Infineon Functional Safety

Megatrends shaping the automotive market
Infineon products are enabling automotive safety

Automated Driving

Enabling safety towards Vision Zero

Electro Mobility

Enabling CO2 reduction

Connectivity

Enabling the communication of cars

Security

Enabling security in connected cars

Our profound system understanding makes us a competent partner in safety-critical applications providing safe semiconductors in conformance to ISO26262

We simplify the integration of safety features

Mission: We shape the future of mobility with microelectronics enabling clean, safe, smart cars.

PRO SIL

ISO 26262 compliant

PRO SIL

ISO 26262 ready

Infineon electronics are a foundation for safe and autonomous driving customers can trust in

Trust requires dependable systems which are always available
Infineon supports with safe semiconductors

Sense

Dependable Sensors


In-cabin radar


Camera


Lidar


Radar


Park assist


Microphone

Interpret & Decide

Dependable Computing

Central gateway

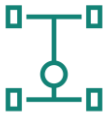
Driving domain controller

Specialized sensor processor

Sensor fusion decision making

Act

Dependable Actuators


Transmission


Braking


Motorcycle engine


Electric power steering


Braking / stability control


LED

System
set of components or subsystems that relates at least a sensor, a controller and an actuator with one another

PRO SIL

ISO 26262 ready

Dependable Memory

Secure communication and authentication

Dependable power supply and distribution

Dependable systems are highly available, safe and secure systems, increasing the need for more dependable electronics

PRO SIL ISO 26262 ready

PRO SIL ISO 26262 compliant

	Fail-Safe In the event of a failure, system enters safe state	**Fail-Operational** Mitigate potentially hazardous effects by ensuring critical operations in the event of a failure	**High Availability** Ensure high availability beyond critical operations; a safe and secure system, that operates in all conditions
	Yesterday (operating time until failure)	**Today** (operating time after failure)	**Tomorrow** (extended operating time after failure)
Sense	Integrated safety and diagnostic functions	Broad ISO26262 compliant product portfolio, incl. dual die products to provide redundancy	Measurement diversity coming from multiple technologies
Compute	Safe computing supported by safety library	First microcontroller certified acc. ISO262626:2018 with increased built in diagnostics	Increased performance through integrated accelerators with holistic safety
Act	Gate drivers and switches supporting safety applications	Gate drivers and switches Pro-SIL(TM) ISO26262-compliant	Drivers and switches with functions dedicated for DC/DC / Battery Management
Supply Distribute	Safe supplies for microcontrollers and switches for relays and fuse replacement	ISO26262-compliant PMICs and ISO26262-ready switches for relays and fuse replacement	ISO26262-compliant application specific PMICs and switches for fail operational power supplies

From Safety Goals (SG) to Top Level Safety Requirements (TLSR)
The “Infineon Safety Investigation“ a supporting process

OEM

Tier 1

Tier 2

Hazard analysis & risk assessment
Specification of Safety Goals

Functional Safety concept
Specification of functional safety requirements

Technical Safety concept
Specification of technical safety requirements

Hardware & Software Safety Concept
Hardware safety requirements
Software safety requirements

OEM

Tier 1

Infineon

Marketing Field Application Engineering

Safety Application Community

Application and Concept Engineering

Product Development

The product Top Level Safety Requirements (TLSR) are derived from the “Safety Investigation"

OEM & Tier 1

Hazard & Risk Analysis
Safety Goal

Item Development

Product Development

Device Level
HW / SW Top Level Safety Requirement

PRO SIL

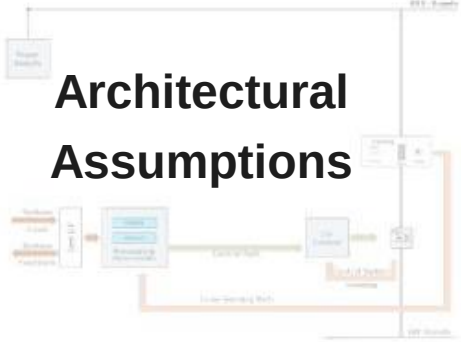
ISO 26262 ready

PRO SIL

ISO 26262 compliant

Infineon Safety Application Group

Functional Safety Concept



Architectural Assumptions

Harmonized Safety Partitioning

Technical Safety Concept

The Holistic Functional Safety approach of Infineon
A foundation for dependable electronics

