

Application presentation
Laundry machine (incl. dryer)

January 2026

public

Company overview

Driving decarbonization and digitalization. Together.



Semiconductors are crucial to solve the energy challenges of our time and shape the digital transformation.

This is why Infineon is committed to actively driving decarbonization and digitalization.

As a global semiconductor leader in power systems and IoT, we enable game-changing solutions for green and efficient energy, clean and safe mobility, as well as smart and secure IoT.

We make life easier, safer, and greener.
Together with our customers and partners.
For a better tomorrow.

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Infineon is a global leader in power systems and IoT

Global leader

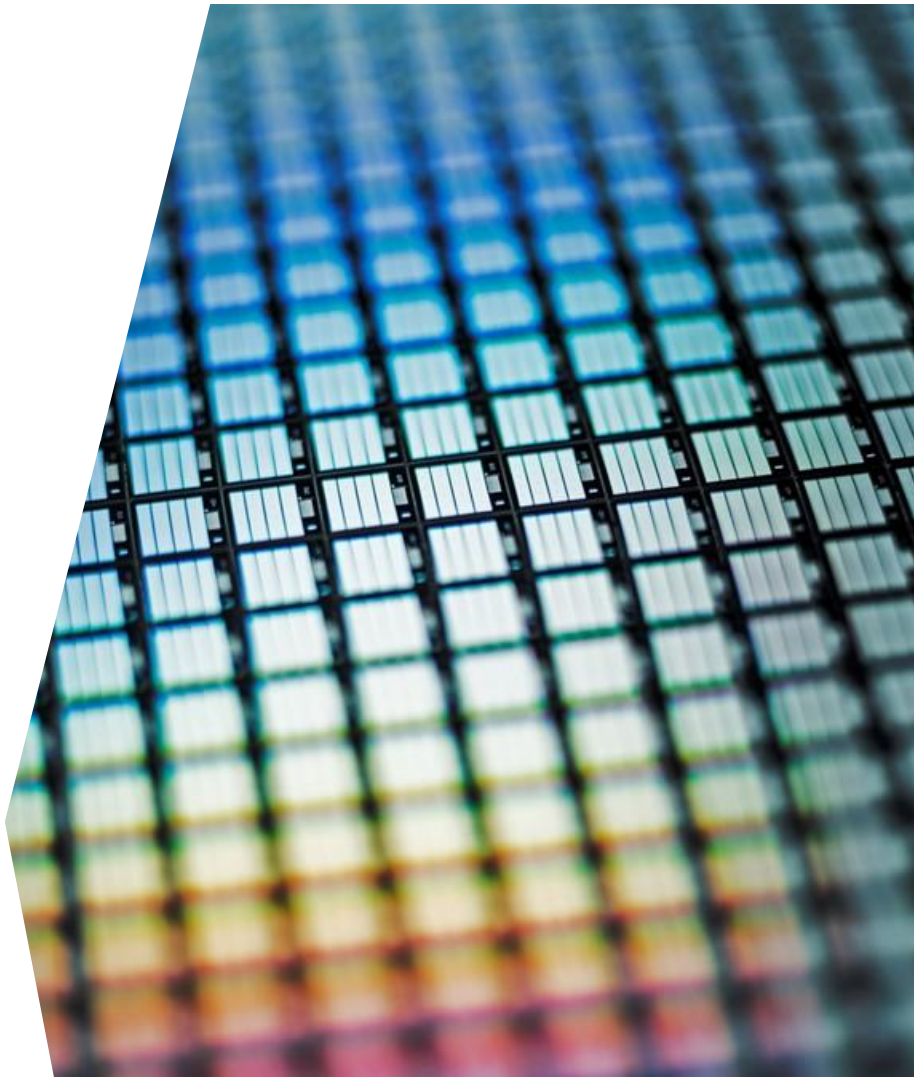
in automotive, power management,
energy efficient technologies and IoT

~57,000

employees[1]

Market position

Automotive	Power	Microcontroller
#1	**#1**	**#1**
TechInsights, March 2025	Omdia, October 2025	Omdia, August 2025



[1] As of 30 September 2025

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Infineon at a glance

Growth areas



Energy
green and efficient

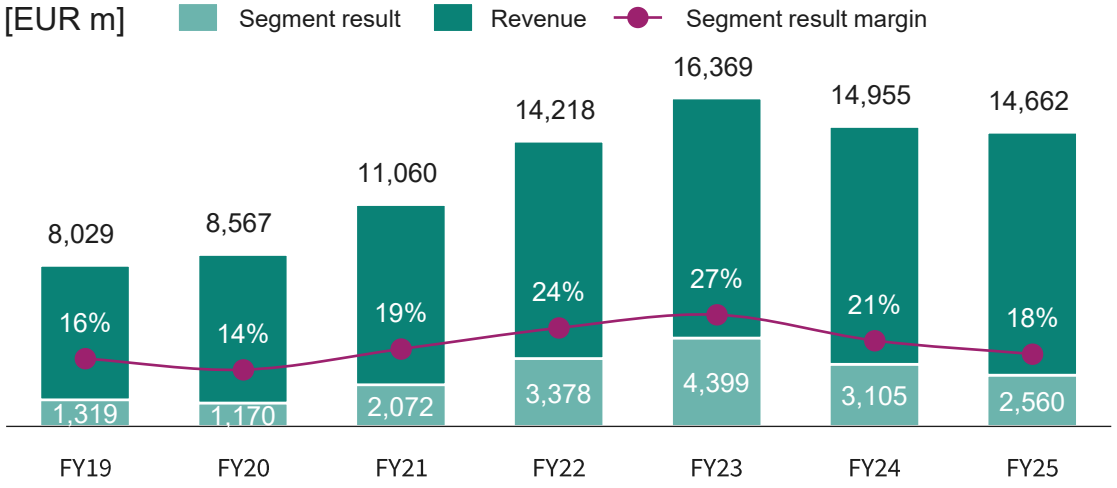


Mobility
clean and safe

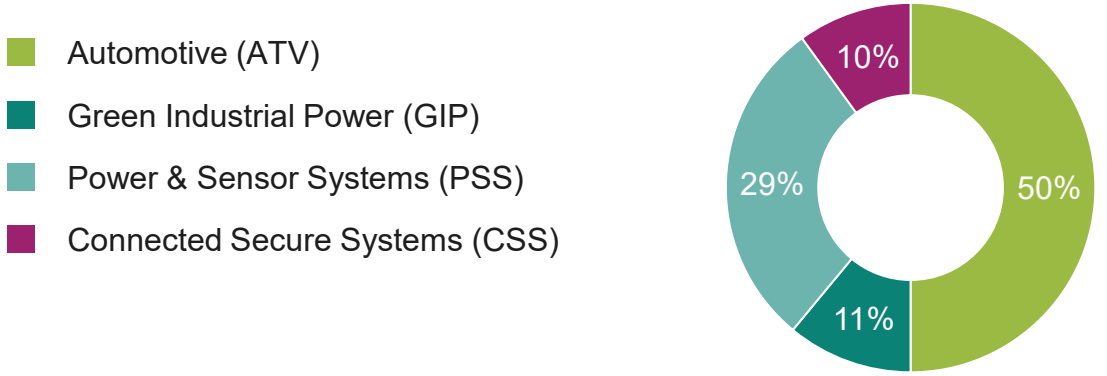


IoT
smart and secure

Financials



FY25 revenue by segment[1]

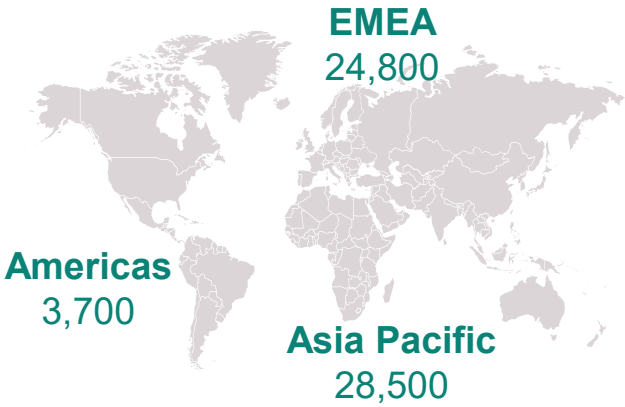


Employees[1]

57,000
employees worldwide

75
R&D and

14
manufacturing locations[2]

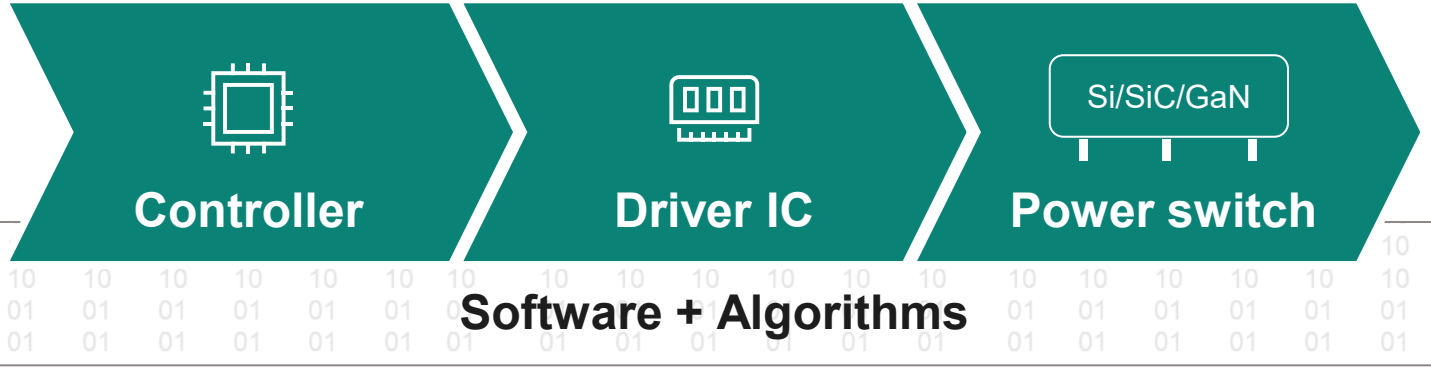


For further information: Infineon Annual Report.
1 2025 Fiscal year (as of 30 September 2025) | **2** As of 30 September 2025

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Infineon leading in power systems – mastering all three key materials

- Reliable multi sourcing of raw materials
- World-scale fabs



- Application understanding
- Packaging know-how and hybridization competence

Leadership in Power Systems across all materials and technologies

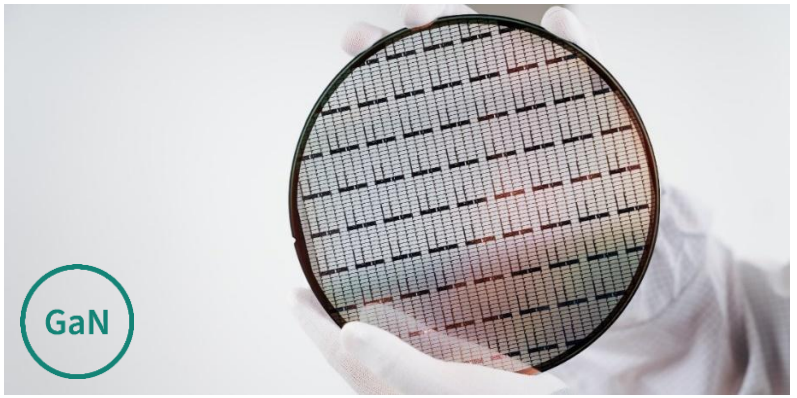
Silicon
Diode – MOSFET – IGBT – Driver – Controller



