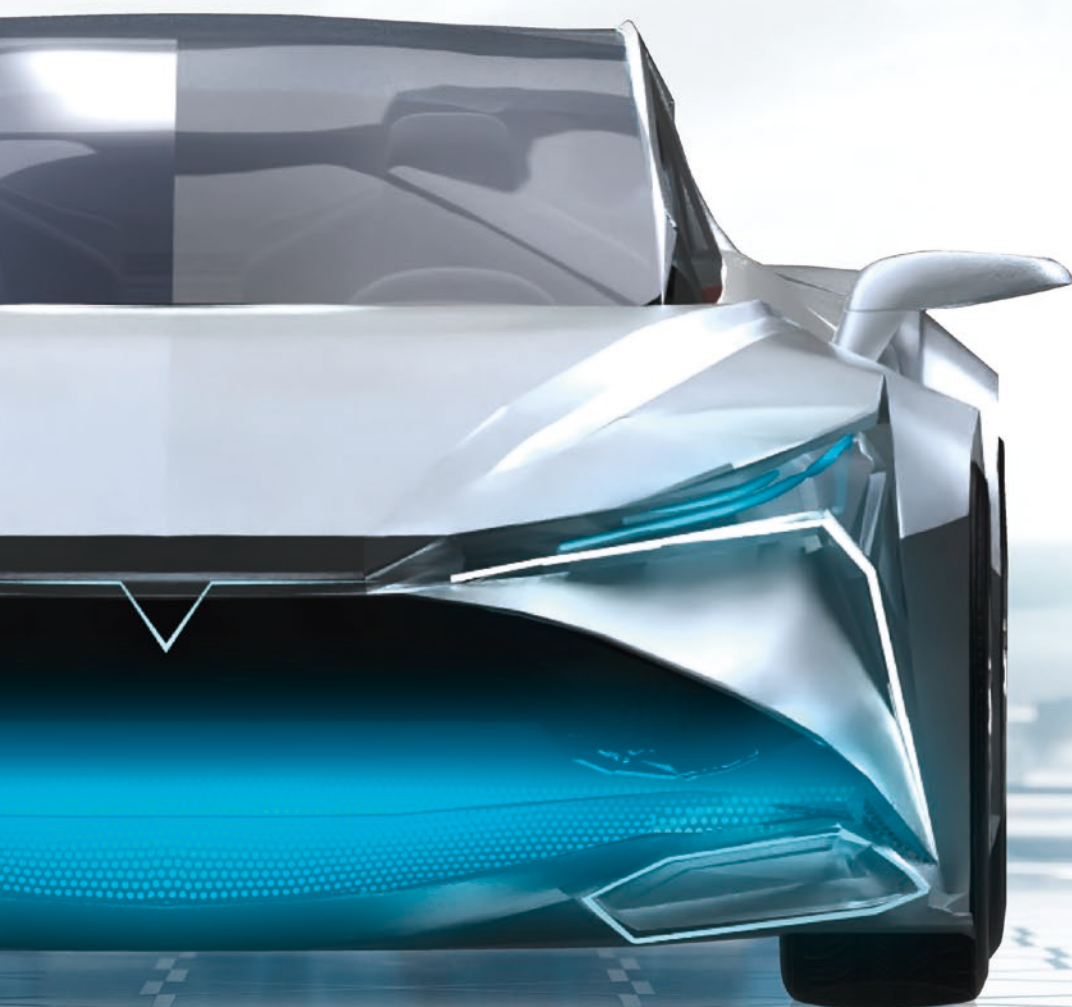


Application Brochure for

AUTOMOTIVE

Ver.3.0



Electronics for the Future

ROHM will continue to contribute to the future of automotive safety through electronics

A leading manufacturer of semiconductors and electronic components for over 60 years, ROHM continues to supply products featuring superior quality and reliability for a wide range of markets, from consumer electronics and IT equipment to industrial equipment and automotive applications, based on a corporate objective of 'Quality First' established since its founding.

As the demands for energy efficiency and miniaturization continue to rise, ROHM is implementing innovative product development, focusing on power and analog semiconductors that contribute to greater energy savings, miniaturization, safety, and security in the automotive field, from xEVs and body ECUs to ADAS/infotainment and LED lighting.

The ROHM Group achieves product development and stable supply through a vertically integrated production system in which the entire manufacturing process, from the material stage to finished products, is carried out in-house. Infusing a high level of quality into every process ensures outstanding traceability and an optimized supply chain, making it possible to deliver the superior quality, high reliability, and stable supply required by the automotive market.

ROHM will continue to carry out product development that meets the needs of customers and markets while providing society with advanced, high quality products that contribute to further technical innovation in automotive applications.



The company name of ROHM, a semiconductor manufacturer, combines "R" the first letter of our original main product, resistors, with the unit for resistance "ohm". The "R" now also stands for Reliability. Quality First is ROHM's corporate policy.

ROHM Co.,Ltd.

Production System

- High quality, high reliability manufacturing and stable supply through vertical integration
- Outstanding traceability
- Secure BCM (Business Continuity Management) system

Product Development

- Matching design and manufacturing technologies through circuit design, layout, and processes
- Product deployment that leverages heat dissipation design and packaging technologies
- Industry-leading cutting edge power semiconductors

Solutions

- Wide range of products from resistors to semiconductors and modules
- High efficiency solutions centered on power and analog semiconductors
- Design support based on accumulated technical expertise
- Online support content facilitates design

ROHM develops innovative products that contribute to energy conservation, miniaturization, safety, and security in the automotive field by combining design, manufacturing, quality assurance, and other technologies cultivated over many years. At the same time, we contribute to the evolution of vehicle systems through a reliable production system that combines high quality and reliability with stable supply.

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BLOCK DIAGRAM

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Automotive DC-DC Converter P.13
Onboard Charger P.14
Body ECU
Body Control Module P.15
Electric Compressor P.16

ADAS/Infotainment

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ADAS Light Detection and Ranging P.19
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QUALITY and STABLE SUPPLY

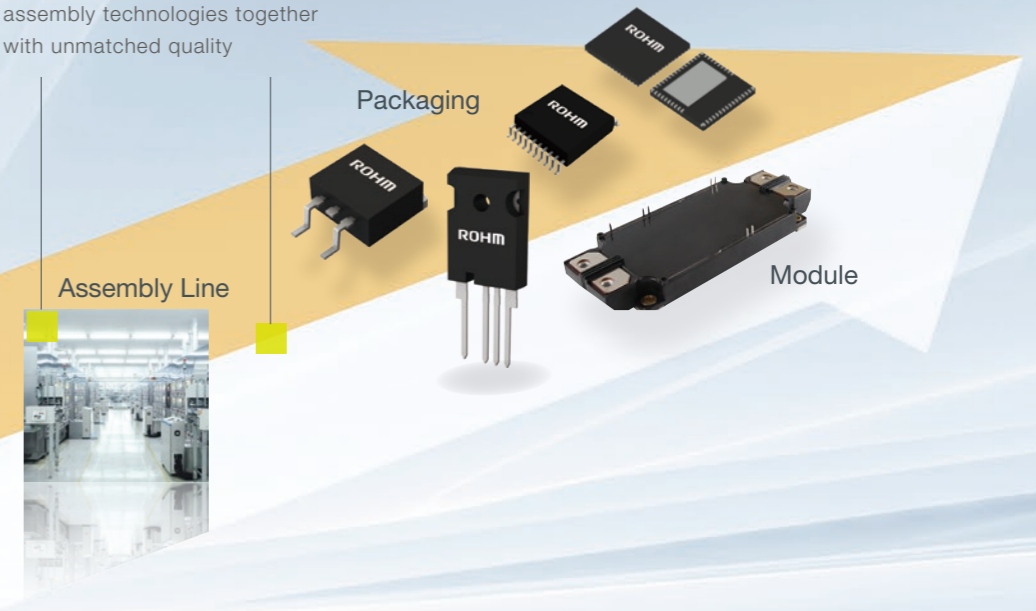
Achieving high quality and stable supply through a vertically integrated production system

ROHM pursues 'quality first' manufacturing. To guarantee consistent quality assurance and stable supply, the ROHM Group has established a vertically integrated production system that performs the entire manufacturing process, from the material stage to finished products, in-house along with a BCM (Business Continuity Management) system that can maintain product supply even in the event of unforeseen circumstances such as natural disasters. Compared to general fabless and foundry manufacturers, our business model is less susceptible to the effects of natural and human disasters, allowing us to ensure stable supply to our customers.

What's more, ROHM products achieve 4M traceability (Man, Machine, Material, Method) in all processes by allowing production information (production data/lot data) to be obtained from the actual items.

Packaging

Our overseas production facilities leverage the latest assembly technologies together with unmatched quality



Special Attention on Raw Materials

Wafer production from silicon ingot pulling



Silicon Ingot



In-house Photo Mask

Pursuing high quality through integrated quality control, from IC chip design layout to photo mask production

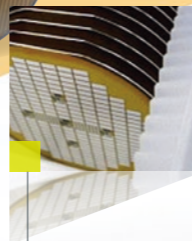
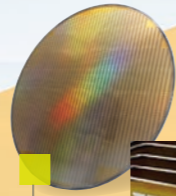
CAD



Photo Mask



Wafer Process



Frame & Dies



In-house Dies and Lead Frames

To provide high quality, some lead frames and molds are produced in-house to help control the quality of outsourced products and ensure stable supply.

Wafer Process

Innovative device development from the wafer process, centered on our production facilities in Japan

Fulfilling supply responsibility through our Business Continuity Management System

As ROHM conducts development, manufacturing, and sales activities worldwide, there is a possibility that production and business bases in a particular region may be damaged by natural disasters such as earthquakes and floods, the spread of infection diseases, or man-made disasters such as political instability and international conflicts. Therefore, we consider BCM (Business Continuity Management) to be one of the most important management issues, and have taken measures such as establishing production lines at multiple sites around the world to diversify risks.