Management of Functional Safety

– An established culture of safety builds trust in Infineon products, documented in a safety policy

Development

– Proprietary development processes conforming with ISO26262 by ensured compliance concepts

Safety Analyses

– Well established safety analyses incl. Infineon tools provide evidence to fulfill the required safety

Production

– Infineon's automotive specific production of top quality products increases availability

With our strong Functional Safety experience we provide building blocks for integrating safety features

System Integration

Customer use case	Efforts	Documentation	Safety Feature Description	Infineon Label
Design with safety product to develop its own safety system	Use case specific	Use case specific	Product with diagnostic or safety features	PRO SIL
Hardware integration using products developed with Infineon automotive processes	Medium	Safety Application Note	Safety analyses and customer documentation supporting ISO26262	ISO 26262 ready
System designed around Infineon components developed specifically for safety relevant applications	Low	Safety Manual	Product developed according to ISO26262 process with required documentation	ISO 26262 compliant

Infineon supports the complete safety lifecycle
Your trusted Supplier

Conformity to ISO26262 by internal Functional Safety confirmations supported by ensured compliance processes

Comprehensive documentation supports customer requests and simplifies integration

Robust safety designs are optimized for safety-critical automotive applications

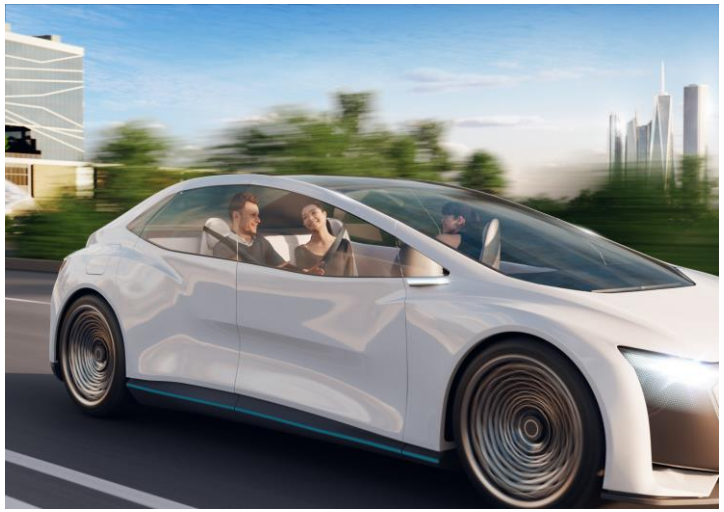
Global support by application safety experts and product safety engineers in development and field support

From prototyping and developer kits to SW drivers, a comprehensive FuSa ecosystem can be provided

Experienced Functional Safety semiconductor supplier with comprehensive system understanding supports complete safety lifecycle

Your #1 partner in Safe Systems

Infineon components support your safety requirements and are easy to integrate



Automated Driving enabled by dependable electronics from Infineon based on our comprehensive system understanding to support all safety-relevant automotive systems

- Certified Products
- Project Launch Support
- Quick Start & Prototyping
- Trouble Shooting
- Training
- In Field Maintenance

Infineon is your trusted partner for Functional Safety
Committed to enable dependable solutions

Mission: We shape the future of mobility with microelectronics enabling clean, safe, smart cars.

PRO SIL

ISO 26262 compliant

PRO SIL

ISO 26262 ready

- The emphasis on safety at Infineon, enables us to develop and provide products for the automotive market, for all safety-relevant applications.
- With our passion for innovation and quality, we develop products for the growing Functional Safety market.
- In an ever-changing automotive market, Infineon Pro-SILTM products enable safety-relevant systems to achieve their safety goals.


Infineon