

# NOVOSENSE

## NOVOSENSE Automotive Solution

Enable the Electrification and Intellectualization of xEV



NOVOSENSE  
Company Brochure



NOVOSENSE  
Product Selection Guide



NOVOSENSE  
Automotive Solution



NOVOSENSE  
Renewable Energy &  
Power Supply Application  
Solution



NOVOSENSE  
Industrial  
Control Solution

### NOVOSENSE Microelectronics

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Release Date: April 2024



# NOVOSENSE: Highly Robust and Reliable Analog and Mixed Signal Chip Company

- Robust
- Reliable
- Keep Learning
- Persist in Long-term Value



NOVOSENSE Microelectronics (NOVOSENSE, SSE Stock Code 688052) is a highly robust & reliable analog and mixed signal Chip company. Since its establishment in 2013, the company has been focusing on sensor, signal chain, and power management, providing comprehensive semiconductor products and solutions, which are widely used in automotive, industrial, information communication and consumer electronics markets.

With the mission of "Sense & Drive the Future, Build a Green, Smart and Connected World with Semiconductors" , the company is committed to providing chip-level solutions to link the digital world and the real world.

For more information and sample application, please visit: [www.novosns.com](http://www.novosns.com)



**2013**  
Establishment



**~800**  
Employees



**~\$182 million**  
Revenue  
(2023)



A provider for  
all-category analog  
& mixed signal chips



A leading chip  
provider for automotive  
applications



A leading provider  
for digital isolators  
and sensors

# NOVOSENSE Automotive Solution Overview

## Intelligent Connected/Autonomous/In-vehicle Experience

- SerDes
- Class D
- A2B
- High-side & low-side switch
- SBC
- Seat air bag MEMS pressure sensor
- Temperature & humidity sensor
- High current pre-driver
- Digital relay
- Large screen rear light driver
- General power Buck/LDO
- Antenna/camera load protection
- Voltage supervisor

## Body Electronics & Lighting

- High-side & low-side switch
- eFuse
- Antenna/camera load protection
- Multichannel half-bridge driver, pre-driver
- BDC/BLDC/stepping motor driver
- General power Buck/LDO
- Voltage supervisor
- Magnetic switch position sensor
- Magnetic angle sensor
- Digital relay
- Rear light & headlight driver
- Ambient lighting driver
- Interior lighting driver
- Stepping motor driver

## Chassis Control & Safety

- MEMS pressure sensor
- Magnetic angle sensor
- Magnetic switch position sensor
- Wheel speed sensor
- Antenna combiner controller
- eFuse

## Fuel/Hybrid Powertrain

- Engine intake manifold MEMS pressure sensor
- Fuel vapor MEMS pressure sensor
- Crankshaft ventilator MEMS pressure sensor
- Canister desorption MEMS pressure sensor
- GPF/DPF differential pressure MEMS pressure sensor

## Inverter/Powertrain

- Smart ISO drive/functional safety driver
- Digital isolator
- CAN/LIN/MiniSBC interface
- Magnetic current sensor
- Rotary transformer drive power amplifier
- Vacuum boost servo MEMS pressure sensor

## Inverter/Powertrain

- ISO digital relay
- Digital isolator
- ISO & non-ISO OP Amps
- CAN/LIN/MiniSBC interface
- BPS battery pack thermal runaway MEMS pressure sensor
- ISO power supply
- Hall current sensor
- ISO & non-ISO power drive
- ISO current and voltage sensing

## OBC/DC-DC/PDU

- ISO & non-ISO power drive
- Digital isolator
- ISO & non-ISO OP Amps
- Magnetic current sensor
- ISO current and voltage sensing
- Current sensing amplifier
- High-side & low-side /Motor driver
- CAN/LIN/MiniSBC interface
- General power Buck/LDO
- Power device - SiC

## Thermal Management System

- CAN/LIN/MiniSBC interface
- ISO & non-ISO power drive
- Digital isolator
- Electronic water valve, water pump and fan special motor drive
- Magnetic angle sensor
- Magnetic switch position sensor
- Multichannel half-bridge driver, pre-driver
- BDC/BLDC/stepping motor driver
- Pressure sensor signal conditioning chip
- Automotive micro&special motor driver SoC
- Power device - SiC

Automotive Solutions

**NOVOSENSE**  
is committed to being your  
preferred automotive supply  
chain partner.



In 2023, the shipment of NOVOSENSE automotive chips reached **164 million**; The total revenue share of the automotive electronics business further increased to **30.95%**.



As a member of the Component Technical Committee of the AEC (Automotive Electronics Council), NOVOSENSE supports the development of automotive chip technology.



Certified by TÜV Rheinland:ISO 26262  
Functional Safety Management System ASIL D

System-level  
understanding and  
holistic solutions

- Products cover sensors, signal chains, power management, and power devices
- Functions cover sensing, processing, execution, power supply, and communication

Help customers improve  
their differentiated  
competitiveness

- Chip customization service and experience
- Flexible and timely localized support

Excellent quality  
performance based on  
years of experience in  
automotive mass  
production

- Launched the first automotive chip in 2016
- Products are used in most of today's new energy vehicles
- VDE Premium Quality Award

**NOVOSENSE empowers the  
electrification and intelligence of vehicles.**

# NOVOSENSE Automotive Applications & Product Portfolio Overview

Automotive Application	Digital Isolator	LIN	Isolated Driver	Non-isolated Driver	Isolated Power	Motor Driver	Motor Control SoC	High & Low-side Switch	Oring & Hotswap	eFuse	Photomos	LED Driver	DC-DC Switching Converter	LDO	Tracking LDO	LDO/ Antenna LDO	Isolated Sensing	Hall Current Sensor	Operational Amplifier	Pressure Sensor	Position Sensor	Wheel Speed Sensor	Temperature Sensor	Voltage Reference	Supervisor & Reset IC	Class-D Audio Amplifier	SerDes
Traction Inverter	✓	✓	✓	✓				✓					✓	✓	✓		✓	✓	✓				✓	✓	✓		
OBC	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓	✓		✓	✓	✓				✓	✓	✓		
DC-DC	✓	✓	✓	✓				✓	✓				✓	✓	✓		✓	✓	✓				✓	✓	✓		
BMS	✓	✓			✓			✓			✓		✓	✓	✓		✓	✓	✓	✓			✓	✓	✓		
BCM		✓				✓	✓	✓	✓	✓		✓	✓	✓	✓				✓	✓	✓		✓	✓	✓		
ESP		✓				✓							✓	✓								✓	✓				
Seat		✓				✓	✓	✓					✓	✓	✓							✓					
Lighting		✓				✓		✓		✓		✓	✓	✓	✓												
Door/Roof		✓				✓	✓	✓					✓	✓								✓					
Air Conditioning	✓	✓	✓	✓		✓	✓	✓					✓	✓	✓		✓	✓	✓	✓			✓	✓	✓		
PTC	✓	✓	✓	✓				✓					✓	✓			✓	✓	✓	✓	✓		✓	✓	✓		
Valve/Pump/Vent Control		✓				✓	✓	✓					✓	✓									✓				
IVI		✓						✓		✓			✓	✓	✓	✓									✓	✓	✓
Cockpit		✓						✓		✓			✓	✓	✓	✓									✓		
T-BOX		✓						✓					✓	✓													
Radar/Camera		✓		✓				✓					✓	✓													