Silicon carbide
Diode – MOSFET



Gallium nitride
HEMT – Driver



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Infineon leader in IoT – driving digitalization by serving strongly growing multi-application markets

Consumer IoT



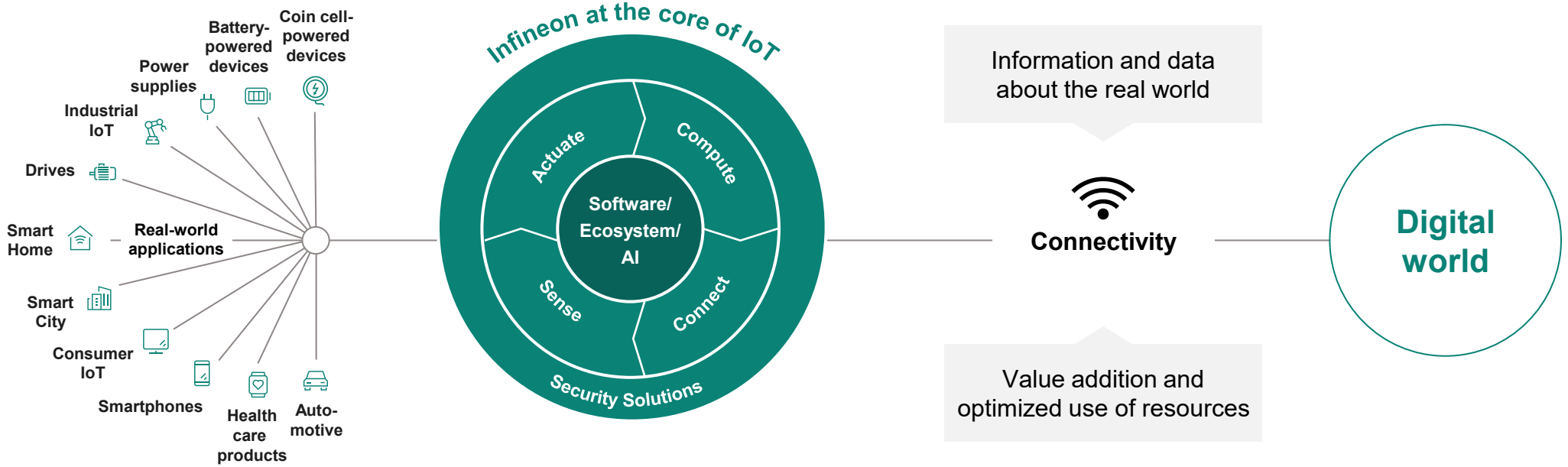
Industrial IoT



Automotive IoT



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

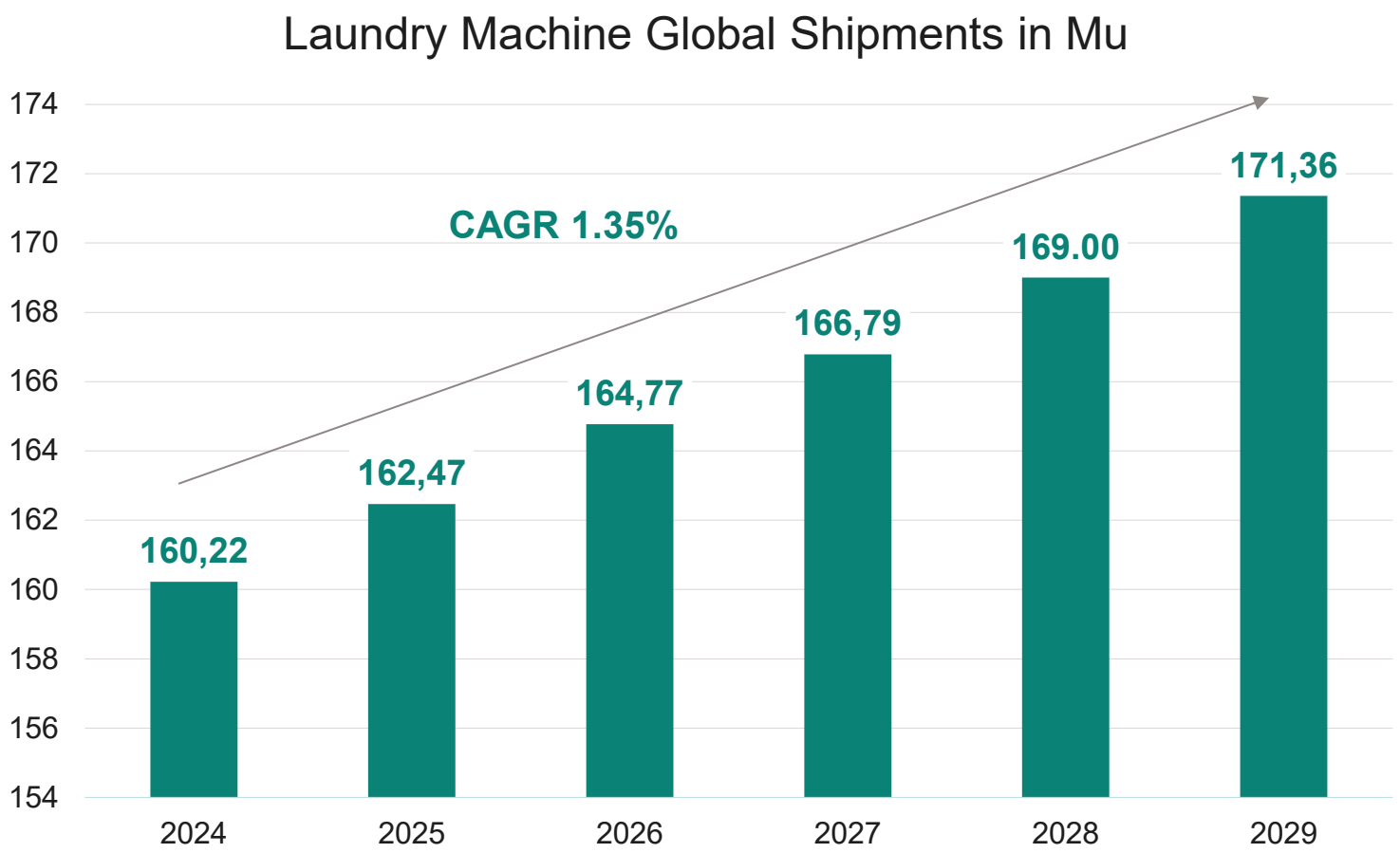


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Application introduction

Laundry machine is a growing application, volume growth @ 1.35% CAGR worldwide within next 5 years

Market SAM



Source: CSS & GIP Market Model

Market observations

- Drum type kept growth and semi-automatic decline in the product share in worldwide
- Semi-automatic is expected to decline to 9% shipments in the next 5 years
- Fully automatic are expected to grow by a small 2% to 35% of shipments within the next five years
- Smart laundry machine keep growing with wireless connectivity, voice recognition and TFT displaying, sensor integration and AI/ML
- Smart home connected via Matter 1.2 and higher could also be a hub device in the home

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Modern laundry machines trends are



- Improved **energy efficiency**
- **Low** acoustic **noise**
- **Water** and detergent **saving**
- **Smart machine** cycles
- Three main types of washing machines
  - **Fully automatic front-loading**
    - Best quality wash
    - Growing in the size of market share – 50.8%
  - **Fully automatic top loading**
    - Decreasing in popularity – 32.6%
  - **Semi-automatic top loading**
    - Remaining flat around 16.6%

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Tomorrow Laundry Machines will have these functional blocks:

Technical Description

MCUs:
- Main controller & Sensor hub, 7”-10”TFT & AI /ML ctr.
- HMI, touch slider and knobs, buzzer & LED segments
- Motor control for Drum(s)/ Pulsar washer, Water pump, Water circulation & heat pump compressor

Wireless Connectivity:
- Wi-Fi/Bluetooth for direct smartphone access
- Bluetooth BE for aux. Drum / Pulsar
- matter support on WiFi MCU

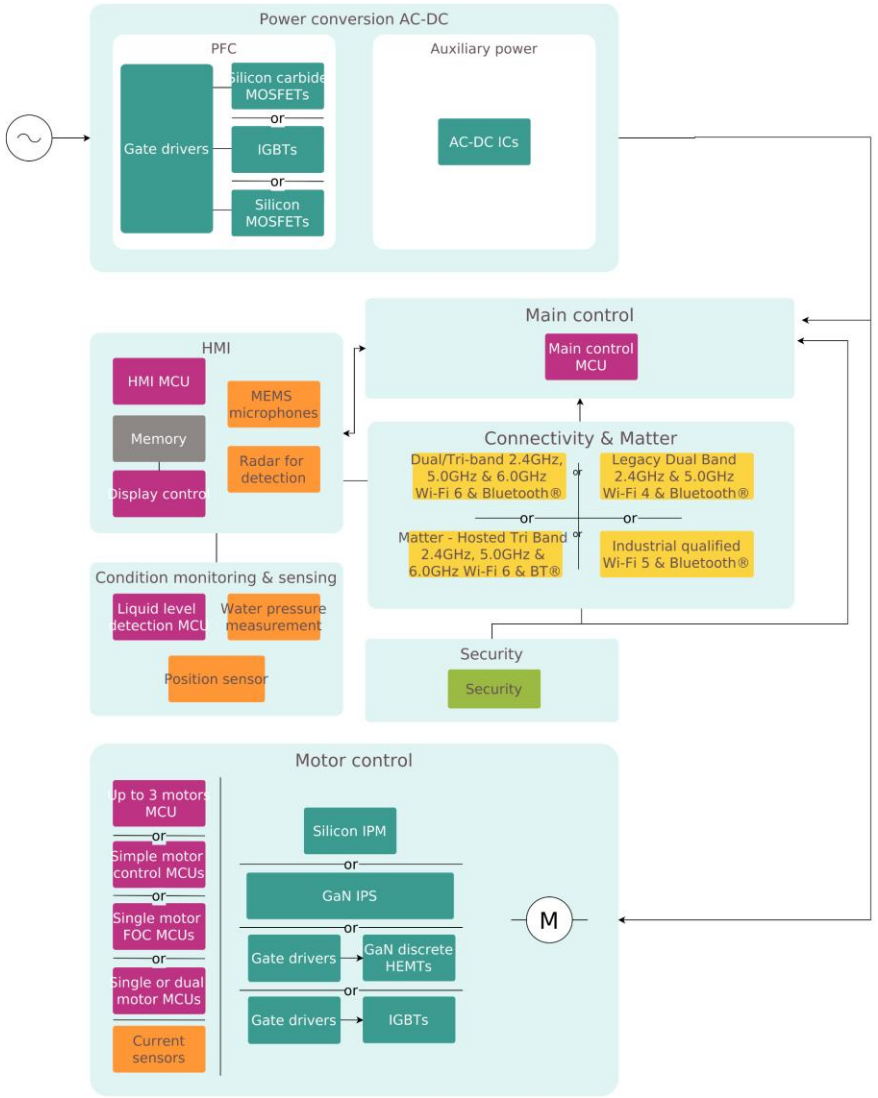
Sensors:
- 3D Magnetic position sensor for door open/closed & knob position
- Dual MEMS MICS for voice recognition / direction focusing
- RADAR gesture or Wi-Fi Sensing (power saving TFT on/off)
- Conditional monitoring for AI/ML processing

