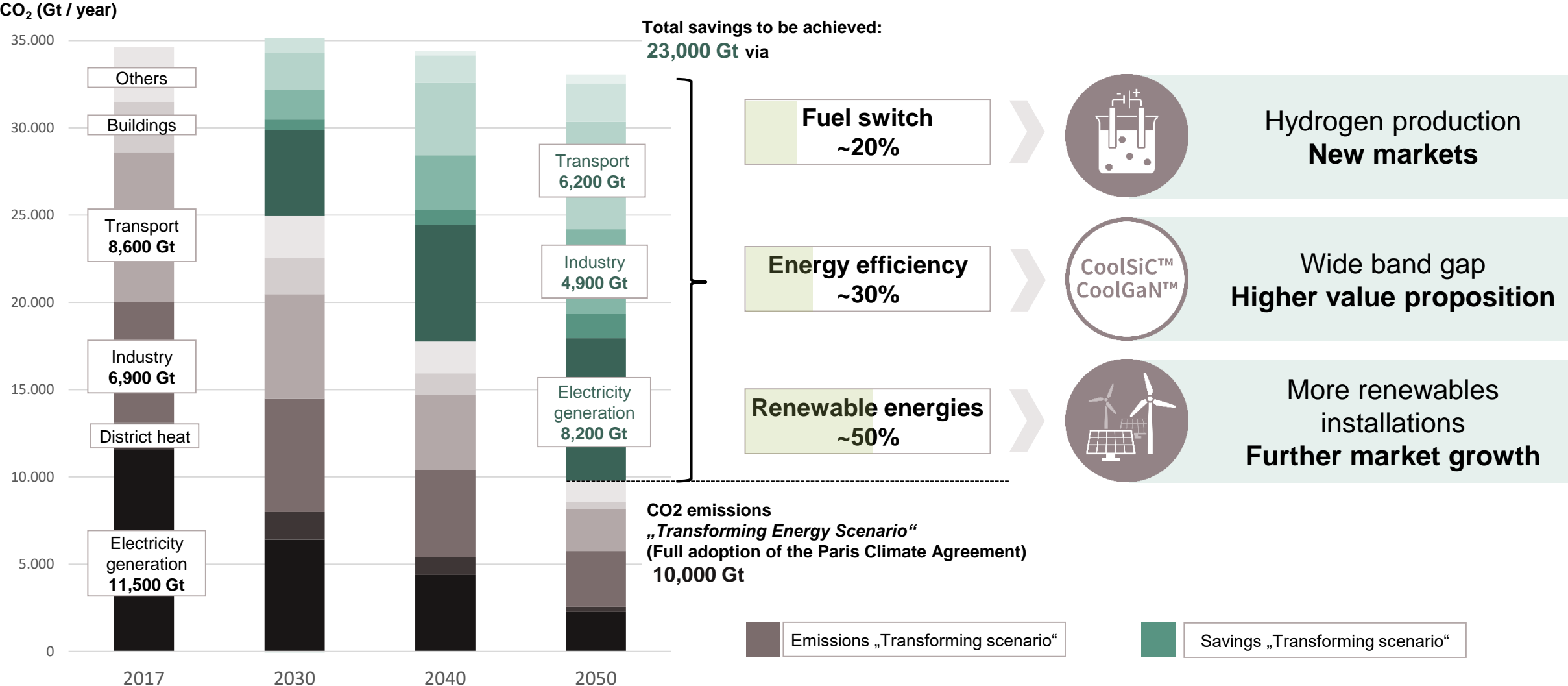
### #1 semi enabler

broadest portfolio covering all verticals  
leader in power density and efficiency  
**#1 in vehicle electrification**



Based on or includes research from Omdia: *Power Discrete and Module Market Tracker – 2021*. September 2022. Infineon market model.

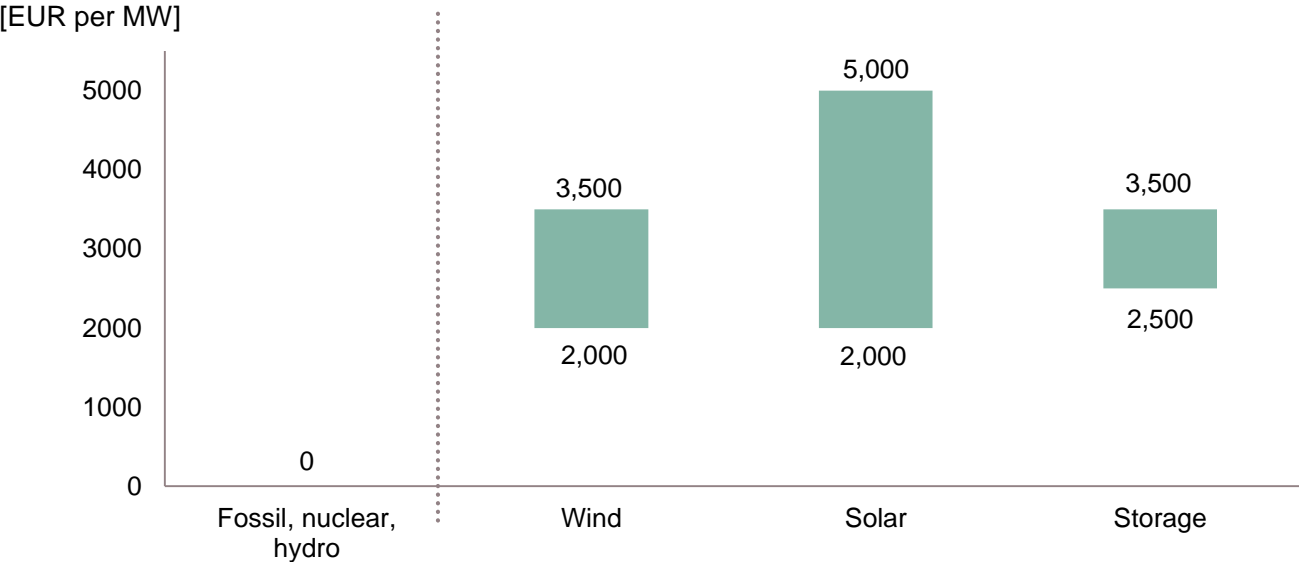
# Infineon will benefit from all CO<sub>2</sub> saving measures



IRENA, „Global Renewables Outlook 2020“

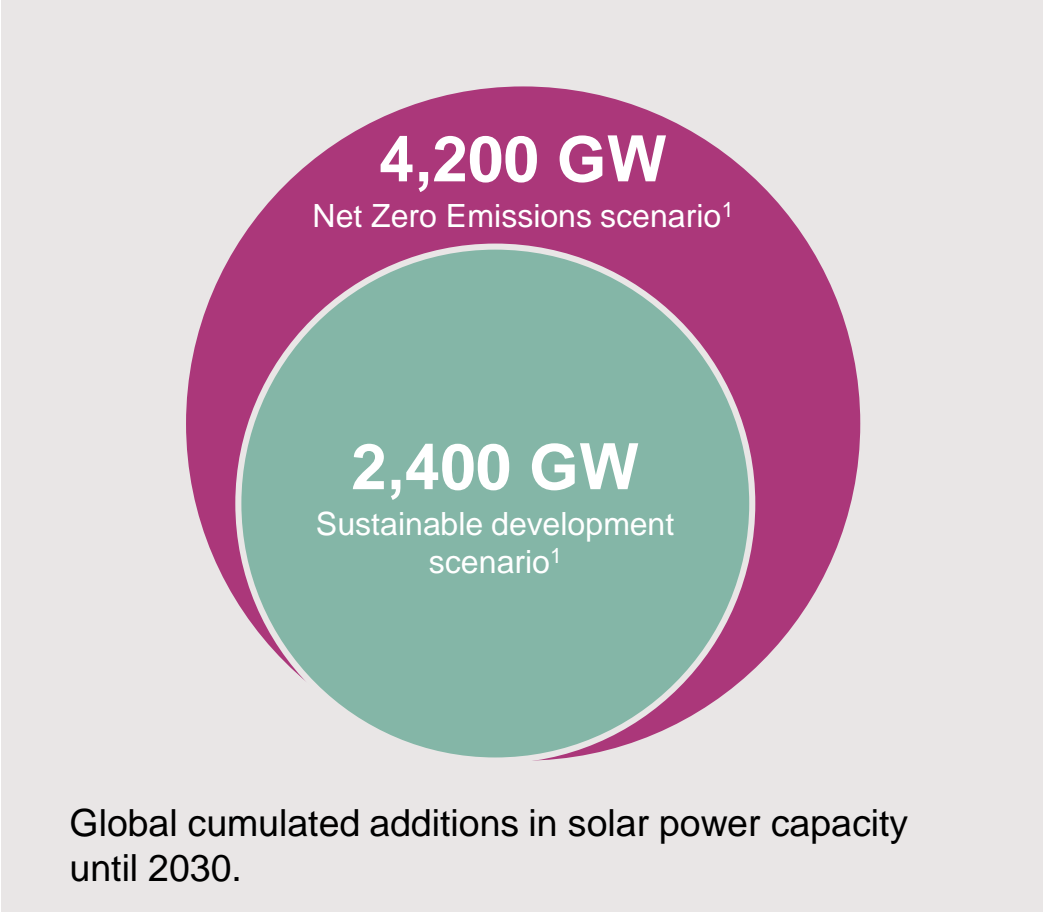
# Green energy generation provides large business opportunities

## Power semiconductor content by application



	[GW]	Wind	Solar	Storage
Additions in 2020		114	134	5 <sup>2</sup>
Ø 2021 – 2030 annual additions Sustainable development scenario <sup>1</sup>		110	240	22 <sup>2</sup>
Ø 2021 – 2030 annual additions Net Zero Emissions (NZE) scenario <sup>1</sup>		240	420	33 <sup>3</sup>

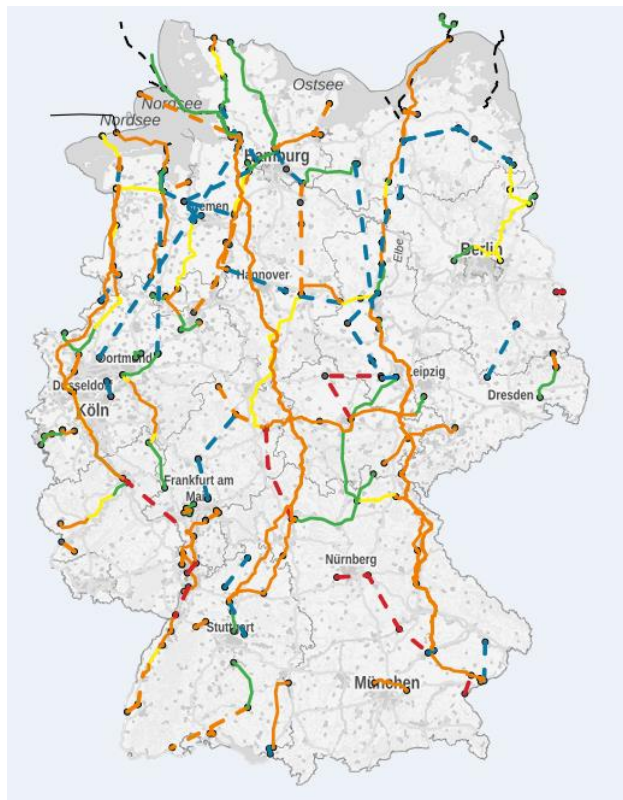
## Upside potential: example solar power



<sup>1</sup> IEA: *Net Zero by 2050 - A Roadmap for the Global Energy Sector*. May 2021 | <sup>2</sup> Based on or includes content supplied by IHS Markit Climate and Sustainability Group: *Grid Connected Energy Storage Market Tracker H1 2021*. August 2021  
<sup>3</sup> Extrapolation; conservative assumption of equal ratio renewable generation to storage capacity

# Increasing share of renewables requires stronger grid

## Planned grid expansion in Germany



Source: Bundesnetzagentur

## Infineon's 4.5 kV IGBT modules enable HVDC lines

- › HVDC – High Voltage Direct Current lines are the technology of choice to strengthen the grid
- › Converter stations are equipped with power semiconductors
- › Infineon offers highly robust, low-loss 4.5 kV IGBT solutions
- › 6.5 kV IGBT is in development and will complement offering



4.5 kV IGBT module in IHV-B housing

## Converter station



Source: Siemens Energy

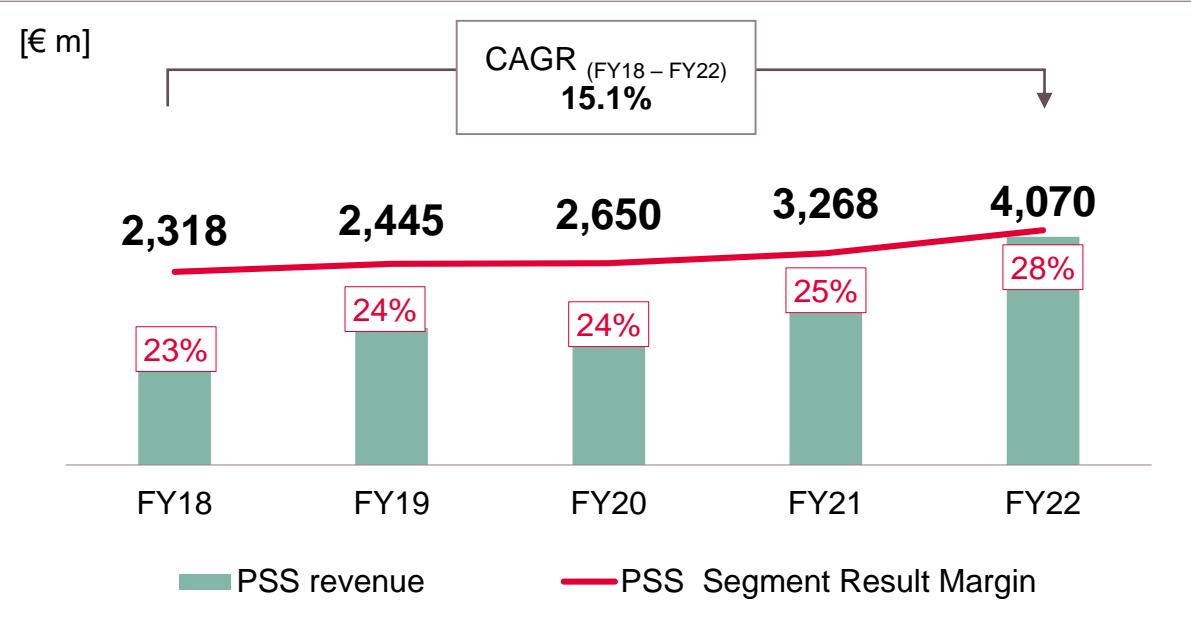


# Power & Sensor Systems

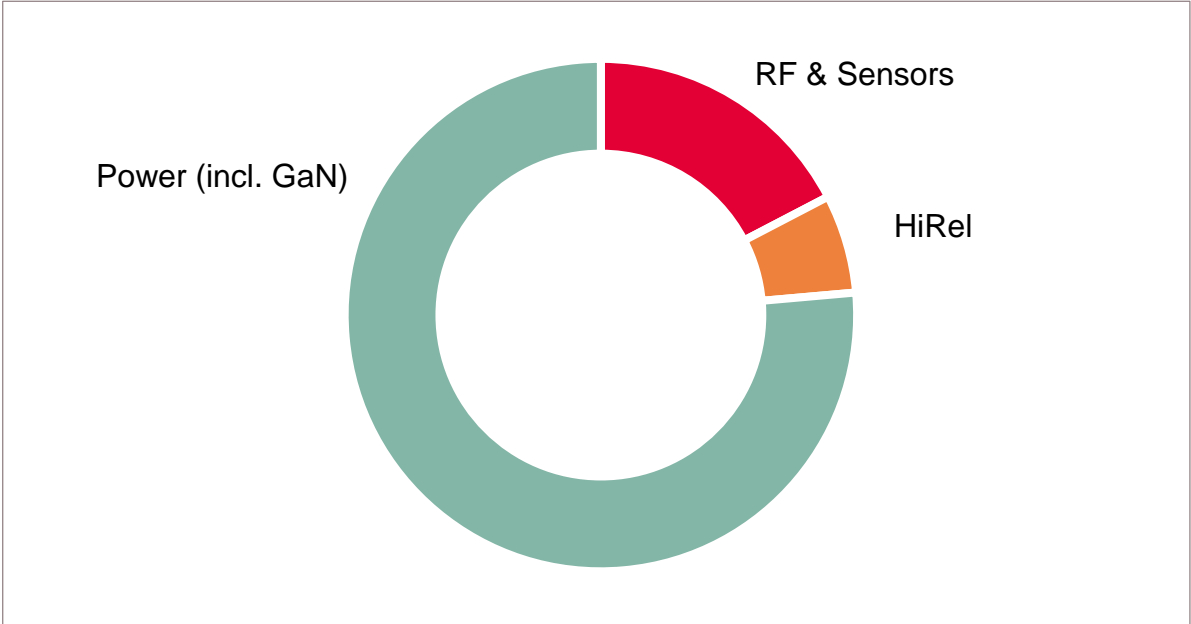


# PSS at a glance

## PSS revenue and Segment Result Margin



## FY22 revenue split by product group



## Key customers

# Long-term drivers are still valid but impact of current macro environment leads to persist in 2023

## Applications (% of FY22 segment revenue)<sup>1</sup> | Market Outlook for CY23



~18%



- > Enterprise server in slowdown, while hyperscaler still healthy, reduction in hyperscaler Capex may follow
- > PC market expected to further slow down



