

OPTIREG™ System Basis Chips

Product presentation

Infineon Automotive Division
Q3 2026

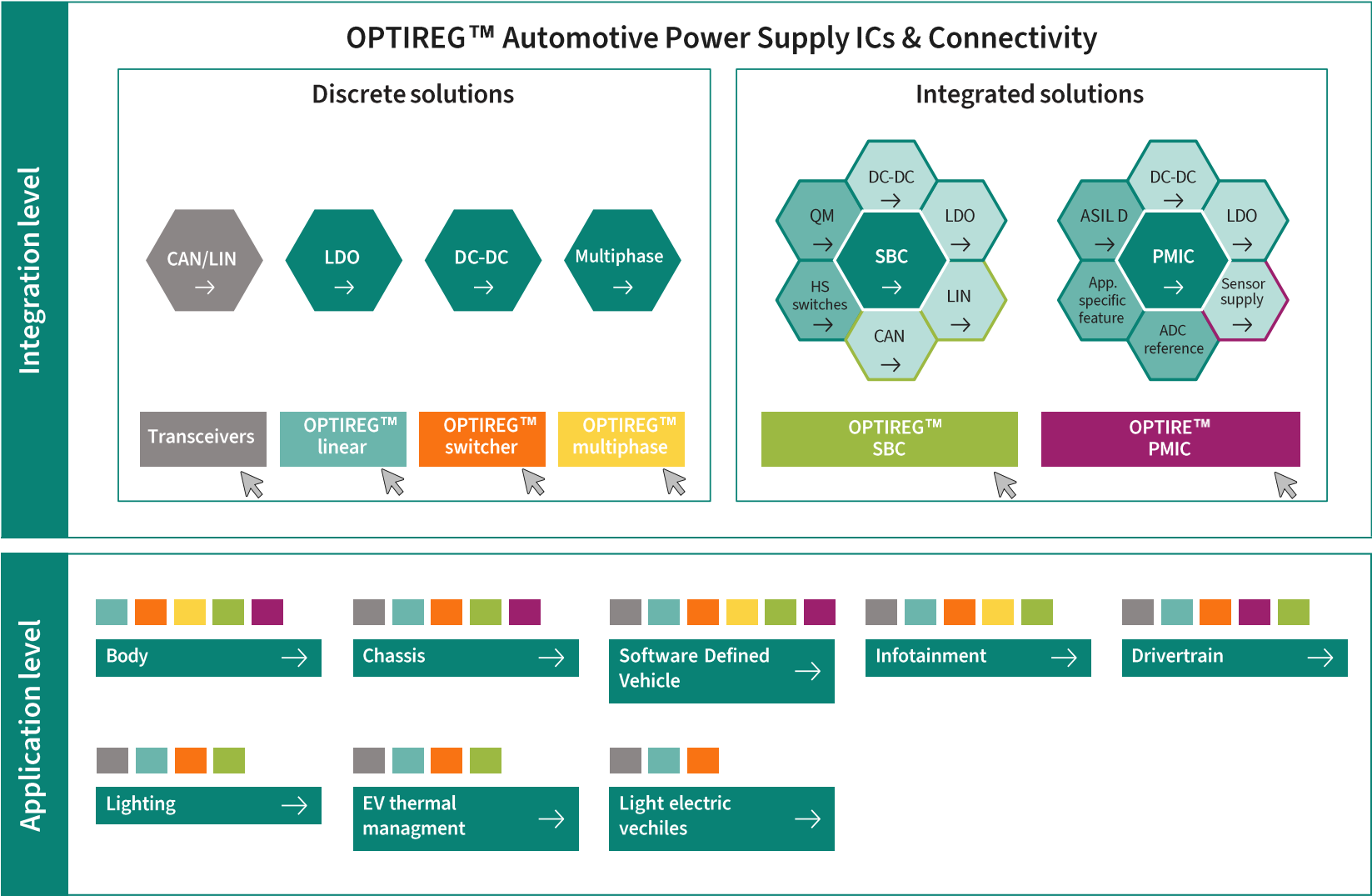


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OPTIREG™

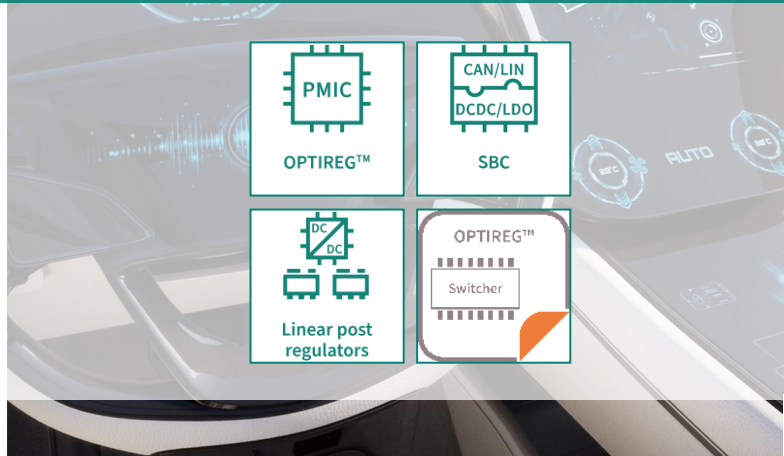
OPTIREG™ Portfolio



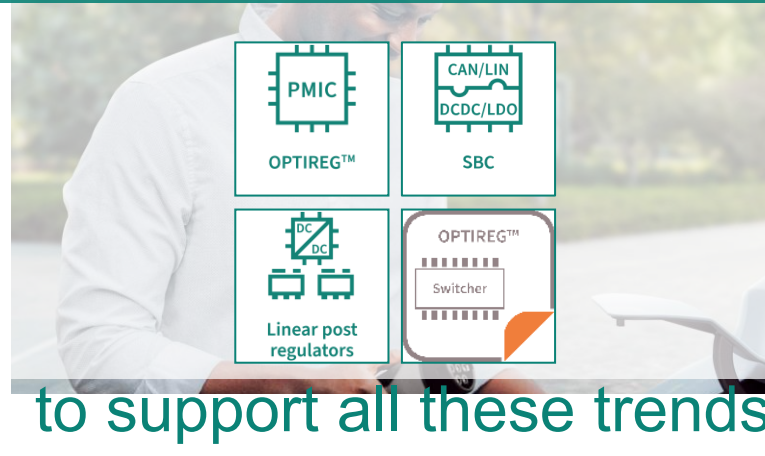
OPTIREG™ Power Supply fits in all automotive relevant trends