Security:
- Hardware security for secure connection
- Secure certificate storage (matter), battery authentication

Human Machine Interface:
- CapSense / MagSense for button sliders
- Water level detection for condition monitoring

Power:
- IBGT and Gate Drivers
- IPM & Aux power supply
- GAN discrete & IPS

“New” Functional Block Diagram



Infineon offering

- › PSOC-Edge - M55-U55 compute
- › PSOC4 – M0/M0+
- › PSOC-Control – M33
- › XMC 5200 ./ XMC1301 / XMC1401 / XMC7000

- › Helium
- › Dual Band Wi-Fi6/E
- › Matter over Wi-Fi
- › Bluetooth

- › XENSIV™ 24/60 GHz Radar
- › XENSIV™ MEMS Microphone
- › XENSIV™ 3D Magnetic Sensor
- › Pressure Sensor

- › OPTIGA™ Trust or Embedded
- › OPTIGA™ Authenticate Matter

- › CapSense™ Controllers

- › Aux. power
- › IBGT, Driver, IPM motor
- › GAN discrete & IPS

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Infineon offering for laundry machines

Drum motor


BLDC motor

- **Motor controller:** PSOC™ Connect, PSOC™, XMC™ and iMOTION™ families
- **Inverter**
  - **IPM**: CIPOS™ Mini, CIPOS™ Tiny IM323
  - **Discrete:** IGBTs (TRENCHSTOP™ IGBT6 and RC-D2 series), MOSFETs (CoolMOS™ P7) and EiceDRIVER™ gate drivers ICs (half bridge and 3-phase drivers)
- **Auxiliary power**: CoolSET™ 5th generation

HMI, main control and connectivity


HMI

- PSOC™ for **main control, touch sensing and display**
- Bluetooth® / Wi-Fi **connectivity** using our AIROC™ solutions
- XENSIV™ MEMS microphone for **voice control**
- OPTIGA™ Trust for **secured communication**

Condition monitoring


Predictive maintenance

- PSOC™ 4 for liquid level sensing
- XENSIV™ sensors

Energy efficiency

Smart and connectivity

Drain pump


Pumps

- **Inverter (IPM)**: CIPOS™ Micro and iMOTION™ IPM
- **Inverter (Discretes)**: IGBTs (TRENCHSTOP™ IGBT6 and RC-D2 series), MOSFETs (CoolMOS™ PFD7), EiceDRIVER™ gate drivers ICs (half bridge and 3-phase drivers)

Heat pump


Heating

- **Inverter (IPM):** CIPOS™ Mini
- **Inverter (Discretes):** IGBTs (RC-D2 series), EiceDRIVER™ (half bridge and 3-phase drivers)
- **PFC**: TRENCHSTOP™ 5 IGBTs, CoolSiC™ hybrid discretes, Rapid and CoolSiC™ diodes, CIPOS™ Mini IPMs and PFC gate drivers

Sensing


Sensing

- XENSIV™ Pressure sensor for water pressure and filter clockage
- XENSIV™ radar for presence detection, gestures & material detection
- CAPSENSE™ touch sensing for water level sensing
- XENSIV™ hall sensors for open/close detection
- XENSIV™ 3D Magnetic sensor for balance and weight sensing, door close detection

Security


Security

- OPTIGA™ Trust E Authentication
- OPTIGA™ Trust M Connected device security – Toolbox based
- OPTIGA™ Trust X Connected device security

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Motor control: How WBG technologies is enabling energy-efficient motor control?

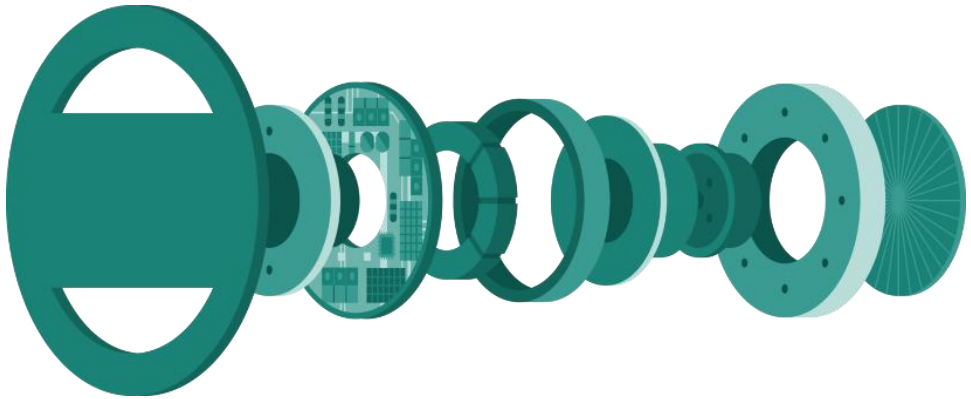
Driving the future:
Motor control trend in laundry machines



Motor control trend in Home Appliance

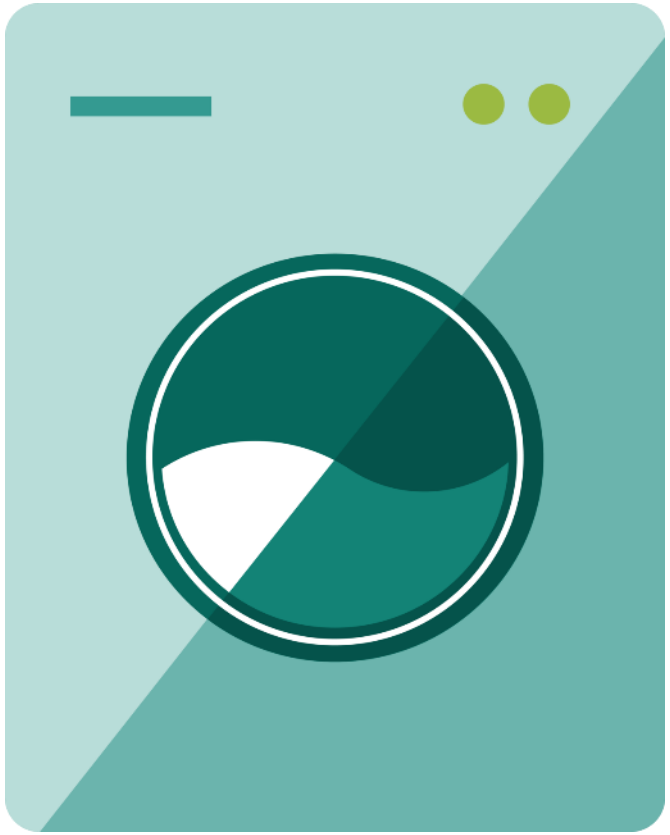
Market shift and motor control is at the heart of this transformation – The home appliance industry is rapidly transitioning toward energy-efficient, connected, and AI-integrated devices

Infineon is positioned with motor control solutions that combine performance, integration, and WBG



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High performance and power efficient motors drives are essential technologies for modern laundry machines



Drum

- Front loading 300 – 1 KW drum motor
- Top loading 300 – 500 W drum motor
- (800 W – 1.2 KW Industrial laundry machines)
- 2nd Drum for combo. machines
  - Dual washing & dryer
  - Dryer drum motor 200 – 600 W

Hot air generation using heat pump technology (combined washer dryer machine)

- Heat pump power consumption: 680 W – 1.2 KW

Water pump

- 80 – 120 W
- 2nd Water pump as optional water circulator

Blower fan (combined washer dryer machine)

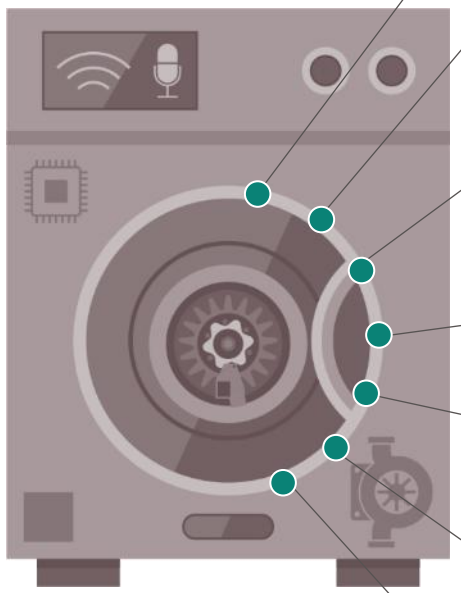
- 60 – 200 W

New Innovations

- Micro plastic filter → higher power pumps
- Power sprinkling → higher power pumps
- Auto dosing → Additional pump