~9%



- > While slowing down in China, other geographies like North America, EU and India to continue 5G roll-out
- > MNO capex may be negatively impacted by macro



~12%



- > Risk of continued weak smartphone market remains on the back of deteriorating macro environment with limited signs of recovery



~25%



- > Global decline in consumer confidence continues to create headwinds for consumer spending



~32%



- > Demand in renewable energy, EVs and EV charging expected to further accelerate
- > Stimuli packages for renewables and respective infrastructure to support growth in CY23

<sup>1</sup> Does not sum up to 100% due to other applications not shown here

# PSS's growth is built on many applications from different sectors in power and non-power

## Computing



- › data center
- › enterprise server
- › PC, notebook
- › peripherals
- › chargers and adapters

## Communications



- › base stations
- › backhaul cellular infrastructure
- › 5G massive MIMO
- › telecommunication servers

## Smartphones



- › smartphones
- › mobile devices
- › wearables
- › USB Type-C, USB Type-C PD

## Consumer



- › eBikes, eScooter
- › multicopter
- › gaming
- › TV sets
- › smart home

## Industrial



- › power supplies
- › EV on-board charger
- › charging infrastructure
- › PV inverter
- › power tools
- › lighting
- › Industry 4.0
- › aerospace





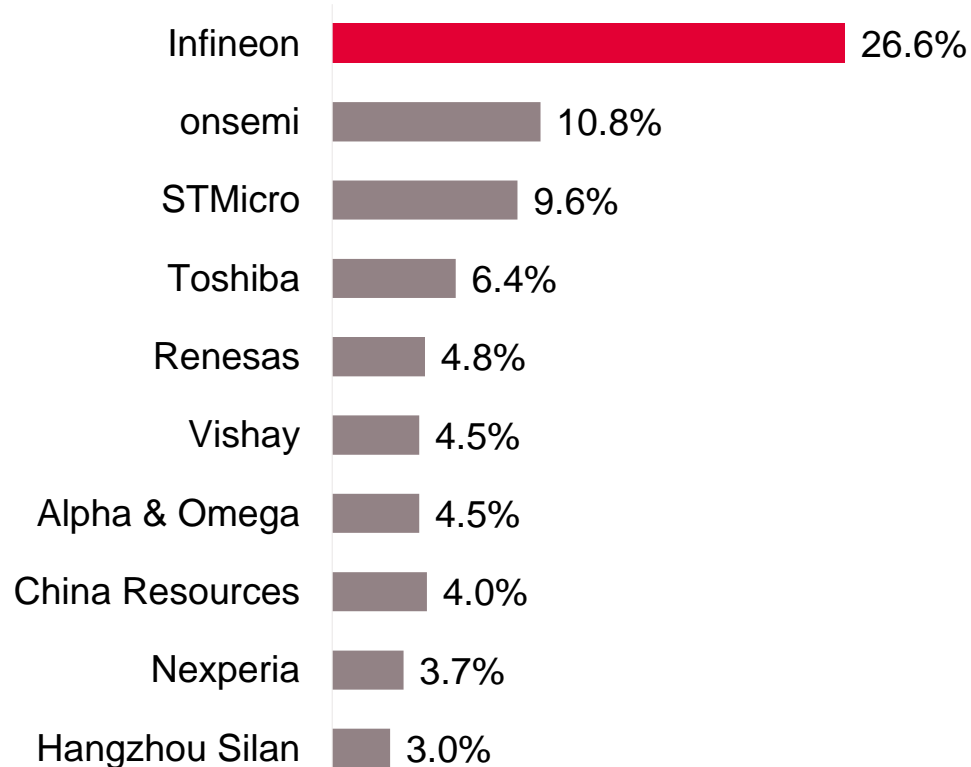
PSS – Power



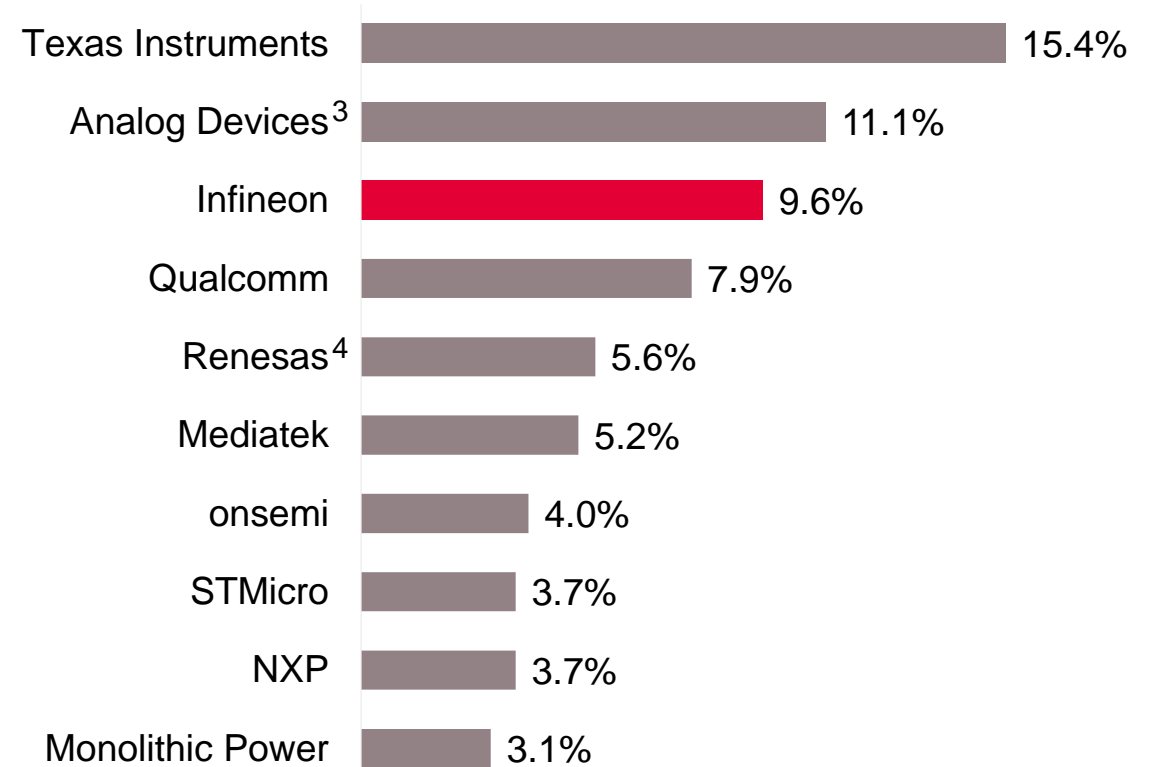
# Infineon is the clear leader in MOSFETs; market share gains in MOSFETs as well as in power ICs, further growth potential in power ICs



## Discrete Power MOSFETs<sup>1</sup> 2021 total market: \$11.1bn



## Power ICs<sup>2</sup> 2021 total market: \$30.7bn



<sup>1</sup> Discrete Power MOSFET market includes automotive MOSFETs, Si Power MOSFETs, SiC Power MOSFETs, Si Protected MOSFETs and GaN Power Transistors | <sup>2</sup> Power IC market includes automotive power ICs.

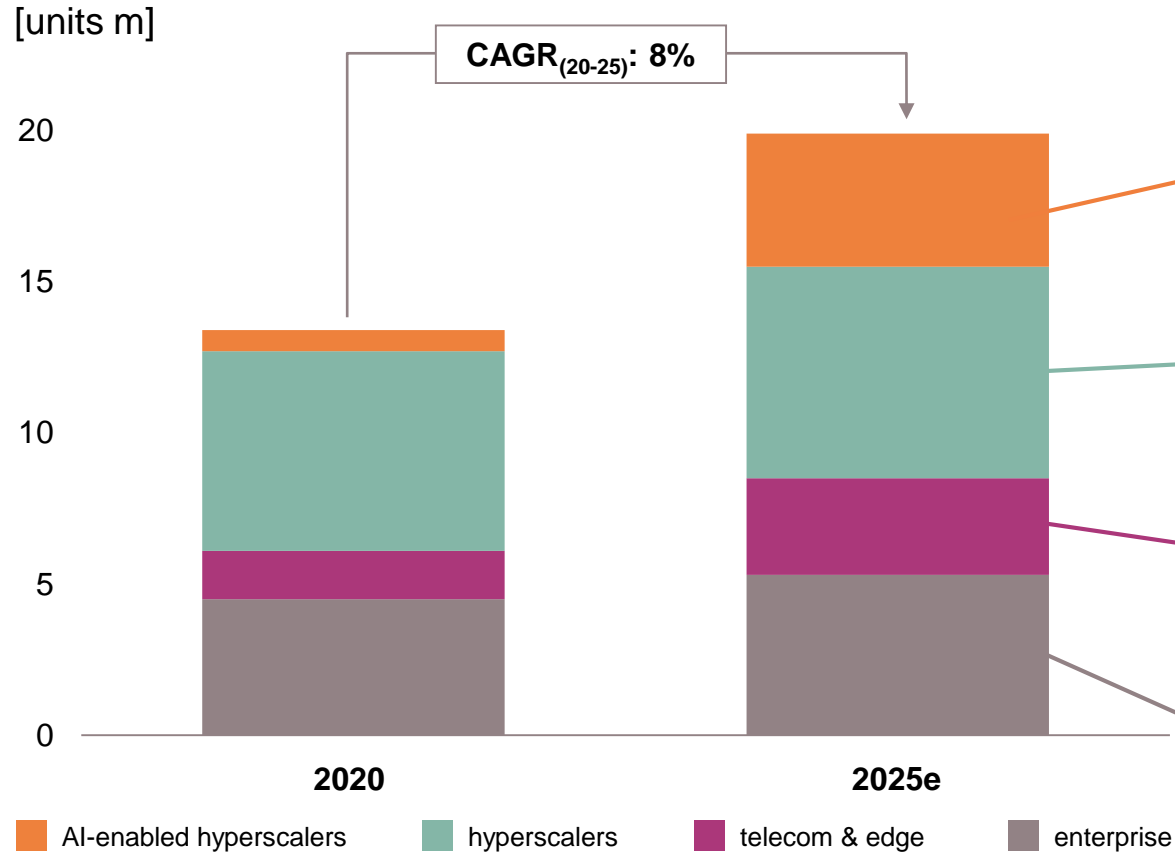
<sup>3</sup> Analog Devices acquired Maxim in August 2021 | <sup>4</sup> Renesas acquired Dialog Semiconductor in August 2021.

Based on or includes research from Omdia: *Power Semiconductor Market Share Database 2021 – Final V2*. October 2022.

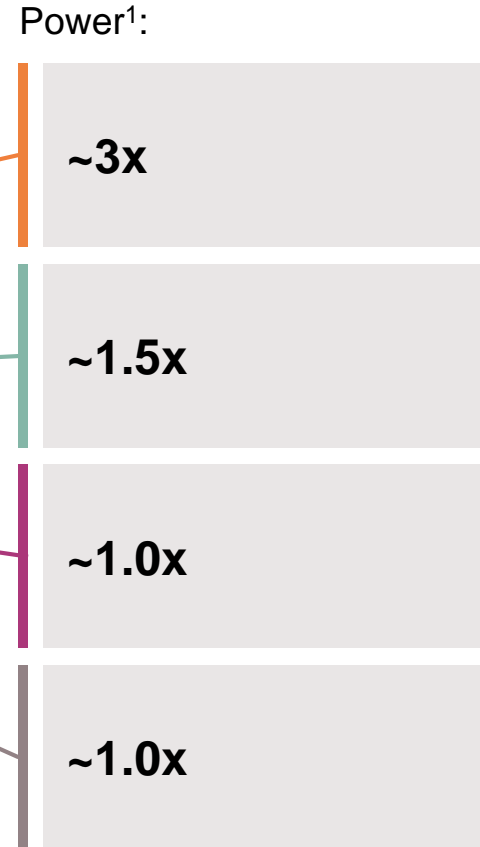
Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party's own risk.

# Data center – AI hyperscaler and telecom/edge computing are driving the growth

## Server growth



## Power requirement per server



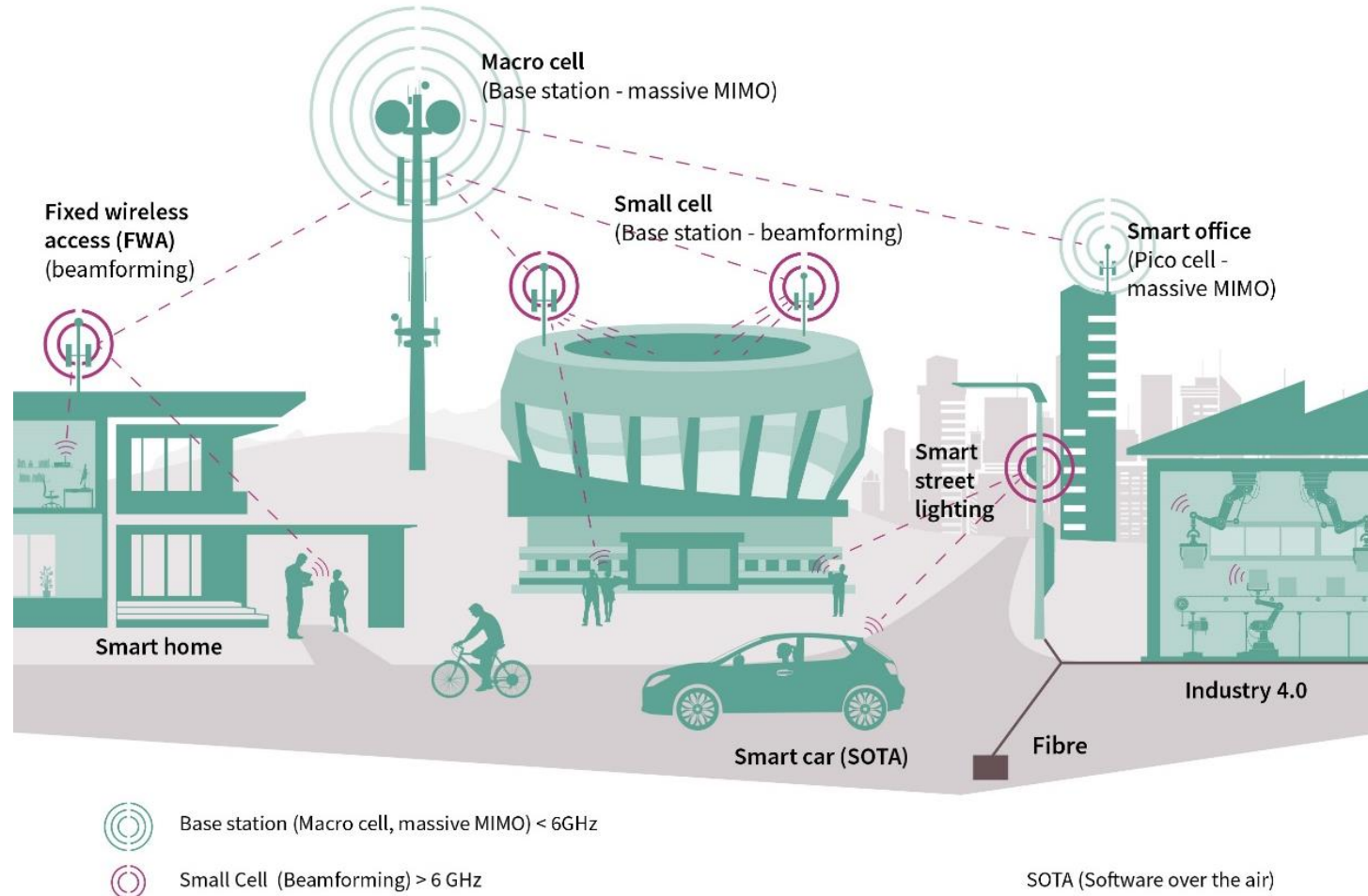
Exponential increase in AI Training & Networking (ASIC/SoC/FPGA/CPU/GPU) power level requires cutting-edge innovation in Device & Packaging technologies to solve power efficiency and density challenges

→ The bill of material is outpacing unit growth by a factor of ~1.3x.