	Company Name	ICs	Discrete Semiconductor Devices	Modules	Others
Japan	ROHM Hamamatsu Co., Ltd.	●	●		
	ROHM Wako Co., Ltd.	●	●	●	
	ROHM Apollo Co., Ltd.	●	●	●	●
	ROHM Mechatech Co., Ltd.	●	●	●	●
Overseas	LAPIS Semiconductor Co., Ltd.	●	●	●	
	ROHM Korea Corporation	●	●		
	ROHM Electronics Philippines, Inc.	●	●	●	●
	ROHM Integrated Systems (Thailand) Co., Ltd.	●	●	●	●
	ROHM Semiconductor (China) Co., Ltd.		●	●	
	ROHM Electronics Dalian Co., Ltd.			●	
	ROHM Electronics (Malaysia) Sdn. Bhd.	●	●		
	ROHM Mechatech Philippines, Inc.	●	●		●
	ROHM Mechatech (Thailand) Co., Ltd.		●	●	●
	SiCrystal GmbH		●		

Si

SiC

SiCrystal
A ROHM Group Company

SiC Single-crystal Wafer Manufacturer

SiCrystal, a German SiC single-crystal wafer manufacturer, became a member of the ROHM Group in 2009



PRODUCT and SOLUTION

Offering optimized solutions through a broad product lineup

PRODUCT

ROHM's wide range of products from resistors to semiconductor components, ICs, and modules makes it possible to propose solutions at the system level for various applications in the automotive sector.

Power Semiconductors/Power Devices

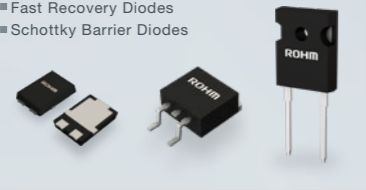
Power Transistors

- SiC MOSFET
- IGBT
- Si-MOSFET



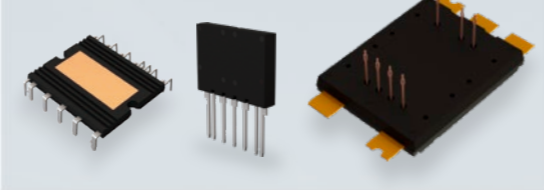
Power Diodes

- SiC Schottky Barrier Diodes
- Fast Recovery Diodes
- Schottky Barrier Diodes



Power Modules

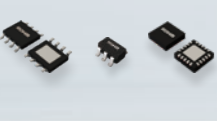
- SiC Power Modules



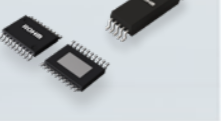
ICs

Power ICs

- Power Management/Power Supply ICs
- DC-DC Converter ICs
- LDO
- IPDs (Smart Power Switches)

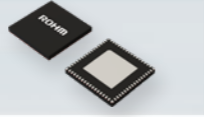


- Driver ICs
- Gate Drivers
- LED Drivers
- Motor Drivers



Interface ICs

- SerDes IC
- LVDS Interface ICs
- LIN Transceivers
- CAN Transceivers



- Clocks and Timers
- Switches/Multiplexers/Logic
- Data Converters
- Display Drivers
- Interface ICs
- Wireless ICs
- Audio/Video
- Speech Synthesis ICs
- Microcontrollers (MCUs)

General Purpose ICs

- Memory
- Op Amps
- Comparators
- Voltage Detectors(Reset ICs)



Discrete Devices/Passive Devices/Opto Devices

Small-Signal Semiconductors/Devices

- Transistors
- Diodes



Resistors

- Current Detection
- General Purpose



Opto Devices

- LED
- Laser Diodes
- LED Displays
- Optical Sensors



ComfySIL™ brand for functional safety

ROHM launched the ComfySIL™ brand for customers involved in the design of functional safety to use products that support SIL (Safety Integrity Level) in a 'Comfy' (comfortable) manner, and for social systems' greater safety, security, and convenience to which ROHM can contribute through its products. ComfySIL™ is awarded to products that conform to the ComfySIL™ concept for functional safety in the industrial equipment and automotive markets.



Functional safety categories and available documents related to ComfySIL™

ROHM has identified three functional safety product categories (As of December 2023, only the automotive field is supported.)

- **FS process compliant**
Indicates that the IC was developed using ISO 26262-compliant processes conforming to the ASIL level.
- **FS mechanism implemented**
Denotes that the IC is equipped with functional safety required by the ASIL level.
- **FS supportive**
Indicates the automotive IC is able to support functional analysis related to functional safety.

List of Materials Provided by Category

	FS process compliant	FS mechanism implemented	FS supportive
IATF16949 Process Compliant	✓	✓	✓
ISO 26262 Process Compliant	✓	—	—
FMEA	✓	✓	✓
FIT	✓	✓	✓
FMEDA	✓	✓	✓*
Safety manual	✓	✓	—

*FS supportive FMEDA does not include analysis such as hardware architecture metrics.

ComfySIL™ is a trademark or registered trademark of ROHM Co., Ltd.

TECHNOLOGY

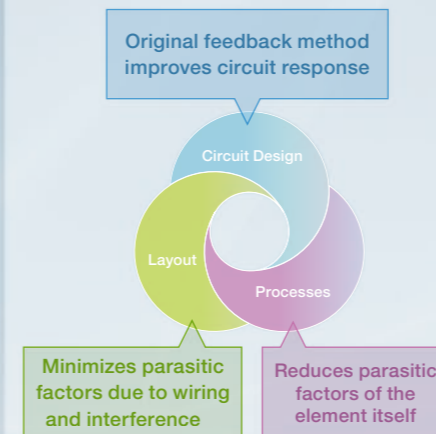
ROHM develops a variety of products featuring excellent performance by combining circuit design, layout, and manufacturing process technologies.

Nano Cap™

This ultra-stable control technology enables stable operation even at an extremely small output capacitance of 100nF, less than one-tenth of conventional technology. Power supply ICs incorporating this technology eliminates the problem of unstable operation related to capacitors in analog circuits, contributing to fewer design resources and greater miniaturization in a wide range of applications in the automotive, industrial equipment, consumer, and other fields.

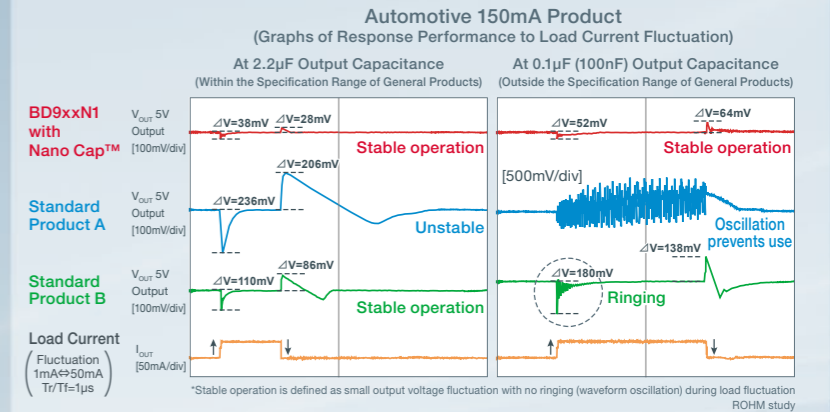


Power Supply Technologies that Significantly Reduce Capacitance



Nano Cap™ is a trademark or registered trademark of ROHM Co., Ltd..

Effects of Nano Cap™: Comparison of Stable Operation in Automotive Primary LDOs



Ensures stable operation with a wide range of capacitances from minimal 100nF

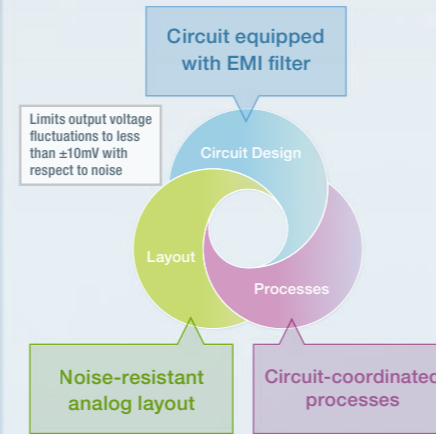
Stable Operation at Nanoscale Output Capacitance Nano Cap™ technology solves capacitor issues, opening up new possibilities for greater stability

EMARMOUR™

A brand name given only to products that achieve noise immunity limiting output voltage fluctuations to less than ±300mV across the entire noise frequency band during international noise evaluation testing under the ISO11452-2 standard. Unprecedented noise immunity both reduces design load while improving reliability by solving issues related to noise in the development of a variety of systems.



EMARMOUR™ Op Amps Feature Breakthrough Noise Immunity



EMARMOUR™ is a trademark or registered trademark of ROHM Co., Ltd.

High EMI Immunity Op Amp Development Concept

	Standard High EMI Immunity Op Amp	ROHM EMARMOUR™ High EMI Immunity Op Amp	Overview of Noise Evaluation Tests
Approach to Noise	Noise suppression in applications is handled by electronics manufacturers	Designed to prevent malfunctions due to noise without taking special measures in applications	
Radio Wave Emission Test ISO 11452-2	—	✓	Testing is commonly carried out by electronics manufacturers. Electromagnetic radiation from the antenna makes countermeasures difficult using an input filter alone.
Bulk Current Injection Test ISO 11452-4	—	✓	A test in which noise is applied to the wiring harness connected to an electronic device using a current injection probe. The immunity of electronic devices is evaluated when excited by strong magnetic field noise.
Proximity Antenna Immunity Test ISO 11452-9	—	✓	A test being increasingly adopted by electronics manufacturers due to the proliferation of mobile phones. Electromagnetic radiation from the antenna makes countermeasures difficult using an input filter alone.
Direct RF Power Injection Test IEC 62132-4	Resistant to noise only in specific frequency band due to filter measures	✓	A test in which noise signals are directly applied to a semiconductor terminal. Countermeasures are relatively easy, such as installing a filter at the input terminal in advance.