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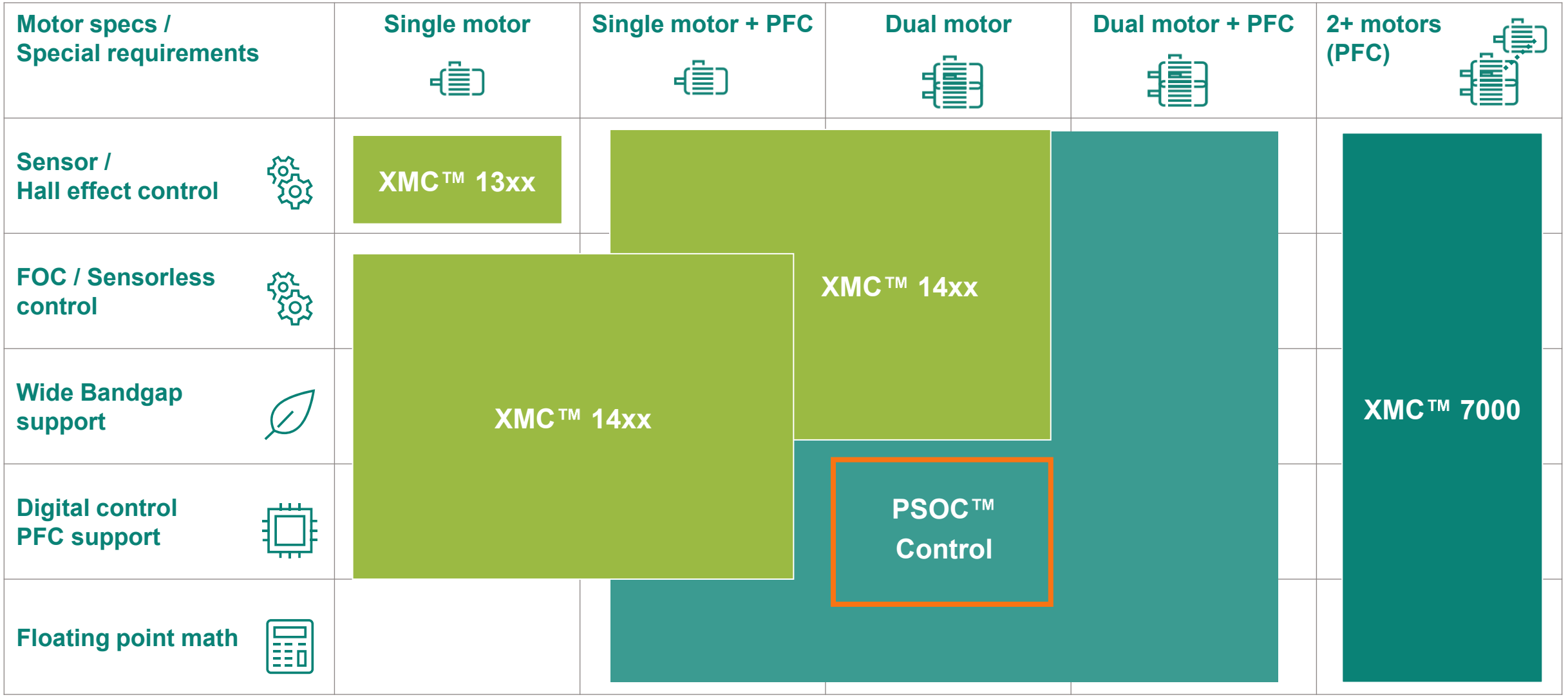
Trend to inverterized BLDC drum motor: Features and benefits



More durable	– Without brush / commutator erosion – More extensive life expectancy and maintenance-free experience
Quieter	– Without mechanical friction inside the motor – Noise is dramatically reduced
More efficient	– A higher energy efficiency than the conventional universal motors – Reduces energy consumption by up to 40%
More powerful	– Able to work at a desired constant high speed – Ensures a powerful performance from the start to the end
More versatile	– Produces wider speed range and bigger torque
Increased working time	– Lower temperature rise so it allows for continuous work
Safer	– No sparking as there is no commutator and brushes – Supported by the housing, so it can be cooled by conduction – Entirely enclosed and protected from dirt or any foreign subjects

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MCU motor control selection guidance for laundry machine including XMC™ 7000 & new PSOC™ Control MCU

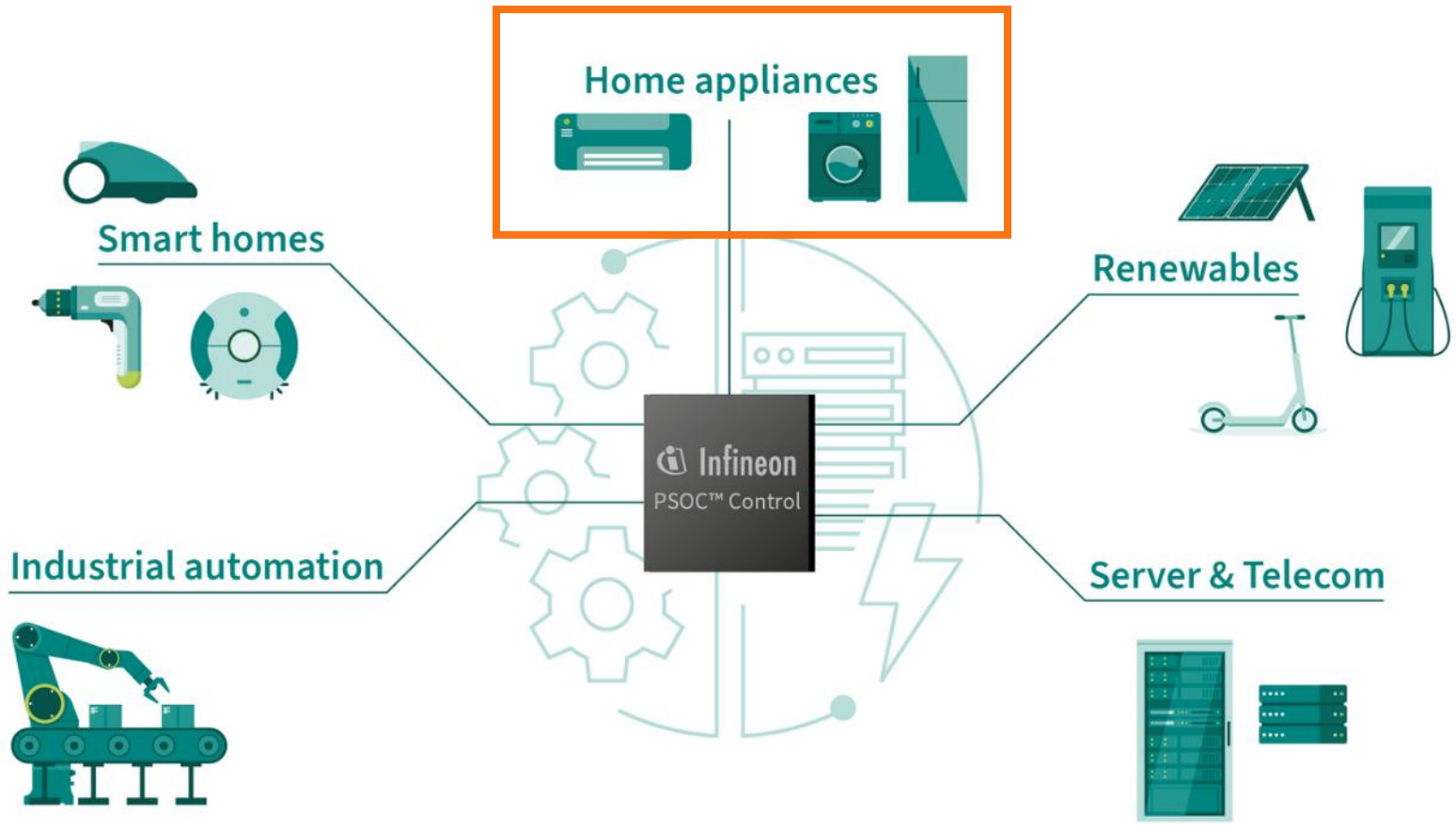


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PSOC™ Control C3: New Arm® Cortex®-M33 based MCU family with real-time control and differentiating control peripherals

PSOC™ Control C3

- **Arm® Cortex®-M33** based micro-controllers with up to 180 MHz
- **Real-time control** for motor and power conversion solutions
- **Scalable and compatible portfolio** in features, packages, pinouts, memory and performance
- **Differentiating control peripherals,** ready for Wide-bandgap solutions
- **PSA L2 / EPC2 security**
- **Class B / SIL 2 compliant** Safety libraries



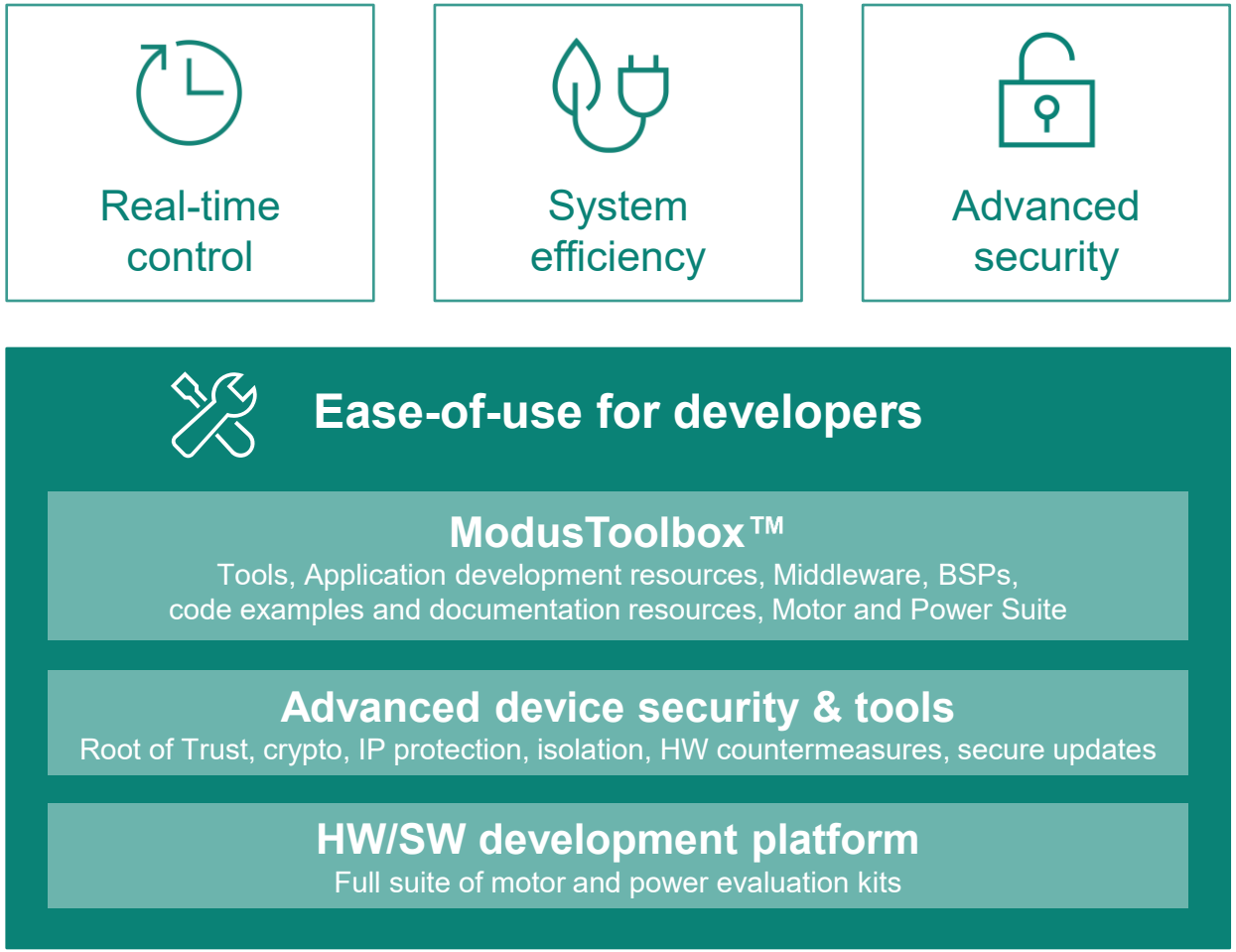
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PSOC™ Control C3 developers benefit from a unified and secured software and tools environment that maximizes ease-of-use