OPTIREG™ provides the right products

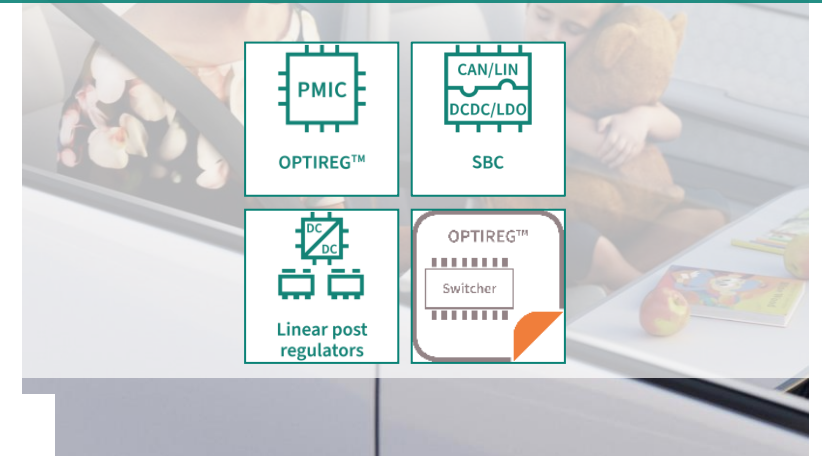


Traditional applications



to support all these trends

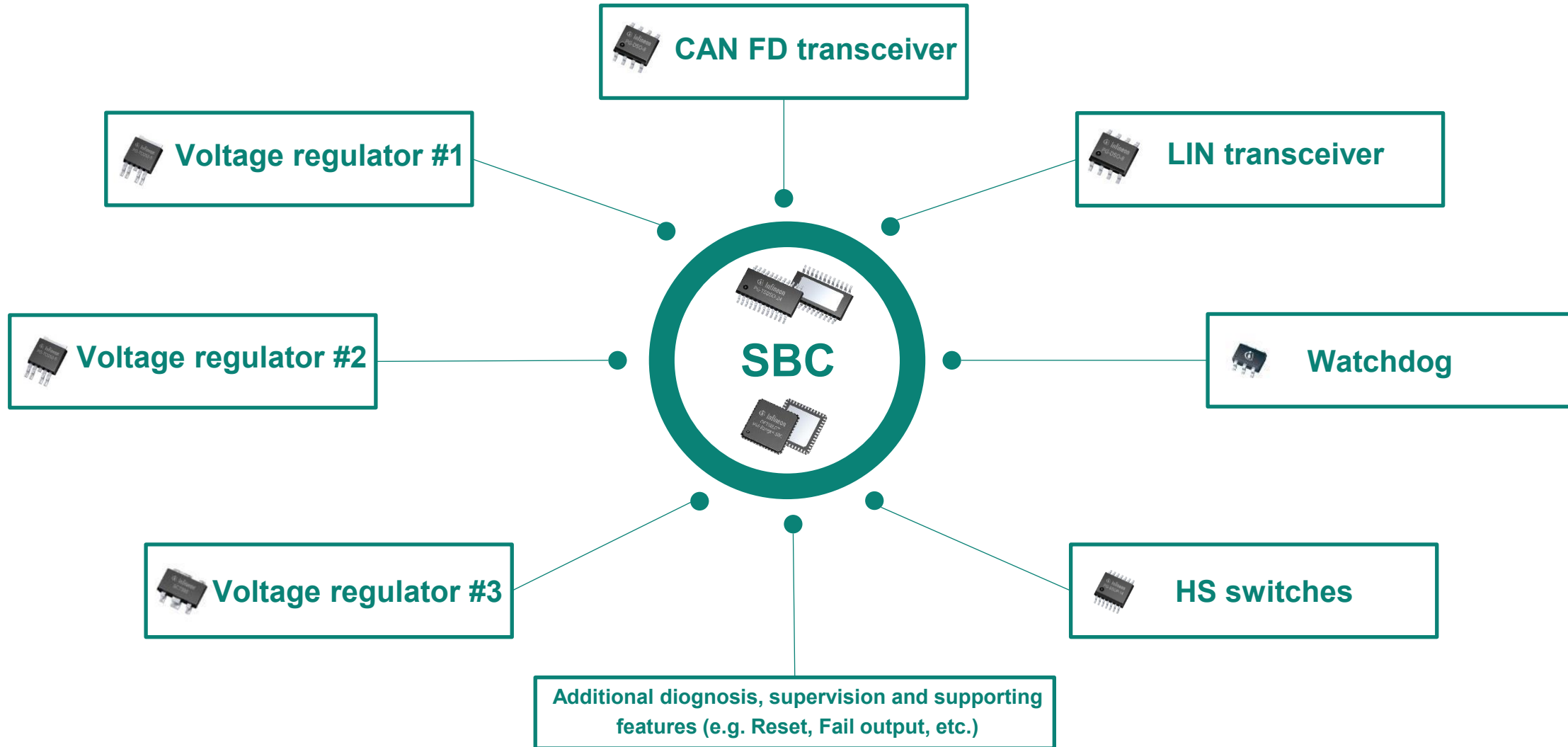
Efficient supply concepts



Emerging business models

OPTIREG™ SBC

OPTIREG™ SBCs combine multiple features into one single chip



Why should I use an OPTIREG™ SBC instead of a discrete solution?



Space saving

- Power, communication, safety and support features are **integrated into one solution with reduced PCB space** by up to ~90% (e.g. 300mm² vs. 34mm² for Lite SBC)



Energy saving

- **Extended battery life** with very low quiescent current modes and CAN Partial Networking
- Lowest I_q to achieve limitation of <100μA per ECU



High system reliability

- Extensive **diagnostics and protections are embedded** within the SBC to support ISO26262 requirements, reduce external component count, improve system reliability in comparison to discrete solutions



Reduced system cost

- Minimum number of components to **reduce system and BoM cost**
- **Reduction of Total Cost of Ownership by ~0.1 USD per ECU, due to fewer active components** (~0.014 USD per active component for assembly, qualification, purchasing, optical inspection, logistics, etc.)



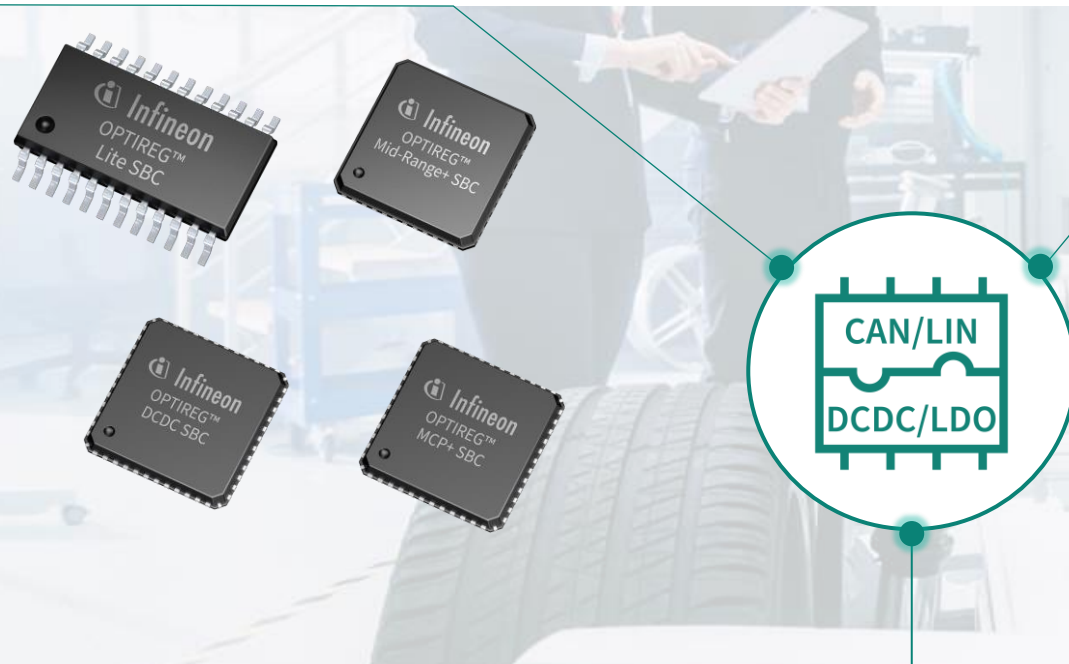
Multiple and flexible designs

- Compatibility **reduces development time and effort** for SBC by 1-2 man-months for electronic design and software development. Scalability (transceiver) nodes reduce customer effort in platform approach.