Achieves unparalleled performance in four international noise tests

ROHM's New EMARMOUR™ Op Amp series

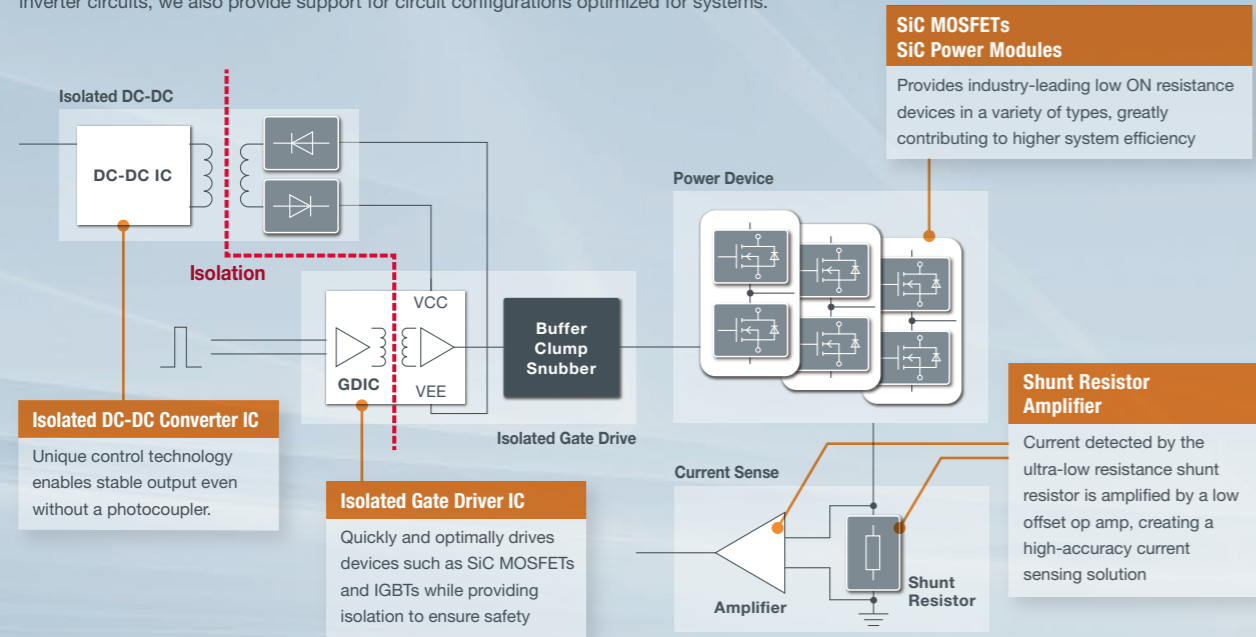
PRODUCT and SOLUTION

SOLUTION

ROHM's considerable capabilities allow us to deliver solutions tailored to application needs.

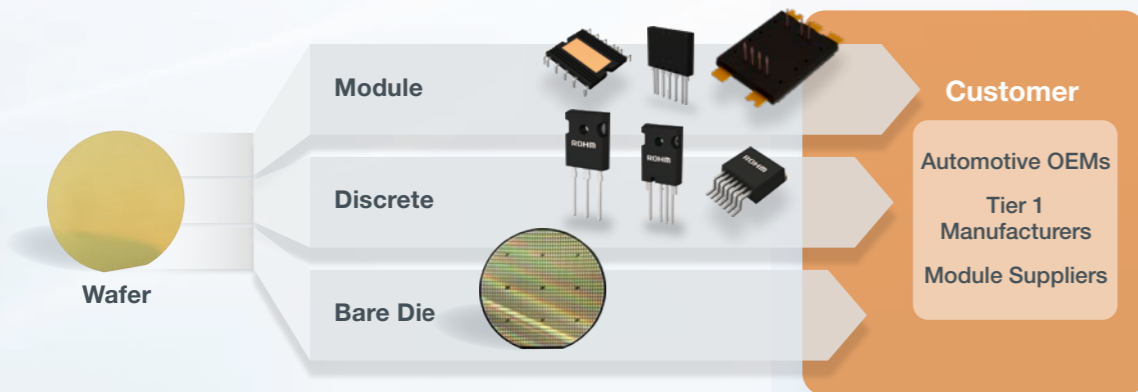
Drive Solutions Using Power Devices

In addition to products such as power devices and driver ICs ideal for power supplies, and inverter circuits, we also provide support for circuit configurations optimized for systems.



Wide-ranging business through a variety of product form factors

ROHM offers power semiconductor products not only as discrete devices, but also modules and even bare chips (bare dies). Among these, for SiC MOSFETs, which are key devices for energy savings in xEVs, we provide devices and solutions to a wide variety of customers, including OEMs, Tier 1 manufacturers, and module suppliers, by developing a range of product form factors and packages while ensuring reliability for each application. We also offer isolated gate driver ICs for driving SiC MOSFETs and evaluation boards, as well as support for designing modules using bare chips.



ROHM is able to provide devices and solutions to a variety of customers through a range of form factors and packages by completing processes, from wafer fabrication to device design and packaging, in-house.

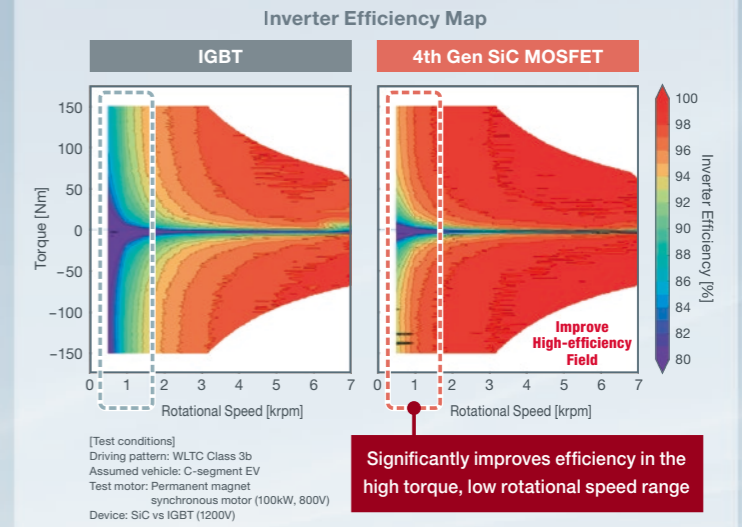
Motor Bench Evaluation for Actual Use

ROHM utilizes motor benches (that generate loads using motors) to conduct evaluations. By connecting a module equipped with power semiconductors at the end of the test motor, it is possible to measure the efficiency and electricity consumption when using power semiconductors in xEV applications such as main inverters. For example, when connecting IGBTs and ROHM's 4th Gen SiC MOSFETs to a main inverter, it can be seen that the red distribution is wider for the SiC MOSFETs than IGBTs, indicating higher efficiency. Based on these results, when evaluating electricity consumption under the international WLTC fuel consumption test, it was found that the 4th Gen SiC MOSFETs can improve electricity consumption by up to 10% compared to IGBTs.

ROHM Motor Bench Evaluation Facilities



Inverter Efficiency Comparison: 4th Gen SiC MOSFET vs IGBT

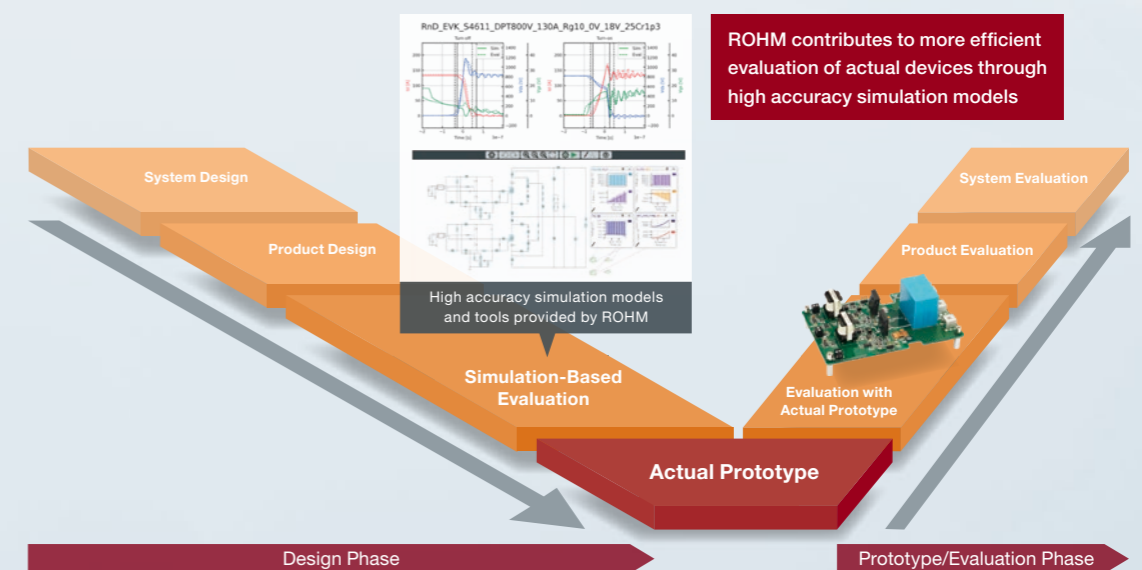


High Accuracy Simulation Supports Efficient Evaluation of Actual Equipment

New generation power devices enable compact, high efficiency power electronics designs through features such as fast switching. However, in actual circuit boards the influence of parasitic inductance becomes more pronounced, making it difficult to evaluate device performance solely through real-world testing, leading to an increasing need for numerous physical prototype tests. Therefore, front-loading design using simulation is being promoted to reduce the design iteration (rework).

ROHM provides highly accurate simulation models and tools that address issues such as parasitic inductance during actual device evaluation, contributing to increased efficiency in physical prototyping along with reduced development time for customers.