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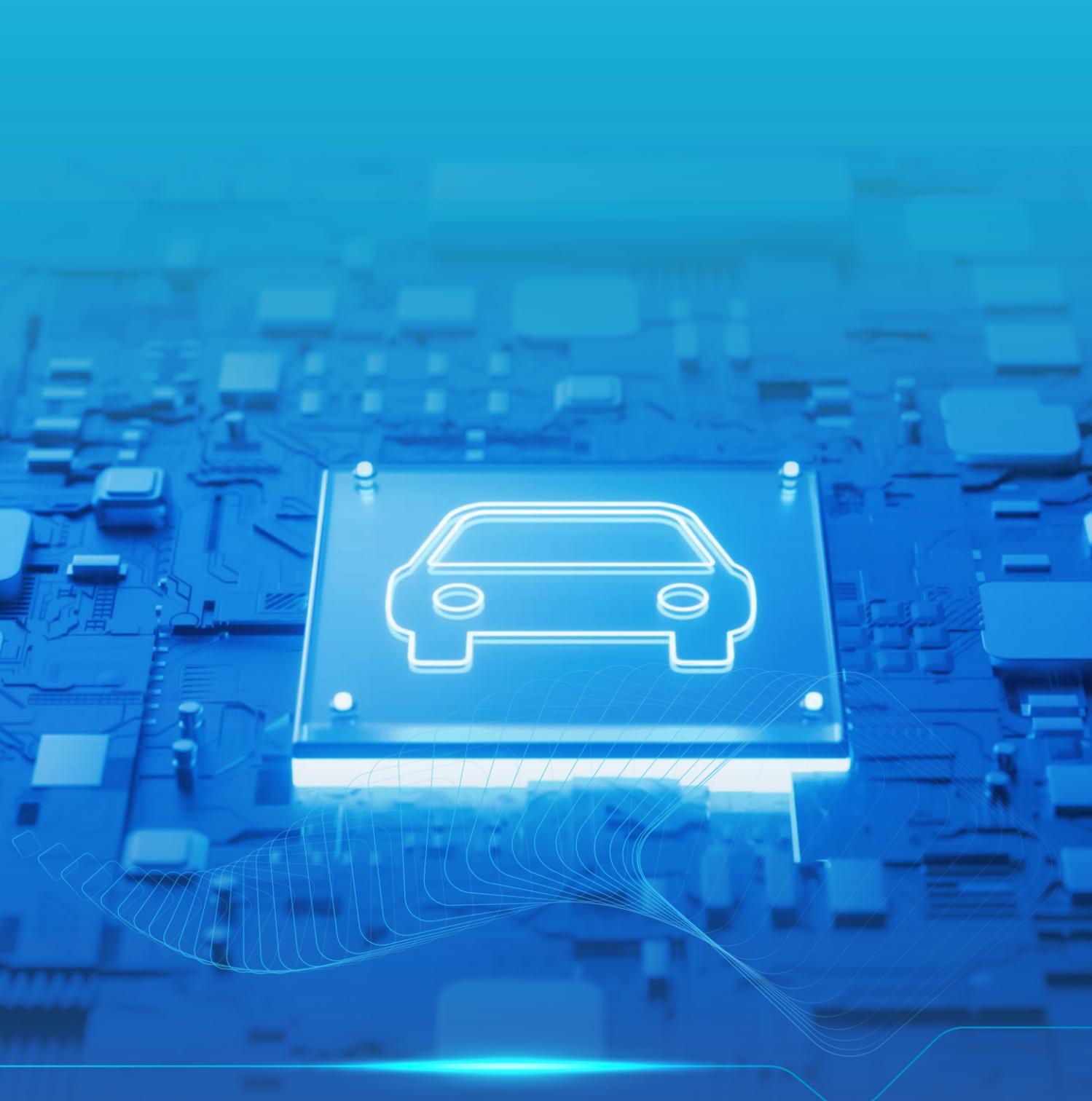
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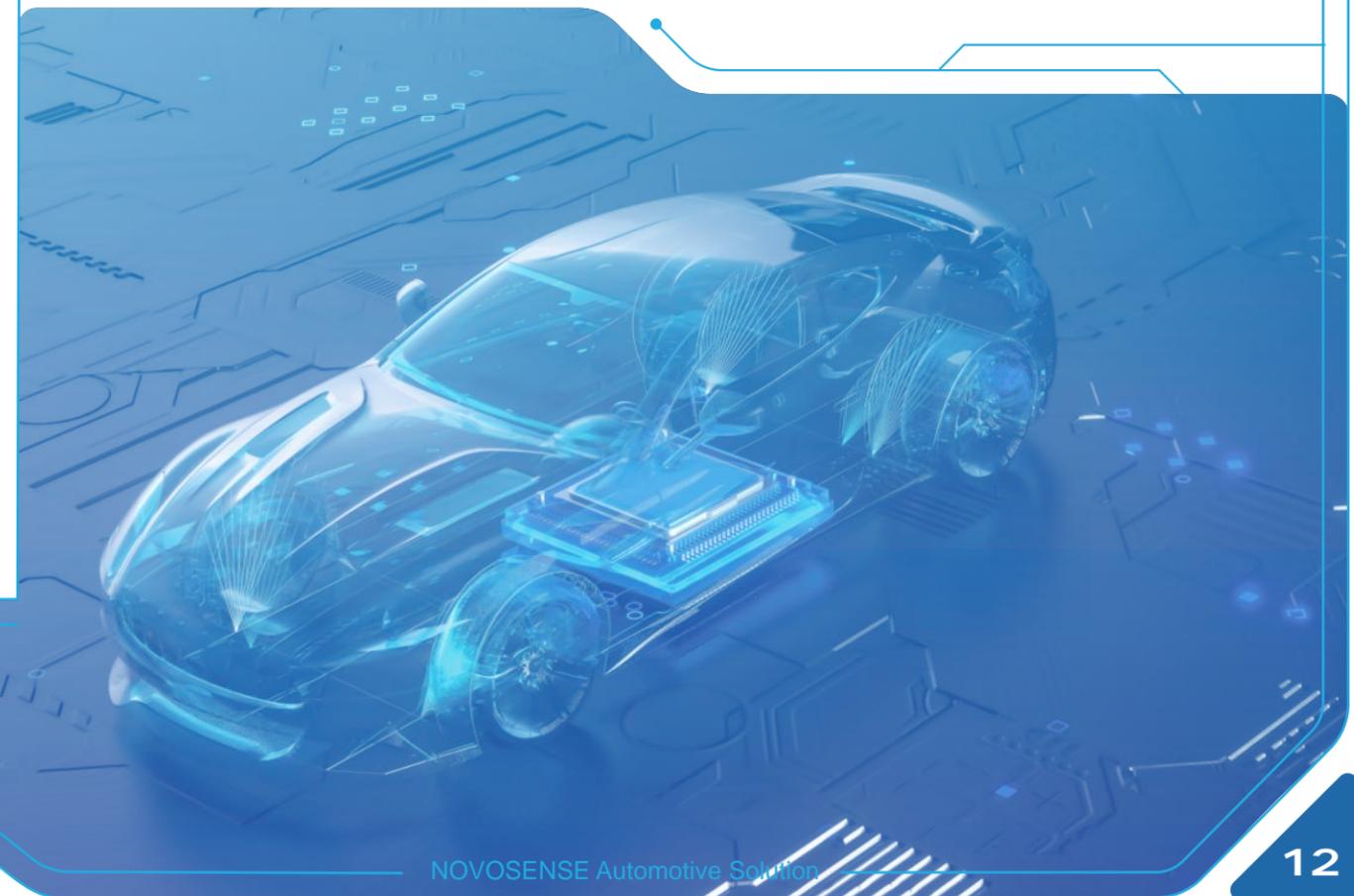
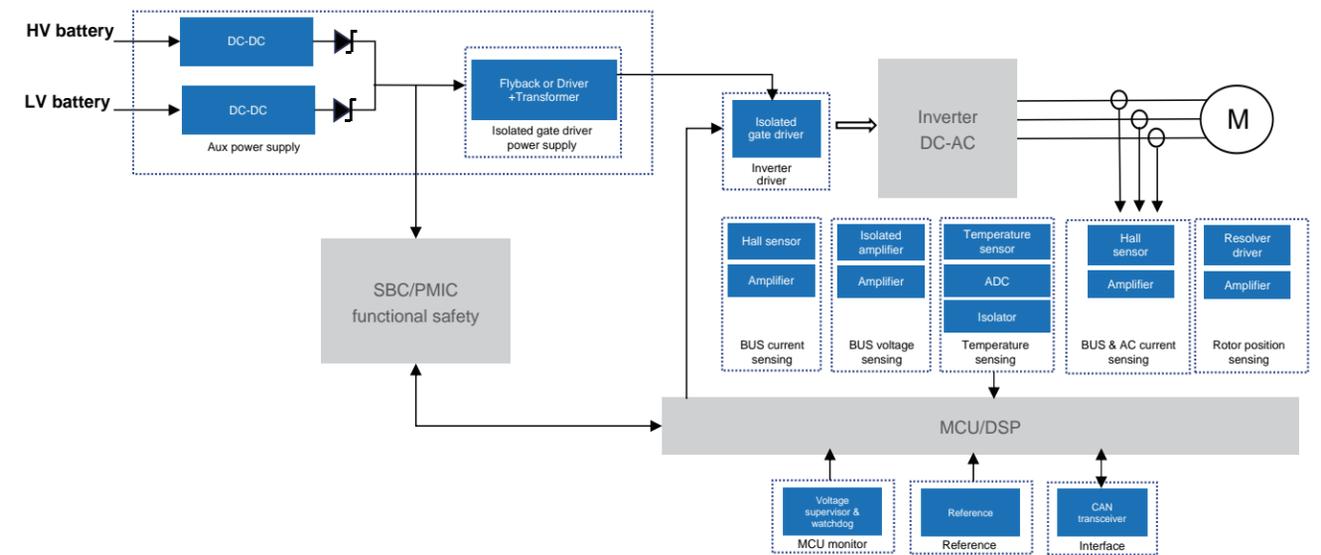
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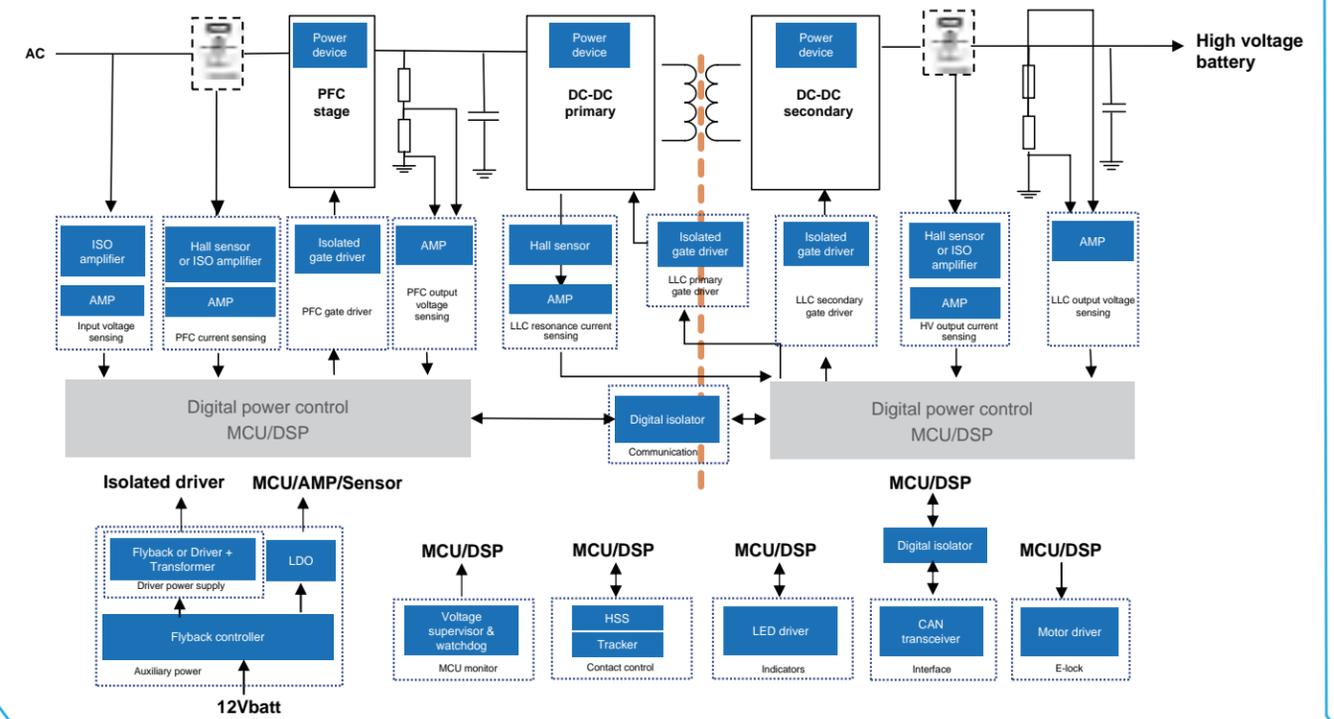