PSOC™ control

Scalable Industrial MCU family for motor and power systems…

… with a unified and secured software and tools environment



Customer benefits

- Increased performance
- Higher system efficiency
- Reduced system cost

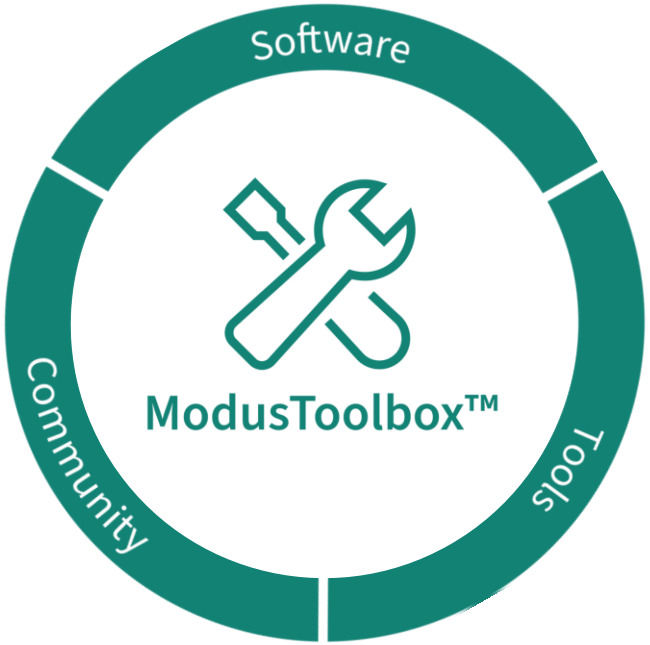
- Ease-of-use
- Reduced time to market
- Increased security

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ModusToolbox™:
One ecosystem platform for comprehensive development

Embedded Software
- Application specific embedded SW
- Core libraries (function blocks)
- Generic embedded SW

Graphical User Interfaces (GUIs)
- Quick start GUI
- Advanced configuration GUI
- Application design tool
- Memory & performance tools



Services
- Ticketing and reporting system
- Testbench
- Deployment platform
- Fleet management
- Over the air updates

Tools
- Model based design
- IDE
- Debugger
- Tracebox

Hardware
- Reference designs
- Control Demo boards
- Power Stage Demo board

Documents
- Datasheets
- User guides
- Application notes

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CPU Loading <50%: PSOC™ Control C3 in dual motor control + PFC implementation

Benchmarks and performance analyses (Test in HVAC)

180 Mhz, code in RAM	PFC	Compressor	Fan
Frequency (KHz)	70	6	15
CPU execution PEAK time (us)	28	7.46	7.32
SUM	196	44.76	109.8
CPU usage ratio		**36%**	

100 Mhz, code in RAM	PFC	Compressor	Fan
Frequency (KHz)	70.8	6	15
CPU execution PEAK time (us)	25	13.33	13.12
SUM	350	79.98	196
CPU usage ratio		**63%**	

Customer and system benefits

High computing capability and real-time enhancing peripherals. **PSOC™ C3 with Cortex M33 core (ARMv8-M architecture)**

- running at 180 MHz
- enhanced with 16 KB of instruction Cache, FPU extension
- DSP extension high speed Analog-to-Digital Converter (ADC)
- with parallel idle sampling of up to 16 analog channels and hold channels
- versatile real-time PWM timers

PSOC™ C3 delivers high raw computing performance, allowing **for rapid/accurate data acquisition without significant CPU intervention.** Accelerated FOC calculation cycle, **enabling the motor control with more complex algorithms,** facilitate precise control of motor operations, further reducing CPU involvement in routine control tasks.

Features

- **Fast analog and digital peripherals**, e.g. 12 MSPS ADC with 16 parallel S&H channels, 240 MHz timers
- HW Accelerators (DSP, FPU, CORDIC) for **boosted task execution**
- **Trigger Matrix with direct interconnects** between ADC, timer, ACOMP for minimal control latency
- **Versatile TCPWM** with precise control of dead time, duty and period of PWM allows support 2 motors + PFC. In addition, it supports totem pole PFC implementation for power applications
- Designed to offload the CPU and less memory footprint compared to traditional SW implementation for multiple motor control w.r.t. Competition

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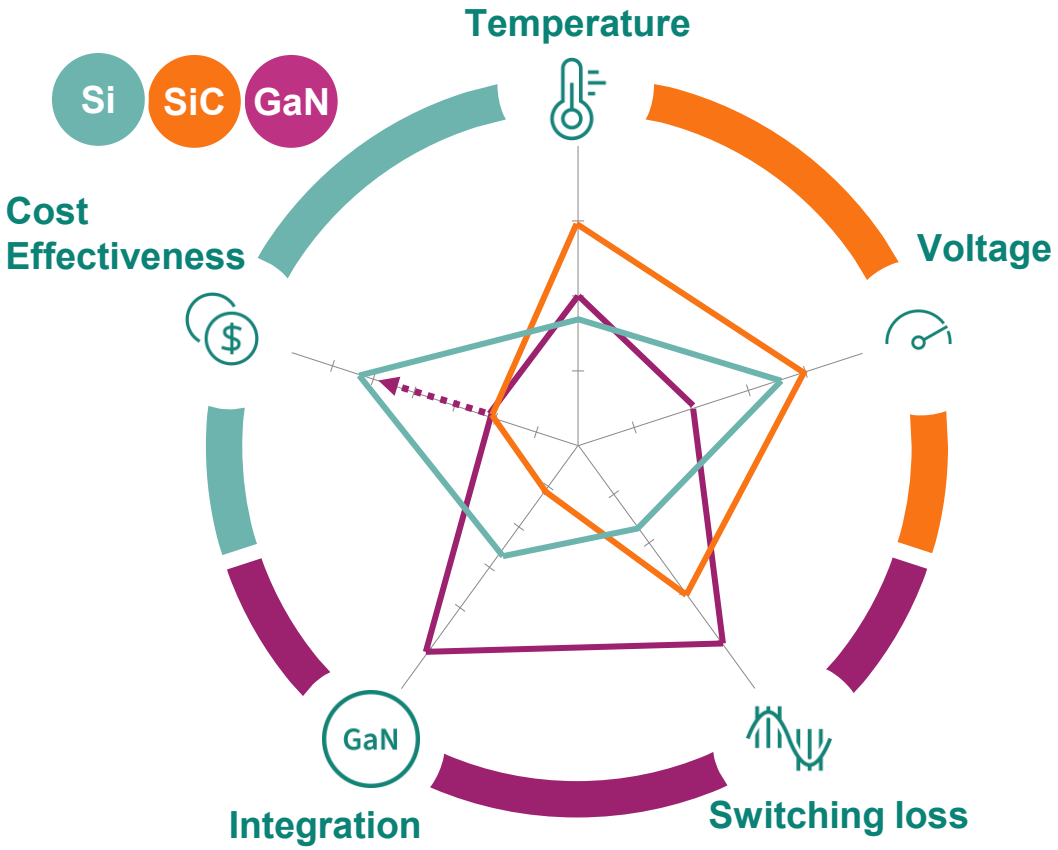
PSOC™ Control C3: Competitive positioning for laundry machines

	Infineon advantage	Application benefit
Advance DSP core & FPU	Efficient execution of FOC and PFC algorithms	Lower CPU load, higher efficiency and precision
High-resolution PWN (HRPWM)	Precise motor speed control	Quieter operation, enhanced energy efficiency
Integrated analog & ADCs	Repaid, accurate sensor measurement without CPU burden	Improved reliability and faster system response
Dedicated CORDIC coprocessor	Hardware-accelerated calculation for motor control	Reduced CPU utilization, enhanced real-time performance
Efficient interrupt & DMA	Minimizes unnecessary CPU usage	Improved multitasking capabilities, higher reliability
Scalable performance	PSCM3 (100 MHz), PSC3M5 (180 MHz)	Ideal fit for diverse laundry machine requirement
Comprehensive software support	ModusToolbox™ optimized for dual motor + PFC control	Faster time-to –market, simplified system integration
Trust zone security	PSA Certified™ Level 2 certification	Enhance the security of home appliance by protecting data integrity, and over-the-air update

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Energy efficiency with WBG
Laundry machine

Silicon (Si) vs. Silicon Carbide (SiC) vs. Gallium Nitride (GaN): Technology positioning in motor control



Max temperature: SiC supports higher temperatures (SiC supports up 200°C junction temperature, while GaN is typically limited to 150°C-175°C)

Max voltage: SiC enables scaling much higher voltage range, ideal for high-power robust inverter applications

Switching loss: GaN offers the lowest switching losses and zero reverse recovery loss

Integration: GaN offers unique integration capabilities; monolithic iGaN, bi-directional switch or bi-directional loss-less current sense

Device cost: Si still offers the best position. GaN is projected to have a more favorable long-term cost trajectory compared with SiC

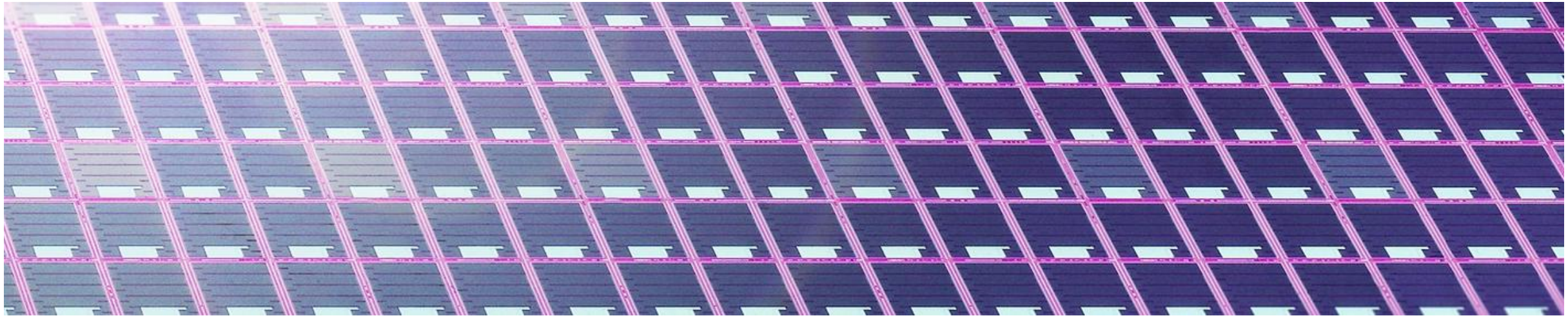
Si Mature and cost-effective for most mainstream appliance
→ Targeting 25 V – 6.5 kV

SiC complements Si in many applications and enables new solutions. Ideal for high-power, thermally demanding applications.
→ Targeting 650 V - 3.3 kV

GaN enables new horizons in efficiency, power density, system integration and bi-directionality. Ideal for compact, high frequency design under 1 kW
→ Targeting 40 V – 650 V

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Depending on application requirements the 600 – 650 V Si, CoolSiC™ and CoolGaN™ have specific value propositions