OPTIREG™ SBC in a nutshell



Product families



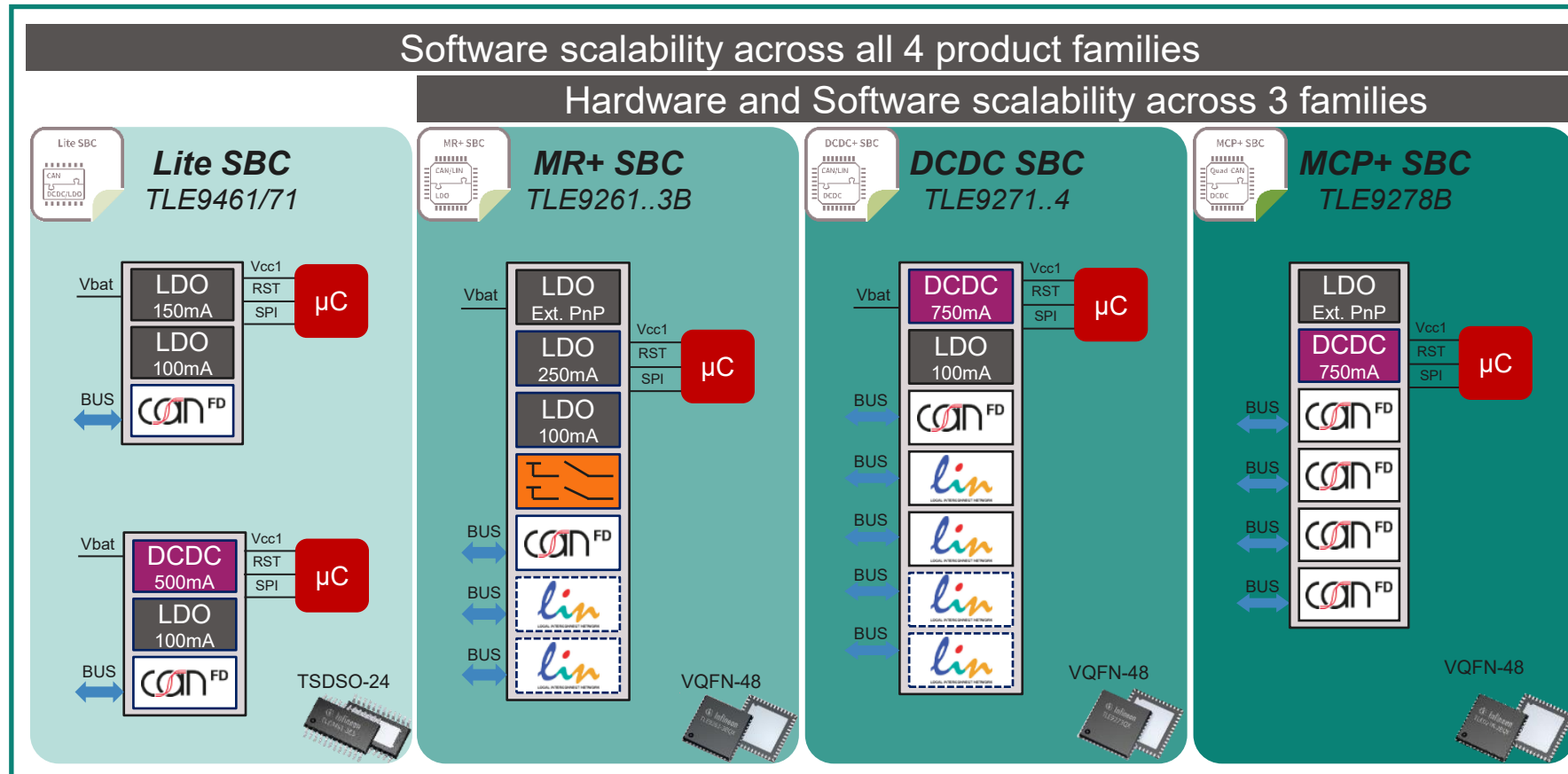
Small, Efficient and Reliable

Key Feature	Customer Benefit
Hardware scalability	Wide portfolio in terms of power range and number of integrated transceivers
Integration of multiple features in one chip	Reduces system cost due to fewer components
Very low quiescent current	Extended battery life
Small and compact packages	Saves board space in compact designs
Integrated diagnostics and protection features	Boosts safety and increases system reliability compared to discretes

Applications



OPTIREG™ SBCs offer most complete portfolio and key differentiated USPs



Unparalleled scalability across Product Families for fast time-to-market



Supports **latest networking standards** CAN FD up to 5Mbps (soon: CAN FD SIC) & CAN PN

Component releases at all major OEMs

OPTIREG™ System Basis Chip

Scalable portfolio of multipurpose integrated voltage regulators & transceivers



Product family	Lite SBC	Mid-Range+ SBC	DCDC SBC	MCP+ SBC
Main voltage regulator type	LDO or DCDC	LDO	DCDC	DCDC
Main regulator output voltage	3.3V or 5V	3.3V or 5V	3.3V or 5V	3.3V or 5V
Main regulator output current	150mA (LDO) / 500mA (DCDC)	250mA	750mA	750mA
Boost output voltage	---	---	6.65V / 8V / 10V	6.5V / 8V / 10V / 12V
Secondary regulator output voltage	5V	5V	5V	---
Secondary regulator output current	100mA	100mA	100mA	---
Number of LIN channels	0	0 - 2	2 - 4	0
Number of CAN channels	1	1	1	4
CAN FD / SIC / PN	yes / no / yes	yes / no / yes	yes / no / no	yes / no / yes
ISO 26262	---	---	---	---
Package	TSDSO-24	VQFN-48	VQFN-48	VQFN-48

Lite SBC

Lite LDO SBC – Overview

TLE9461(-3)ES (V33)

Key Features

- › 5V/3.3V Linear Regulator up to 150mA (Vcc1)
- › 5V Linear Regulator (off-board protected) up to 100mA (Vcc2)
- › CAN FD up to 5Mbps, CAN PN FD Tolerant ("-3" variants)
- › 1x HV Wake input, Watchdog, Reset, Interrupt, Fail Output
- › Charge Pump Output for Reverse Polarity Control
- › Spread Spectrum for EMI mitigation
- › Alternative Functions to Fail Output:
Configurable as Wake, Low-Side or High-Side Switch (up to 45mA) Low Power and Fail-Safe Operating Modes
- › Package: 8.65x6mm TSDSO-24
- › Software Compatibility w/in TLE9x6y & TLE9x7y

Application Examples

Car Lighting



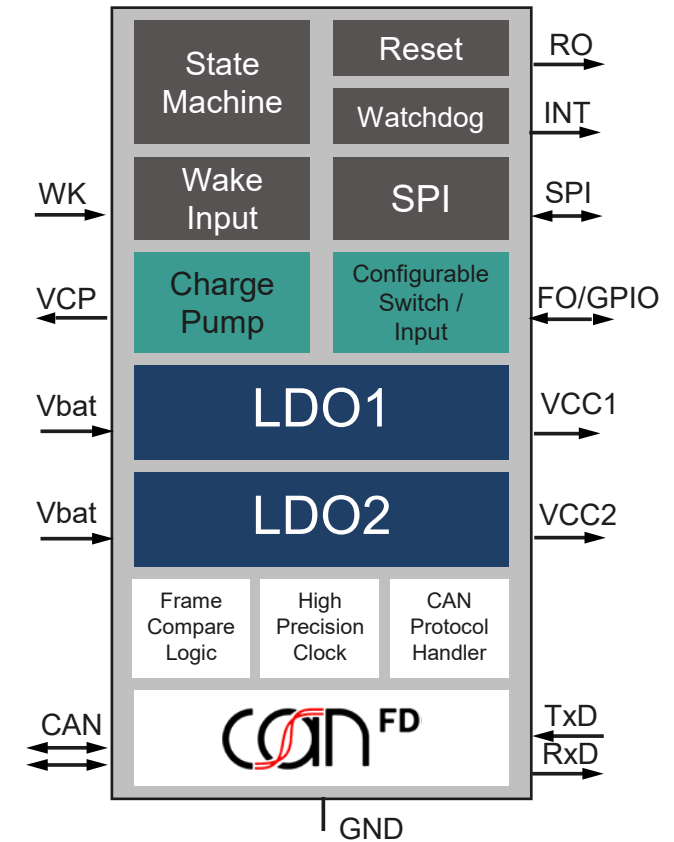
Steering lock



Gearstick



Seat belt



Lite DCDC SBC – Overview

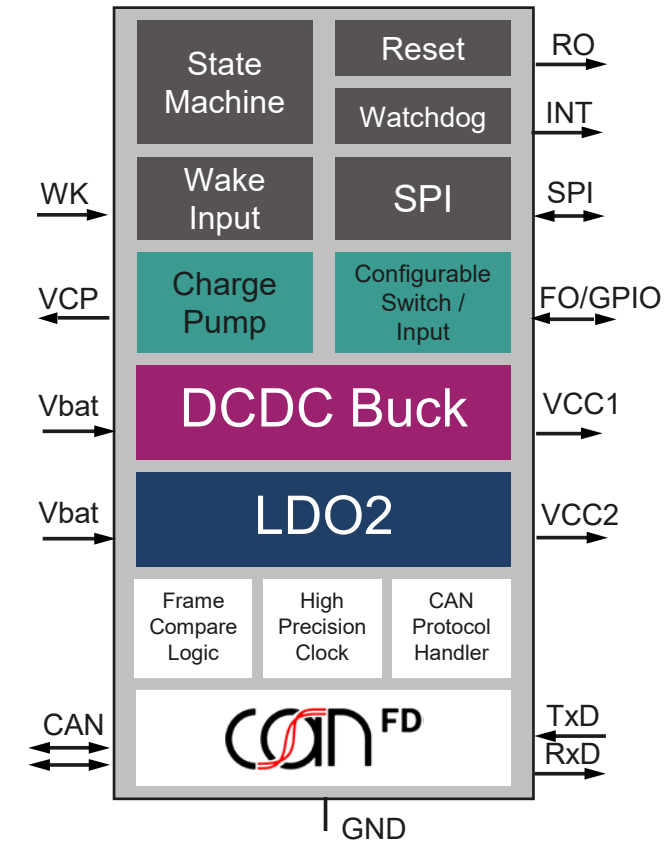
TLE9471(-3)ES (V33)



Key Features

- › 5V/3.3V Buck converter up to 500mA
 - Programmable switching f up to 2.4MHz
 - Spread Spectrum for EMI mitigation
- › 5V Linear Regulator (off-board protected) up to 100mA (Vcc2)
- › CAN FD up to 5Mbps, CAN PN FD Tolerant ("-3" variants)
- › 1x HV Wake input, Watchdog, Reset, Interrupt, Fail Output
- › Charge Pump Output for Reverse Polarity Control
- › Alternative Functions to Fail Output:
Configurable as Wake, Low-Side or High-Side Switch (up to 45mA)
- › Low Power and Fail-Safe Operating Modes
- › Package: 8.65x6mm TSDSO-24
- › Software Compatibility w/in TLE9x6y & TLE9x7y

Application Examples



Mid-Range+ SBC

Mid-Range+ SBC Overview

TLE9261/2/3(-3)BQX (V33)