## Automotive Traction Inverter, OBC/DC-DC, BMS Solution

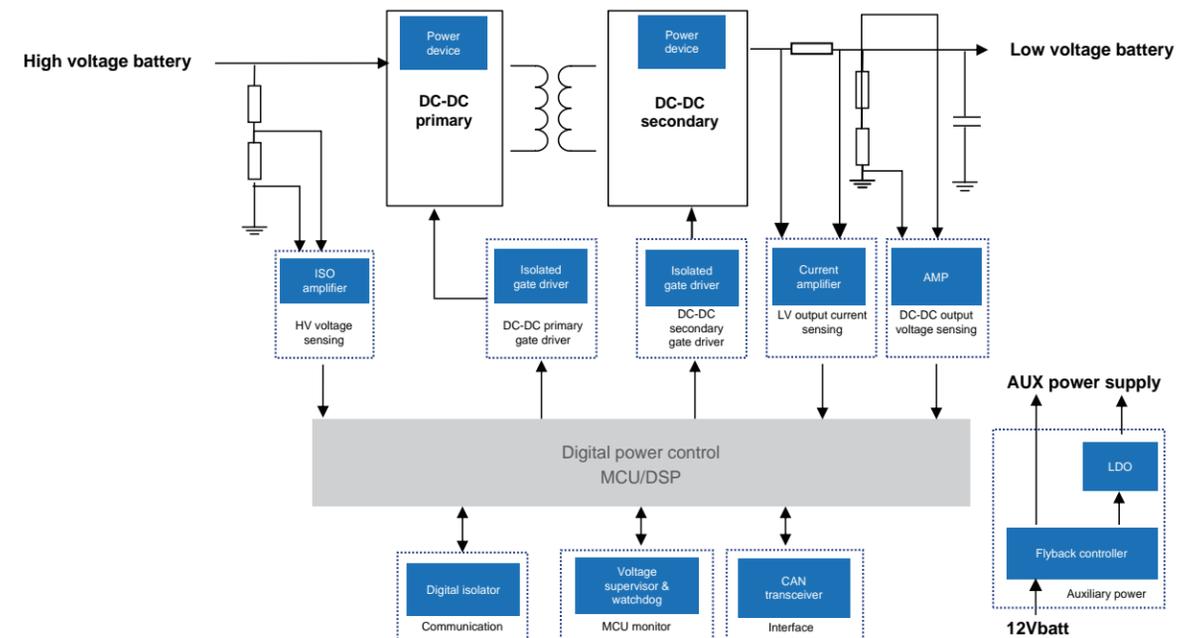
- Traction Inverter
- On-board Charger (OBC)
- DC-DC Charger
- Battery Management System (BMS)



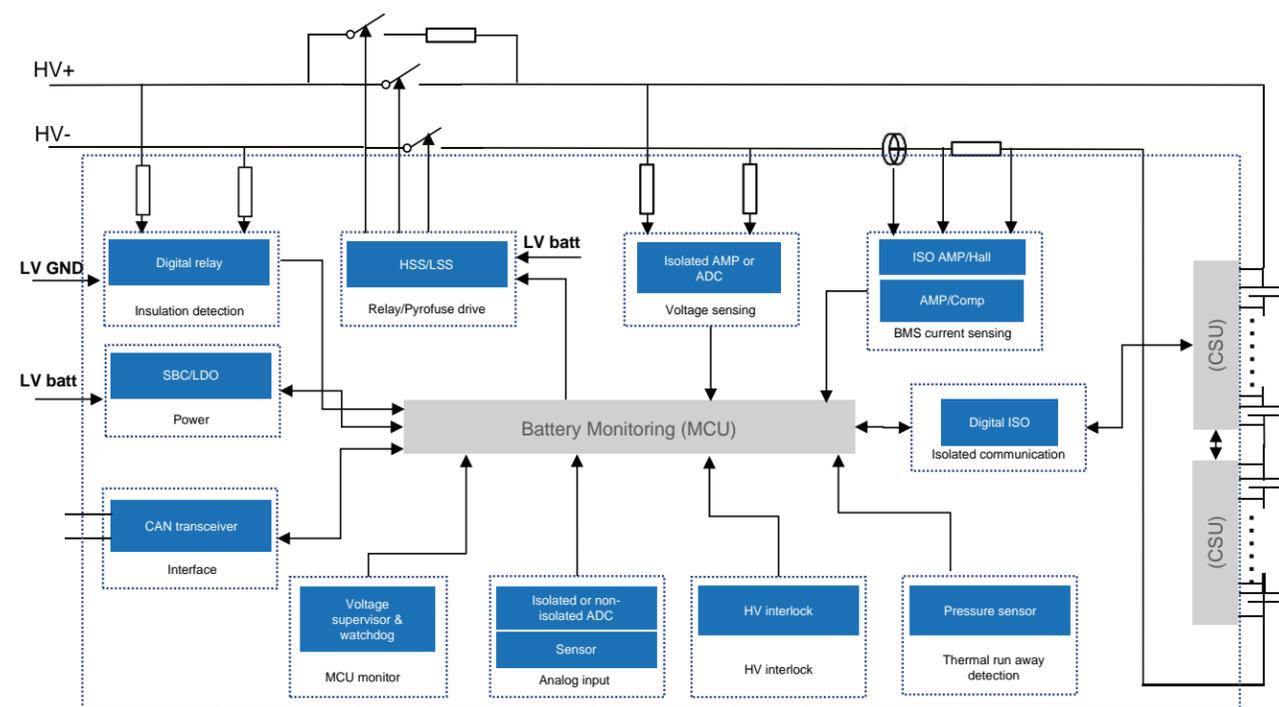
NOVOSENSE Part Number	Product Description	Application
NSM203x	Linear Hall current sensor	Phase current detection of electric drive system
NSM2020	Coreless linear Hall current sensor	Low-voltage battery charging current detection
NSM2115	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection, resonant cavity current detection
NSM2117	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection, resonant cavity current detection
NST235-Q1, NST86-Q1, NST60-Q1	High linearity & high accuracy analog output temperature sensor	Temperature sensing
NST175-Q1	I <sup>2</sup> C interface digital temperature sensor with 27 selectable addresses, supporting SMBus alarm	Temperature sensing
NSI1300	Isolated amplifier	Isolated current sensing
NSI1311	Isolated amplifier	Isolated current sensing
NSI1200	Isolated amplifier	Isolated current sensing
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSI6611, NSI6651	Isolated single-channel driver with protection functions	MOS/IGBT/SiC isolated gate driver
NSI67xx	Single-channel isolated gate driver with isolated analog sensing and protection functions	MOS/IGBT/SiC isolated gate driver
NSI6911	Single-channel isolated gate driver with functional safety and protection functions	MOS/IGBT/SiC isolated gate driver
NSD1026V	High-speed, low-side, dual-channel non-isolated gate driver	MOS/IGBT/SiC non-isolated gate driver
NSD731x	40V H-bridge brushed DC motor driver with fault reporting	Push-pull isolated power supply
NSR2240x	Flyback controller	Aux power supply
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NCA1043(B)	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NSI824x	Digital isolator	Digital signal isolation
NSI822x	Digital isolator	Digital signal isolation
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSREF30xx	High-precision voltage references	Current & voltage & temperature sensing
NSREF31xx	High-precision voltage references	Current & voltage & temperature sensing
NSOPA240x	Power operational amplifier	Rotary transformer driver