Development Flow Using Front-Loading Design




PRODUCT and SOLUTION

Design support in line with the customer's development stage

SUPPORT

Design support content that helps solve issues at all stages of customer development is available for immediate access on ROHM's website. ROHM provides solutions that can be readily used in customer circuit designing, such as content for each product required when designing, and application circuits with drive ICs that maximize the performance of power semiconductors.














Development Start

For contents without links , please visit the respective product page

Initial Study - Component Selection

- Identify market and technology trends
 - ▶ White Paper 
 - ▶ Catalogs-Brochures 
- Verify the device from the application
 - ▶ Application Block Diagram 
- Confirm recommended devices from the circuit topology
 - ▶ Topology Selection 
- Verify the reference design
 - ▶ Reference Design 

Circuit Design - Simulation

- Check detailed product characteristics
 - ▶ Datasheets 
 - ▶ Reference Design 
 - ▶ Application Notes 
 - ▶ ROHM Solution Simulator 
- Carry out circuit simulation
 - ▶ Design Models  (SPICE/PSPICE  LTspice  PLECS 
 - ▶ Thermal Models  Ray Files  IBIS Models 
 - ▶ Design Calculation Tool (Calculation Sheet) 
 - ▶ ROHM Solution Simulator 
 - ▶ Application Notes
- Evaluate the products
 - ▶ Product Samples-Evaluation Board (EVK)

Board Design - Evaluation

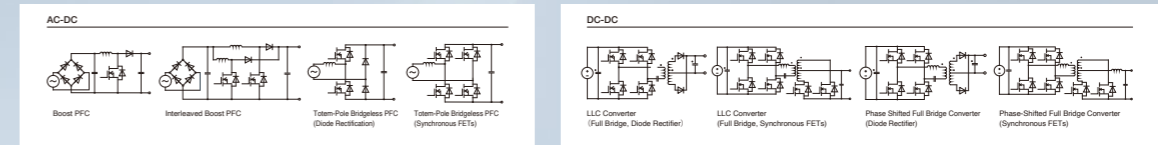
- Implement board design, evaluate the prototype board
 - ▶ PCB Library
 - ▶ Package Information
 - ▶ Application Notes

Mass Production Preparation

- Prepare for mass production
 - ▶ Environmental Data
 - ▶ Manufacturing Plant Information

Mass Production

Optimized Device Proposals Based on Circuit Configuration [Topology Selection]



Topology Selection presents the devices most suitable for the circuit configuration (topology) used in the customer's application. Referencing the combination of devices that make up the circuit reduces the number of resources required for component selection.

 Topology Selection

Evaluated Design Data [Reference Design]

Reference Design is design data that has been evaluated at the circuit level for the application. Circuit schematics, Bill of Materials (BOM), evaluation data, and Gerber/PCB data are available for easy design reuse. Some boards are also available for sale, eliminating the need to develop boards for actual device verification.

 Reference Designs





Reference Board of the Reference Design REFRT001


SPICE/PSPICE 

Un-Encrypted SPICE

PLECS 
Limited to power semiconductors

LTspice 
Limited to discrete semiconductor devices

Thermal Models 

Ray Files 
Limited to opto products

IBIS Models 
EEPROMs etc.

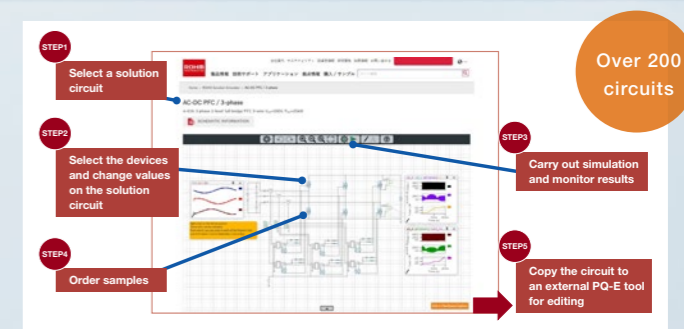
Multiple Design Models for Different Tools and Applications

Various design models including thermal models, PLECS models, and Ray files are available for thermal, optical, and electronic circuit simulations. Usage is supported by application notes.

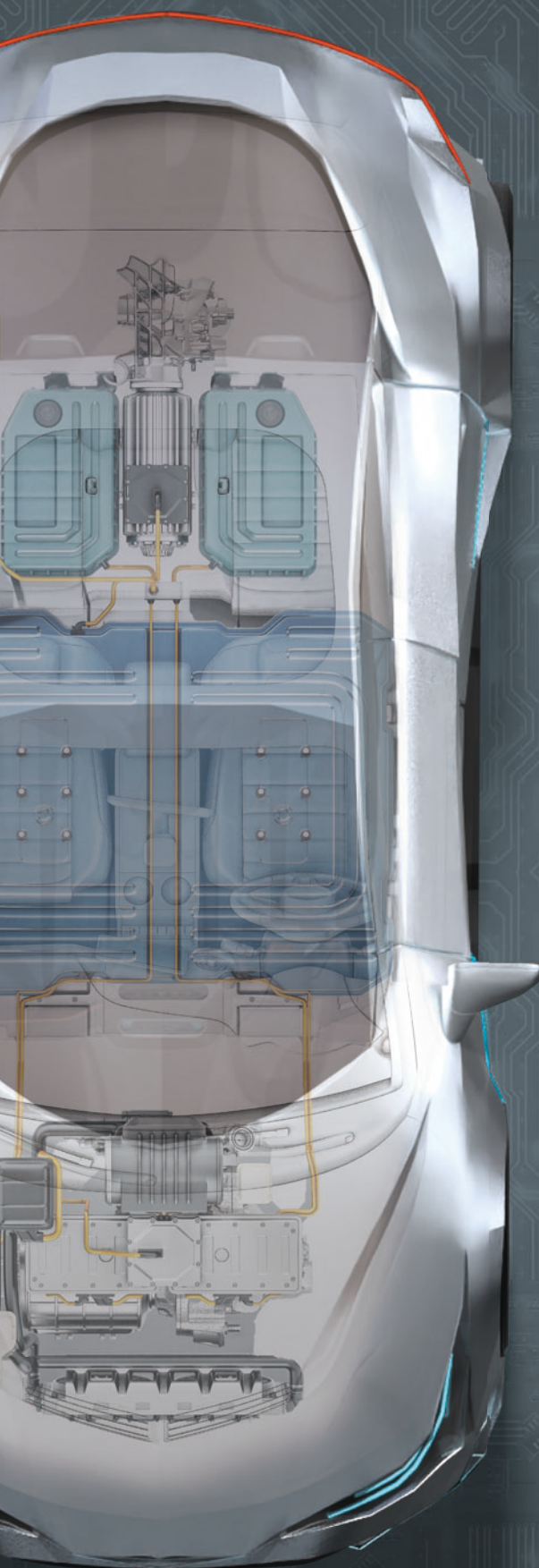
PSPICE® is a registered trademark of Cadence Design Systems, Inc. LTspice® is a registered trademark of Analog Devices, Inc. PLECS® is a registered trademark of Plexim, Inc.

ROHM Solution Simulator Enables Batch Verification of Power Semiconductors and Various ICs

ROHM Solution Simulator is a free electronic circuit simulator hosted on ROHM's website. A wide range of applications is supported, from initial studies to system-level operation verification. ROHM power semiconductors, gate drivers, power supply ICs, and passive components (e.g. shunt resistors) can be easily and accurately verified together in a solution circuit close to actual user conditions.



 ROHM Solution Simulator



BLOCK DIAGRAM

xEV	TRACTION INVERTER	P12
Power solutions that maximize the cruising range of xEVs	AUTOMOTIVE DC-DC CONVERTER	P13
	ONBOARD CHARGER	P14
Body ECU		
Meets system-level requirements, from low to high voltages	BODY CONTROL MODULE	P15
	ELECTRIC COMPRESSOR	P16
ADAS/Infotainment		
Configure high reliability systems with increasingly sophisticated applications	ADAS ELECTRONIC CONTROL UNIT	P17
	ADAS LIGHT DETECTION AND RANGING	P19
	ADAS CAMERA SYSTEM	P20
	TFT CLUSTER AND CENTER INFORMATION DISPLAY	P21
	HEAD UP DISPLAY	P23
	DASHBOARD CAMERA	P24
LED Lighting		
Cutting-edge devices contribute to the evolution of automotive lighting	FRONT LIGHT WITH ADAPTIVE DRIVING BEAM	P25
	REAR LIGHT WITH ANIMATION	P26