CoolMOS™ SJ MOSFET

- Best price/performance for most efficiency requirements
- Well known technology leadership
- Mature, stable, well established
- Largest SJ MOSFET portfolio on the market with broad offering

TRENCHSTOP™ IGBT

- Provides high flexibility as applicable across all power ranges
- Well known technology with decades of track record
- Low device cost
- Broad range of chips and modules available

CoolSiC™ MOSFET

- Enables new levels of power density and performance
- Highest thermal conductivity
- Simpler topologies possible
- Smaller device footprint

CoolGaN™ HEMT

- Enables new horizons in power applications
- Real zero reverse recovery
- Optional integration on chip level enables system integration

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Clothes washer and dryer

Equipment and power ranges

	Washing machine	Tumble dryer
Heat pump compressor	------	Up to 1.5 kW
Drum motor	EU/GC (<10 KG) < 800 W	
	KOR/US (>20 KG) > 1 kW	------
Blower fan	------	Up to 600 W

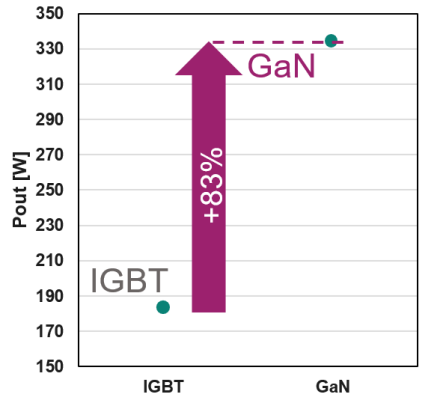
GaN value proposition

- Heatsink removal
  - Cost savings
  - Increased factory throughput time
- Increase efficiency
  - >80% lower losses
  - 2.0% points gain (800 W), reach 'A' energy rating
  - Bidirectional current sense eliminates shunt resistor which is >50% of leg resistance
- Improve EMI bevavior
  - GaN has no Diode Qrr
  - Multiple HV capacitors or ferrites used for filtering phases (EMI) can be eliminated
  - Source of audible noise removed





Output power @ 12 kHz

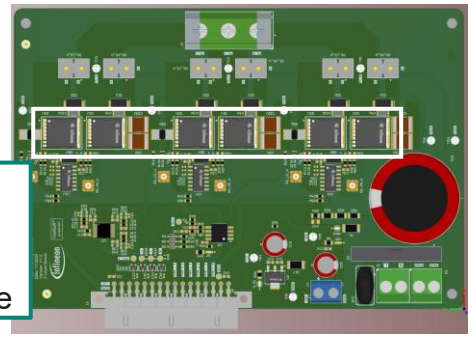


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Laundry machine solution roll-outs

Discrete: CoolGaN™ 650 V & 700 V G5 motor drive EVB

Technical details	
Target application	Washing machines and dryers (drum motor)
Input voltage range	220 V_{RMS} (typ)
Output voltage range	185 V_{RMS} (max)
Output current nom	2.5 A_{RMS} (typ)
Output power max	650 W (up to 1 kW depending on cooling system)
Topology	3-phase voltage source inverter – 2 level
Additional technical parameter	150 × 100 mm board size, 16 kHz switching frequency
Infineon components	IGT65R140D2, 2ED21064S06J, TLE42644G



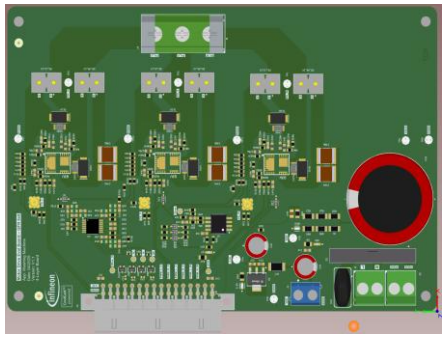
TOLL or DPAK package

Value propositions

- Cost optimize with 2-layer PCB design and single-side component placement
- Low-cost gate drive solution with SOI technology

Integrated: CoolGaN™ 650 V G5 HB with protection

Technical details	
Target application	Washing machines and dryers (fan motor) Refrigerator (compressor) Hair Dryer (Motor inverter)
Input voltage range	85 to 265 V_{RMS}, 220 V_{RMS} (typ), 320 V_{DC} (typ)
Output voltage range	185 V_{RMS} (max)
Output current nom	1.2 A_{RMS} (typ)
Topology	3-phase voltage source inverter – 2 level
Additional technical parameter	150 × 100 mm board size
Infineon components	Standard: – IGI65L2727C2MS (270 mΩ HB IGaN in QFN 6x8)



Value propositions

- High frequency (>20 kHz) system enabled by GaN to improve acoustic noise
- Low-cost power solution minimizing external components (drivers, isolated aux supplies)
- Cost optimize single-side component placement
- Bi-directional current sensing supports 3-shunt system design, enabling precise control

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How Wi-Fi, BLE, and intuitive user interface are transforming the way users interact with washer?

Smart laundry systems: Trends, use cases, and Infineon's offering

Connect to the internet for wireless control

- Be informed when program is finished
- Update firmware and download new washing programs
- Remotely turn on of the washing machine
- Have washing machine communicate with other devices such as dryer

Sense environment, machine and content

- Presence detection: Is someone in the room to interact with?
- Fabric detection
- Weight measurement
- Filter clogging detection
- Water flow and pressure measurement
- Water level measurement
- Foam detection

Condition monitoring

- Detect defects before they happen to inform maintenance service

User interface

- Intuitive display to control washing machine
- Voice control
- Gesture control

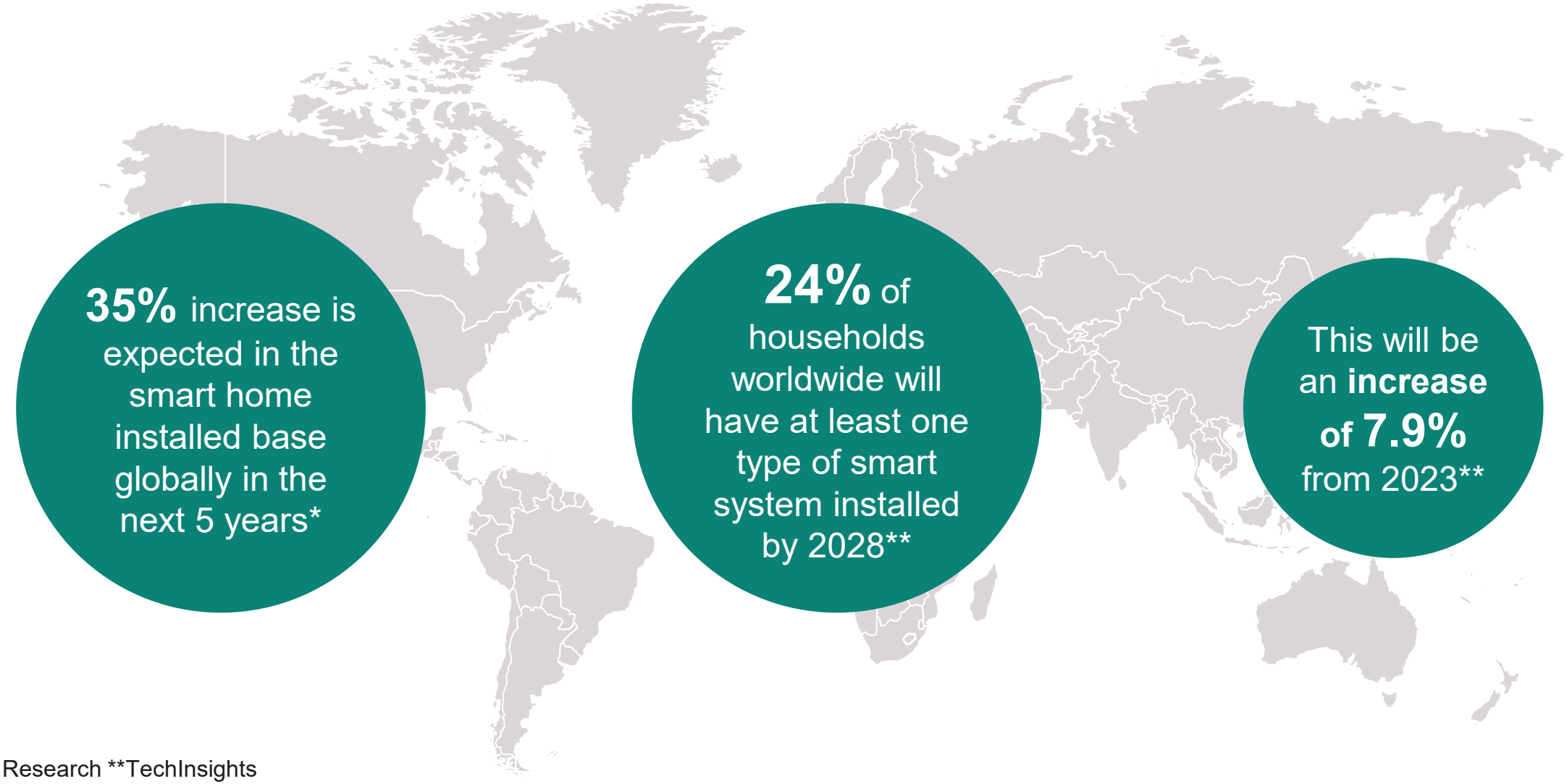
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AIROC™ connectivity solutions: Selection guide

Type	Wi-Fi		Wi-Fi + Bluetooth®	BT® only	BT® (BLE) in µC
µC	Integrated processor	External host	External host	BT® (BLE) in µC	Integrated processor
SW	Library/ModusToolbox™	Drivers for all major µC available	Drivers for all major µC available	SDK	SDK
Products and functions	Wi-Fi 4: CYW43907	Wi-Fi 4: CYW43364	Wi-Fi 4: CYW43438/9 – WPA3 security – Voice command	BT® 5.0: CYW20735	
	Wi-Fi 5: CYW54907		Wi-Fi 4: CYW43012 – Low power Wi-Fi + Bluetooth®	BT® 5.2: CYW20829	
			Wi-Fi 5: CYW4373/E – Audio/video transfer		PSOC™ 63xx – M0+ and M4 – Capsense – Motor control – Main control
			Wi-Fi 6/5G: CYW55572 – Audio/video transfer		