NOVOSENSE Part Number	Product Description	Application
NSM2011	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2013	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2015	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2017	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2019	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2113	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection, resonant cavity current detection
NSM2117	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection, resonant cavity current detection
NSM2020	Coreless linear Hall current sensor	Low-voltage battery charging current detection
NSI1300	Isolated amplifier	Isolated current sensing
NSI1200	Isolated amplifier	Isolated current sensing
NSI1311	Isolated amplifier	Isolated current sensing
NSI1306	Isolated ADC	Isolated voltage sensing
NSI22C11	Isolated single-ended comparator	Over voltage and over temperature protection
NSI22C12	Isolated window comparator	Over current protection
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NST235-Q1, NST86-Q1, NST60-Q1	High linearity & high accuracy analog output temperature sensor	Temperature sensing
NST175-Q1	I <sup>2</sup> C interface digital temperature sensor with 27 selectable addresses, supporting SMBus alarm	Temperature sensing
NSI6601M	Single-channel isolated gate driver with Miller Clamp	MOS/IGBT/SiC isolated gate driver
NSI6602V	High-performance dual-channel isolated gate driver	MOS/IGBT/SiC isolated gate driver
NSD731x	40V H-bridge brushed DC motor driver with fault reporting	E-lock driver
NPC060N065A	650V SiC MOSFET	Automotive OBC DC-DC power conversion
NPC0x0N120A	1200V SiC MOSFET	Automotive OBC DC-DC power conversion
NPS0x0N065A	650V Super Junction MOSFET	Automotive OBC DC-DC power conversion
NSR2240x	Flyback controller	Aux power supply
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NSIP3266-Q1	Full-bridge transformer driver, providing >4W of power	Isolated power supply for gate driver
NCA1043(B)	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NSI824x	Digital isolator	Digital signal isolation
NSI822x	Digital isolator	Digital signal isolation
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSL2161x-Q1	1CH linear LED driver	Automotive small light driver
NSL2163x-Q1	3CH linear LED driver	Automotive small light driver
NSREF30xx	High-precision voltage references	Current & voltage & temperature sensing
NSE425x	Voltage tracker	Sensor power supply



NOVOSENSE Part Number	Product Description	Application
NSM2020	Coreless linear Hall current sensor	Low-voltage battery charging current detection
NSI1300	Isolated amplifier	Isolated current sensing
NSI1311	Isolated amplifier	Isolated voltage sensing
NSI1200	Isolated amplifier	Isolated current sensing
NSI22C11	Isolated single-ended comparator	Over voltage and over temperature protection
NSI22C12	Isolated window comparator	Over current protection
NSCSA21x	Current sensing amplifier	Achieve higher system accuracy, better feedback control and protection
NSCSA24x	Current sensing amplifier	Achieve higher system accuracy, better feedback control and protection
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSCSA21x	High linearity & high accuracy analog output temperature sensor	Temperature sensing
NST175-Q1	I <sup>2</sup> C interface digital temperature sensor with 27 selectable addresses, supporting SMBus alarm	Temperature sensing
NSI6602V, NSI6622V	High-performance dual-channel isolated gate driver	MOS/IGBT/SiC isolated gate driver
NSI6601	Single-channel isolated gate driver	MOS/IGBT/SiC isolated gate driver
NSI6601M	Single-channel isolated gate driver with Miller Clamp	MOS/IGBT/SiC isolated gate driver
NSI6801	Opto-compatible single-channel isolated gate driver	MOS/IGBT/SiC isolated gate driver
NSD1026V	High-speed, low-side, dual-channel non-isolated gate driver	MOS/IGBT/SiC non-isolated gate driver
NPC060N065A	650V SiC MOSFET	Automotive DC-DC power conversion
NPC0x0N120A	1200V SiC MOSFET	Automotive DC-DC power conversion
NPS0x0N065A	Super Junction MOSFET	Automotive DC-DC power conversion
NSR2240x	Flyback controller	Aux power supply
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NCA1043(B)	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NSI824x	Digital isolator	Digital signal isolation
NSI822x	Digital isolator	Digital signal isolation
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSREF30xx	High-precision voltage references	Current & voltage & temperature sensing

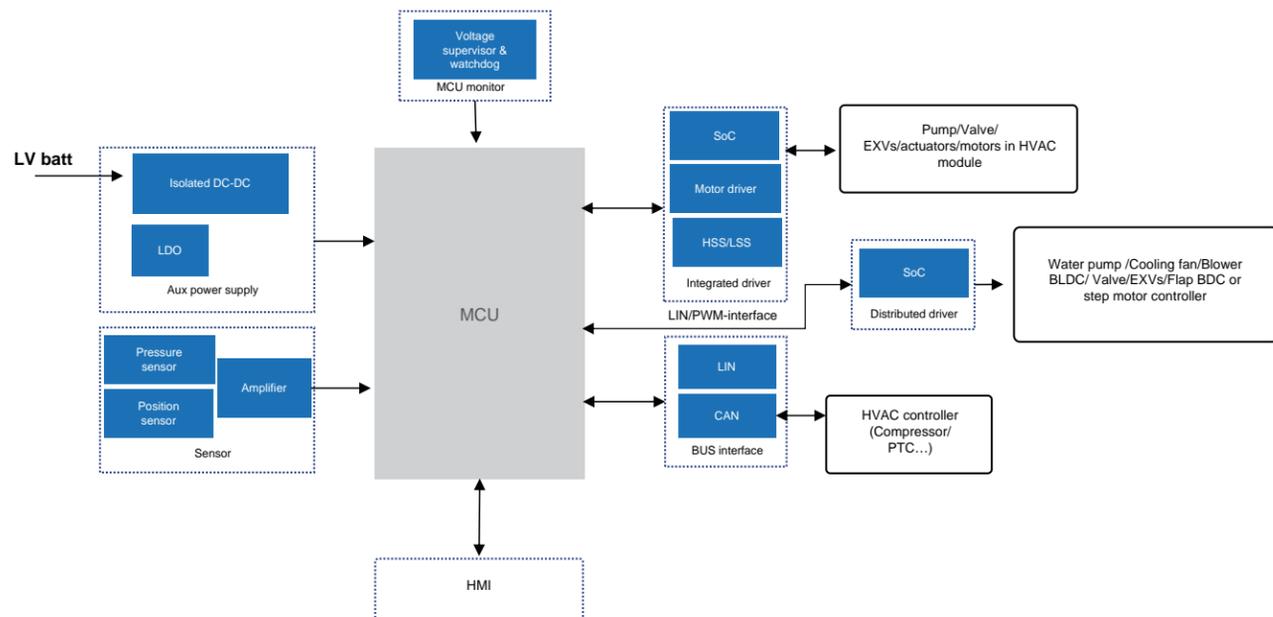


NOVOSENSE Part Number	Product Description	Application
NSM203x	Linear Hall current sensor	Phase current detection of electric drive system
NSI1300	Isolated amplifier	Isolated current sensing
NSI1311	Isolated amplifier	Isolated voltage sensing
NSI1306	Isolated ADC	Isolated current sensing
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSPADx	Absolute pressure sensor	BPS battery pack thermal runaway pressure detection
NSPASx	Absolute pressure sensor	BPS battery pack thermal runaway pressure detection
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NSIP605x	Transformer driver for isolated power supply	Isolated power supply
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1043(B)	CAN transceiver	CAN communication
NCA1051A	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NSI824x	Digital isolator	Digital signal isolation
NSI822x	Digital isolator	Digital signal isolation
NSE34050	40V 50mohm single/dual/four channel high-side driver	Relay/solenoid valve/power switch
NSE11409	40V 90mohm single channel low-side driver	Relay/solenoid valve/load switch
NSD12409	Dual-channel 90mΩ smart low side driver	Relay control
NSD11416, NSD12416	Single/dual-channel 160mΩ low side driver	Relay control
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSI7258	Solid state relay	Circuit protection