<sup>1</sup> Normalized overall power requirement per server board for x-comparison  
Based on or includes research from Omdia: *Data Center Server Equipment Market Tracker – 2Q21 Database*. September 2021

# Transition from 3G/4G to 5G drives demand in power semis for antennas and power supplies

Smart and connected - the communication of tomorrow with 5G



- > **driver #1:** massive growth of data and computing power
- > **driver #2:** higher number of base stations due to dense network
- > **driver #3:** ~4x higher power semi content per radio board: from ~\$25 for MIMO antenna to ~\$100 for massive MIMO antenna array
- > **driver #4:** fog computing data center as a completely new market



# PSS – RF and Sensing



# Main applications addressed by PSS sensors portfolio

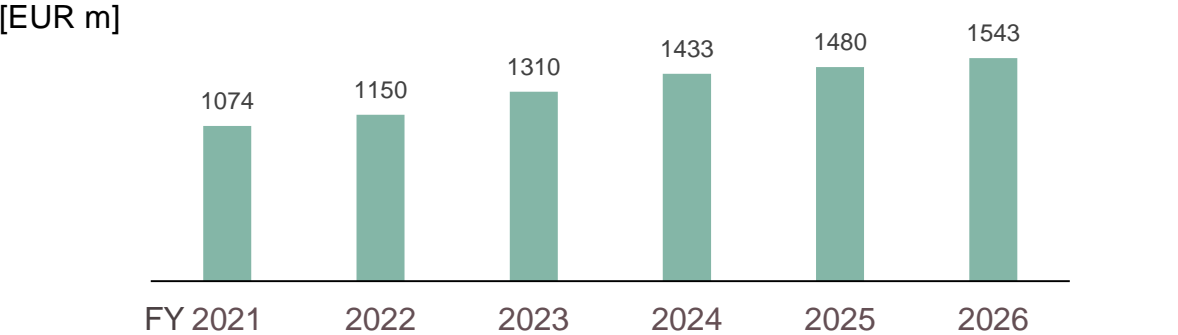
MEMS microphone		3D radar (24/60 GHz)		3D ToF image sensor		Environmental	
	Best audio performance		Ultra-low power consumption		Best price / performance		High precision and Small form factor
	Low power consumption		Presence detection/ Vital Sensing		Face ID (biometrics), VR/AR		Measure CO <sub>2</sub>

## Main applications

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li>› Smartphone</li> <li>› True wireless stereo headsets</li> <li>› Smart speaker</li> <li>› Laptop &amp; tablet</li> </ul> | <ul style="list-style-type: none"> <li>› Automotive</li> <li>› Smart home</li> <li>› TV</li> <li>› Security camera</li> <li>› Smart building</li> </ul> | <ul style="list-style-type: none"> <li>› Smartphone: world-facing and user-facing</li> <li>› Robotics</li> <li>› Automotive in-cabin sensing</li> <li>› Payment terminals</li> </ul> | <ul style="list-style-type: none"> <li>› Heating, ventilation, air conditioning (HVAC)</li> <li>› Air purifier</li> <li>› Smart thermostat</li> <li>› CO<sub>2</sub>/virus risk reduction</li> </ul> |
|---|---|--|--|

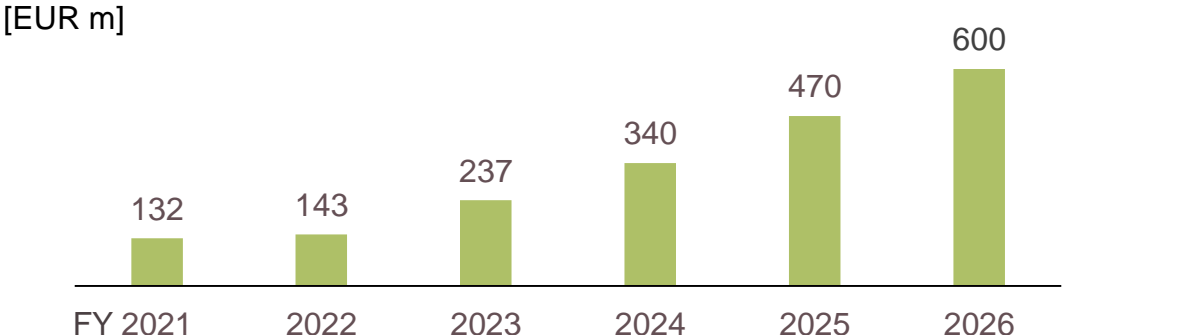
# Sensor markets targeted by PSS offer attractive growth potential

## MEMS microphone market



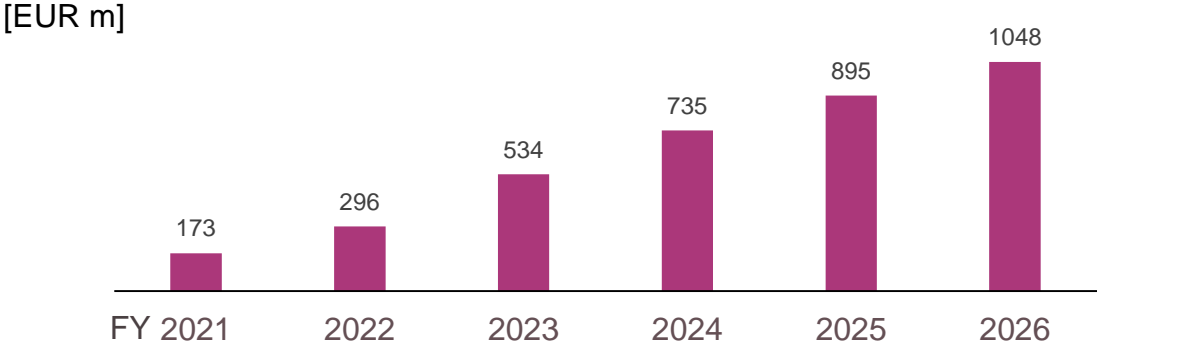
Source: Infineon estimates

## Radar IC market (24 GHz and 60 GHz only)



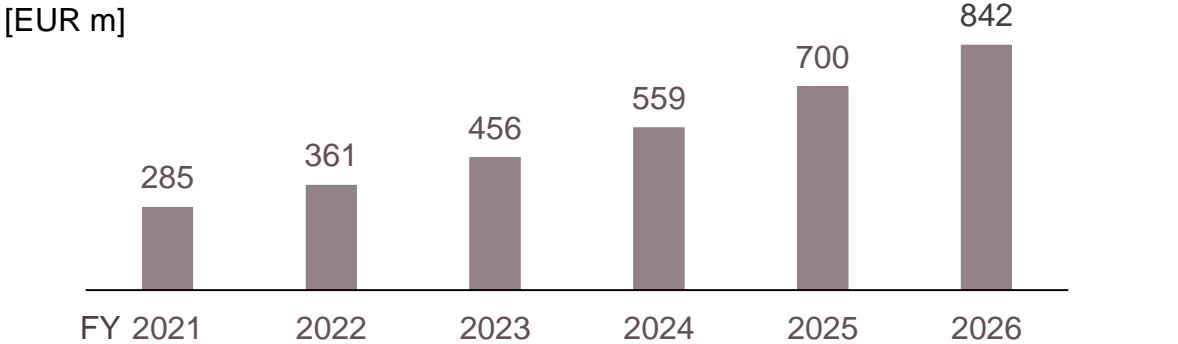
Source: Infineon estimates

## 3D ToF image sensor market



Source: Infineon estimates

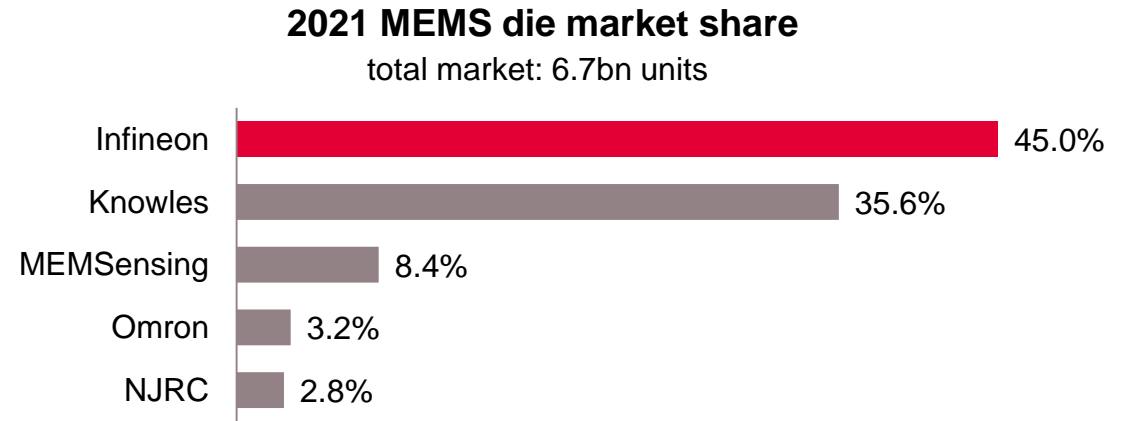
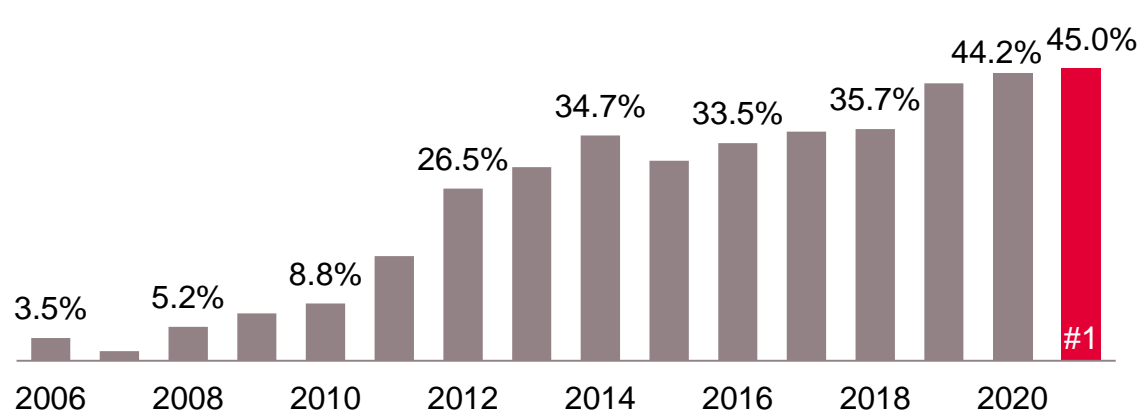
## Environmental sensor market<sup>1</sup>



<sup>1</sup> Infineon is addressing smart building, smart home, smart appliances, consumer IoT devices and automotive  
Source: Infineon estimates

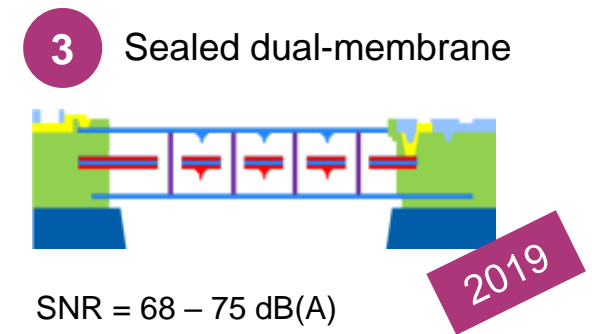
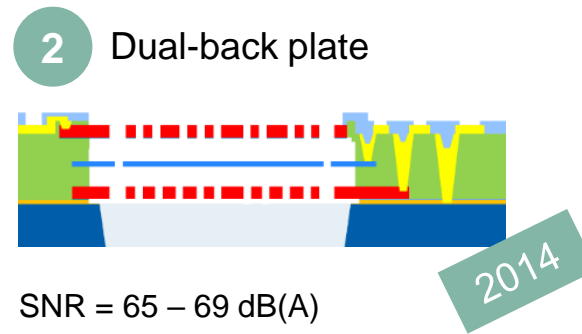
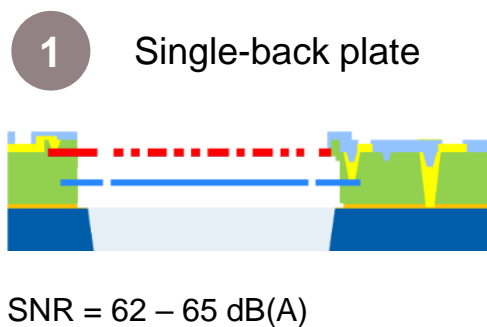
# Infineon leading the market has significantly increased the distance to #2

## Infineon's market share development in MEMS microphones (by units)



Based on or includes research from Omdia: *MEMS Microphones Report Dice Market Shares 2022*. October 2022. Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party's own risk.

## Technological progression of Infineon XENSIV™ MEMS microphones





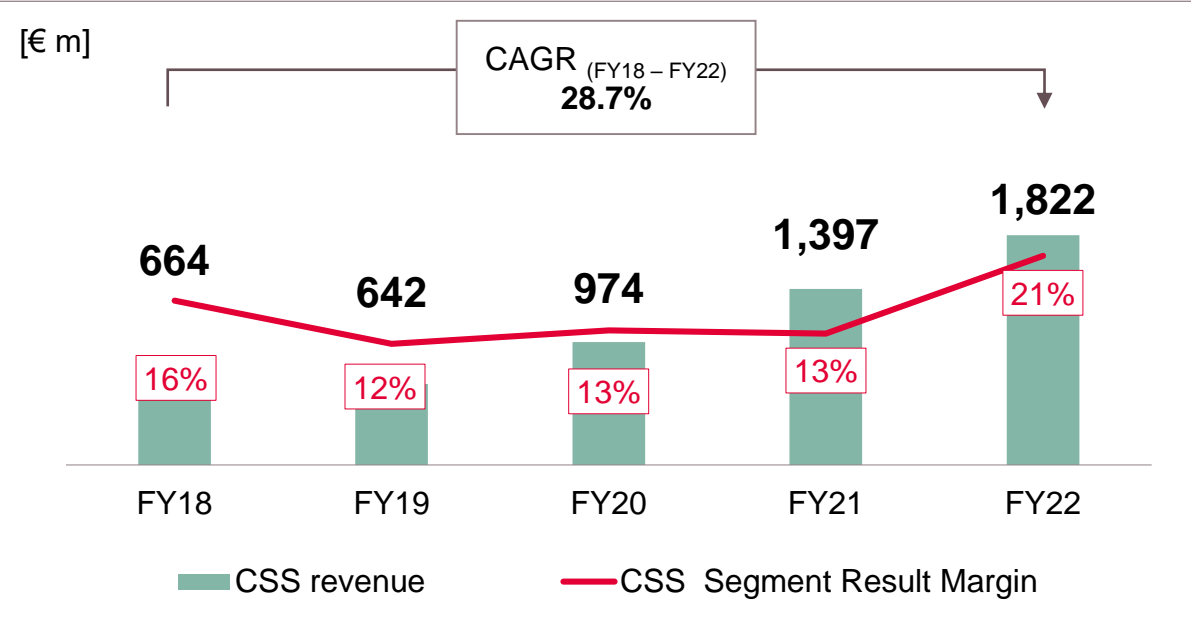


Connected Secure Systems

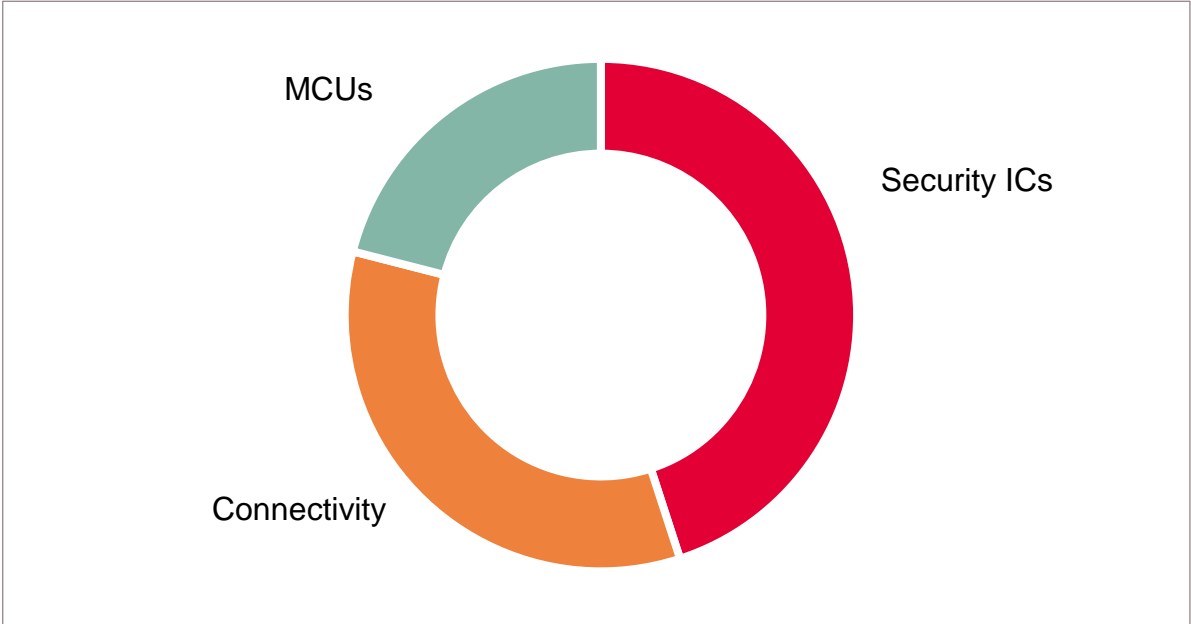


# CSS at a glance

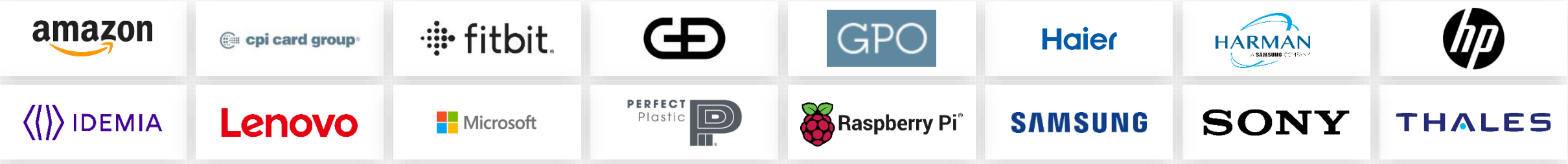
## CSS revenue and Segment Result Margin