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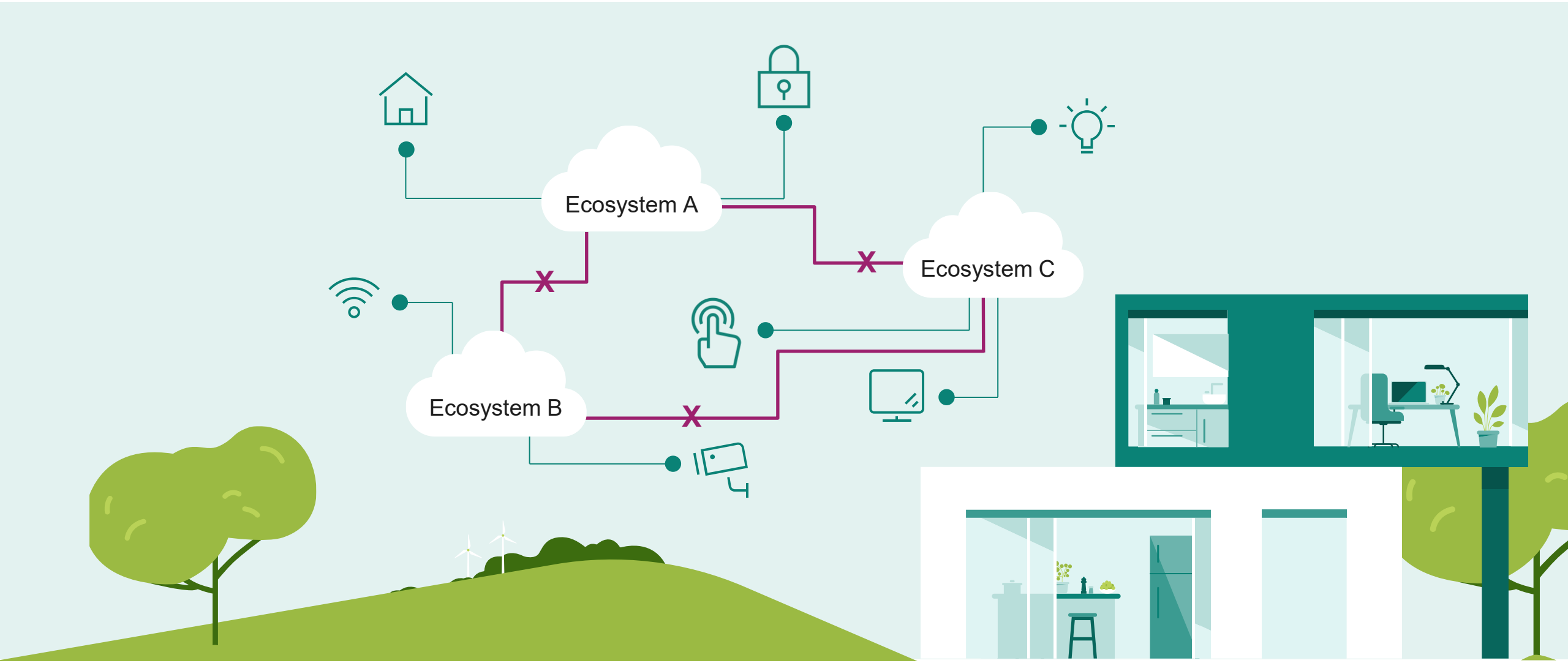
The smart home market is growing



*ABI Research **TechInsights

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Lack of interoperability is still an issue in smart homes



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Infineon's broad secure connected portfolio delivers Matter compliance for your application

Matter over thread

- **Matter compatible Module** CYW30739 w. 1 MB Flash, OPTIGA™ Trust M MTR (option), ePA
- **User Experience – Best interoperability** with installed base of Access Points and phones sharing IP heritage
- **Memory efficient program execution** Code runs in RAM at full processor speed (96 MHz)
- Target Applications: Sensor applications requiring on-chip compute
- Availability: Now



Matter over Wi-Fi

- **Flexible scalable secure platforms** – Single chip – CYW5591x Wi-Fi 6/6E
- PSOC™ 6 + CYW43xxx Wi-Fi/BT Combo family
- **Ultra low power by design** – very low sleep, transmit, and receive current
- **Low power system architecture** – host offloads for keep-alive functions allowing host processor to sleep for longer periods
- High-performance RF ensures the **most robust connection** which substantially reduces power consumption
- Target Applications: Access Control, Thermostats, Security Camera, Appliances
- Availability: Now

Enhanced security

- Any Matter certified device needs to be provisioned with the set of credentials, **OPTIGA™ Trust M MTR** will act as (productive) Trust Anchor for customer specific Matter credentials
- Certificates / keys need to be personalized and securely stored in a trust anchor, Infineon will provide a **Matter certified Root CA* and PKI*** for customers
- Trust anchor for higher cryptographic operations required, OPTIGA™ Trust M MTR **hardware cryptographic accelerators** will **support Host MCU with Matter onboarding**
- Availability: Now

PKI – Public Key Infrastructure CA – Certificate Authority

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Make your washing machine become a part of the smart home eco system with Matter

Matter is a framework that standardizes the protocol regardless of the medium (e.g. Bluetooth®). Protocol and stack reside on the MCU.

The biggest global companies came together

c|net

Google, Amazon, Apple back Matter standard so smart home devices cooperate

Smart lightbulbs, door locks, thermostats and other items should be easier to install and interconnect, and Google will upgrade many current products with Matter software updates.

https://www.cnet.com/home/smart-home/google-amazon-apple-back-matter-standard-so-smart-home-devices-cooperate/

Infineon is the leading provider for key technologies

- AIROC™ Wi-Fi combos
- AIROC™ Bluetooth® and multi-protocol SoCs
- PSOC™ 62 and 64 MCUs
- OPTIGA™ Trust anchor

With a new open-source approach to interoperability

- Today's smart home is often too complex, insecure, and incompatible
- Matter enables a smoother and easier experience for consumers (onboarding, control…) and manufacturers
- User interoperability – products from all Matter members should work together
- Strong security

Infineon's support for Matter

- Integration of Matter Open Source and Open Thread into ModusToolbox™
- Customers can integrate using these tools for AIROC™ Wi-Fi combos
- Security will be integrated into SoC to offer options of internal or external security processor for maximum flexibility
- Long term assurance across Wi-Fi and 15.4 products

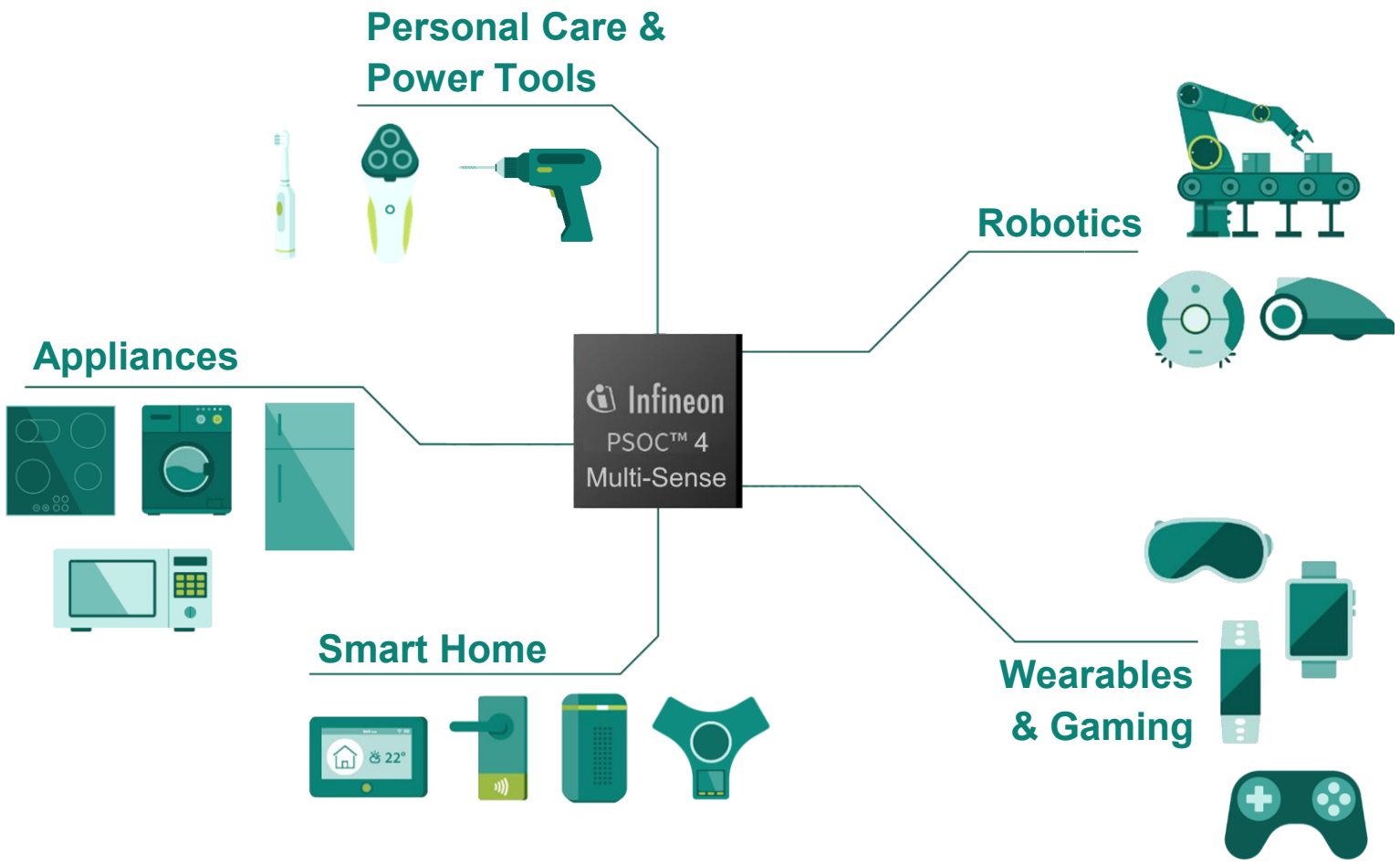
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PSOC™ 4 Multi-Sense

PSOC™ 4 Multi-Sense

- **Arm® Cortex®-M0+** based MCUs
- **Multi-Sense capabilities** in a single MCU with CAPSENSE™ capacitive, inductive sensing, liquid sensing and hover touch
- **PSOC™ 4000T** as 5th gen CAPSENSE™ lead product
- **Ultra-low power** based on always-on autonomous sensing operation
- **Superior signal-to-noise ratio** with 10x better performance than previous generation
- **ModusToolbox™** for flexible, reliable and easy design experience

Infineon expands its leadership in capacitive sensing with new inductive and liquid level sensing on a single MCU



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Your trusted partner for Touch HMI & Proximity: Infineon boasts over two decades of CAPSENSE™ leadership



#1

Touch HMI Solution

6+ Billion

Conventional Buttons replaced

Patents

100+ Touch Patents

Touch HMI market leader for over 20+ years!