xEV

Body ECU

ADAS/Infotainment

LED Lighting

TRACTION INVERTER

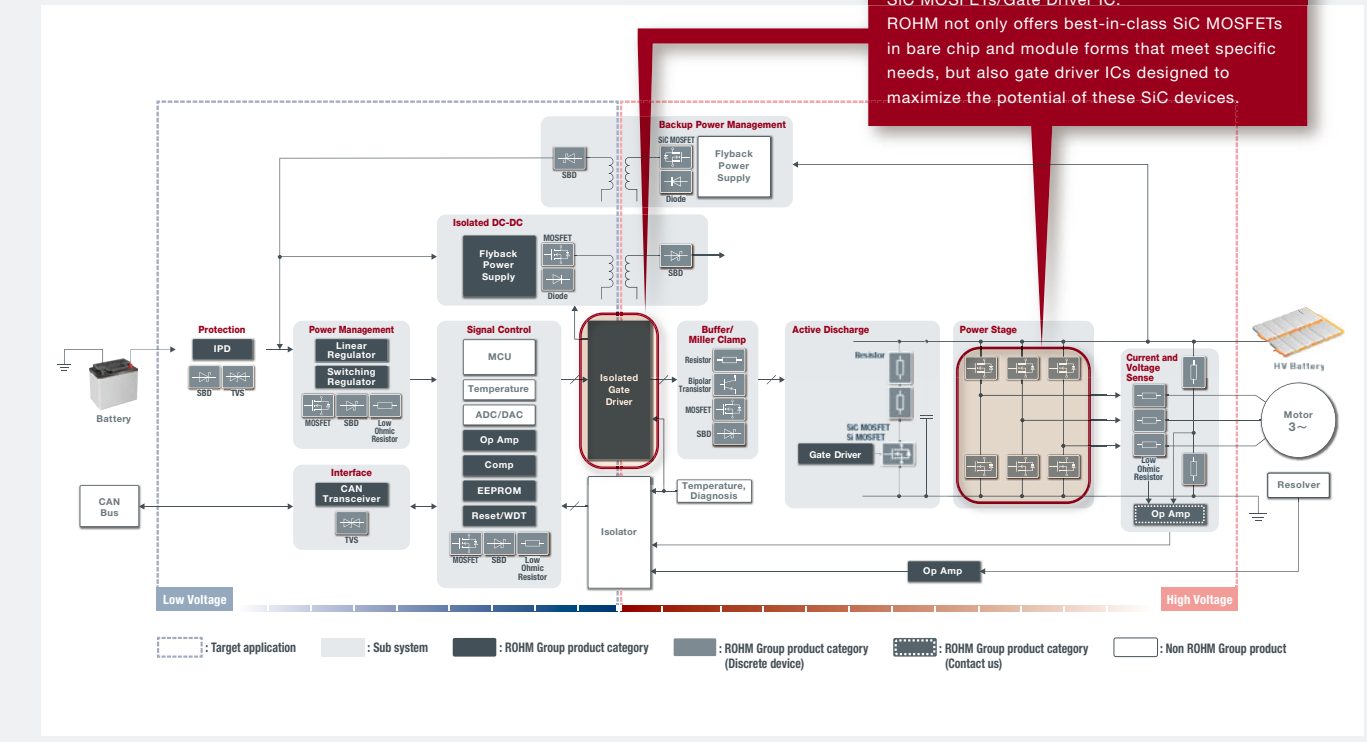
Main Inverter (Traction Inverter)

The traction inverter converts DC power stored in the battery into 3-phase AC power to drive the motor.

IGBTs were conventionally used as power devices for inverters, but SiC MOSFETs are being increasingly adopted to extend the cruising range of xEVs and reduce the size of the inverter units.

ROHM significantly contributes to extending the range of xEVs by providing SiC MOSFETs featuring industry-leading low ON resistance in specifications and form factors tailored to the needs of a variety of inverters, from bare chips to modules.

HIGHLIGHT PRODUCT
 SiC MOSFETs/Gate Driver IC:
 ROHM not only offers best-in-class SiC MOSFETs in bare chip and module forms that meet specific needs, but also gate driver ICs designed to maximize the potential of these SiC devices.



Main Inverter

PRODUCT

- Power Stage**
 - SiC MOSFETs
 - IGBT
 - High Voltage Resistance Chip Resistors
- Current and Voltage Sense**
 - Current Detection Resistors (Shunt Resistors)
 - Current Detection Amplifiers
- Isolated Gate Driver**
 - Isolated Gate Drivers
- Buffer/Miller Clamp**
 - Bipolar Transistors
 - MOSFETs
 - Schottky Barrier Diodes
 - Standard Rectifier Diodes
 - Resistors
- Backup Power Management**
 - SiC MOSFET
 - Schottky Barrier Diodes
- Isolated DC-DC**
 - Flyback Power Supply
 - MOSFETs
 - Schottky Barrier Diodes
- Power Management**
 - Switching Regulators
 - Linear Regulators
 - Schottky Barrier Diodes
 - MOSFETs
 - Resistors
- Interface**
 - CAN Transceiver
 - Transient Voltage Suppressor Diodes
- Protection**
 - Smart Low/High Side Switch ICs (IPDs)
 - Schottky Barrier Diodes
 - Transient Voltage Suppressor Diodes
- Signal Control/General Purpose**
 - EEPROMs
 - Operational Amplifiers
 - Comparators
 - RESET ICs
 - MOSFETs
 - Diodes
 - Resistors

Related Support Page
 SiC Support Page

AUTOMOTIVE DC-DC CONVERTER

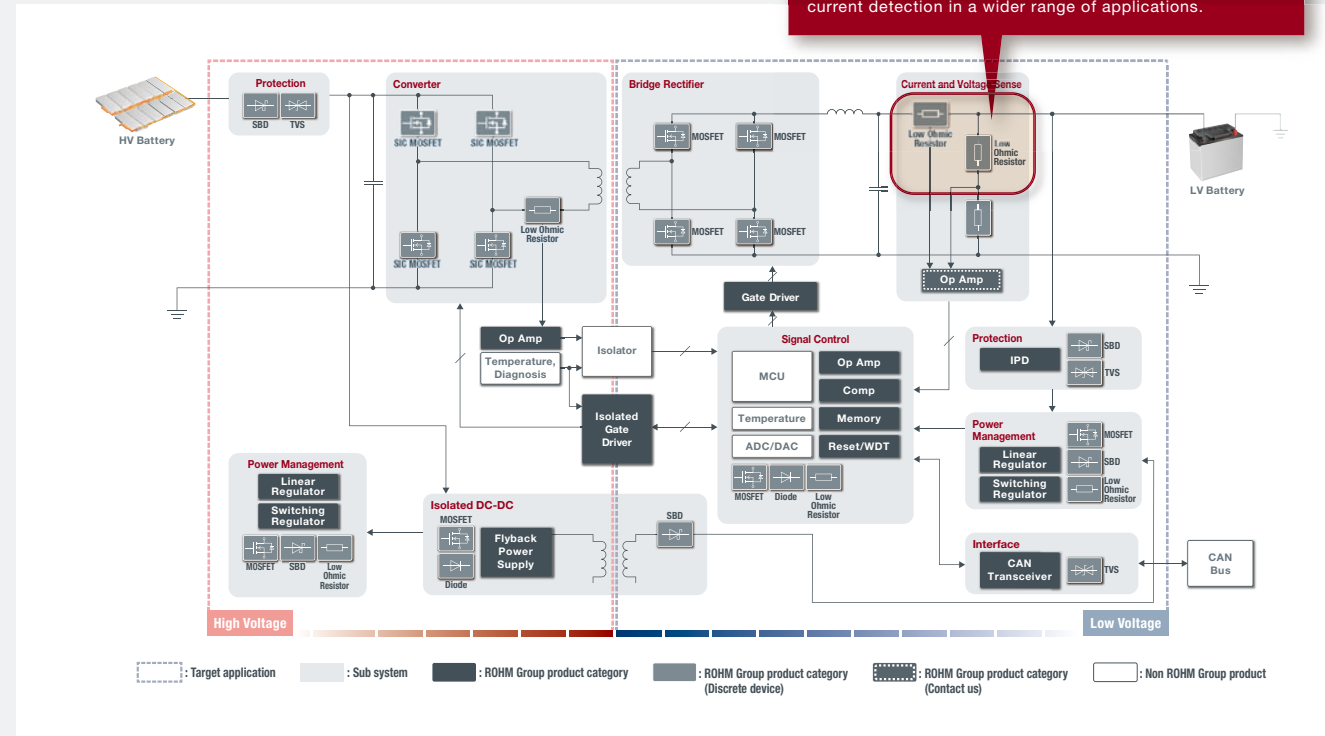
DC-DC Converter

The DC-DC converter converts the high voltage stored in the battery to the lower voltage required by the system through switching and rectification using power devices.

ROHM offers a broad lineup of SiC MOSFETs for DC-DC converters, driver and control ICs that support isolation, numerous power supply ICs, and shunt resistors for current detection, contributing to achieving high efficiency, high reliability automotive power supplies.

HIGHLIGHT PRODUCT

Shunt Resistors: This ultra-low resistance metal plate series is suitable for current detection applications in power supply and inverter circuits. Ultra-low profile products have also been added to the lineup that enable high accuracy current detection in a wider range of applications.



Automotive DC-DC Converter

PRODUCT

HV Converter

- SiC MOSFETs
- Current Detection Resistors

Bridge Rectifier

- MOSFETs

Current and Voltage Sense

- Current Detection Resistors
- High Voltage Resistance Chip Resistors
- Current Detection Amplifiers

Isolated Gate Driver

- Isolated Gate Drivers
- Gate Drivers

Isolated DC-DC

- Flyback Power Supply
- MOSFETs

Fast Recovery Diodes

- Schottky Barrier Diodes

Power Management

- Switching Regulators
- Linear Regulators
- Schottky Barrier Diodes
- MOSFETs
- Resistors

Interface

- CAN Transceivers
- Transient Voltage Suppressor Diodes

Protection

- Smart Low/High Side Switch ICs (IPDs)
- Schottky Barrier Diodes
- Transient Voltage Suppressor Diodes
- EEPROMs
- Operational Amplifiers
- Comparators
- RESET ICs
- MOSFETs
- Diodes
- Resistors