Key Features

- › 1-to-1 Drop-In with existing Mid-Range SBC family
- › 5V or 3.3V integrated LDO voltage regulators
- › 5V/3.3V/1.8V voltage reg. with external PNP
- › Support CAN FD communication up to 5Mbps, compliant to ISO11898-2:2016
- › CAN PN FD tolerant (-3BQX variants)
- › Very low quiescent current
- › Low-Power and Fail-Safe Operating Modes
- › 7x7mm VQFN-48 supporting AOI
- › Software Compatibility w/in TLE926x/927x/946x/947x

Application Examples

Body Control Module



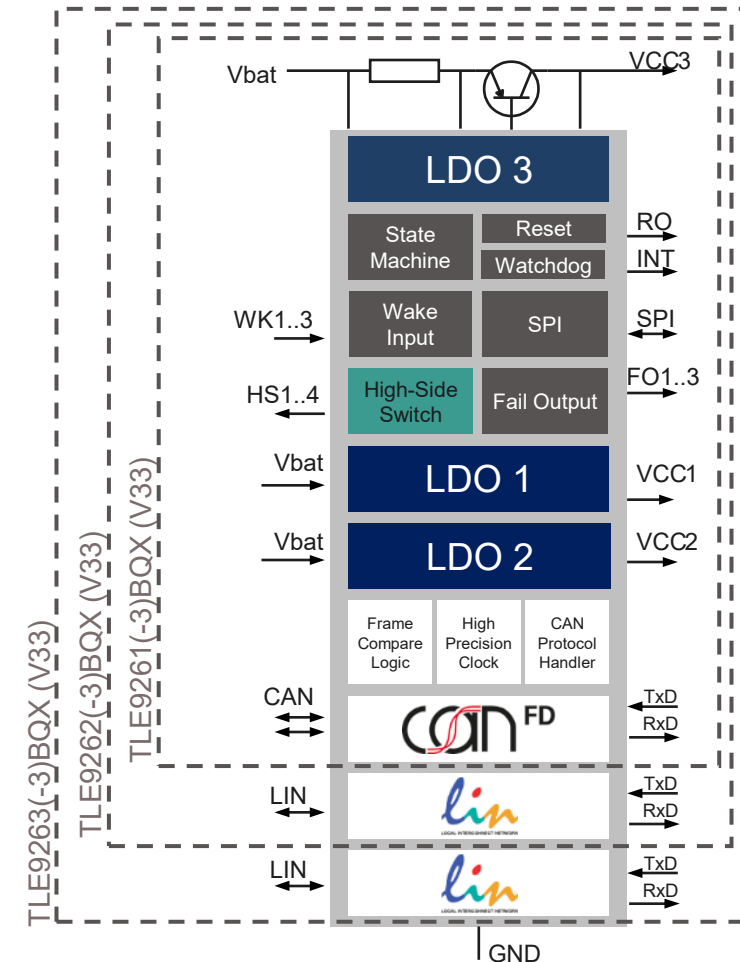
Seat



Lift gate



Sunroof



DCDC SBC

DCDC SBC Overview

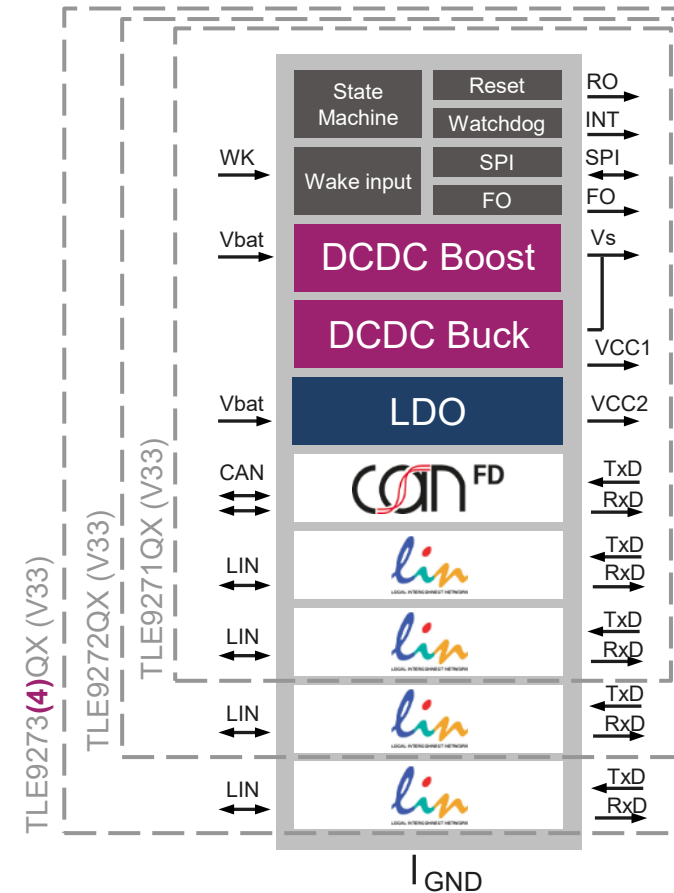
TLE9271/2/3/4QX (V33)



Key Features

- › 5V(3.3V) BUCK converter up to **750mA**
- › 6.5V/8V BOOST controller (Vs) → **Additional 10V BOOST option for TLE9274QX (V33)**
Switch f = 450kHz w/ edge shaping for low EMI
- › LDO voltage regulator @ 5V up to 100mA
- › CAN FD communication up to 5Mbps
- › Very low quiescent current in PFM mode
- › Low power and Fail-Safe Operating Mode
- › 7x7mm VQFN-48 w/ exposed pad supporting AOI
- › Software Compatibility w/in TLE926x/927x/946x/947x

Application Examples



Multi-CAN Power+ SBC

Multi-CAN Power+ SBC Overview TLE9278(-3)BQX (V33)



Key Features

- › 5V/3.3V BUCK converter up to 750mA
- › 6.5V/8V/10V/12V BOOST converter
- › Switch $f = 450\text{kHz}$ w/ edge shaping for low EMI
- › 5V/3.3V/1.8V/1.2V LDO with external PNP
- › Four ports CAN FD up to 5Mbps
- › CAN PN FD Tolerant ("-3" variants)
- › Battery Voltage Measurement interface w/ ADC
- › Low Power and Fail-Safe Operating Mode
- › 7x7mm VQFN-48 w/ exposed pad supporting AOI
- › Software Compatibility w/in TLE926x/927x/946x/947x

Application Example

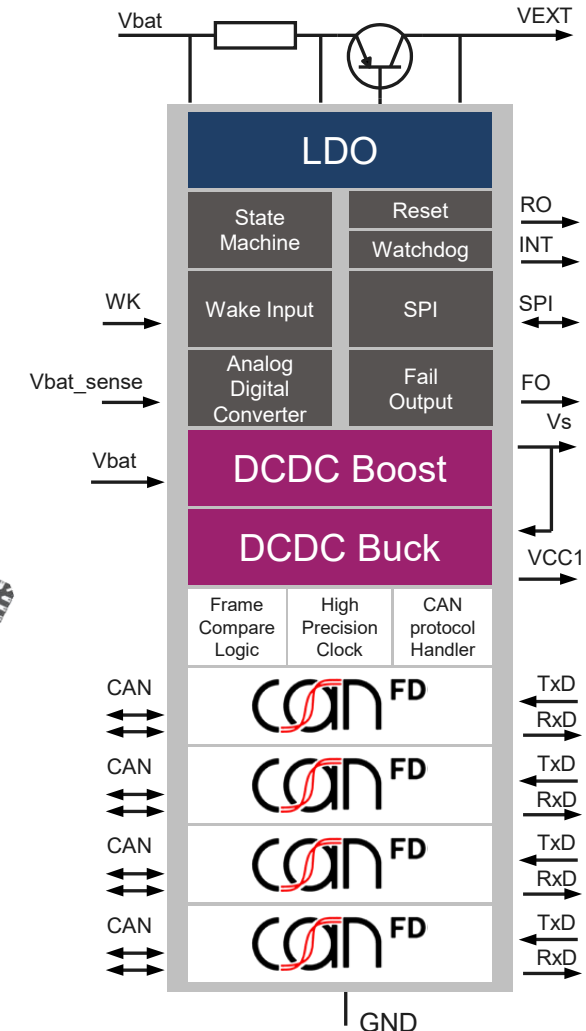
Gateway



Crash avoidance



Chassis



Cross-selling

Mapping of OPTIREG™ with various microcontrollers

Find the right OPTIREG™ for your microcontroller in just a few clicks!