2002

First Generation

CAPSENSE™ research and development begins with buttons and sliders

2008

Second Generation

CAPSENSE™ algorithms offer liquid tolerance, proximity sensing, and improved noise immunity

2010

Third Generation

SmartSense™ Auto-tuning revolutionizes CAPSENSE™ designs by removing manual tuning

2017

Fourth Generation

Introduces its fourth-generation CAPSENSE™ solution and delivers its first inductive sensing HMI solution

2022

Fifth Generation

Infineon announces 5th generation ratio-metric sensing with 10x better performance compared to state of the art

Decades of Innovation & Leadership in Touch HMI Solutions

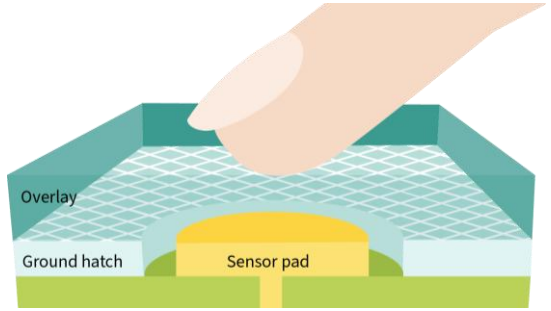
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We expand leading CAPSENSE™ technology with inductive & liquid sensing: PSOC™ 4 Multi-Sensing Technology

Infineon PSOC™ 4 Multi-Sense

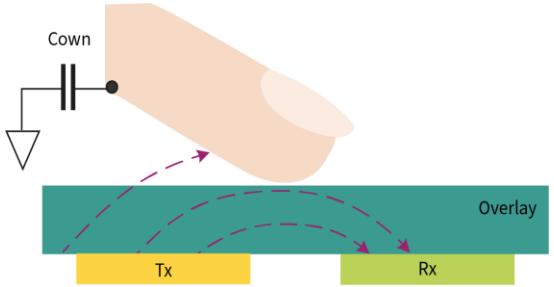
CAPSENSE™ Capacitive sensing

Self Capacitive Sensing



- **CSD** – Infineon's proprietary self-capacitance sensing method
- Measures capacitance of a single electrode
- User touch increases capacitance of the electrode

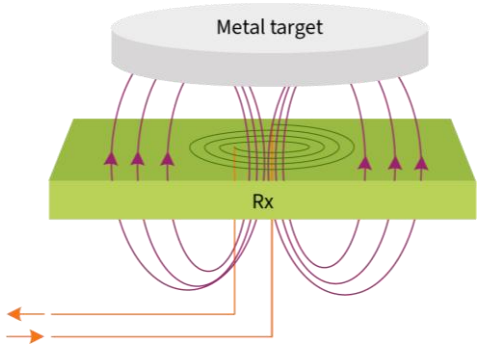
Mutual Capacitive Sensing



- **CSX** – Infineon's proprietary Mutual-capacitance sensing method
- Measures capacitance between two electrodes
- User touch decreases capacitance between electrodes

Inductive sensing

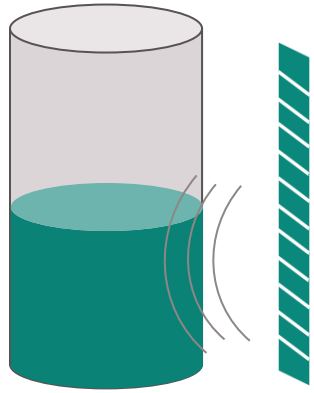
NEW



- **ISX** – Infineon's proprietary Inductive sensing method
- Measures inductance of sensor coil
- Deflection of metal decreases inductance of the electrode

Liquid sensing

NEW



- **LLS** – Infineon's proprietary liquid sensing method
- Detects presence and level of liquid without contacts
- Reliable sensing and rejects false signals such as foam mist and droplets

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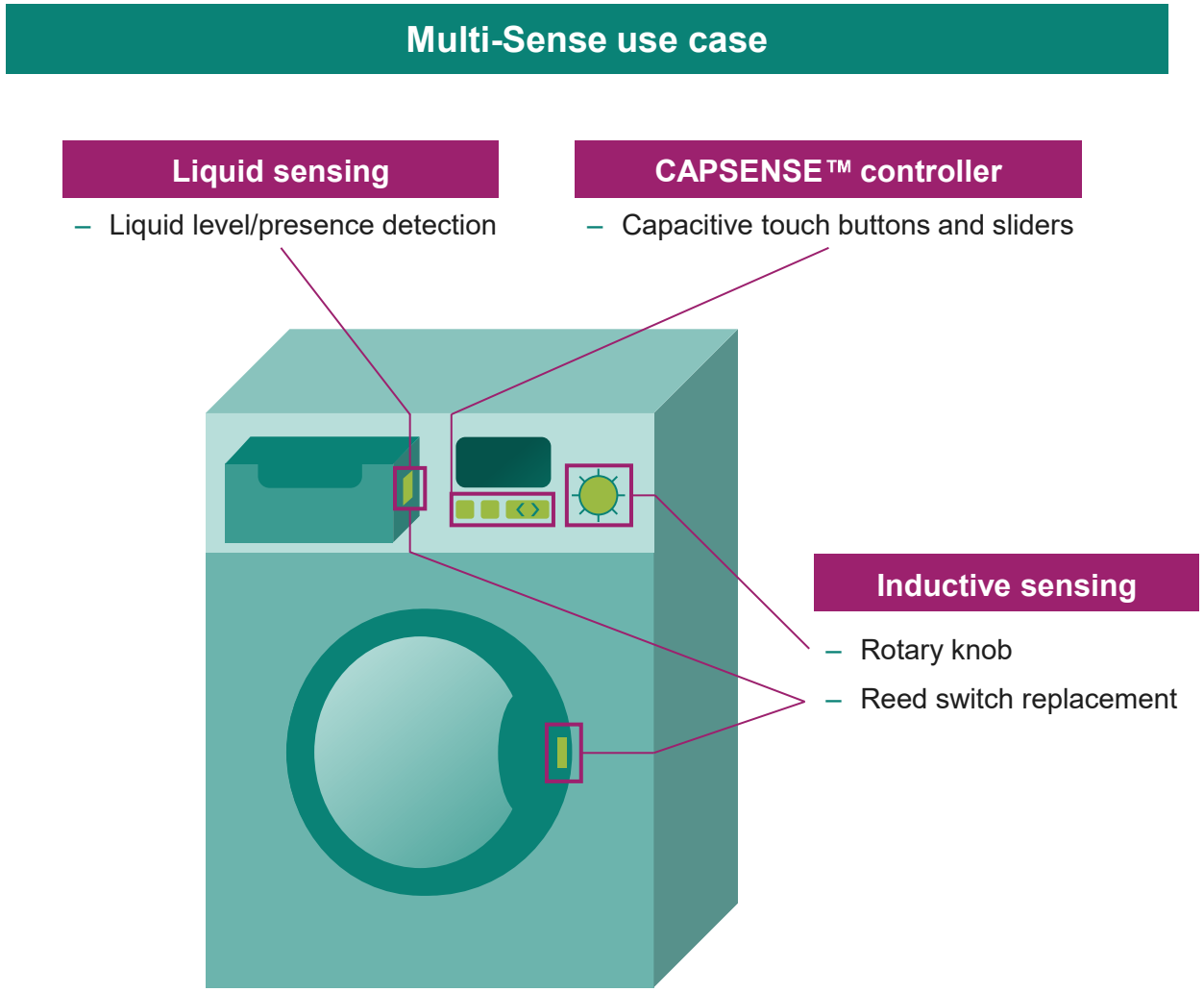
Cost effective combination of multiple sensing techniques: Target applications for Multi-Sense use case

Technical solution and benefits

- **Reduced BOM cost** due Multi-Sense technology of PSOC4, replacing need for multiple sensor ICs for one product
- **Ease-of-design** by building solution on common SW and tool platform (ModusToolbox™)
- **Smarter products** by adding intelligent sensing capabilties and more reliable solution with no wear and tears

Target applications and use cases

- Applications that require **multiple sensor inputs** with the potential to combine into one:
  - Home appliances (washing machine, oven, refrigerator, etc.)
  - Smart home
  - Robotics
  - Industrial applications



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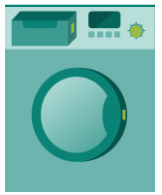
Liquid sensing benefits and kit demonstration: Reliable, contactless & flexible solution to sense various types of liquids

Liquid sensing with PSOC™ 4 Multi-Sense Technical and customer benefits

- **Need to avoid contact?**
  Eliminates need for sensor in liquid and works in noisy environments with an industry-leading SNR
- **Special liquid container shape or size?**
  Easy to design solution based on machine learning to create your individual PCB sensor designs within minutes in ModusToolbox™
- **Reject foam and residue?**
  Reliably detect liquid levels, insensitive to foam in the liquid, mist, liquid residue, temperature and other spurious conditions
- **Liquid variations?**
  Reliably detect different liquids such as water, soap or oil
- **Process variations?**
  Insensitive to process variations like gaps between sensor and container

Target applications

- **Home Appliance** as primary segment for liquid sensing
- **Exemplary applications:**



Washing machine
Soap container
Water level in washing machine drum



Coffee machine
Water tank (replacing flowmeter)



Wet vacuum cleaner
Water tank
Soap tank



Water purifier
Water tank



Oven / kitchen grill
Water tank
Oil tank

And many more…

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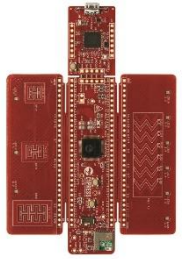
Get started today:
Eval. kits recommendations

Get started today with our enabled evaluation kits and reference designs

Main and HMI touch control



PSOC™ 4000S CapSense Prototyping Kit
(CY8CKIT-145-40xx)



PSOC™ 4100S Plus Prototyping Kit
(CY8CKIT-149)



PSOC™ 4100S Max pioneer kit
(CY8CKIT-041S-MAX)



PSOC™ 62S4 Pioneer Board
(CY8CKIT-062S4)

Motor control



WM Motor Control
REF-MHA1KIM5PSOC4



PSOC™ 4500S Pioneer Kit
(CY8CKIT-045S)



PPFC+PMSM BLDC Motor control Kit
EVAL-IKA15N65ET6

Connectivity and security



PSOC™ 6 2M+ CYW4343W Murata module
CY8CPROTO-062-4343W



PSOC™ 62S2 Wi-Fi BT Pioneer Kit
CY8CKIT-062S2-43012



OPTIGA™ Trust M IoT Security Development Kit
TRUSTMIOTSDKTOBO1

Condition monitoring and sensing



PSOC4000T Liquid Level sensing



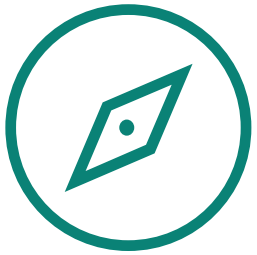
60GHz Radar 1-TX and 3-RX antennas in Package



Digital MEMS microphone IM69D130

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Infineon's additional support material



Application overview

Washing and drying
Home Appliances Selection Guide: The ultimate buyer's guide

Technical documents

Whitepaper: Create reliable, power efficient and safe home appliance design with PSOC™Control C3 and CoolGaN™ solution
600 V reverse conducting drive 2
600 V CoolMOS™ 8
600 V CoolMOS™ 8 SJ MOSFET

Videos and podcasts

Webinar: System solutions for the smart home appliance era
Infineon's smart and efficient solutions for home appliances

Trainings

600 V RC-D2

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