## FY22 revenue split by product group



## Key customers



# Market outlook is affected by weaker macroeconomic conditions posing risks especially for consumer segments

## Applications (% of FY22 segment revenue)

Industrial and Consumer IoT  
~67%

- Industrial IoT
- Smart Home
- Wearables
- Gaming
- Automotive

Payment, ID, Ticketing  
~33%

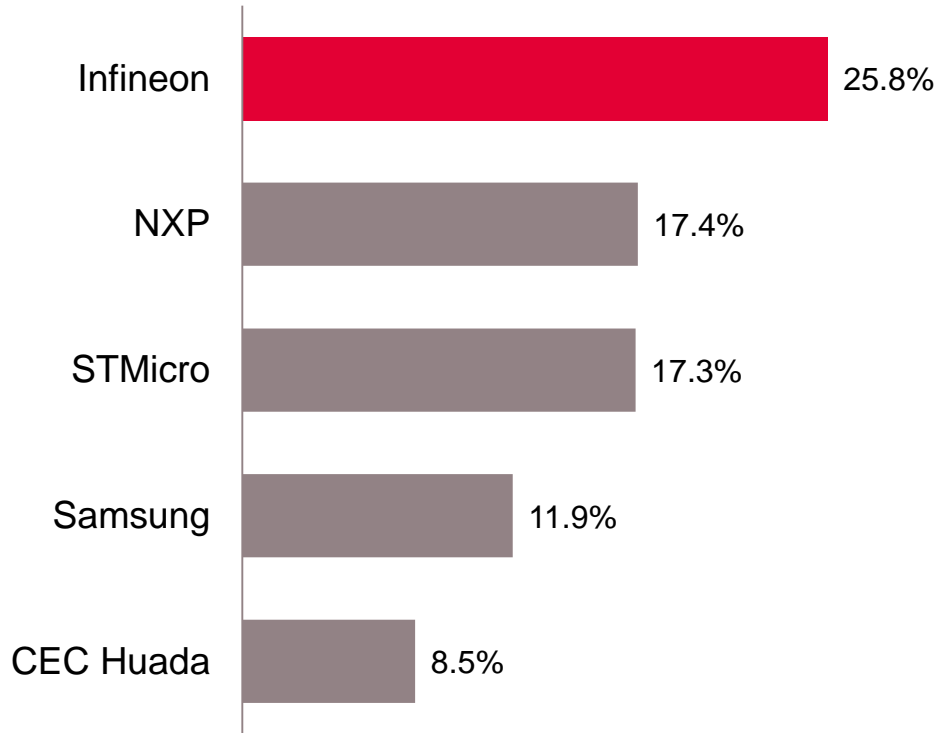
- Payment
- Identification

## Market Outlook for CY23

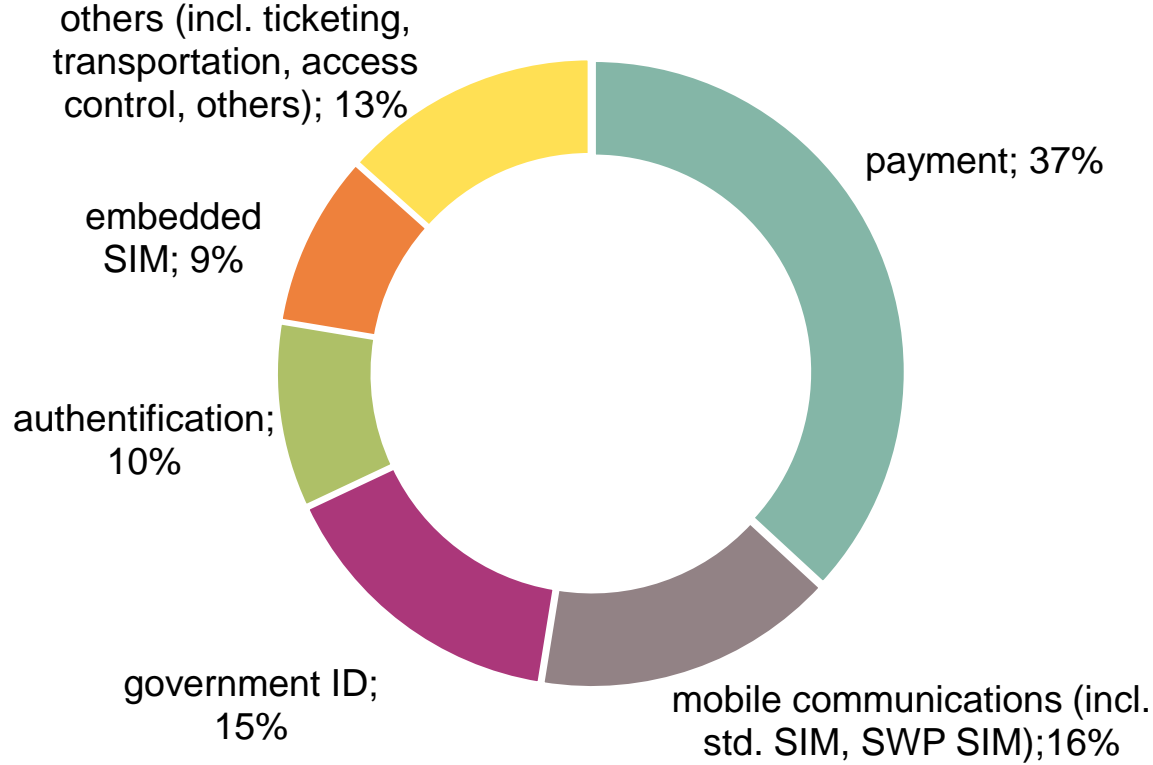
- ➔ Although growth in industrial IoT is expected to stretch in CY23, Industrial Automation Equipment is decreasing owing to multiple unfavorable factors, like energy prices, high industrial commodity prices, supply chain disruption.
- ➔ Market risks driven by overall consumer sentiment likely to outweigh potential growth in areas like energy savings related devices.
- ➔ Market risks driven by overall consumer sentiment likely to outweigh potential growth in areas like smart watches, AR/VR glasses.
- ➔ Gaming consoles shipments are expected to further decrease.
- ➔ Market is assumed to grow at more limited rates than previously assumed due to weaker macroeconomic conditions.
- ➔ The market is assumed to grow closer towards true demand, despite ongoing supply constraints.
- ➔ Positive trend expected driven by recovery in passports issuance as well as project roll-out for other eDocuments.

# Infineon remains top player in security ICs

**Security ICs (excl. NFC controllers; excl. NFC eSE)**  
**2021 total market: \$3.2bn**

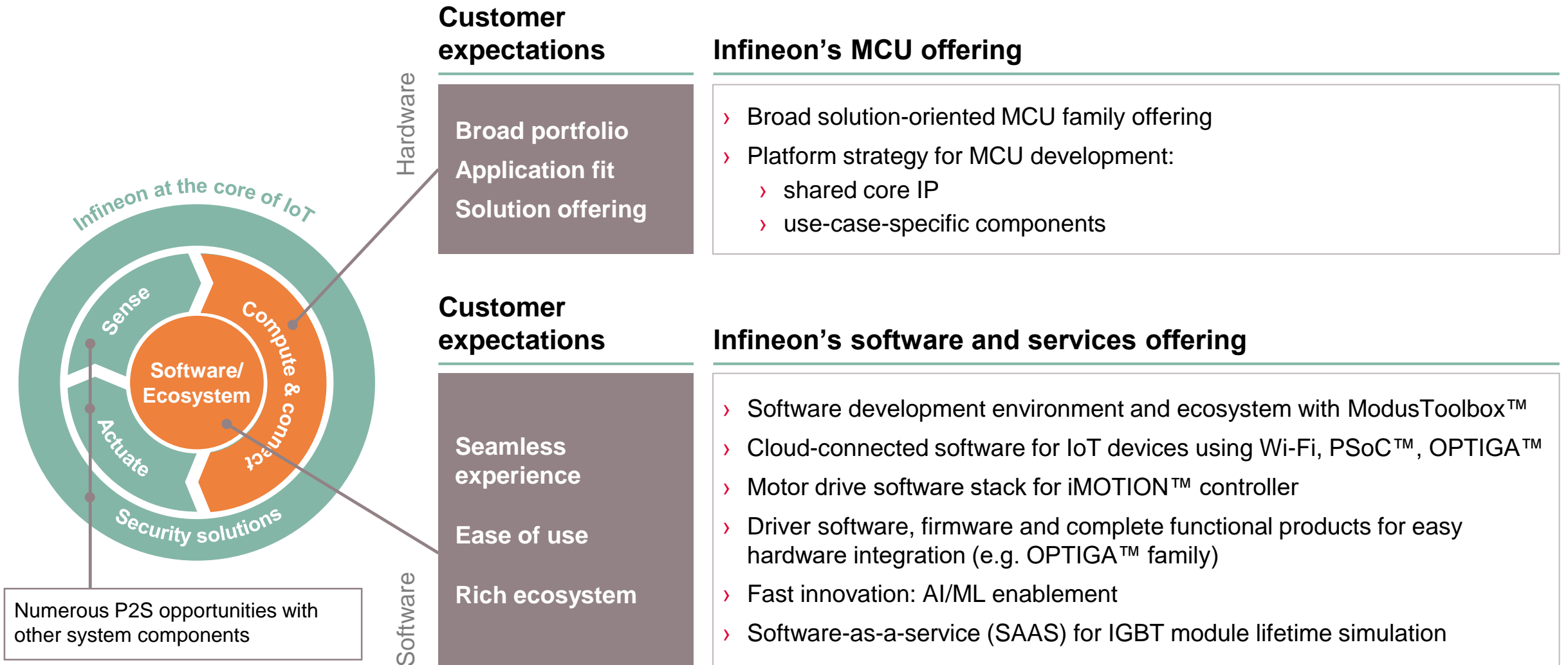


**Security ICs (excl. NFC controllers; excl. NFC eSE)**  
**2021 by application**



ABI Research: Smart Card and Embedded Security IC Technologies. October 2022.

# MCU and software are key for the success in IoT as they define the functionality and time-to-market of the device



# Infineon is enabling the 'IoT at a fingertip' with robust and reliable touch solutions and reconfirming Cypress revenue synergies



## Infineon as the leader<sup>1</sup> in Touch-HMI inherited through Cypress acquisition

**>6 Billion**  
conventional  
buttons replaced

**>100 Patents**  
filed for touch  
solutions

5<sup>th</sup> generation of CAPSENSE™ controller in advanced analog/mixed-signal technology available

## Infineon CAPSENSE™ technology in volume production in a wide range of applications



Capacitive sense buttons



Metal proximity



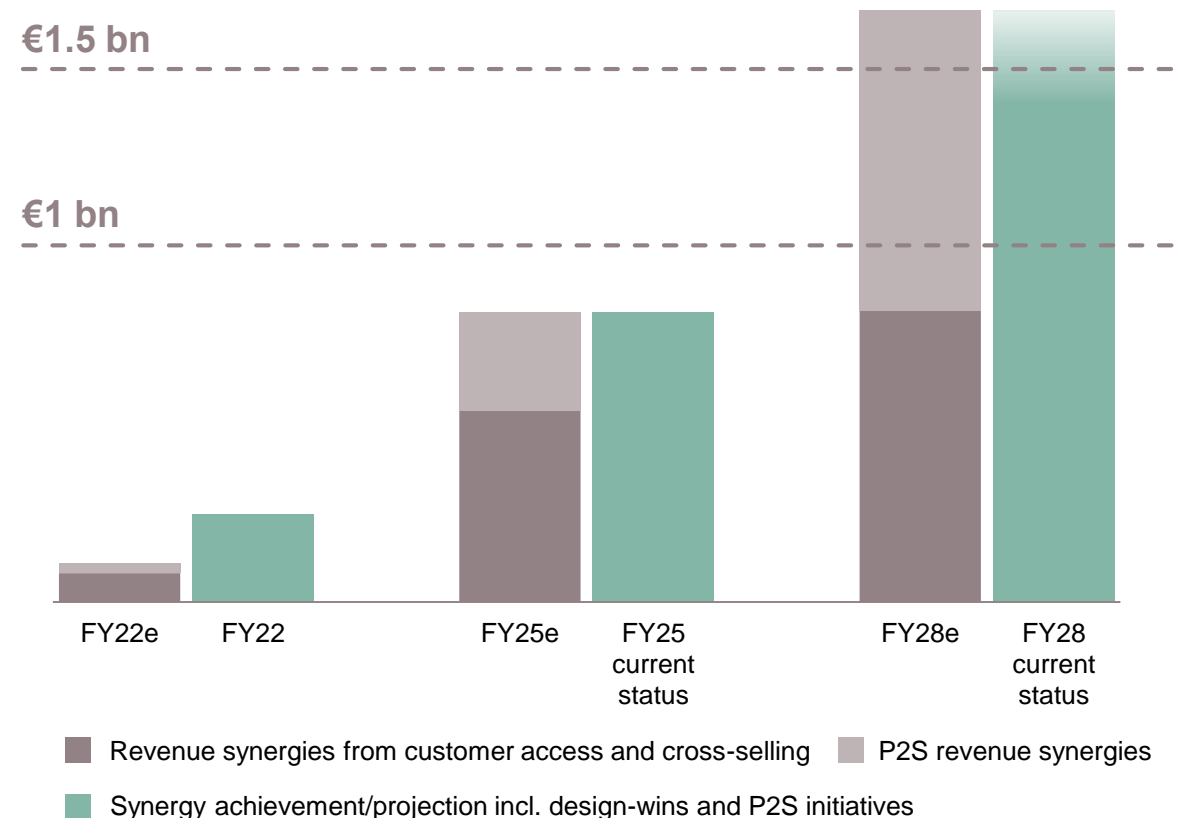
Capacitive sense slider



Touchless gesture control

<sup>1</sup> Infineon estimate

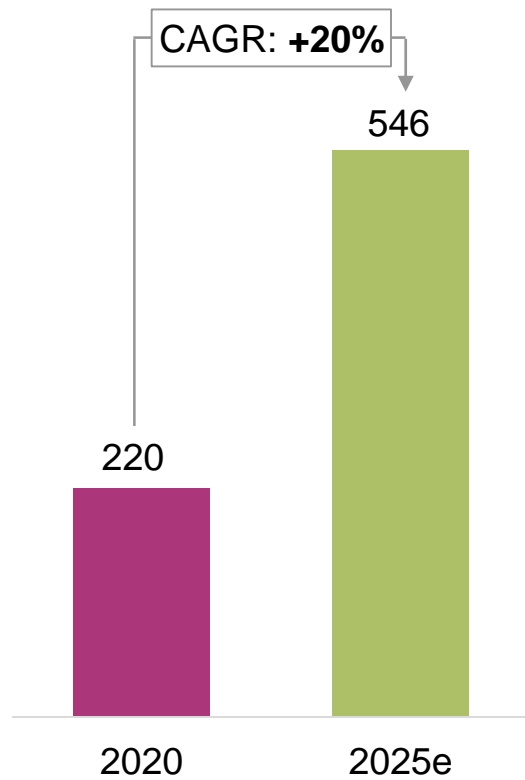
## We are fully on track to reach or even overachieve the announced Cypress revenue synergy targets











# With a broad set of key enabling technologies, Infineon is well positioned to capture growth opportunities

## Market: Home Automation Devices<sup>1</sup>

[units m]



## Leading competencies to provide full system solutions

-  **Application understanding**
-  **Ease-of-use**
-  **Software**
-  **Sense**
-  **Compute**
-  **Actuate**
-  **Security**
-  **Connectivity**

## Customer ex. for wireless smart cameras and smart door locks



<sup>1</sup> ABI Research: *Wireless Connectivity Technology Segmentation and Addressable Markets*. July 2021; excluding Chromebooks, desktop PCs, feature phones, media tablets, netbooks, smartphones, white box tablets.