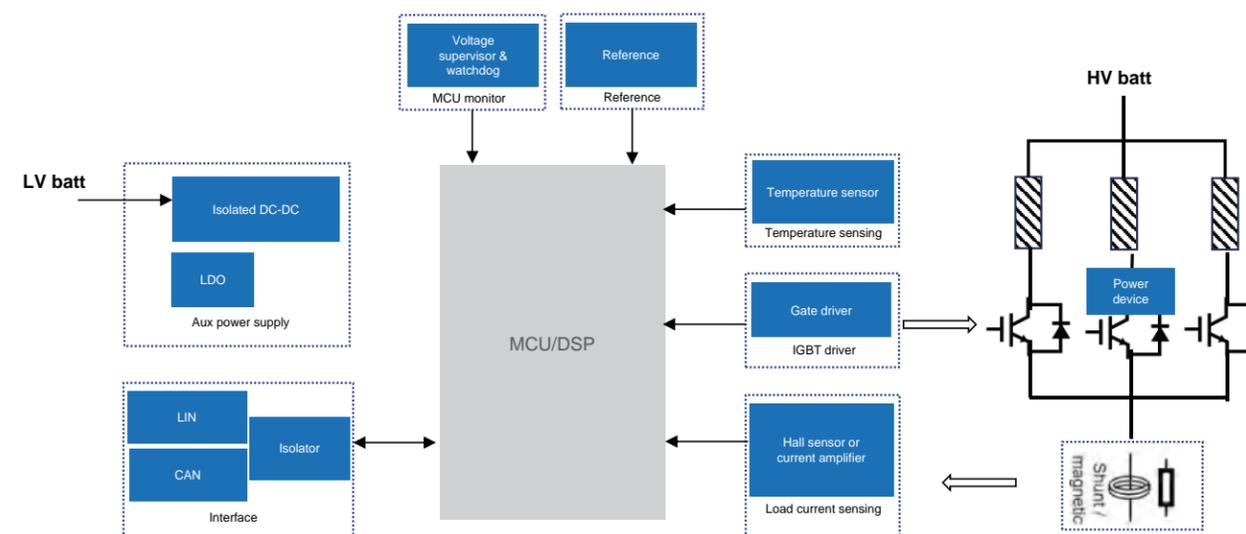


## Automotive Thermal Management System

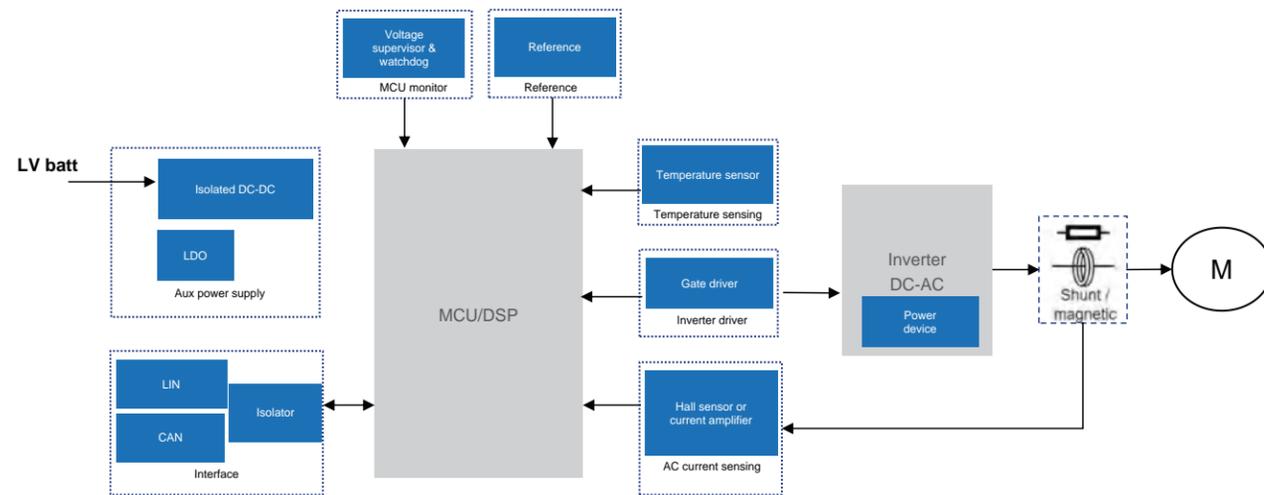
- Thermal Management Controller
- PTC
- E-Compressor



NOVOSENSE Part Number	Product Description	Application
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSC9262	Capacitive automotive pressure sensor signal conditioning chip supporting LIN BUS	Automotive capacitive air conditioning pressure sensor module
NSC9260x	Pressure sensor resistive conditioning ASIC (analog output)	Engine oil/break pressure, TMAP, VBS, carbon canister purging, FPS, KPS etc.
NSC9264	Capacitive automotive pressure sensor signal conditioning chip supporting SENT BUS	Automotive capacitive sensor module
NSM1013	High-voltage Hall latch	seat position, motor commutation
NSM3012	Hall angle sensor	Valve position, motor position
NSM3011	Hall angle sensor	Valve position, motor position
NSUC1602	Integrated LIN BUS, integrated pre-driver for a 1500W automotive BLDC motor drive processor	Thermal management electronic water pump
NSUC1610	Integrated LIN BUS, integrated MOSFET for a 20W automotive small motor drive processor	Thermal management electronic water valve
NSD731x	H-bridge brushed DC motor driver with fault reporting	Valve motor driver
NSD8308/12	Multi-channel half bridge driver with advanced diagnostics	Relay control, domain controller, A/C flap control
NSD8381	40V stepper motor driver with 1/32 microstepping	Domain controller, A/C controller, electronic expansion valve
NSR2240x	Flyback controller	Aux power supply
NSR104xx	Buck	Power supply Buck
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NCA1043(B)	CAN transceiver	CAN communication
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1021S	LIN transceiver	LIN communication
NSI824x	Digital isolator	Digital signal isolation
NSI822x	Digital isolator	Digital signal isolation
NSE34050	40V 50mohm single/dual/four channel high-side driver	Relay/solenoid valve/power switch
NSE11409	40V 90mohm single channel low-side driver	Relay/solenoid valve/load switch
NSD12409	Dual-channel 90mΩ smart low side driver	Relay/valve control
NSD11416, NSD12416	Single/dual-channel 160mΩ low side driver	Relay/valve control
NSR7808	Voltage supervisor	MCU core voltage supervisor



NOVOSENSE Part Number	Product Description	Application
NSM2011	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2013	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2015	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2017	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2019	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2113	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection, resonant cavity current detection
NSI1300	Isolated amplifier	Isolated current sensing
NSI1311	Isolated amplifier	Isolated voltage sensing
NST20	High linearity & high accuracy analog output temperature sensor	Temperature sensing
NST175	I <sup>2</sup> C interface digital temperature sensor with 27 selectable addresses, supporting SMBus alarm	Temperature sensing
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSI6601	Single-channel isolated gate driver	MOS/IGBT/SiC isolated gate driver
NSI6601M	Single-channel isolated gate driver with Miller Clamp	MOS/IGBT/SiC isolated gate driver
NSI6602V	High-performance dual-channel isolated gate driver	MOS/IGBT/SiC isolated gate driver
NSD1026V	High-speed, low-side, dual-channel non-isolated gate driver	MOS/IGBT/SiC non-isolated gate driver
NSR2240x	Flyback controller	Aux power supply
NSR104xx	Buck	Power supply Buck
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NCA1043(B)	CAN transceiver	CAN communication
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1021S	LIN transceiver	LIN communication
NSI822x	Digital isolator	Digital signal isolation
NSR7808	Voltage supervisor	MCU core voltage supervisor
NPI040N120A (1200V, 40V)	1200V IGBT	Automotive PTC power conversion
NSREF30xx	High-precision voltage references	Current & voltage & temperature sensing
NSREF31xx	High-precision voltage references	Current & voltage & temperature sensing



NOVOSENSE Part Number	Product Description	Application
NSM2011	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2013	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2015	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2017	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2019	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection
NSM2113	Integrated Hall current sensor	PFC current detection, high-voltage battery charging current detection, resonant cavity current detection
NSI1300	Isolated amplifier	Isolated current sensing
NSI1311	Isolated amplifier	Isolated voltage sensing
NST20	High linearity & high accuracy analog output temperature sensor	Temperature sensing
NST175	I <sup>2</sup> C interface digital temperature sensor with 27 selectable addresses, supporting SMBus alarm	Temperature sensing
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSI6601M	Single-channel isolated gate driver with Miller Clamp	MOS/IGBT/SiC isolated gate driver
NSI6602V	High-performance dual-channel isolated gate driver	MOS/IGBT/SiC isolated gate driver
NSD1624	High-voltage non-isolated half bridge gate driver	MOS/IGBT/SiC non-isolated gate driver
NSD1026V	High-speed, low-side, dual-channel non-isolated gate driver	MOS/IGBT/SiC non-isolated gate driver
NPC0x0N120A	1200V SiC MOSFET	Automotive E-compressor DC-DC stage power conversion
NPI030N065A	650V IGBT	Automotive E-compressor DC-DC stage power conversion
NPI040N120A	1200V IGBT	Automotive E-compressor DC-DC stage power conversion
NSR2240x	Flyback controller	Aux power supply
NSR104xx	Buck	Power supply Buck
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NCA1043(B)	CAN transceiver	CAN communication
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1021S	LIN transceiver	LIN communication
NSI822x	Digital isolator	Digital signal isolation
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSREF30xx	High-precision voltage references	Current & voltage & temperature sensing
NSREF31xx	High-precision voltage references	Current & voltage & temperature sensing