Related Articles

- ROHM's New Ultra-Low Profile 12W Rated Metal Plate Shunt Resistor

ONBOARD CHARGER

Onboard charger

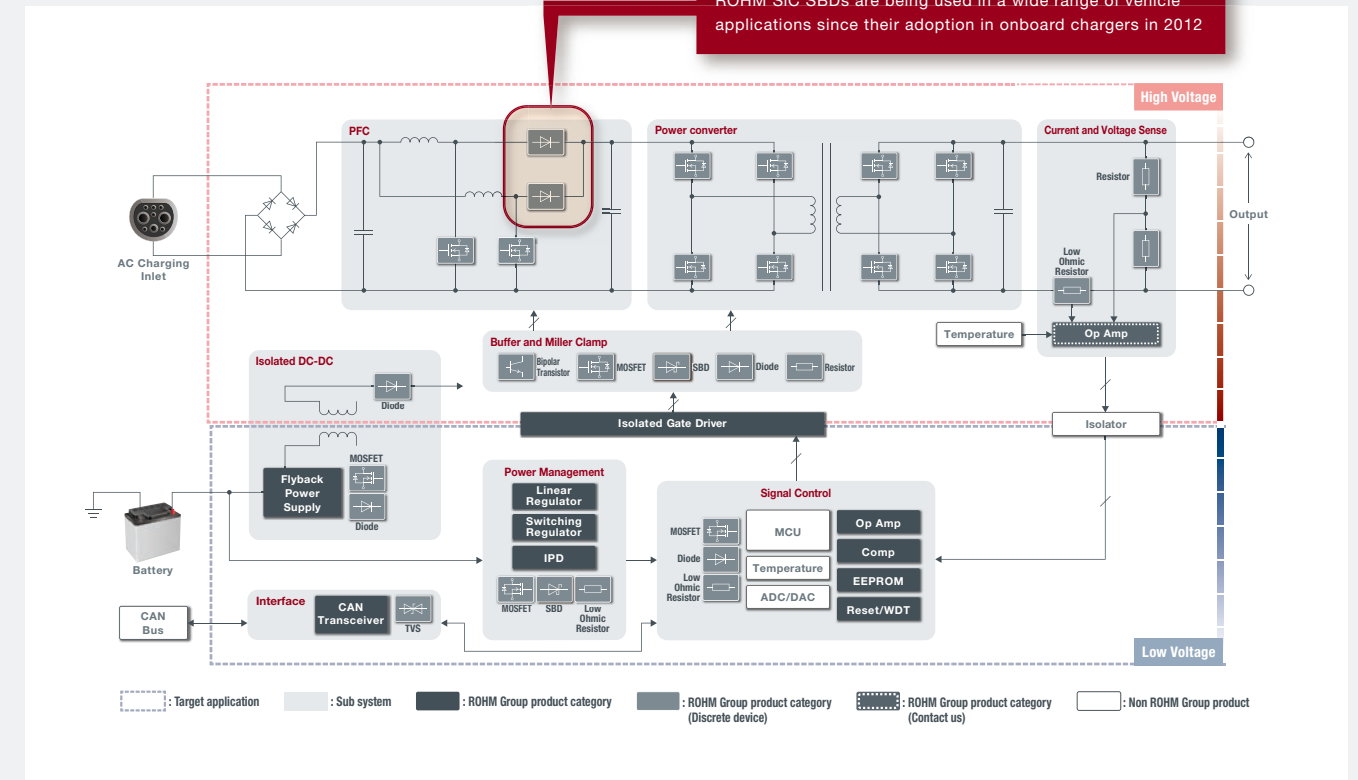
The onboard charger is responsible for converting the AC voltage supplied by homes and public/private facilities into DC voltage for charging batteries in electric vehicles (xEVs).

At the same time, it is necessary to make the stored electricity available for use elsewhere.

ROHM supports improved convenience in xEVs by providing SiC devices such as SiC SBDs and SiC MOSFETs together with circuit topologies that meet the needs for fast/bidirectional charging.

HIGHLIGHT PRODUCT

SiC SBDs: Quickly establishing automotive quality, ROHM SiC SBDs are being used in a wide range of vehicle applications since their adoption in onboard chargers in 2012



Uni-directional Onboard Chargers (OBCs)

Bi-directional Onboard Chargers (OBCs)

PRODUCT

Power Converter

- SiC Power Devices
- IGBT
- Fast Recovery Diodes
- High Voltage Resistance Chip Resistors
- Current Detection Resistors
- PFC
- SiC Power Devices
- IGBT
- Fast Recovery Diodes

Isolated Gate Driver

- Isolated Gate Drivers
- Buffer/Miller Clamp
- Bipolar Transistors
- MOSFETs
- Schottky Barrier Diodes
- Standard Rectifier Diodes
- Resistors

Current and Voltage Sense

- Current Detection Resistors
- Current Detection Amplifiers

Isolated DC-DC

- Flyback Power Supply
- MOSFETs
- Schottky Barrier Diodes
- Switching Regulators
- Linear Regulators
- Smart Low/High Side Switch ICs (IPDs)
- Schottky Barrier Diodes
- MOSFETs
- Resistors

Interface

- CAN Transceivers
- Transient Voltage Suppressor Diodes

Signal Control/General Purpose

- EEPROMs
- Operational Amplifiers
- Comparators
- RESET ICs
- MOSFETs
- Diodes
- Resistors

Related Topology Selection

- Onboard Charger

BODY CONTROL MODULE

BCM

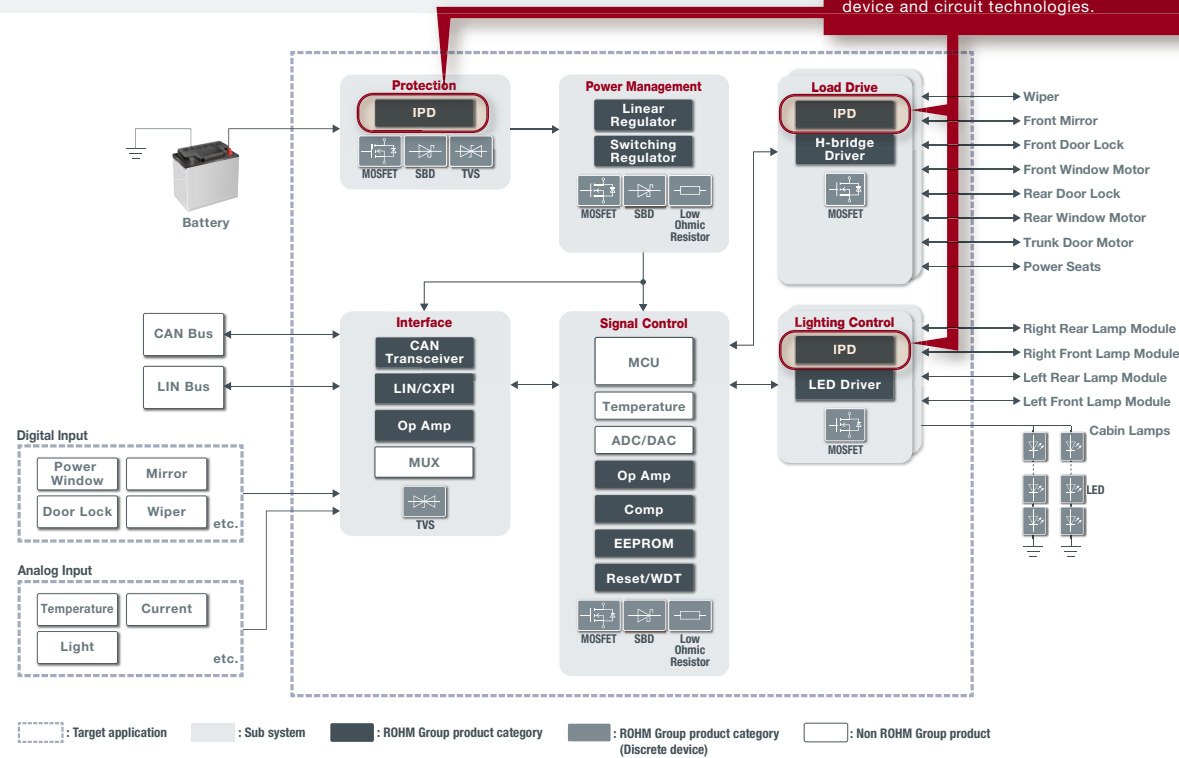
The Body Control Module (BCM) is an ECU that controls all onboard body functions, including HVAC, interior/exterior lighting, doors, windows, mirrors, and wipers.

As electrification in the automotive industry continues to progress, BCM functions are expanding to achieve greater comfort, safety, and eco-friendliness.

ROHM supports the evolution of BCM with multiplex communication ICs such as LIN/CAN that contribute to reducing harness and vehicle weight along with low consumption DC-DC converter ICs and IPDs capable of improving functional safety performance.

HIGHLIGHT PRODUCT

Smart Low/High Side Switch ICs (IPDs): As power supply protection and load drive elements, IPDs not only feature excellent life, quietness, and reliability, but also achieve low heat generation in a small size by fusing device and circuit technologies.



Body Control Module

PRODUCT

Power Management

- Switching Regulators
- Linear Regulators
- MOSFETs
- Schottky Barrier Diodes
- Resistors

Protection

- Smart Low/High Side Switch ICs (IPDs)
- Schottky Barrier Diodes
- Transient Voltage Suppressor Diodes
- MOSFETs

Load Drive

- Smart Low/High Side Switch ICs (IPDs)
- H-bridge Drivers
- MOSFETs

Interface

- CAN Transceivers
- LIN Transceivers
- CXPI Transceivers
- Transient Voltage Suppressor Diodes

Lighting Control

- Smart Low/High Side Switch ICs (IPDs)
- LED Indication Drivers
- LEDs
- MOSFETs

Signal Control/General Purpose

- EEPROMs
- Operational Amplifiers
- Comparators
- RESET ICs
- MOSFETs
- Diodes
- Resistors
- Current Detection Resistors