7RE3	37.278	1.14	+0.72▲	634.270	3.984%	369,000
S421	94.107	0.73	-0.51▼	538.014	2.416%	743,000
YTB4	21.744	5.63	+3.18▲	692.380	0.657%	405,000
I897	13.361	1.82	-1.23▼	237.981	0.103%	882,000



# Selected financial figures

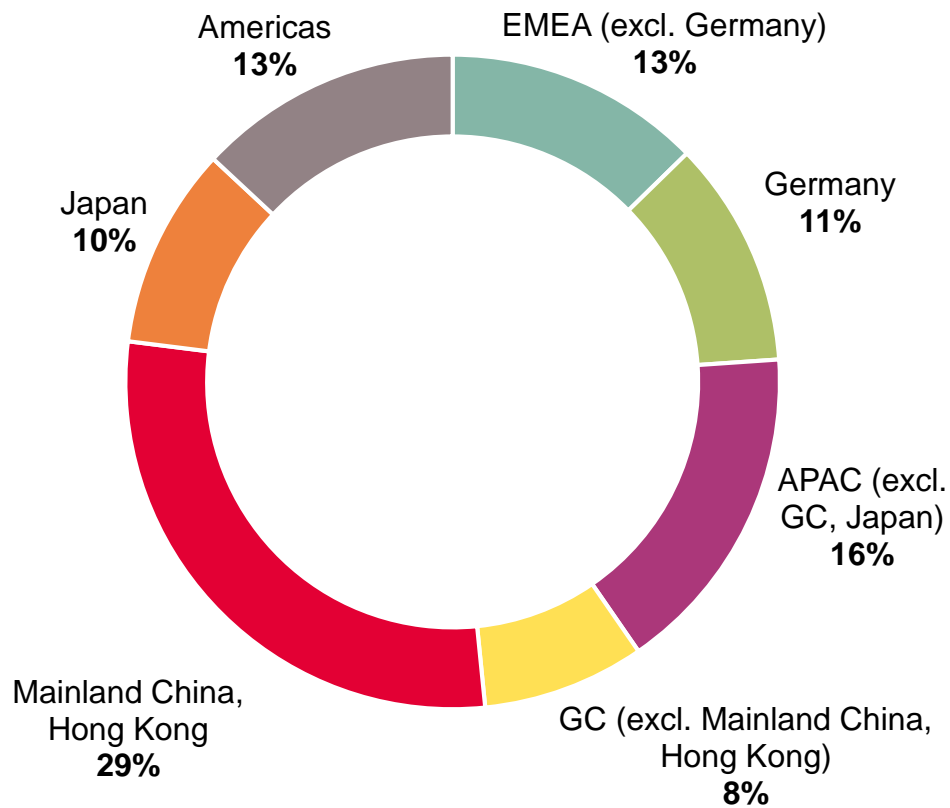




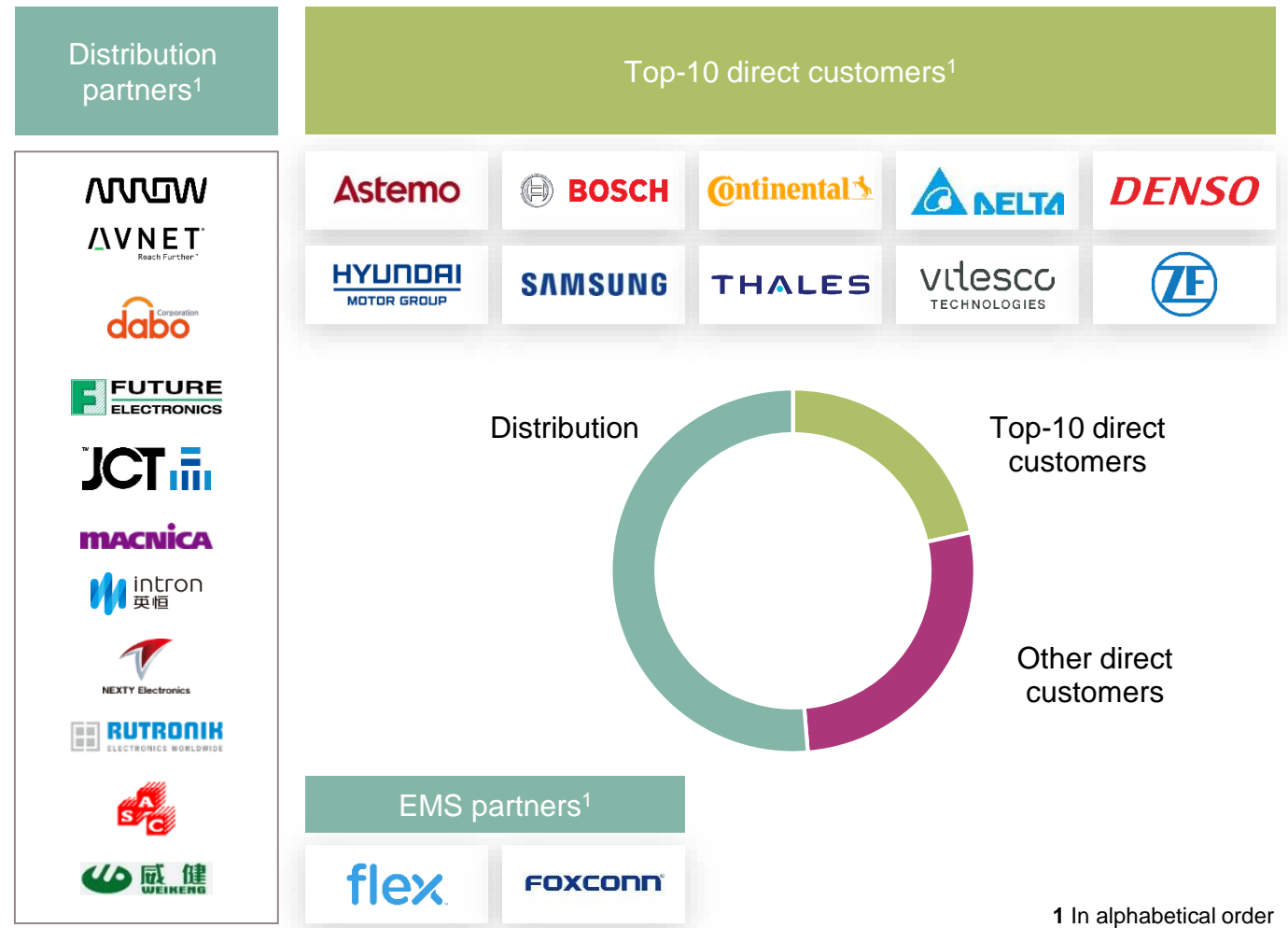
Strong presence in all regions; well-balanced customer portfolio;  
no customer represents more than 10% of total sales



### FY22 revenue by region



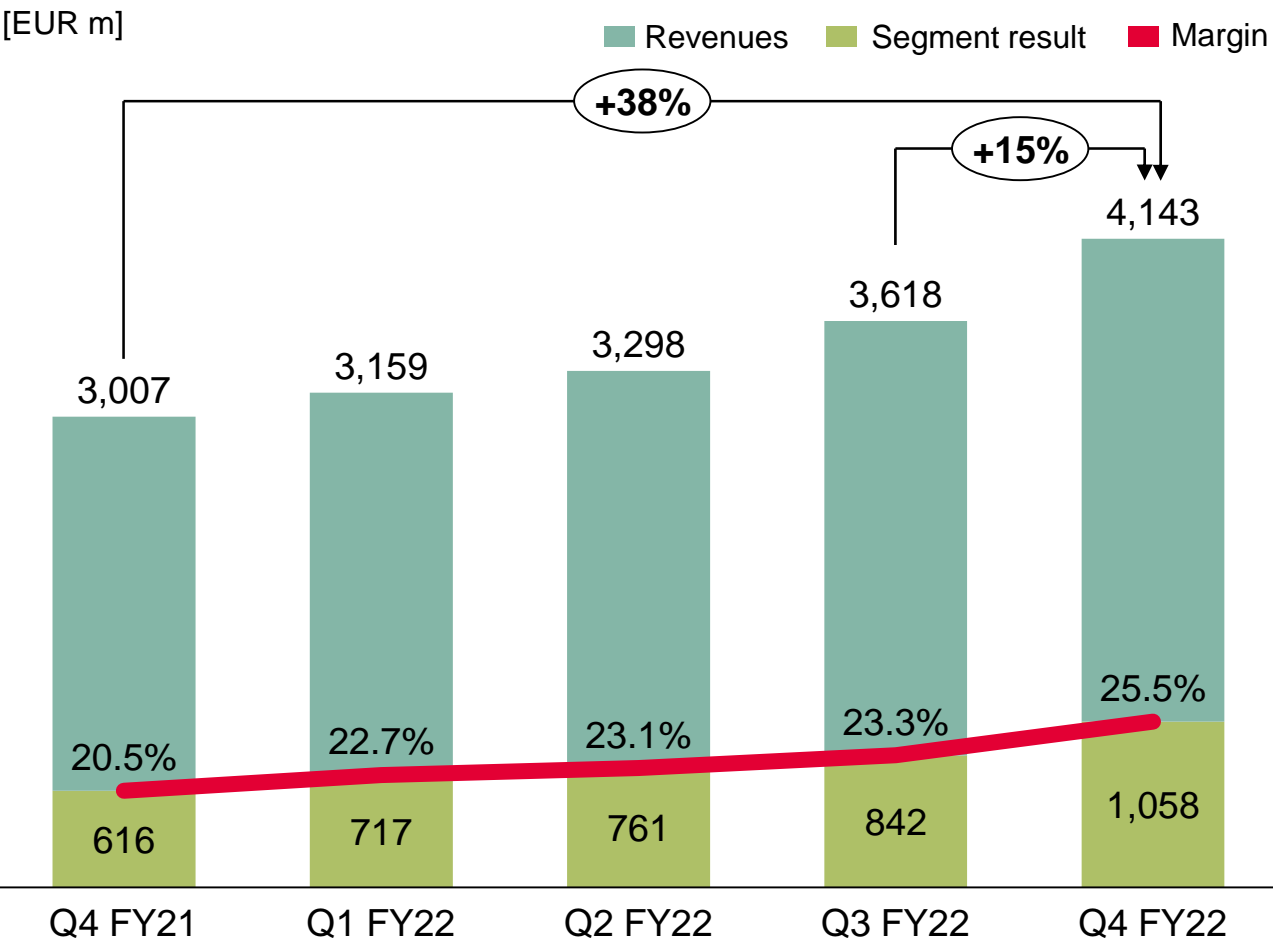
### Revenue by sales channel



<sup>1</sup> In alphabetical order

# Group financial performance

## Revenues and segment result



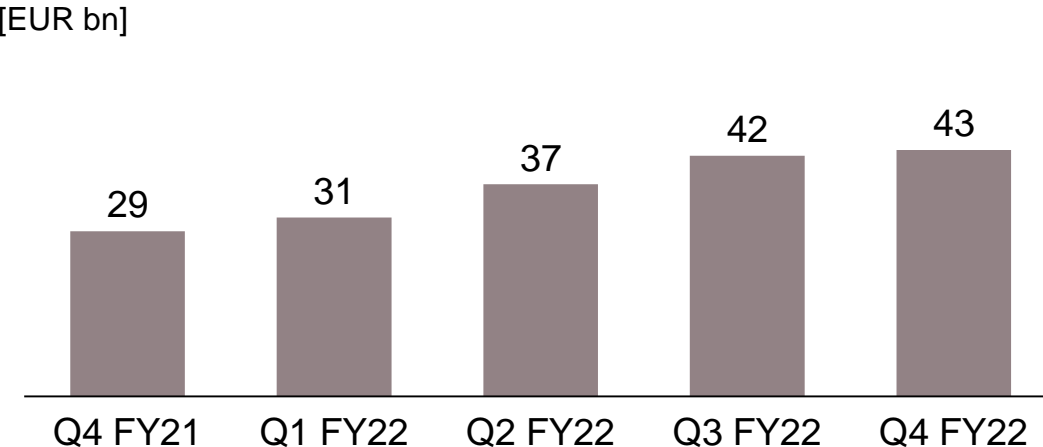
<sup>1</sup> See notes for definition

## USD exchange rate

### Average exchange rate

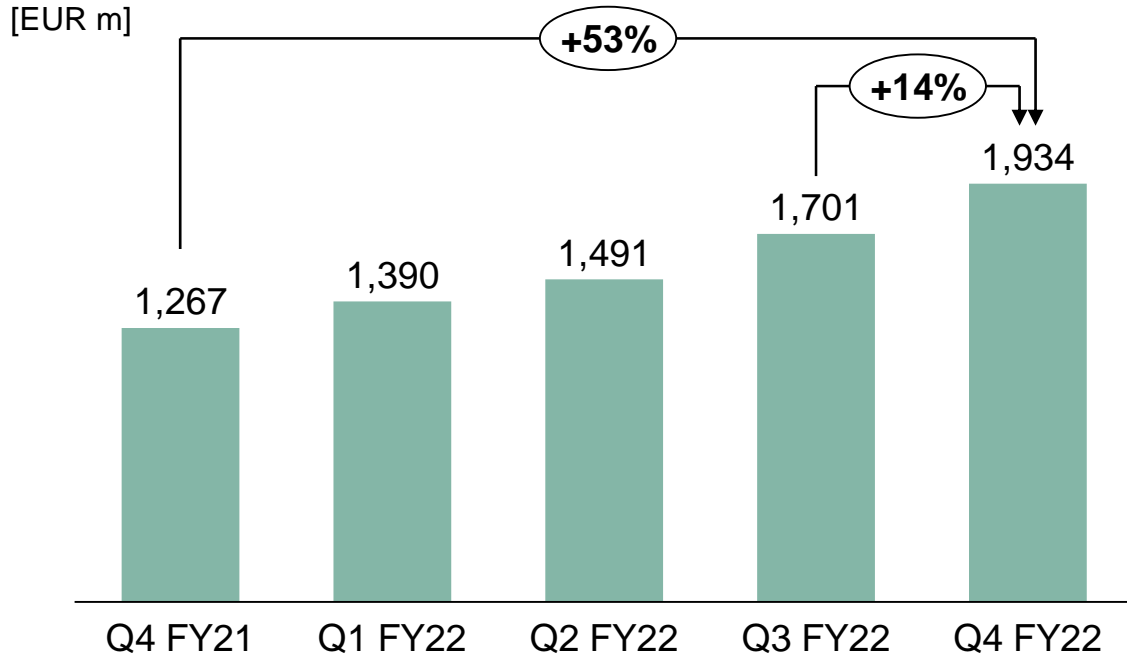
	Q4 FY21	Q3 FY22	Q4 FY22
∅ USD/EUR	1.18	1.06	1.01