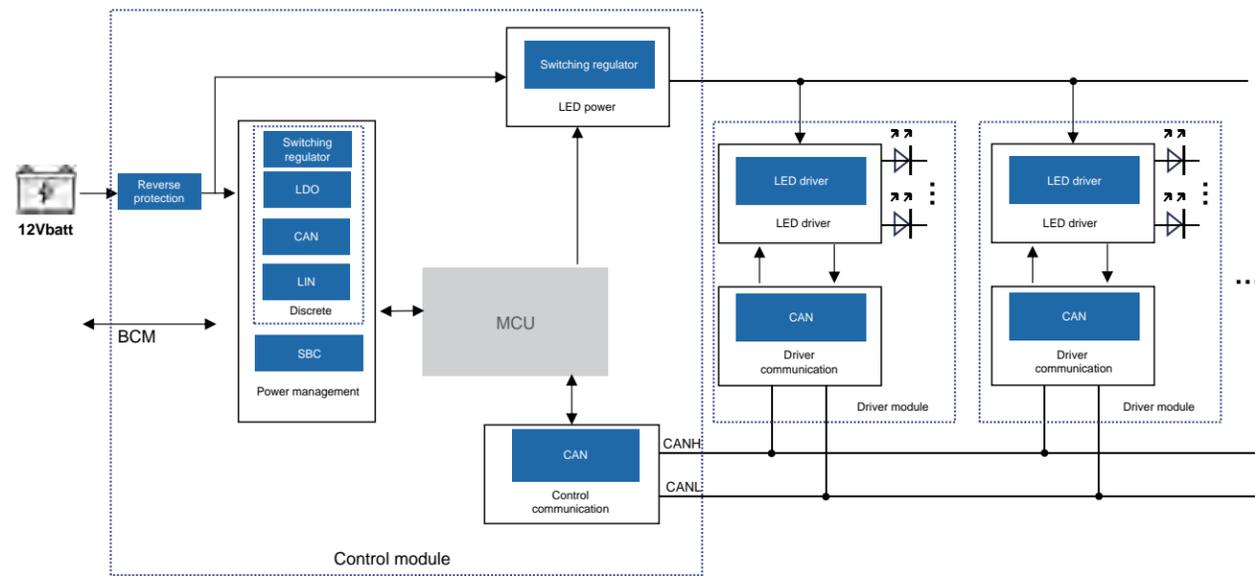


## Automotive LED Driver Solution

- Rear Light System
- Headlight System

# Rear Light System

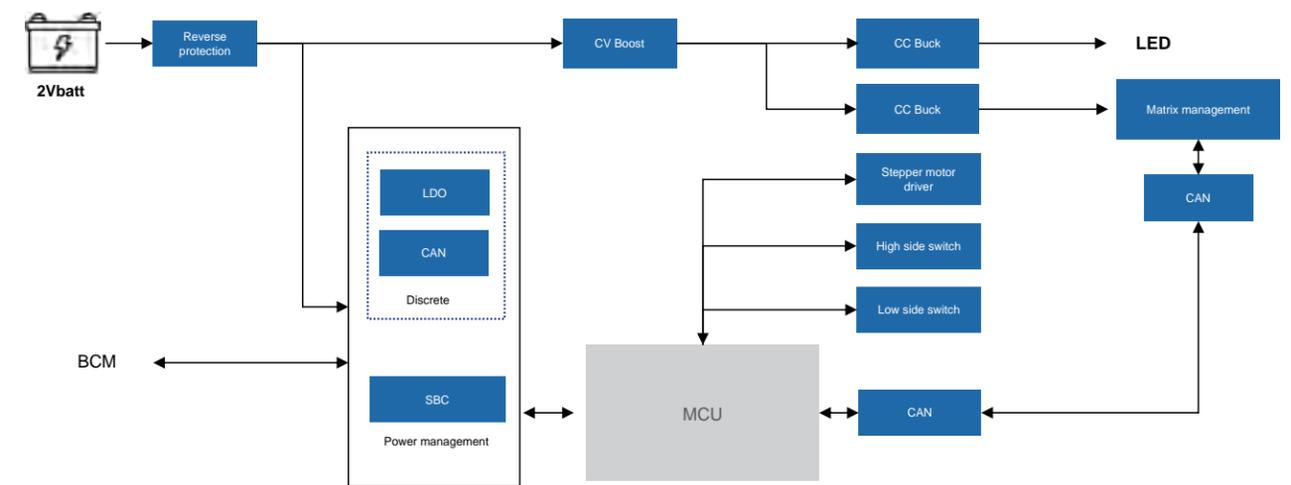
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NOVOSENSE Part Number	Product Description	Application
NSR114xx	Buck	Power supply Buck
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NCA1043(B)	CAN transceiver	CAN communication
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NCA1169	CAN transceiver	CAN communication
NCA1021S	LIN transceiver	LIN communication
NSL2161x-Q1	1CH linear LED driver	Rear light drive, width light driver
NSL2163x-Q1	3CH linear LED driver	Rear light drive, width light driver
NSL21912-Q1	12CH through rear light LED driver	Animated rear lighting driver
NSL23916-Q1	16CH through rear light LED driver	Animated rear lighting driver
NSL23924-Q1	24CH through rear light LED driver	Animated rear lighting driver
NSL23716x-Q1	16CH low side LED driver	Animated rear lighting driver

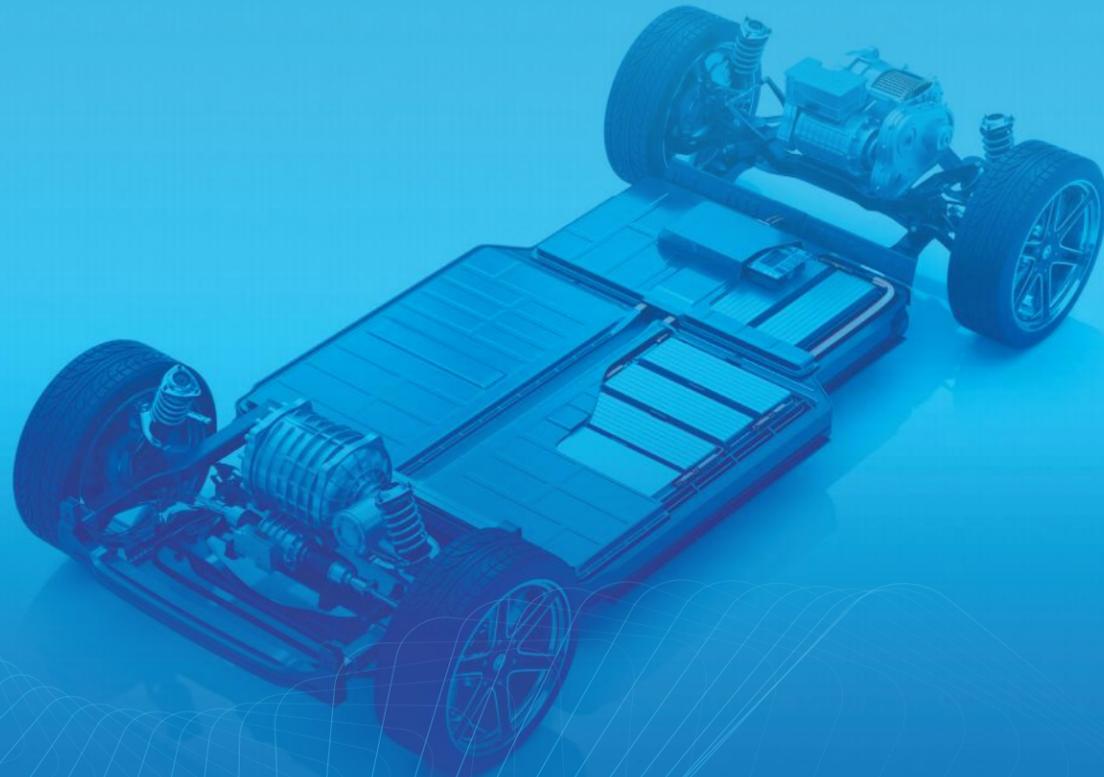
# Headlight System

NOVOSENSE



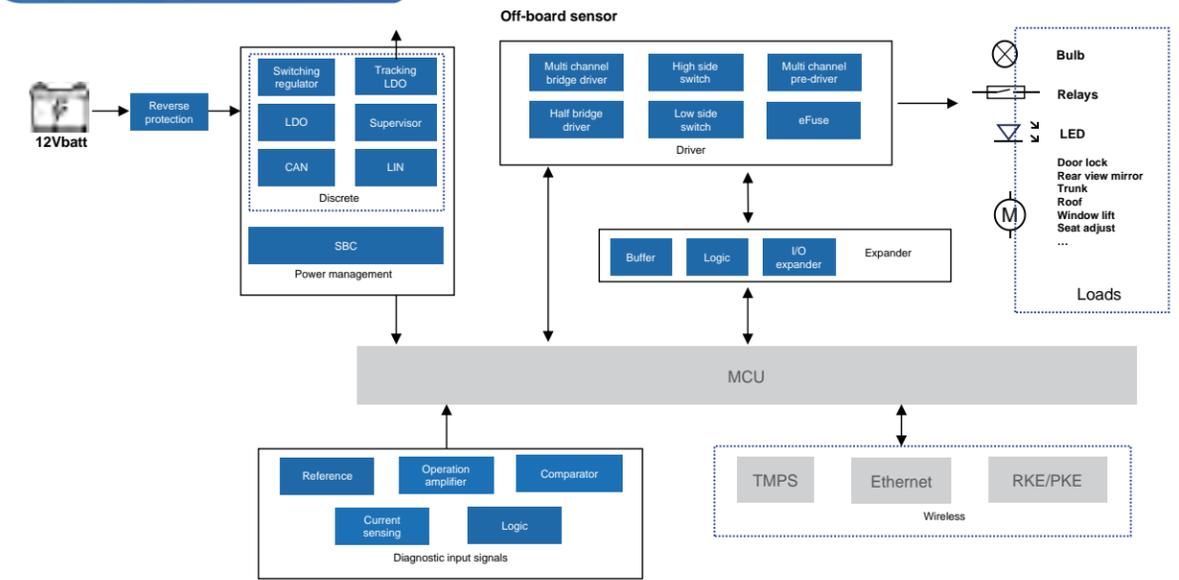
NOVOSENSE Part Number	Product Description	Application
NSL31520-Q1	Dual-channel CC Buck LED driver	Headlights
NSL31682-Q1	Dual-channel CV Boost LED driver	Headlights
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NSE34050	40V 50mohm single/dual/four channel high-side driver	Relay/solenoid valve/power switch
NSE11409	40V 90mohm single channel low-side driver	Relay/solenoid valve/load switch
NSD8381	40V stepper motor driver with 1/32 microstepping	Headlight AFS control
NSD12409	Dual-channel 90mΩ smart low side driver	Relay control
NSD11416, NSD12416	Single/dual-channel 160mΩ low side driver	Relay control
NCA1043(B)	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication

# Body Control Module (BCM)



## Body Control Modules (BCM)

NOVOSENSE

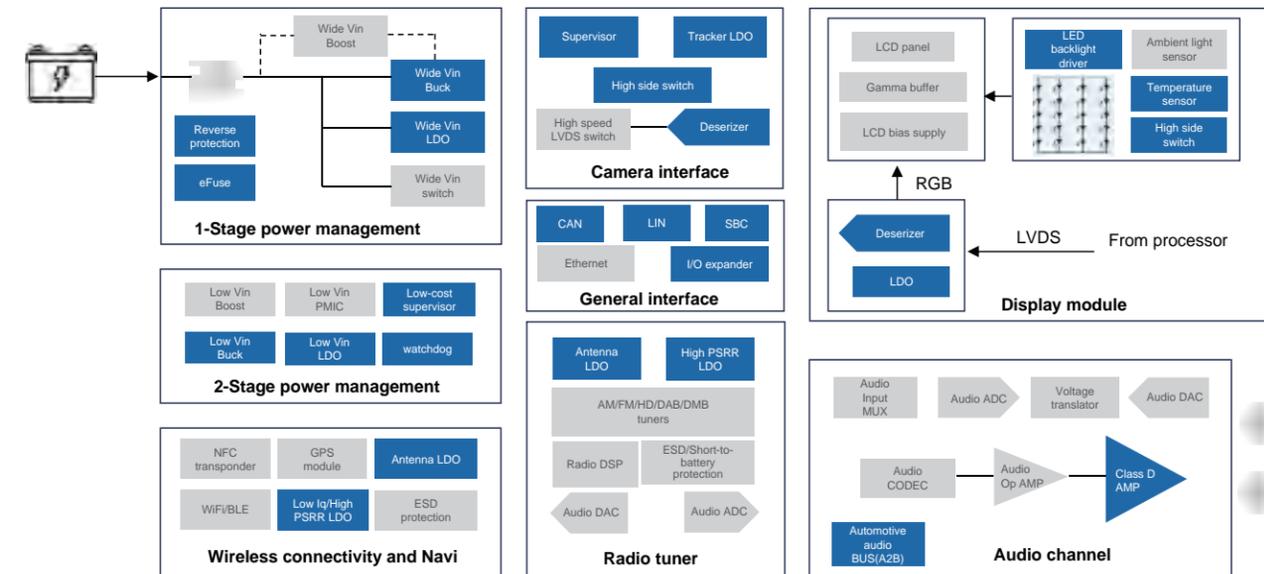


NOVOSENSE Part Number	Product Description	Application
NSM1013	High-voltage Hall latch	Seat position, motor commutation
NSM1030	Programmable high voltage Hall switch/ latch	Actuator position, motor commutation
NSM3011/12/13	Hall angle sensor	Valve position, motor position
NSOPA9xxx	40V high-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSOPA8xxx	5.5V low-voltage general-purpose operational amplifier	Signal amplification/ conditioning/ active filtering
NSCSA21x	Current sensing amplifier	Achieve higher system accuracy, better feedback control and protection
NSCSA24x	Current sensing amplifier	Achieve higher system accuracy, better feedback control and protection
NSD731x	40V H-bridge brushed DC motor driver with fault reporting	Domain controller, E-Lock, side mirror
NSD8306/8/10/12	40V multi-channel half bridge driver with advanced diagnostics	Relay control, domain controller, A/C flap control, side mirror
NSD3604/8	40V 4/8-channel brushed DC pre-driver	Domain controller, E-Lock, electric trunk, electric window
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NSR114xx	Buck	Power supply Buck
NSE34050	40V 50mohm single/dual/four channel high-side driver	Relay/solenoid valve/power switch
NSE11409	40V 90mohm single channel low-side driver	Relay/solenoid valve/load switch
NSD12409	Dual-channel 90mΩ smart low side driver	Relay/valve control
NSD11416, NSD12416	Single/dual-channel 160mΩ low side driver	Relay/valve control
NSD56008	40V 8-channel smart low side driver with limp home mode	Relay control, LED
NSR1048	Buck	Power supply Buck
NSE425x	Voltage tracker	Sensor power supply
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSR7850	Supervisor window watchdog	MCU core voltage supervisor
NSREF30xx	High-precision voltage references	Current & voltage & temperature sensing
NSREF31xx	High-precision voltage references	Current & voltage & temperature sensing
NCA1043(B)	CAN transceiver	CAN communication
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1462	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NCA1021S	LIN transceiver	LIN communication
NCA8244	Buffer	Improve driver ability of bus-oriented receivers and transmitters, clock drivers

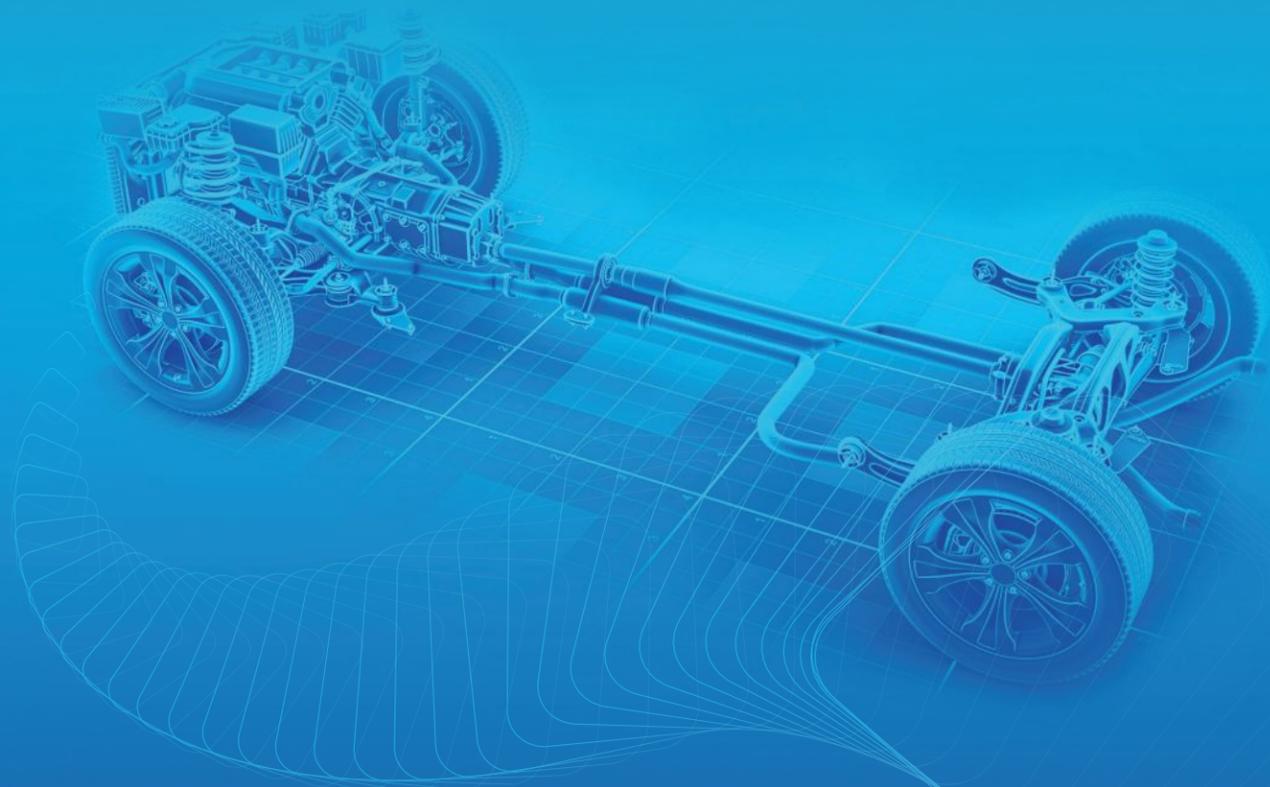
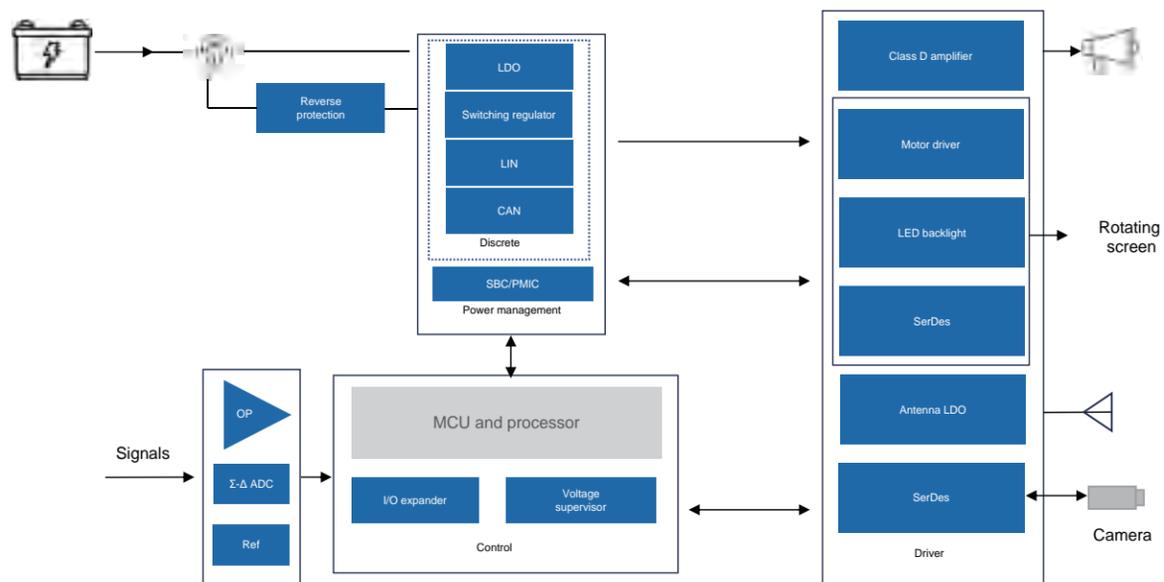