Related Articles

- New Compact Intelligent (Smart) Low Side Switches

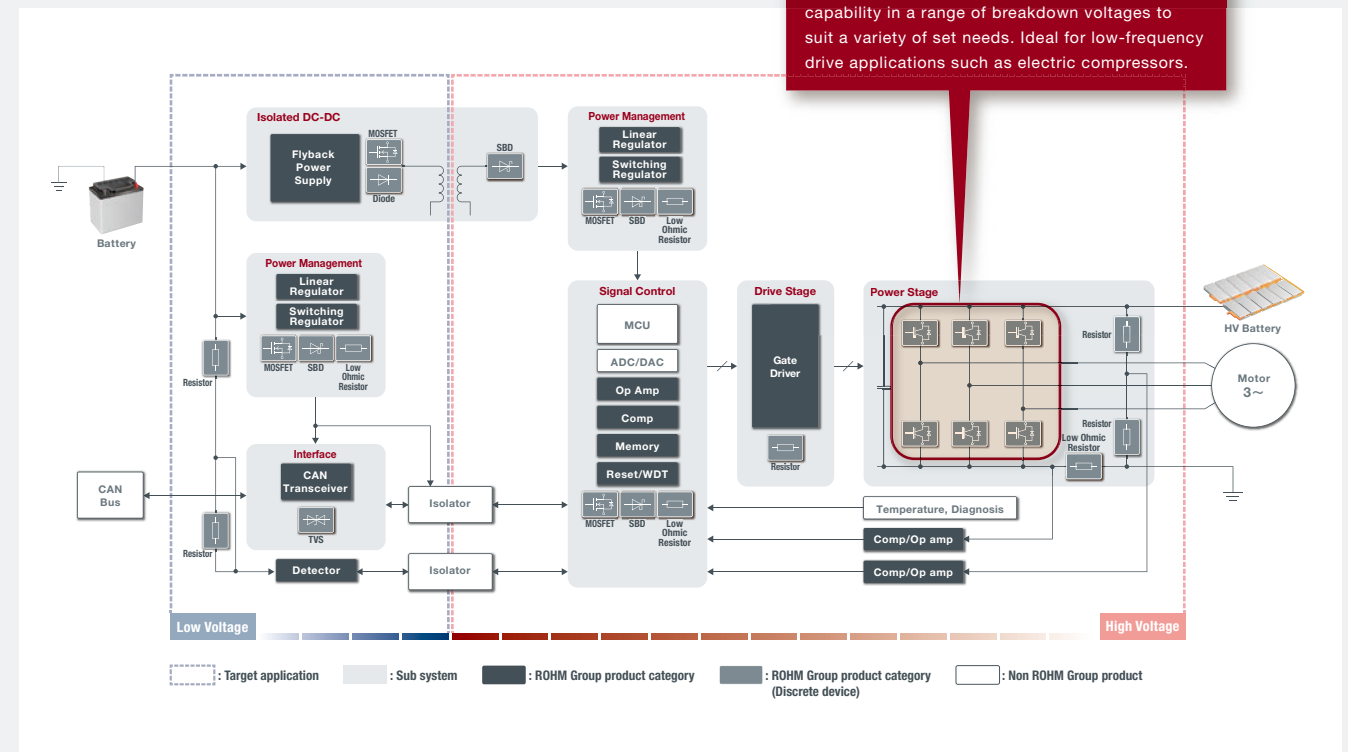
ELECTRIC COMPRESSOR

Electric Compressor

The electric compressor requires high voltage, high reliability, high efficiency power semiconductors to efficiently operate air conditioner motors in xEVs. ROHM IGBTs deliver excellent short-circuit withstand capability with low loss, contributing to the stable operation of electric compressors.

HIGHLIGHT PRODUCT

IGBTs: ROHM's lineup includes models featuring low-loss with superior short-circuit withstand capability in a range of breakdown voltages to suit a variety of set needs. Ideal for low-frequency drive applications such as electric compressors.



Electric Compressor

HV Heater/PTC Heater

PRODUCT

Power Stage

- SiC Power Module
- IGBT
- Current Detection Resistors
- Gate Drivers
- Isolated Gate Drivers
- Fast Recovery Diodes
- Resistors

Isolated DC-DC

- Flyback Power Supply
- MOSFETs
- Schottky Barrier Diodes

Power Management

- Switching Regulators
- Linear Regulators
- Schottky Barrier Diodes
- MOSFETs
- Resistors

Interface

- CAN Transceivers
- Transient Voltage Suppressor Diodes
- Schottky Barrier Diodes
- Transient Voltage Suppressor Diodes

Protection

- Schottky Barrier Diodes
- Transient Voltage Suppressor Diodes

Signal Control/General Purpose

- EEPROMs
- Operational Amplifiers
- Comparators
- RESET ICs
- MOSFETs
- Diodes
- Resistors

Related Articles

- ROHM Offers Lineup of Automotive-Grade 1200V-Rated IGBT

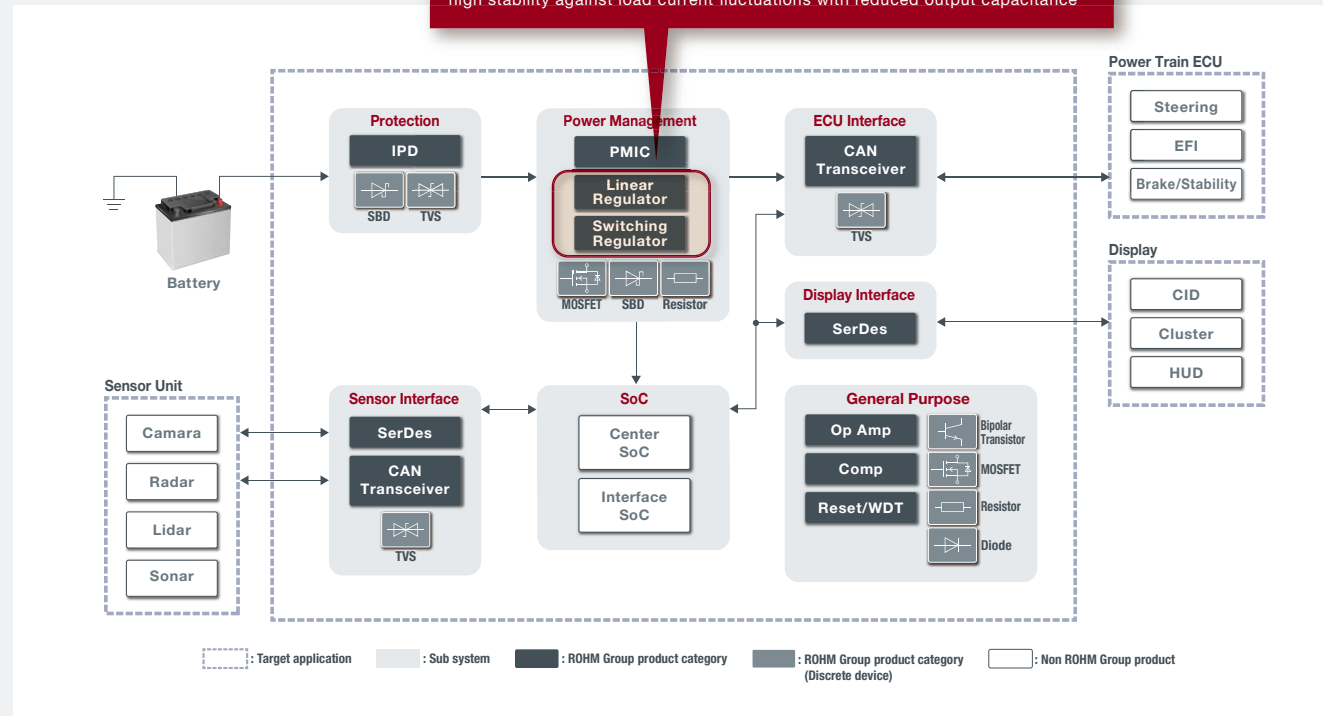
ADAS ELECTRONIC CONTROL UNIT

ADAS ECU

The precursor to automated driving systems, advanced driver assistance systems (ADAS), are essential for achieving safety in today's vehicles, with the increasing performance of electronic control units (ECUs) and microcontrollers playing a key role in constructing safer systems. ROHM offers a wide range of power supply ICs and discrete devices that enable safe operation of increasingly high-performance systems, supporting their evolution.

HIGHLIGHT PRODUCT

DC-DC Converter IC, LDO: Original analog design technology achieves extremely high stability against load current fluctuations with reduced output capacitance



➔ ADAS ECU

PRODUCT

Power Management

- PMIC
- Switching Regulators
- Linear Regulators
- Schottky Barrier Diodes
- MOSFETs
- Resistors

Protection

- Smart Low/High Side Switch ICs (IPDs)
- Schottky Barrier Diodes
- Transient Voltage Suppressor Diodes
- Interface
- SerDes
- CAN Transceiver
- Transient Voltage Suppressor Diodes

General Purpose

- Operational Amplifiers
- Comparators
- RESET ICs
- MOSFETs
- Bipolar Transistors
- Diodes
- Resistors

Related Articles

- New DC/DC Converter IC for ADAS Achieves Best-in-Class-Leading Stable Operation
- New Automotive LDO Regulators: Stable Operation at Nanoscale Output Capacitance

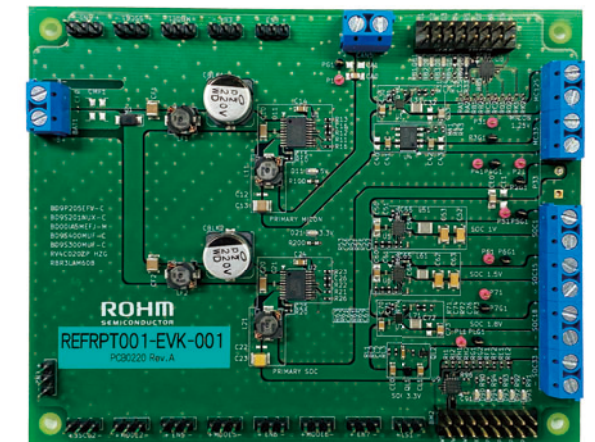
CISPR25 Tested 8ch Power Tree Reference Design for Automotive ADAS/Info Displays [REFRPT001]

The REFRPT001 is a reference design for power supplies developed for infotainment devices such as center information displays (CIDs) and ADAS ECUs. In addition to achieving the optimum power supply configuration for the application, two voltage monitoring ICs with self-diagnostic functions monitor the output of the entire power supply system, contributing to an improved level of functional safety.

The reference board features excellent EMC performance, clearing CISPR25 Class 5 in all power supply operations, while the distributed placement of high-efficiency DC-DC converter ICs ensure low heat generation characteristics.