Scan



Click

Navigation Table

	Infineon Aurix™	Infineon Traveo™	Infineon	Texas Instruments	NXP	Renesas	ST Micro		
OPTIREG™	TC2x	TC3x	I	II	PSoC®	Piccolo™/Delfino™	S32K	RM850	SPC5x
					N/A				
								N/A	N/A
					N/A			N/A	N/A

Mapping OPTIREG™ linear with Aurix™ TC2x Microcontroller

Mapping OPTIREG™ SBC with Aurix™ TC2x Microcontroller

Mapping OPTIREG™ PMIC with ST SPC5x Microcontroller

Mapping OPTIREG™ linear with NXP S32K Microcontroller

Mapping OPTIREG™ SBC with Renesas RM850 Microcontroller

①: Supply concept example with internal core supply

②: Supply concept example with external core supply

PMIC

Linear

DC-DC

CAN/LIN DCDC/LDO

SBC

OPTIREG™

Mapping of OPTIREG™ with various microcontrollers

Find the right OPTIREG™ for your microcontroller in just a few clicks!



Scan



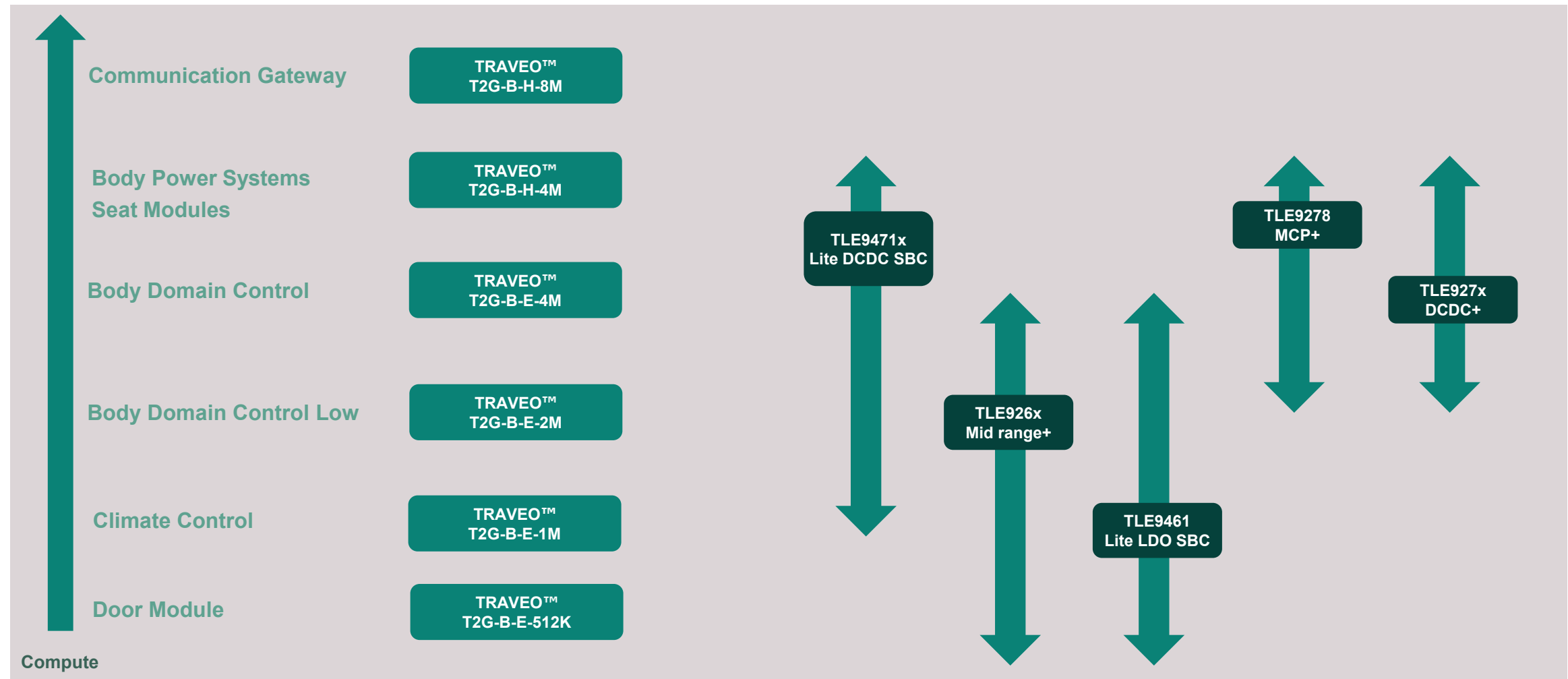
Click

	Infineon AURIX™		Infineon Traveo™		Infineon	Texas Instruments	NXP	Renesas	ST Micro
OPTIREG™	TC2x	TC3x	I	II	PSoC®	Piccolo™/ Delfino™	S32K	RH850	SPC5x
					N/A				
								N/A	N/A
					N/A			N/A	N/A

Fully scalable & flexible OPTIREG™ SBC solution for TRAVEO™ T2Gx family



Market Segment	TRAVEO™ T2Gx	OPTIREG™ SBC
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Trainings

OPTIREG™ SBC trainings



Training name	Content
<u>Why are OPTIREG™ devices the perfect supply partners for Traveo™ II Body microcontroller?</u>	OPTIREG™ SBCs are a perfect match to the Traveo™ II Body microcontroller family. Want to know why and how? Then come along and find out!
<u>General SBC</u>	Get a high-level overview of OPTIREG™ SBC in this video.
<u>Understanding OPTIREG™ System Basis Chips (SBC)</u>	In this training you will get application-independent explanations of the functional blocks, description of each part of the State Machine, and entry points when generating a schematic with an OPTIREG™ SBC .
<u>Mid-Range Plus (MR+) SBC</u>	In this training you will get a general overview of OPTIREG™ Mid-Range+ System Basis Chips. For a general overview of OPTIREG™ SBCs please watch first “General SBC ”.
<u>Lite SBC</u>	In this training you will get a general overview of OPTIREG™ Lite System Basis Chips. For a general overview of OPTIREG™ SBCs please watch first “General SBC ”.



Click on the training title to access it

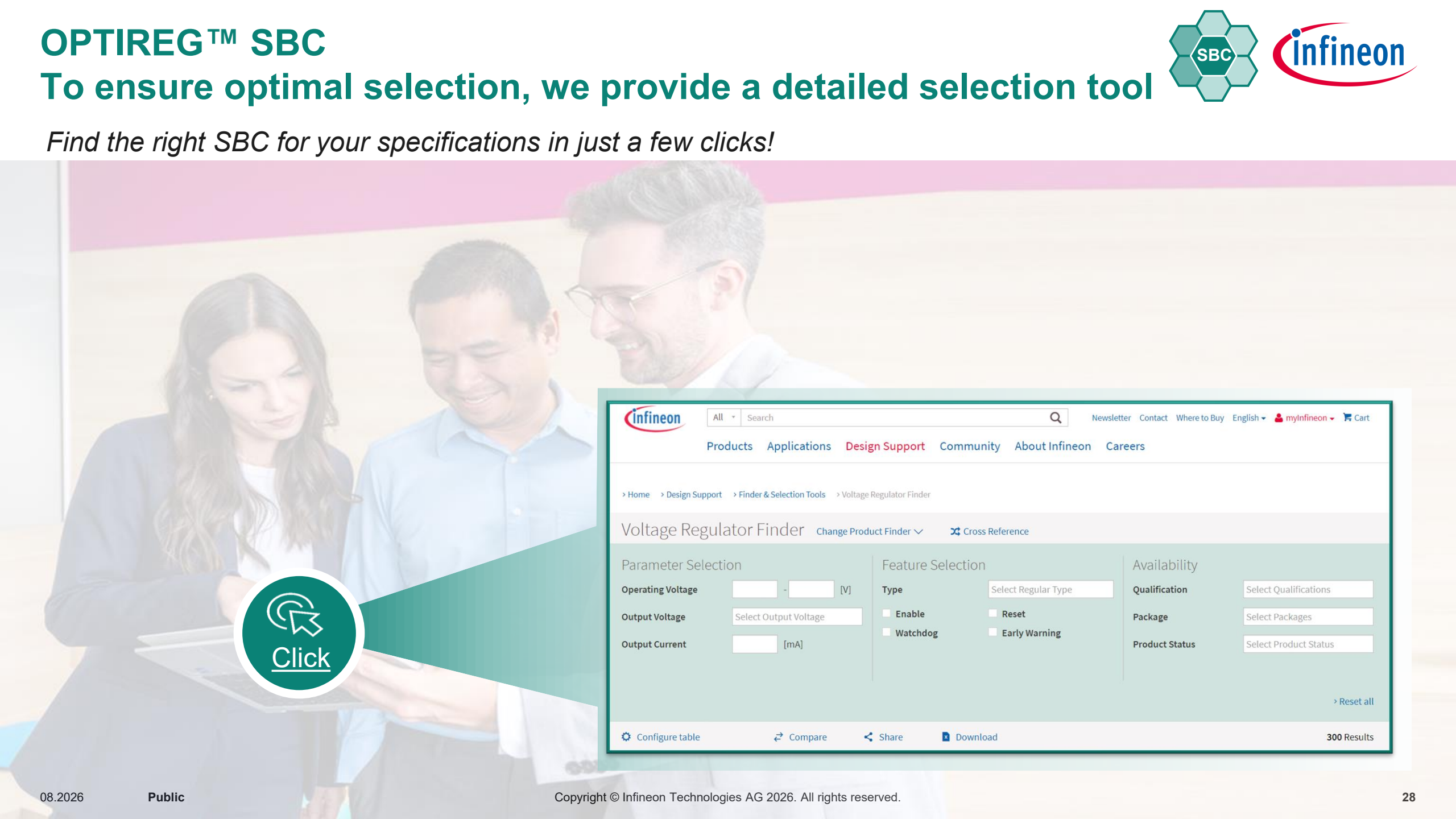
Supporting Tools & Documents

OPTIREG™ SBC

To ensure optimal selection, we provide a detailed selection tool



Find the right SBC for your specifications in just a few clicks!