### Order backlog<sup>1</sup>

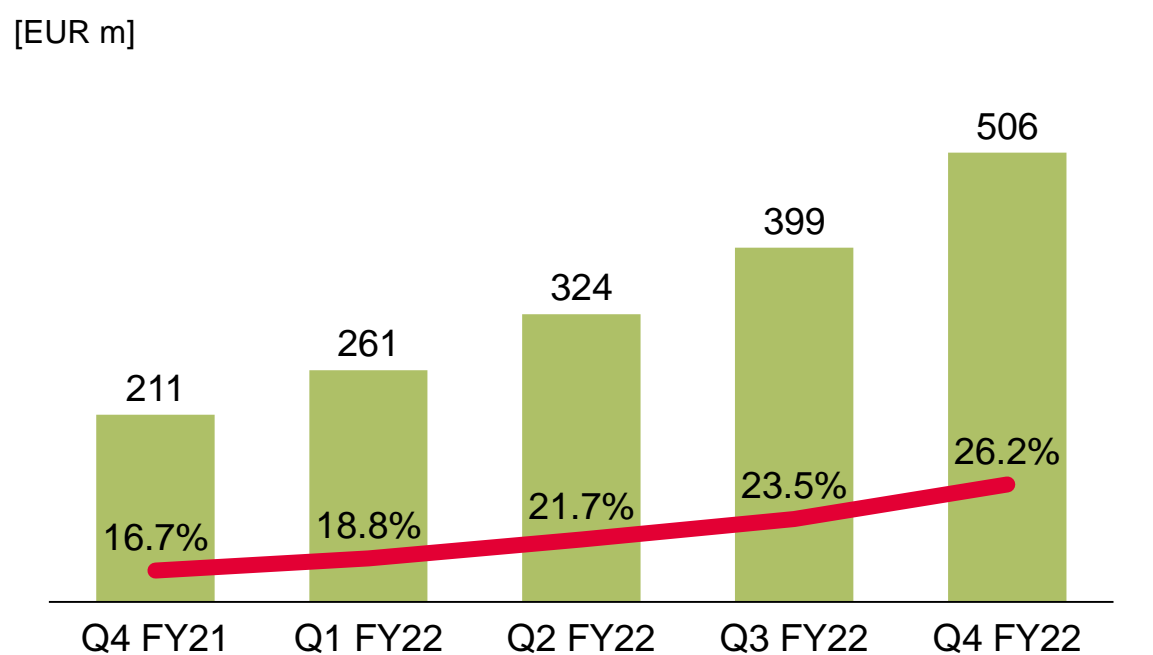


# Automotive (ATV)

## Revenues



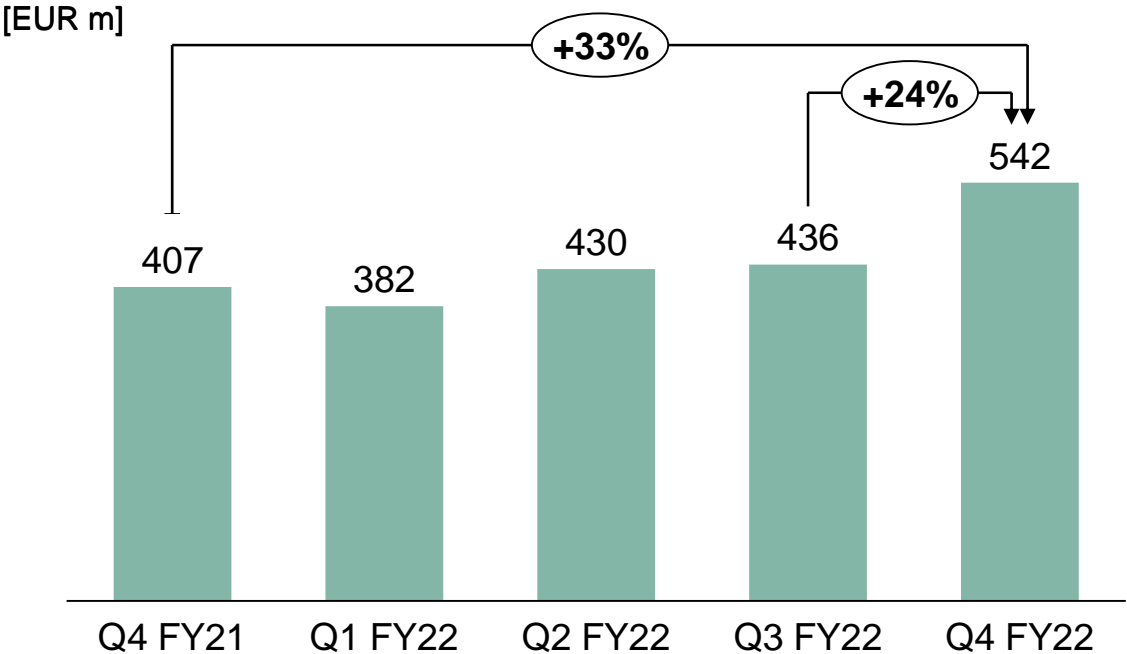
## Segment Result



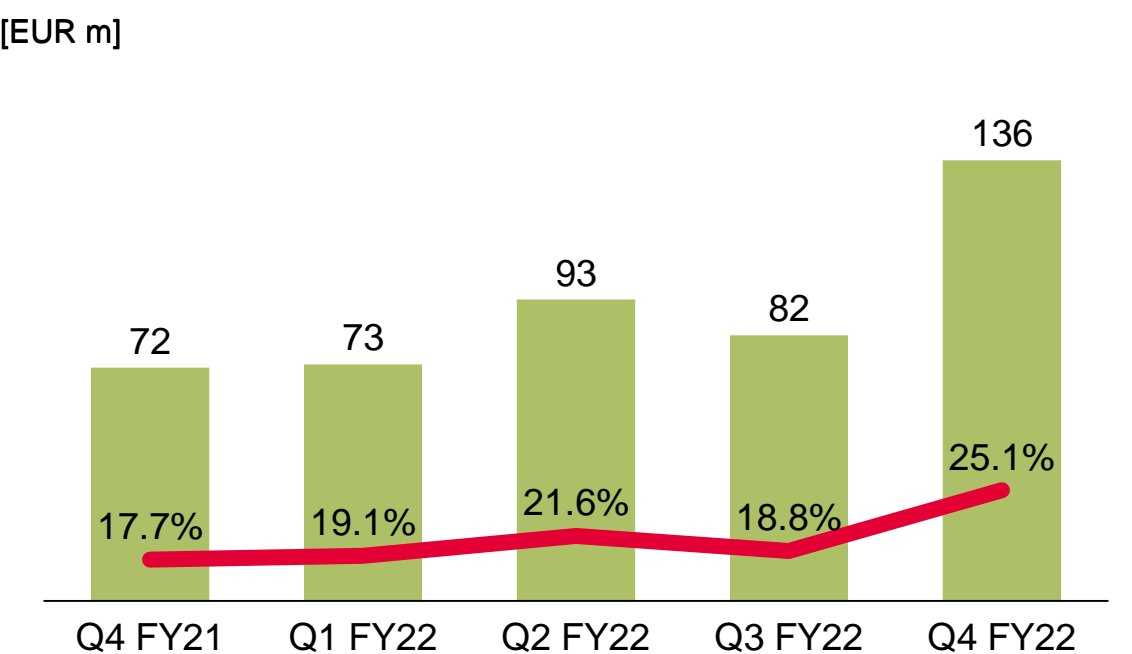
- > All-time high revenue for a single quarter achieved
- > Positive development driven by volume, favorable pricing dynamics and a supportive US-Dollar exchange rate
- > Electromobility and automotive MCUs remain on a strong growth trajectory

# Industrial Power Control (IPC)

## Revenues



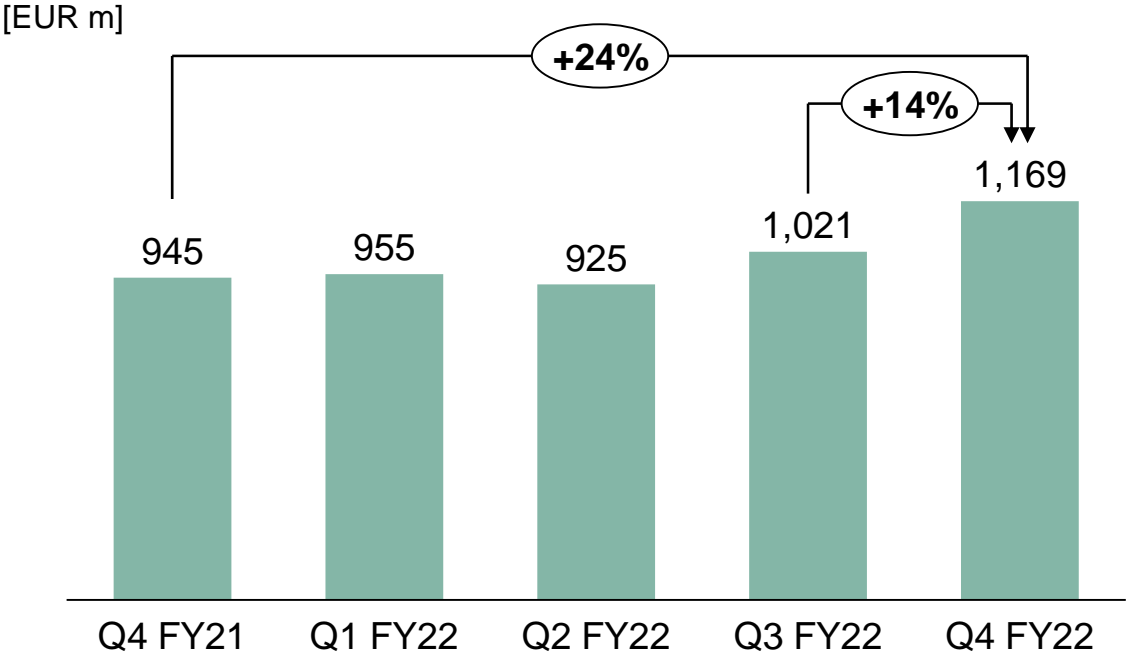
## Segment Result



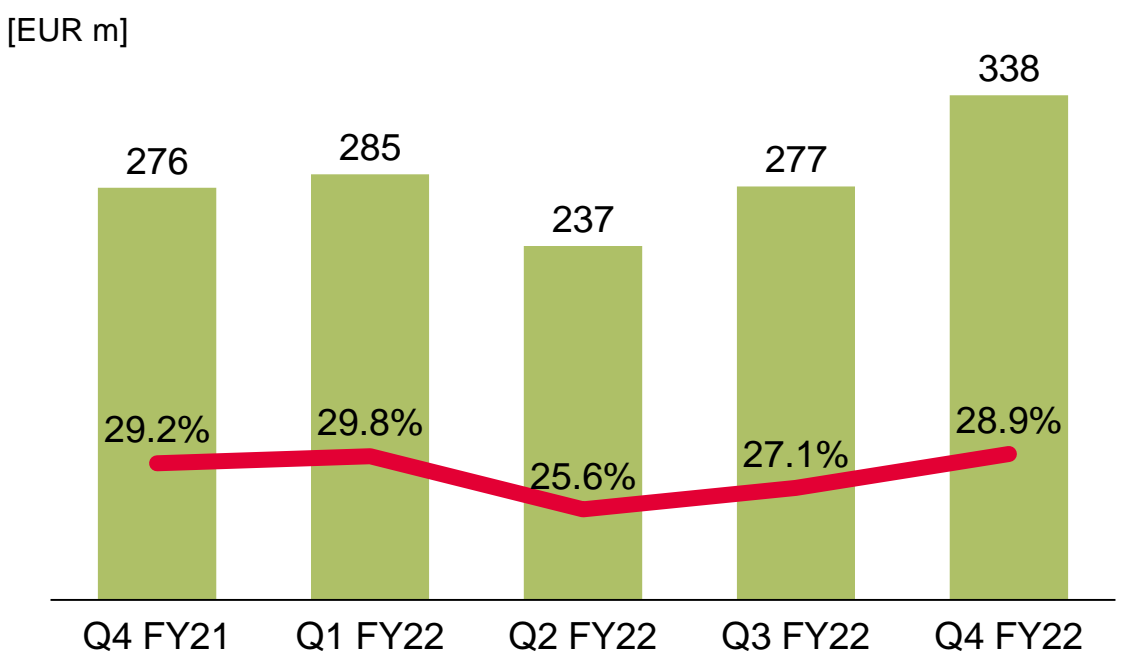
- › Positive quarterly revenue development across all applications
- › Particularly strong demand in the areas of renewable energies, energy infrastructure and industrial drives
- › Decarbonization remains a strong structural driver for renewable energies and the related power infrastructure

# Power & Sensor Systems (PSS)

## Revenues



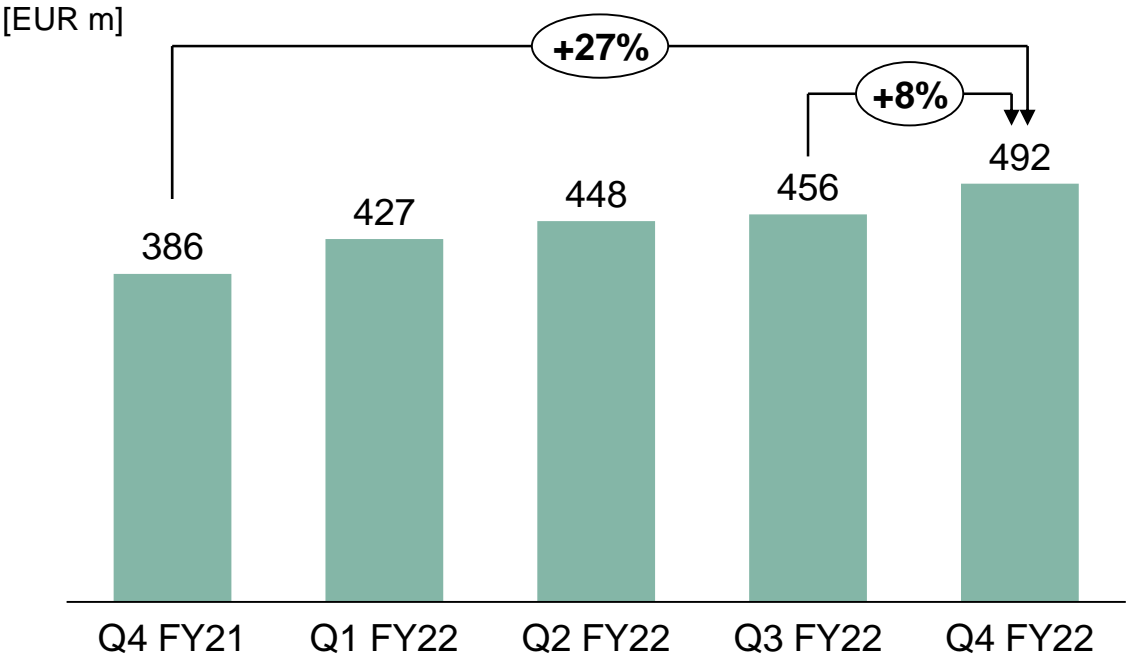
## Segment Result



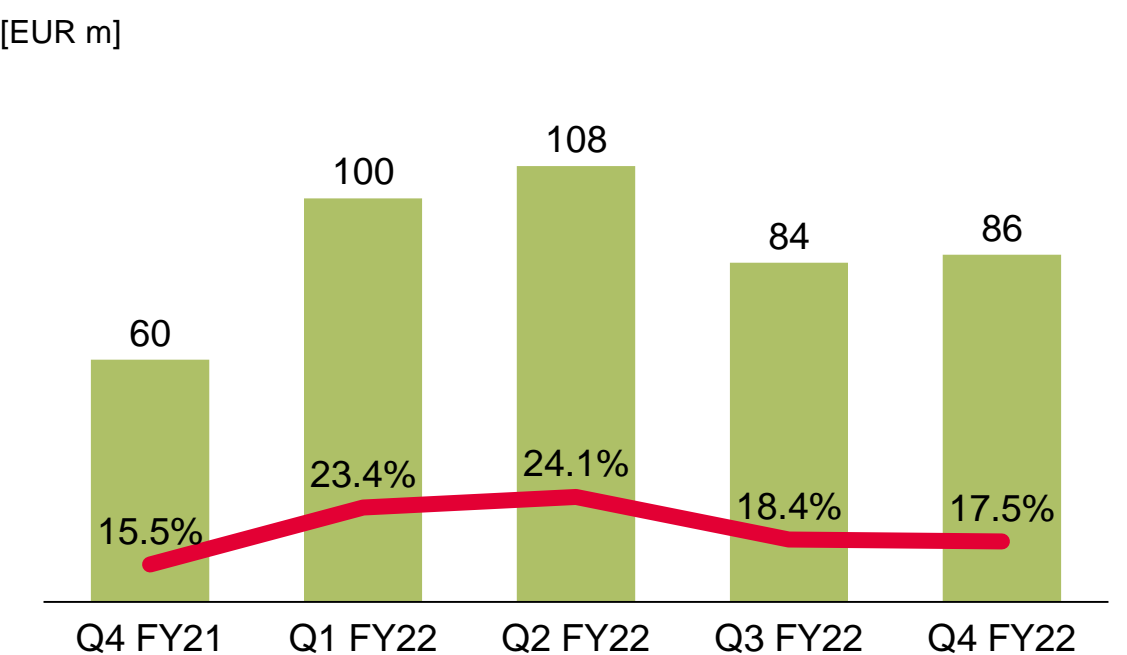
- > Revenue increase supported by post-Shanghai lockdown recovery
- > Dynamic business trends in the fields of microinverters for roof-top solar systems, charging stations for electric vehicles and onboard chargers
- > Slowing demand in consumer products like silicon microphones for smartphones or power supply for PCs, notebooks, TVs and game consoles