## Automotive Infotainment & Instrumentation Solution

- Infotainment
- Dashboard



NOVOSENSE Part Number	Product Description	Application
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NSE5701/2	1/2 channel antenna protection LDO	Automotive infotainment system
NCA1043(B)	CAN transceiver	CAN communication
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NCA1169	CAN transceiver	CAN communication
NCA1021S	LIN transceiver	LIN communication
NSE34050	40V 50mohm single/dual/four channel high-side driver	Relay/solenoid valve/power switch
NSR1048	Buck	Power supply Buck
NSE425x	Voltage tracker	Sensor power supply
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSR7850	Supervisor window watchdog	MCU core voltage supervisor
NCA9539	PC GPIO expander	PC GPIO expander

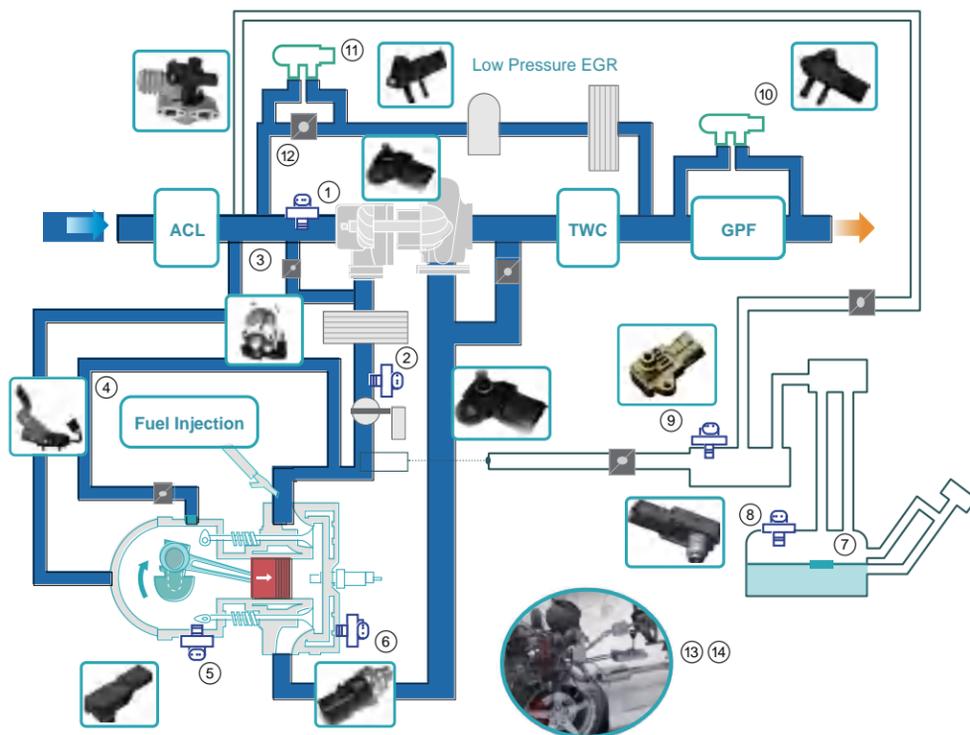


NOVOSENSE Part Number	Product Description	Application
NSR31xxx, NSR33xxx, NSR35xxx	40V low Iq LDO	Power supply LDO
NSE5701/2	1/2 channel antenna protection LDO	Automotive infotainment system
NCA1043(B)	CAN transceiver	CAN communication
NCA1042B	CAN transceiver	CAN communication
NCA1044	CAN transceiver	CAN communication
NCA1145	CAN transceiver	CAN communication
NCA1169	CAN transceiver	CAN communication
NCA1021S	LIN transceiver	LIN communication
NSE34050	40V 50mohm single/dual/four channel high-side driver	Relay/solenoid valve/power switch
NSR1048	Buck	Power supply Buck
NSE425x	Voltage tracker	Sensor power supply
NSR7808	Voltage supervisor	MCU core voltage supervisor
NSR7850	Supervisor window watchdog	MCU core voltage supervisor
NCA9555	IPC GPIO expander	IPC GPIO expander

## Fuel Powertrain & Fuel Supply System Solution

## NOVOSENSE Solution

1. Intake manifold pressure sensor
  2. EGR-TMAP pressure sensor
  3. Throttle position sensor
  4. Accelerator pedal position sensor
  5. Positive crankcase ventilation pressure sensor
  6. Oil pressure sensor
  7. Oil tank level detection sensor
  8. EVAP/FTPS pressure sensor
  9. Canister desorption pressure sensor
  10. GPF/DPF differential pressure sensor
  11. EGR valve differential pressure sensor
  12. Exhaust gas circulation valve position sensor
  13. VBS Vacuum boost pressure sensor
  14. Brake pressure sensor
  15. ECU atmospheric pressure sensor (BAP)
- Pressure sensor IC: NSPAS1, NSPAS3
  - Pressure sensor MEMS: NSP1630/1, NSP1632 (Pt)
  - Signal conditioning ASIC: NSA/C9260x (analog), NSA/C9264 (SENT)
  - Pressure sensor MEMS: NSP1831, NSP1832(Pt)
  - Signal conditioning ASIC: NSA/C9260x (analog), NSA/C9264 (SENT)
  - Pressure sensor MEMS: NSP1831, NSP1832(Pt)
  - Signal conditioning ASIC: NSA/C9260x (analog), NSA/C9264 (SENT)
  - Pressure sensor MEMS: NSP1831, NSP1832(Pt)
  - Signal conditioning ASIC: NSA/C9260x (analog), NSA/C9264 (SENT)
  - Pressure sensor MEMS: NSP1831, NSP1832(Pt)
  - Signal conditioning ASIC: NSA/C9260x (analog), NSA/C9264 (SENT)



NOVOSENSE Part Number	Product Description	Application
NSPAS1/3	Absolute pressure sensor	TMAP, VBS, Canister desorption
NSPGM1/2	Differential pressure sensor	FTPS, KPS, GPF, VBS, EGR valve
NSPDC1	Differential pressure sensor	GPF/DPF, EGR valve
NSM3011/12	Hall angle sensor	EGR valve, throttle, accelerator pedal, oil level detection
NSA9260x	Pressure sensor resistive conditioning ASIC (analog output)	Oil/brake pressure, TMAP, VBS, Canister desorption, FTPS, KPS, etc
NSA9264	Pressure transducer resistive conditioning ASIC (SENT output)	Oil/brake pressure, TMAP, VBS, Canister desorption, FTPS, KPS, etc
NSC9260x	Pressure sensor capacitive conditioning ASIC (analog output)	A/C pressure, oil/brake pressure, TMAP, VBS, Canister desorption, FTPS, KPS, etc
NSC9264	Pressure sensor capacitive conditioning ASIC (SENT output)	Oil/brake pressure, TMAP, VBS, Canister desorption, FTPS, KPS, etc
NSC9262	Pressure sensor capacitive conditioning ASIC (LIN output)	A/C pressure
NSP1630/1	Absolute pressure MEMS wafer	TMAP, VBS, Canister desorption
NSP1632	Precious-metal absolute pressure MEMS wafer	TMAP, VBS, Canister desorption, EGR-Turbo
NSP1830/1	Differential pressure MEMS wafer	FTPS, KPS, GPF, VBS
NSP1832	Precious-metal differential pressure MEMS wafer	FTPS, KPS, GPF/DPF, VBS, EGR valve
NSE425x	Voltage tracker	Sensor power supply

Robust

Reliable

Keep Learning

Persist in Long-term Value