infineon All Search [Newsletter](#) [Contact](#) [Where to Buy](#) [English](#) [myInfineon](#) [Cart](#)

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[Home](#) [Design Support](#) [Finder & Selection Tools](#) [Voltage Regulator Finder](#)

Voltage Regulator Finder

[Change Product Finder](#) [Cross Reference](#)

Parameter Selection	Feature Selection	Availability
Operating Voltage - [V]	Type Select Regular Type	Qualification Select Qualifications
Output Voltage Select Output Voltage	☐ Enable	Package Select Packages
Output Current [mA]	☐ Watchdog	Product Status Select Product Status
	☐ Reset	
	☐ Early Warning	

[Reset all](#)

[Configure table](#) [Compare](#) [Share](#) [Download](#) **300 Results**

Cross Reference

Enter partial or full manufacturer's device number and manufacturer



Advanced Search

Infineon's cross reference search: [LINK](#)

OPTIREG™ System Basis Chip (SBC)

Collaterals & Support Material



Collaterals and Brochures

- Product Briefs
- Selection Guides
- Application Brochures
- Presentations
- Fighting Guides

- [Link to SBC family page](#)
- [Automotive Power Selection Guide](#)
- [Automotive Application Guide](#)
- [Automotive In-Vehicle Networking](#)

Technical Material

- Application Notes
- User Manual
- Datasheets
- PCB Design Data

- [Link to SBC family page](#)
 - [Lite SBC family page](#)
 - [Mid-Range+ SBC family page](#)
 - [DCDC+ SBC family page](#)
 - [Multi-CAN Power+ SBC family page](#)

Evaluation Boards & Software

- Evaluation Boards
- Software:
 - SBC Config Wizard
 - Power Dissipation Tool
 - Bode Plot
 - CAN PN Wizard
 - SBC Microcontroller Library
 - Current Consumption Tool

- [Link to board pages](#)
- [Link to software](#)

Videos / Distribution Trainings

- Technical Videos
- eLearnings

- [Link to Videos](#)
- [Link to eLearning](#)

FAQ

- FAQ General SBC
- FAQ Lite SBC
- FAQ MR+ SBC

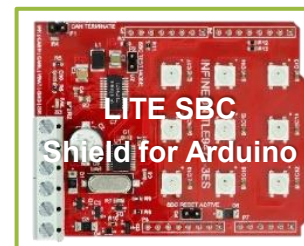
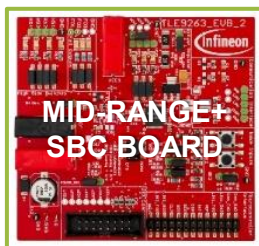
- [Link to SBC FAQ](#)
 - [Link to Lite SBC FAQ](#)
 - [Link to MR+ SBC FAQ](#)



OPTIREG™ SBC Design Support Tools

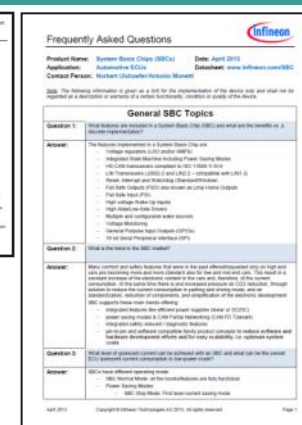
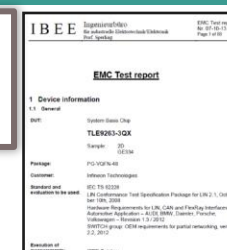
SBC Evaluation Boards

Sales Name of Demoboard	Description
"MID-RANGE+ SBC (V33) BOARD"	Available. Connect thru μ I/O.
"DCDC+ SBC (V33) BOARD"	Available. Connect thru μ I/O.
"MULTI-CAN Power+ SBC (V33) BOARD"	Available. Connect thru μ I/O.
"LITE LDO/DCDC SBC (V33) BOARD"	Available. Connect thru μ I/O.
"SBC-SHIELD_TLE9471"	Available. Connect thru Arduino.
"UIO STICK"	Available. USB dongle between computer & demoboard



Other design in support material

- Data Sheets (on request before M9)
- EMC Test Reports (on request)
- FIT Rates & Module breakdown (on request)
- eLearning for SBC, Lite SBC and MR+ SBC
- Config Wizard (Toolbox)
- Power Dissipation Tool, CAN PN Wizard, Bode Plot and SBC Microcontroller Library, Current Consumption Tool (Toolbox)

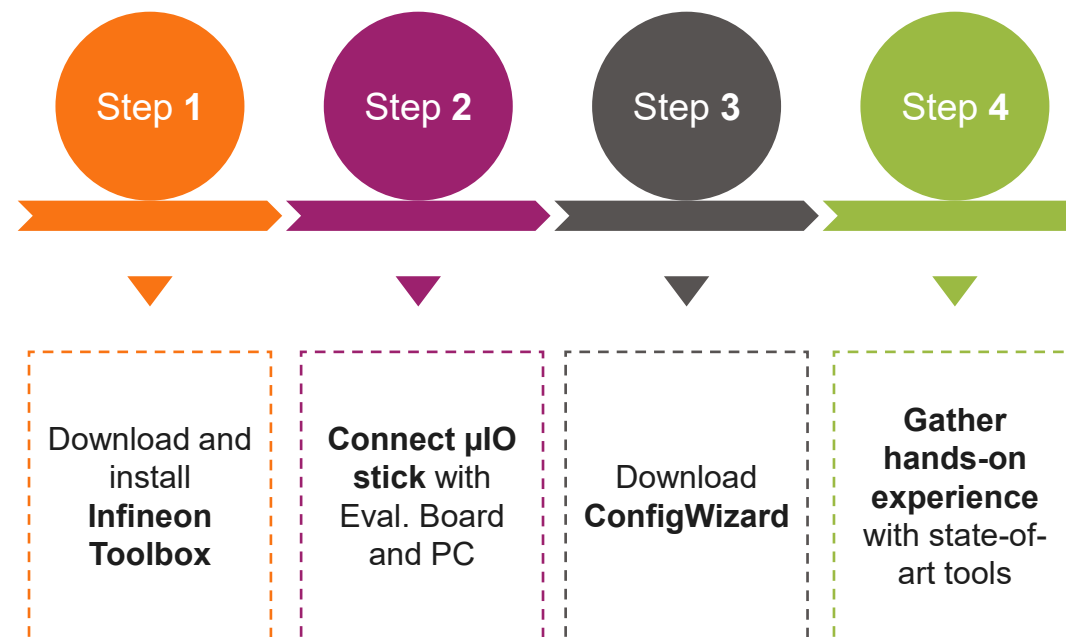




OPTIREG™ SBC Design in Support & Tool Chain

Various support materials are offered by the Infineon:

- › Evaluation Boards
- › Shield for Arduino
- › SBC Config Wizard (Configuration Tool)
- › SBC Microcontroller Library
- › Bode Plot
- › Power Dissipation Tool
- › CAN PN Wizard
- › Current Consumption Tool
- › Application Notes
- › User Manual
- › Data Sheets
- › eLearnings for SBC, Lite and MR+
- › FIT Rates & Module/Area breakdown