# Connected Secure Systems (CSS)

## Revenues



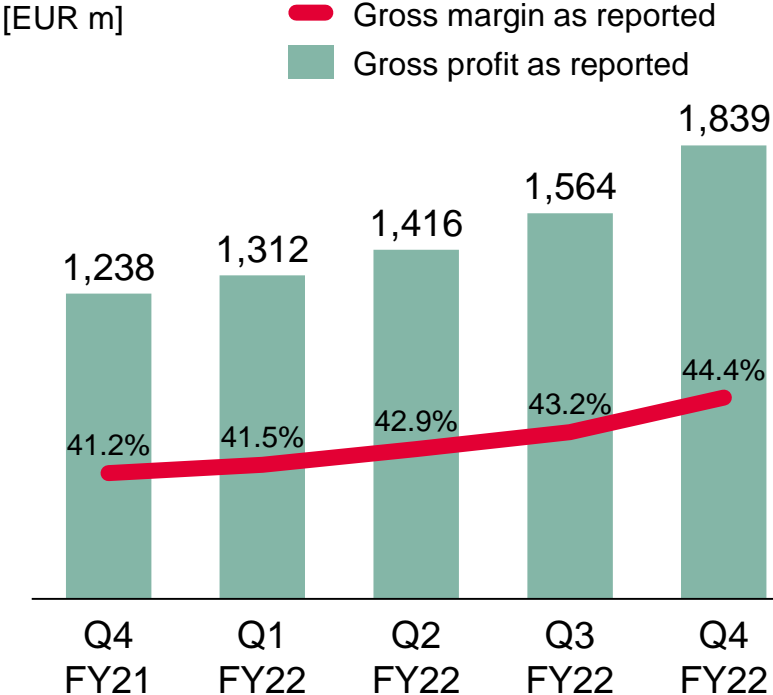
## Segment Result



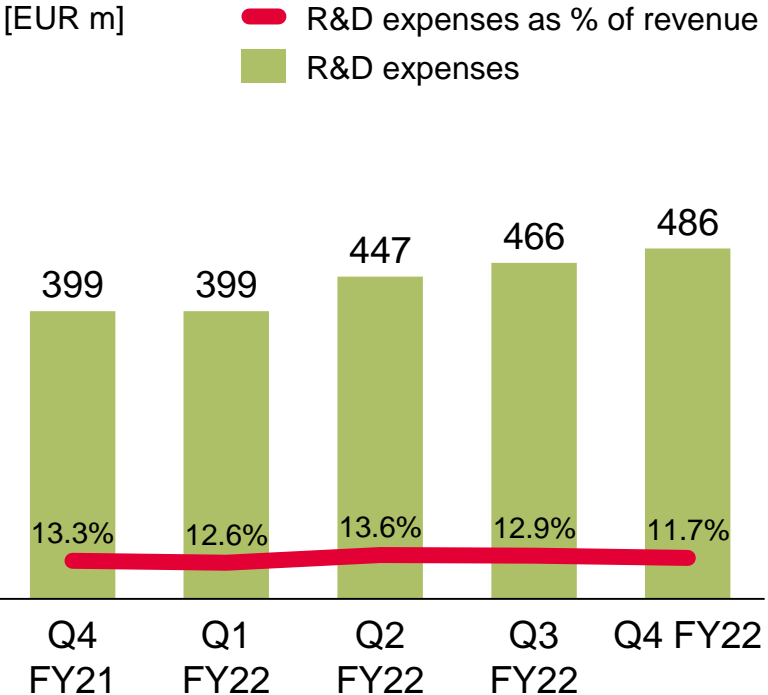
- > Revenue increased in the areas of connectivity, microcontrollers, payment cards and governmental identification documents
- > Investments in R&D resources and subsequent cost charges burdened the segment result

# Gross margin and Opex

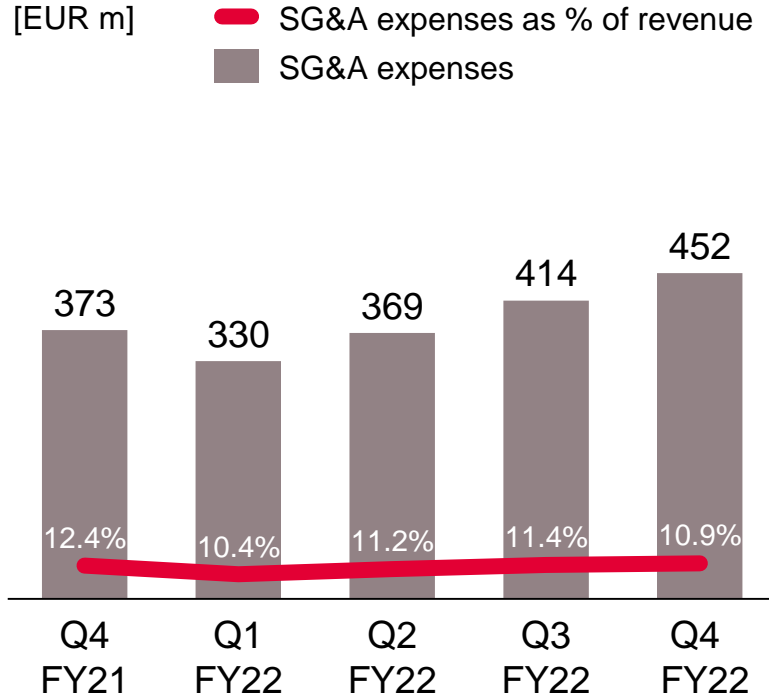
## Gross profit



## R&D



## SG&A



Therein non-segment result charges

[EUR m]

83	76	82	78	81
----	----	----	----	----

Adjusted gross margin

43.9%	43.9%	45.4%	45.4%	46.3%
-------	-------	-------	-------	-------

Therein non-segment result charges

[EUR m]

6	6	6	7	12
---	---	---	---	----

Therein non-segment result charges

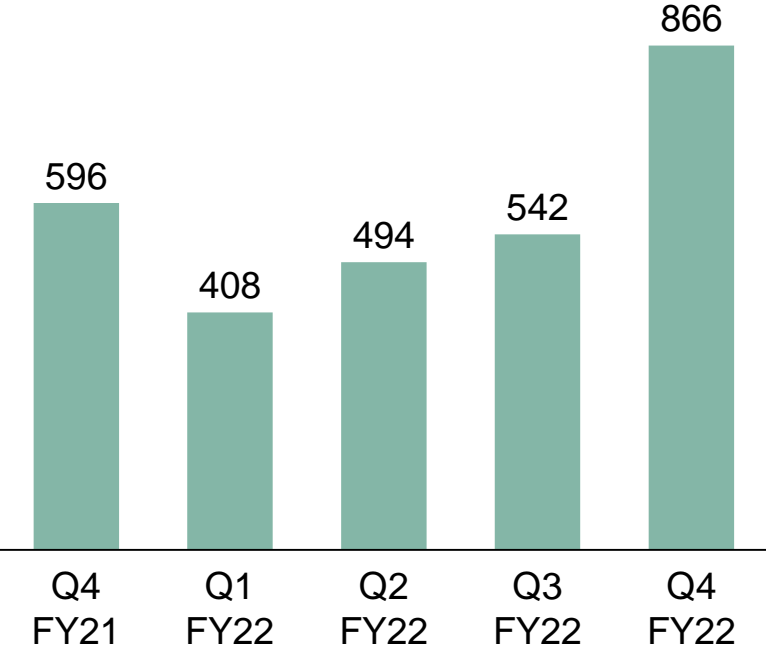
[EUR m]

57	47	50	62	56
----	----	----	----	----

# Investments, Depreciation & Amortization and Free Cash Flow

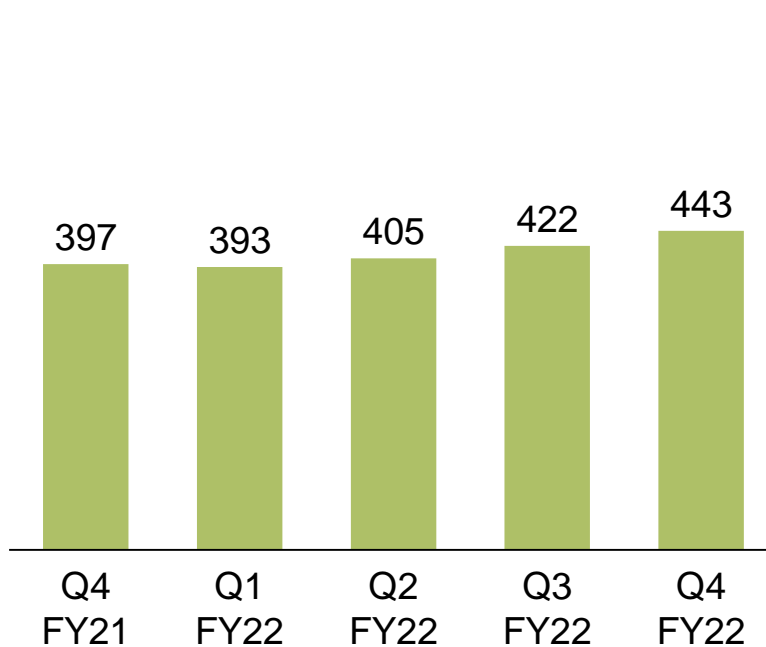
## Investments

[EUR m]



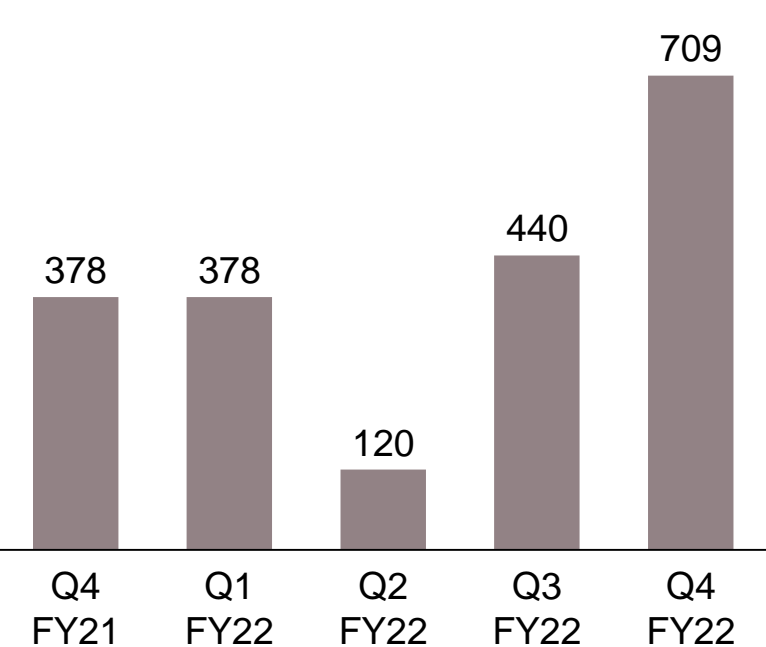
## Depreciation & Amortization

[EUR m]



## Free Cash Flow

[EUR m]

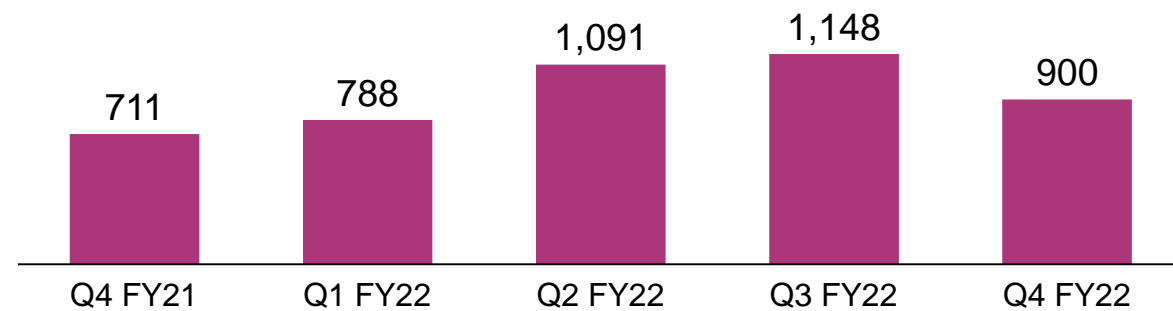




# Working Capital, in particular trade working capital components

## Working capital<sup>1</sup>

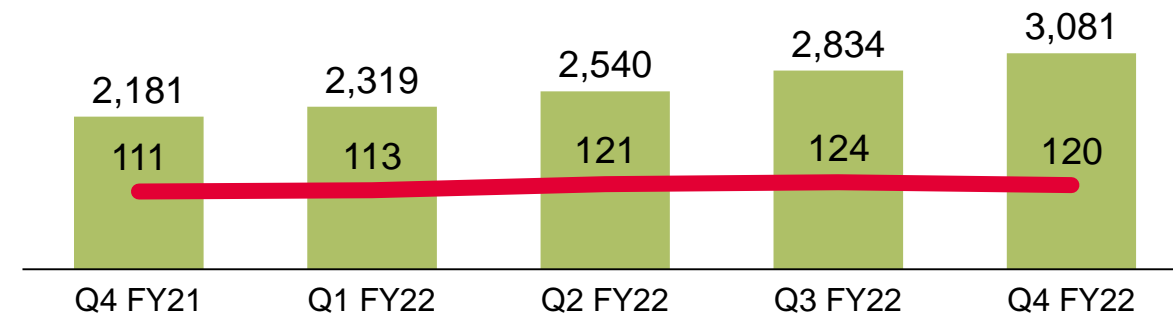
[EUR m]



## Inventories

[EUR m]

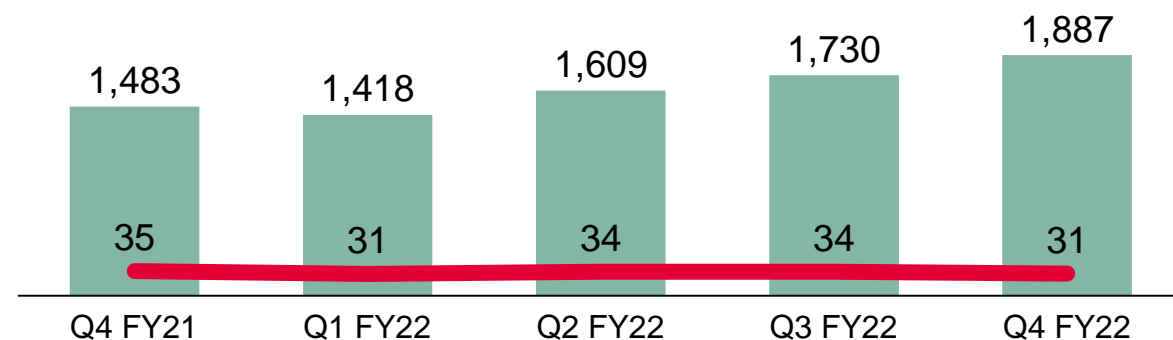
[days]



## Trade receivables

[EUR m]

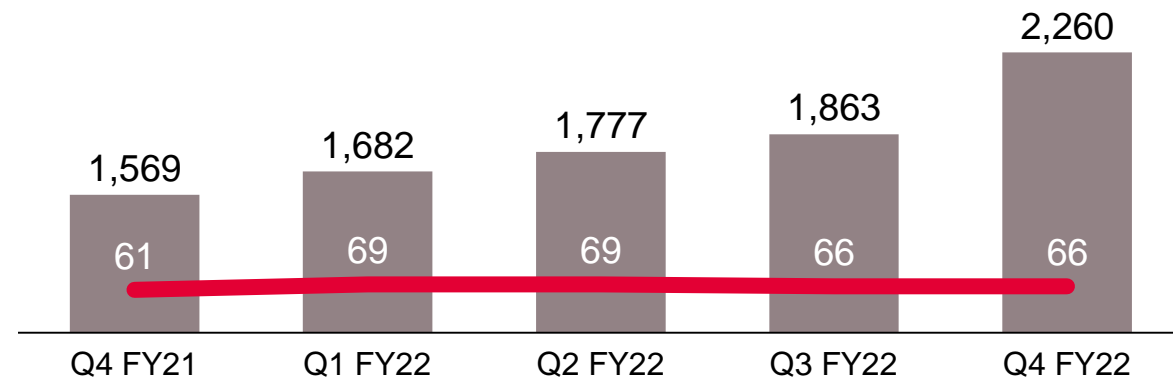
[days]



## Trade payables

[EUR m]

[days]

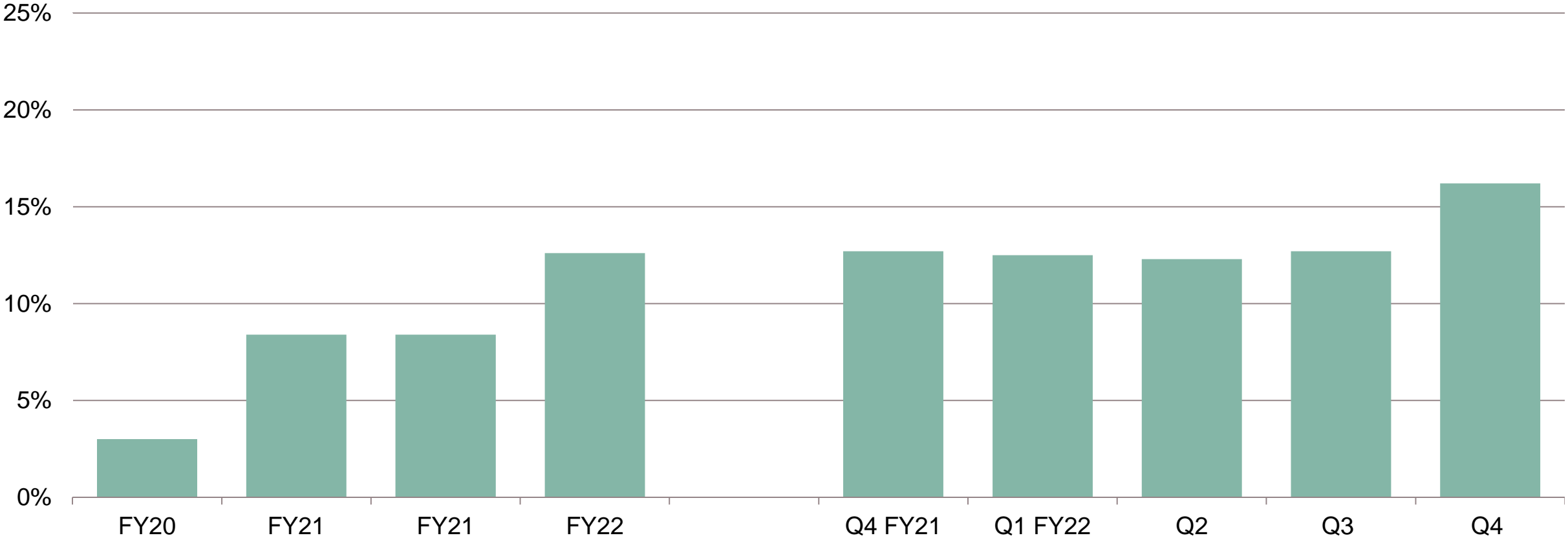


<sup>1</sup> For definition please see page "Notes"

<sup>2</sup> Along with the integration of Cypress refund liabilities to customers are presented under "other current liabilities" instead of "trade receivables". Prior quarters' figures were adjusted accordingly for better comparability.