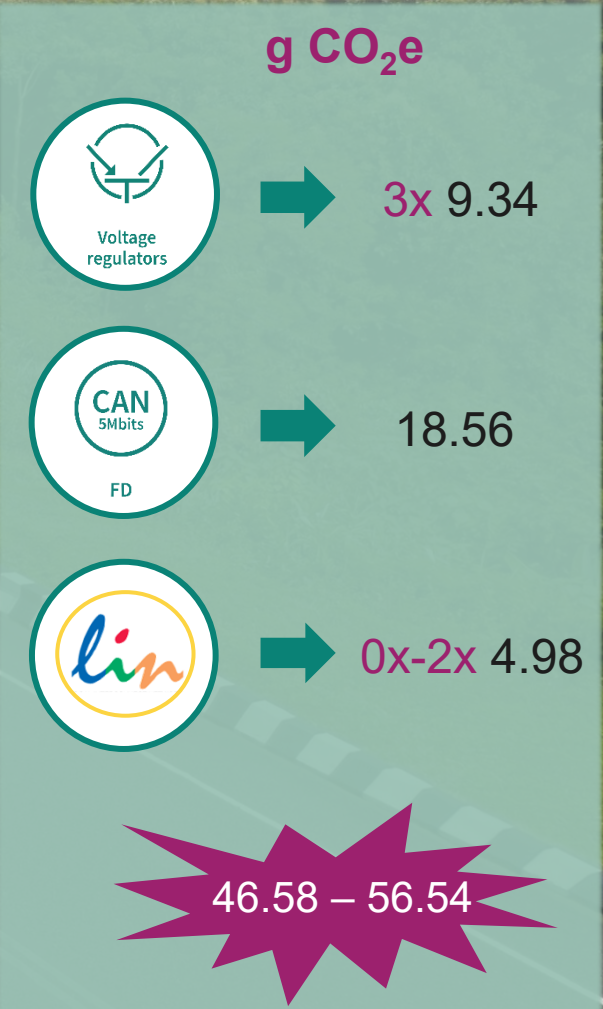
Toolchain Installation Steps

OPTIREG™ SBC CO₂ footprint vs. discrete solutions and quality statement

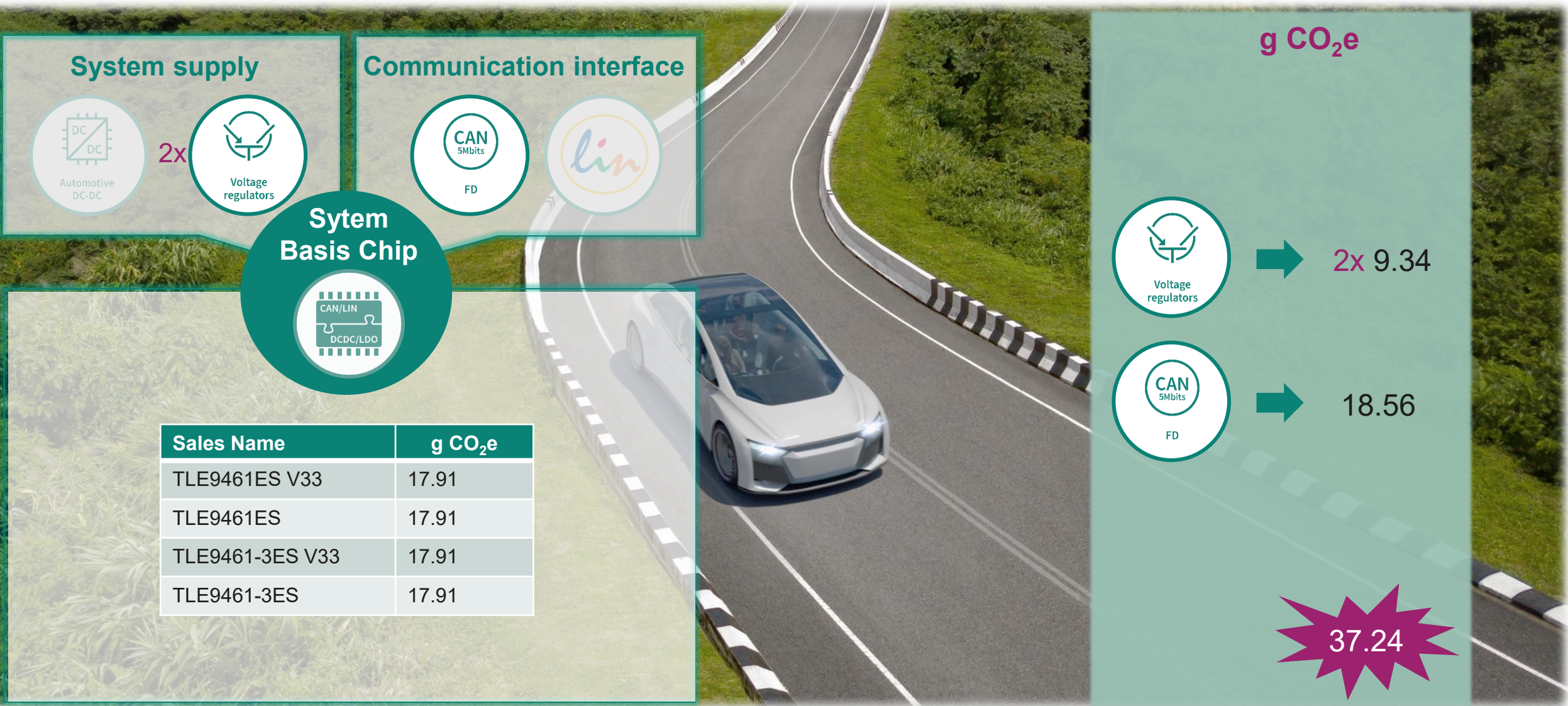
OPTIREG™ Mid-Range+ SBC family product CO₂ footprint vs. discrete solution



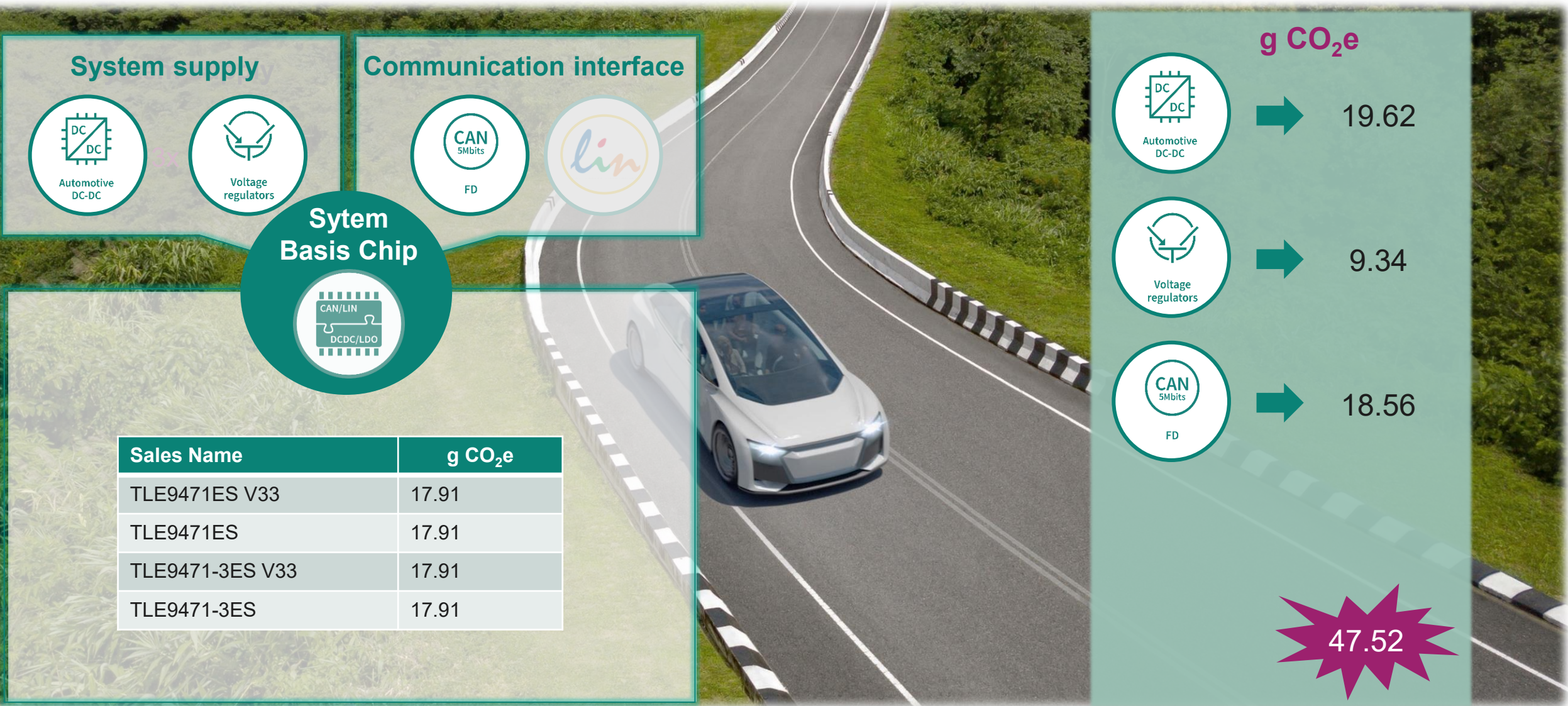
Sales Name	g CO ₂ e
TLE9261-3BQX	23.67
TLE9261BQX	23.67
TLE9262-3BQX	23.67
TLE9262BQX	23.67
TLE9263-3BQX	23.67
TLE9263BQX	23.67