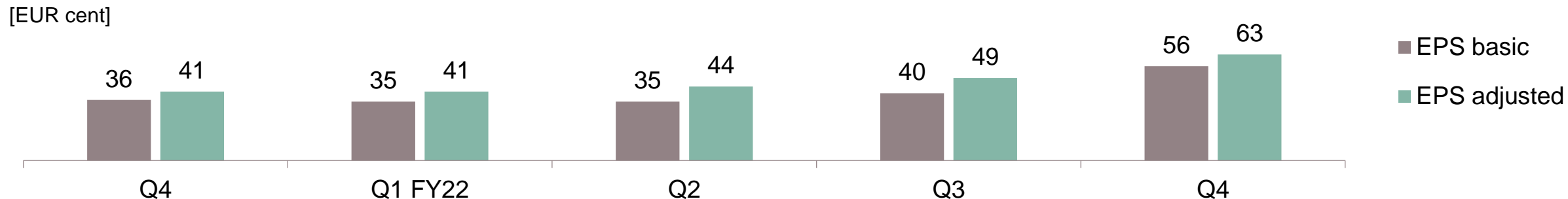
# Return on capital employed

## Historical development

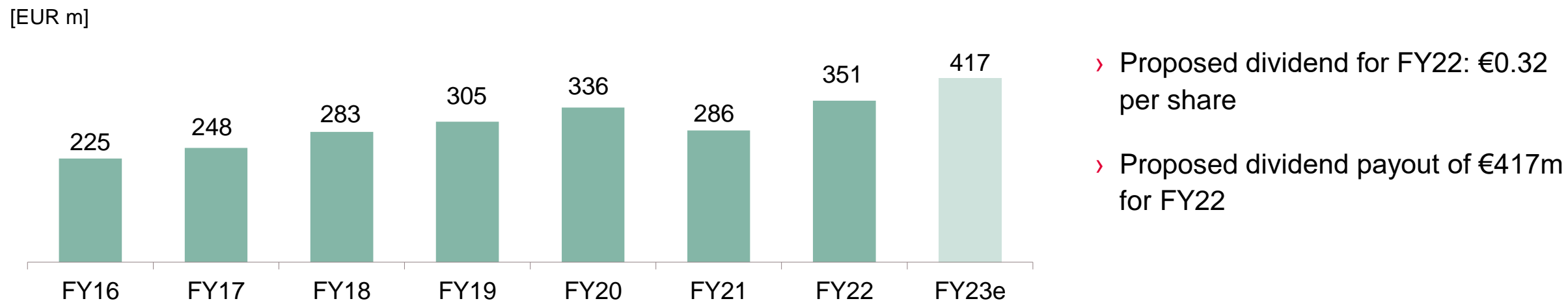


# Earnings-per-share and total cash return

## Development of earnings-per-share (EPS) from continuing operations



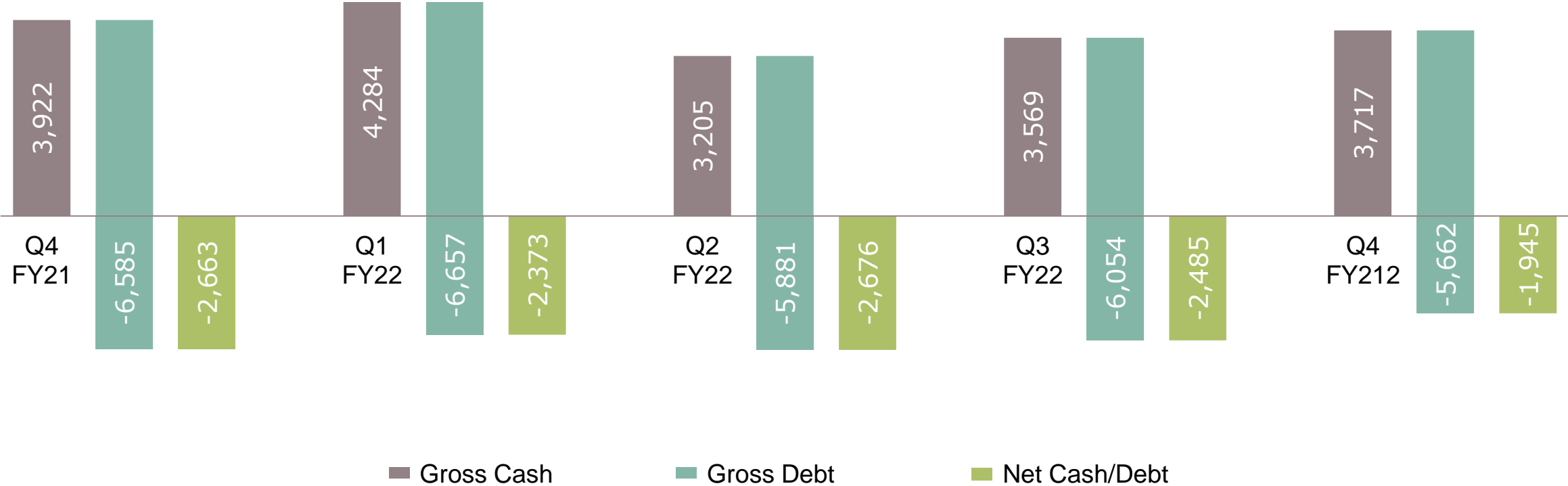
## Total cash return to shareholders via dividends



# Liquidity development

## Historical liquidity development

[EUR m]

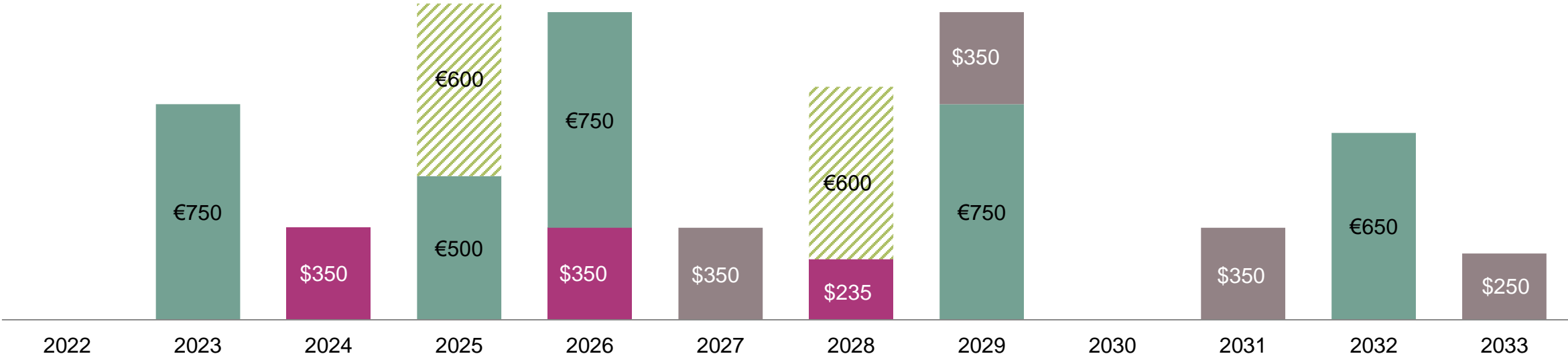


# Maturity profile

## Maturity profile from 2022 to 2033

[EUR m; US\$ m; nominal values]

- Corporate bonds under the EMTN program (Jun 2023, Feb 2025, Jun 2026, Jun 2029, Jun 2032)
- Hybrid bonds<sup>1</sup> (Jan 2025, Jan 2028)
- US PP 2016 Notes (Apr 2024, Apr 2026, Apr 2028)
- US PP 2021 Notes (Jun 2027, Jun 2029, Jun 2031, Jun 2033)



Graph excludes additional debt with maturities between 2022 and 2023 totaling €3m.

<sup>1</sup> On 1 Oct 2019, Infineon issued a perpetual hybrid bond with two tranches: €600m with first call date in 2025 and €600m with first call date in 2028; both are accounted as equity under IFRS.

# Conservative financial policy and strict commitment to investment-grade rating are the basis for through-cycle flexibility



	Financial Policy Targets	Status Quo (LTM 30 September 2022)
<b>Gross Cash<sup>1</sup></b>	€1bn + at least 10% of revenues → <b>€2.2bn</b>	€1bn + 20% of revenues → <b>€3.7bn</b>
<b>Gross Debt<sup>2</sup></b>	<b>≤ 2.0x</b> EBITDA	<b>1.3x</b> EBITDA
<b>Comfortable liquidity position</b>	<ul style="list-style-type: none"> <li>› Flexibility for financing operating activities and investments through the cycle</li> <li>› Cushion for net pension liabilities and contingent liabilities</li> </ul>	
<b>Balanced debt position</b>	<ul style="list-style-type: none"> <li>› Gross debt target commensurate with investment-grade rating</li> <li>› De-leveraging after Cypress acquisition completed one year ahead of schedule</li> </ul>	
<b>Rating</b>	Investment grade	<b>BBB</b> stable outlook (by S&P Global)

<sup>1</sup> Gross cash position is defined as cash and cash equivalents plus financial investments | <sup>2</sup> Gross debt is defined as short-term debt and current maturities of long-term debt plus long-term debt. EBITDA is calculated as the total of earnings from continued operations before interest and taxes plus scheduled depreciation and amortization



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# Disclaimer

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## Disclaimer

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# Glossary

AC	alternating current
AD	automated driving
ADAS	advanced driver assistance system
AI	artificial intelligence
AR	augmented reality
ASIC	application-specific integrated circuit
ASIL-D	automotive safety integrity level D
BEV	battery electric vehicle
BLE	bluetooth low energy
BMS	battery management system
CMOS	complementary metal-oxide-semiconductor
CPU	central processing unit
DC	direct current
DSP	digital signal processor
E/E	electrical/electronic architecture
eSIM	embedded subscriber identity module
EV	electric vehicle
FHEV	full hybrid electric vehicle
FoM	Figure of merit
FPGA	field programmable gate array
GaN	gallium nitride
GPU	graphics processing unit
HMI	human machine interaction
HVAC	heating, ventilation, air conditioning
IC	integrated circuit
ICE	internal combustion engine
IGBT	insulated gate bipolar transistor
IoT	internet of things
IPM	intelligent power module
LED	light-emitting diode

Mbps	megabit per second
MCU	microcontroller unit
MEMS	micro electro-mechanical systems
MHEV	mild hybrid electric vehicle
MIMO	multiple input, multiple output
MOSFET	metal-oxide silicon field-effect transistor
MPU	microprocessor unit
OBC	on-board charger
OEM	original equipment manufacturer
P2S	Infineon's strategic product-to-system approach
PAS	photo-acoustic spectroscopy
PD	power delivery
PHEV	plug-in hybrid electric vehicle
PoL	point of load
PSoC	programmable system-on-chip
PV	photovoltaic
RAM	random-access memory
RF	radio frequency
RISC	reduced instruction set computer
SDK	software development kit
Si	silicon
SiC	silicon carbide
SMD	surface mounted device
SNR	signal-to-noise ratio
SoC	system-on-chip
SOTA	software over-the-air
SWP	single wire protocol
ToF	time-of-flight
USB	universal serial bus
VR	virtual reality
WBG	wide band gap, specifically referring to SiC and GaN based devices
xEV	all degrees of vehicle electrification (EV, HEV, PHEV)

# Notes and ESG footnotes

<b>Investments =</b>	'Purchase of property, plant and equipment' + 'Purchase of intangible assets and other assets' incl. capitalization of R&D expenses
<b>Capital Employed =</b>	'Total assets' – 'Cash and cash equivalents' – 'Financial investments' – 'Assets classified as held for sale' – ('Total Current liabilities' – 'Short-term debt and current maturities of long-term debt' – 'Liabilities classified as held for sale')
<b>RoCE =</b>	Operating profit from continuing operations after tax / Capital Employed = ('Operating profit' – 'Financial result excluding interest result' – 'Share of profit (loss) of associates and joint ventures accounted for using the equity method'-'Income tax') / Capital Employed
<b>Working Capital =</b>	('Total current assets' – 'Cash and cash equivalents' – 'Financial investment' – 'Assets classified as held for sale') – ('Total current liabilities' – 'Short term debt and current maturities of long-term debt' – 'Liabilities classified as held for sale')
<b>DIO (days inventory outstanding; quarter-to-date) =</b>	('Net Inventories' / 'Cost of goods sold') x 90
<b>DPO (days payables outstanding; quarter-to-date) =</b>	('Trade payables' / ['Cost of goods sold' + 'Purchase of property, plant and equipment']) x 90
<b>DSO (days sales outstanding; quarter-to-date) =</b>	('Trade receivables' - 'reimbursement obligations')* / 'revenue' x 90 *without debtors with credit balances
<b>Order backlog =</b>	The total amount of orders received regardless of their current status

## ESG footnotes:

- 1) This figure takes into account manufacturing, transportation, own vehicles, travel, raw materials and consumables, chemicals, water/waste water, direct emissions, energy consumption, waste, etc. as well as direct and indirect energy-related emissions by manufacturing service providers. It is based on data collected internally and publicly available conversion factors and relates to the 2021 fiscal year.
- 2) This figure is based on internally established criteria, which are described in the explanatory notes. The figure relates to the 2020 calendar year and takes into account the following application areas: automotive, LED, induction cookers, servers, renewable energy (wind, photovoltaic) and cell phone chargers as well as drives. CO2 savings are calculated based on the potential savings generated by technologies in which semiconductors are used. The CO2 savings are allocated based on Infineon's market share, semiconductor share, and the lifetime of the technologies concerned, based on internal and external experts' estimations. Despite the fact that carbon footprint calculations are subject to imprecision due to the complex issues involved, the results are nevertheless clear.

# Financial calendar

Date	Event	Location
16-17 November 2022	Morgan Stanley European TMT Conference	Barcelona
22-23 November 2022	Power presentation (IPC, PSS) with Peter Wawer, Head of IPC and Adam White, Head of PSS	London
28-29 November 2022	Credit Suisse TMT Conference	Scottsdale
6 December 2022	Berenberg European Conference	London
13 December 2022	Deutsche Bank Auto Conference	virtual
2 February 2023 <sup>1</sup>	Q1 FY23 results	
16 February 2023	Annual General Meeting	
4 May 2023 <sup>1</sup>	Q2 FY23 results	
3 August 2023 <sup>1</sup>	Q3 FY23 results	
15 November 2023 <sup>1</sup>	Q4 FY23 and FY 2023 results	

<sup>1</sup> preliminary

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