OPTIREG™ Lite (LDO) SBC family product CO₂ footprint vs. discrete solution



OPTIREG™ Lite (DCDC) SBC family product CO₂ footprint vs. discrete solution



OPTIREG™ DCDC SBC family product CO₂ footprint vs. discrete solution



System supply

Automotive DC-DC

Voltage regulators

Communication interface

CAN 5Mbits
FD

up to 4x

Sytem Basis Chip

Sales Name	g CO ₂ e
TLE9271QX (V33)	36.86
TLE9272QX (V33)	36.86
TLE9273QX (V33)	36.86
TLE9274QX (V33)	36.86

g CO₂e

Automotive DC-DC

➔ 19.62

Voltage regulators

➔ 9.34

CAN 5Mbits
FD

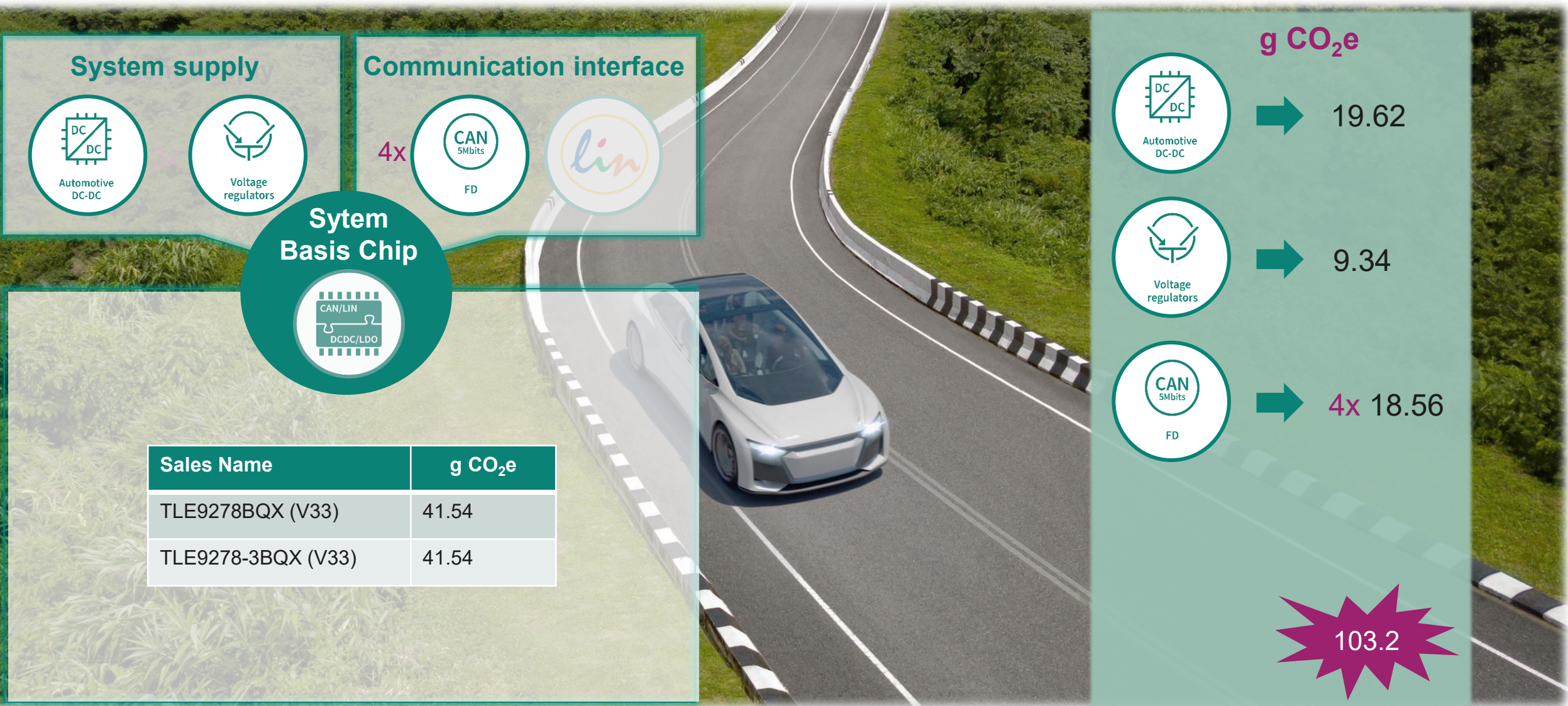
➔ 18.56

lin

➔ 1x-4x 4.98

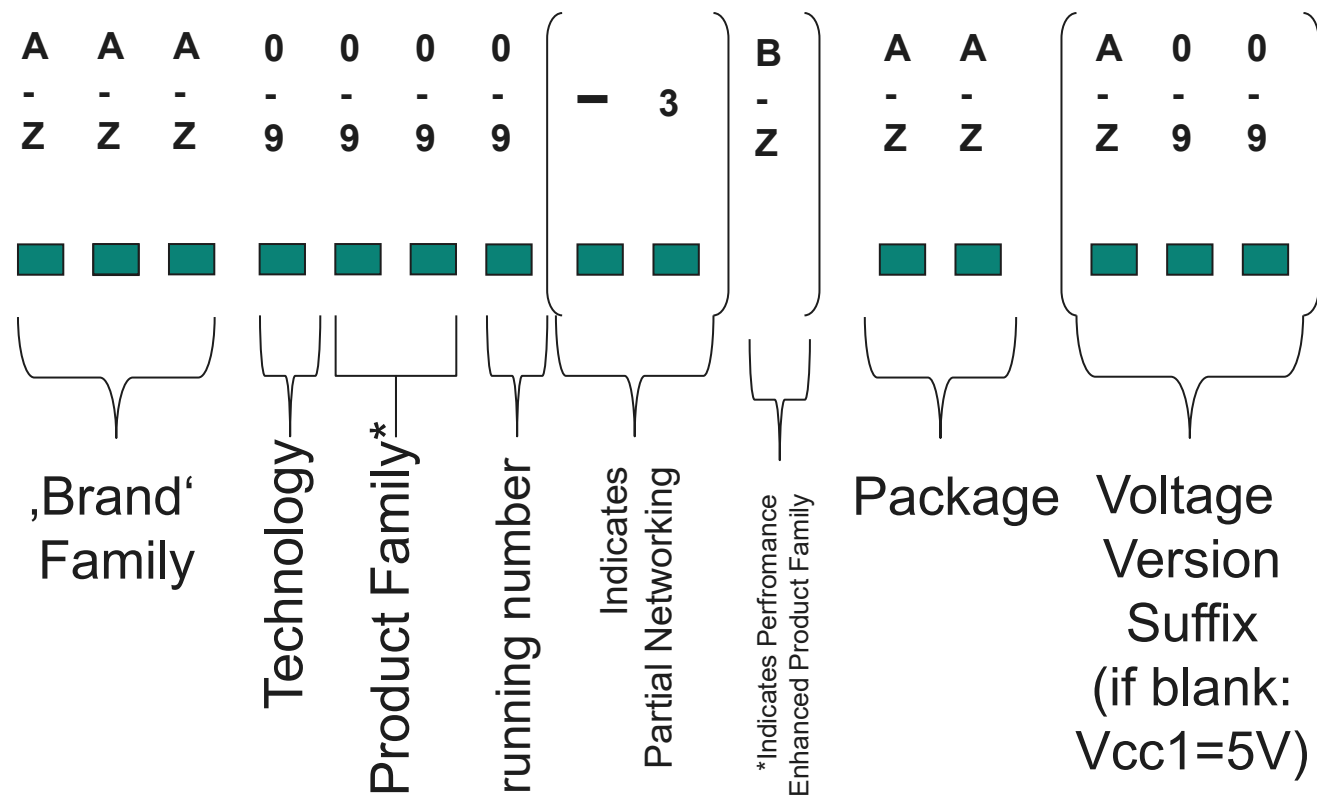
52.39 –67.33

OPTIREG™ Multi-CAN Power+ SBC family product CO₂ footprint vs. discrete solution



Device Naming Nomenclature

OPTIREG™ SBC nomenclature



Example:

T L E 9 2 6 3 (-3) B QX V33

9 – STP9 process technology

26 – Mid-Range

3 – running number; here: variant w/ 1x CAN, 2x LIN

(-3) – with Partial Networking support

B – Mid-Range+ product family

QX – VQFN-48 package

V33 – Vcc1 output is @ 3.3V