Features

- 8ch power tree reference design for automotive infotainment/ADAS
- All DC-DC converter ICs operate at a switching frequency of 2.2MHz or higher
- 8ch voltage monitoring contributes to functional safety
- Tested to pass CISPR25 Class 5 without a common-mode filter
- Thermally tested



Specifications

Reference Board Part No.	REFRPT001-EVK-001
Input Voltage	9.0V to 16.0V
Output Channels	8ch
Output Voltage	5.0Vx2/3.3Vx2/1.8V/1.5V/1.25V/1.0V
EMC Performance	Clears CISPR25 Class 5
Size	121.9mm x 96.5mm

Design Resources e.g.

Circuit Diagram

Bill of Materials

Part No.	Quantity	Part Name	Manufacturer
ROHM2201M1-C	1	Linear Regulator	ROHM
ROHM2201M1-C	1	Switching Regulator	ROHM
ROHM2201M1-C	1	IPD	ROHM
ROHM2201M1-C	1	SBD	ROHM
ROHM2201M1-C	1	TVS	ROHM
ROHM2201M1-C	1	MOSFET	ROHM
ROHM2201M1-C	1	Resistor	ROHM

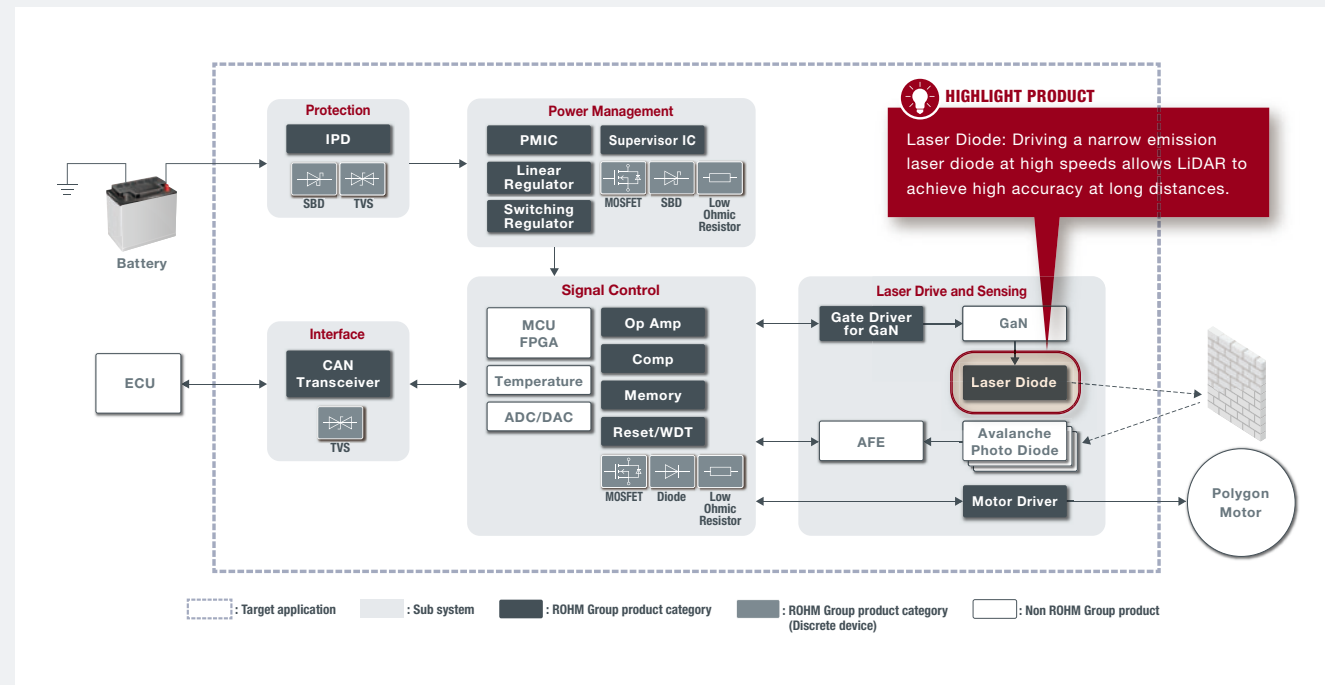
Block Diagram

➔ CISPR25 Class 5 compliant 8ch power tree Reference Design for Automotive ADAS/Infotainment application

ADAS LIGHT DETECTION AND RANGING

ADAS LiDAR

In ADAS and autonomous driving (AD), ambient sensing is carried out using four types of sensors: LiDAR, cameras, millimeter wave radar, and ultrasonic sonar. Among these, as the level of autonomous driving improves, there is a growing demand for more accurate distance measurement and spatial recognition, leading to increased adoption of LiDAR (Light Detection and Ranging). ROHM is advancing the development of a solution to achieve long range, high accuracy LiDAR by driving a high power laser diode with GaN HEMTs.



➔ ADAS LiDAR

➔ ADAS Sonar

➔ ADAS Radar

PRODUCT

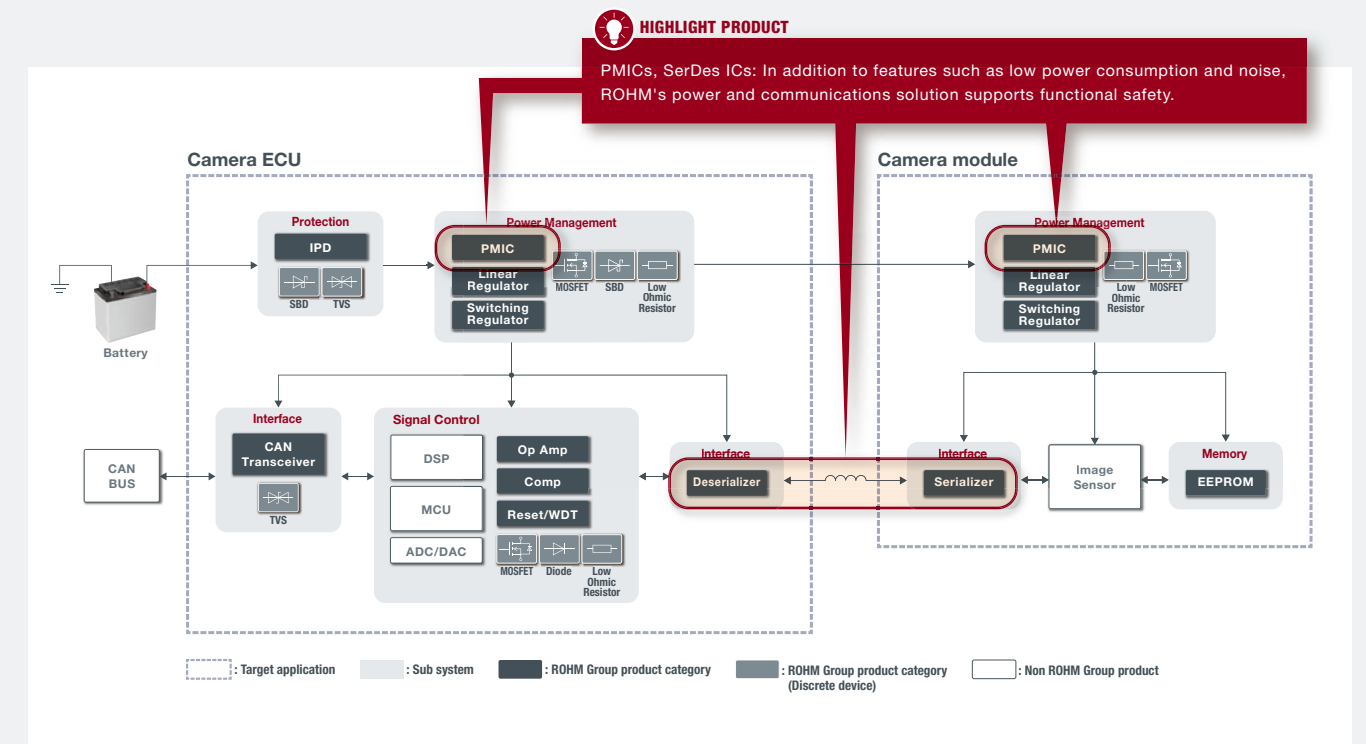
- Protection**
 - Smart Low/High Side Switch ICs (IPDs)
 - Schottky Barrier Diodes
 - Transient Voltage Suppressor Diodes
- Power Management**
 - Power Management ICs
 - Linear Regulators
 - Switching Regulators
- Signal Control**
 - Operational Amplifiers
 - Comparators
 - Memory
 - Reset/WDT
 - MOSFETs
- Signal Control**
 - Diodes
 - Low Ohmic Resistor
- Laser Drive and Sensing**
 - GaN Gate Driver
 - Laser Diodes
 - Motor Drivers
- Interface**
 - CAN Transceivers
 - Transient Voltage Suppressor Diodes

Related Articles
 ■ New High Power 120W Laser Diode for LiDAR

ADAS CAMERA SYSTEM

ADAS Camera System

For ADAS and autonomous driving (AD), there is a growing demand for safety features that take functional safety into consideration not only for SoC and MCUs, but also communications and power supplies in order to build safer systems. At the same time, as the number of onboard camera modules continues to rise and improved performance is required, there is an increasing need for smaller boards that consume less power given the limited amount of battery power and mounting space. While focusing on the development of products for functional safety, ROHM offers a lineup of power supply and communication interface ICs optimized for a variety of ADAS modules, contributing significantly to achieving safer systems.



➔ ADAS Camera System

PRODUCT

- Power Management**
 - PMIC
 - Linear Regulators
 - Switching Regulators
 - Schottky Barrier Diodes
 - MOSFETs
 - Resistors
- Protection**
 - Smart Low/High Side Switch ICs (IPDs)
 - Schottky Barrier Diodes
 - Transient Voltage Suppressor Diodes
- Interface**
 - CAN Transceivers
 - Transient Voltage Suppressor Diodes
 - LVDS SerDes
 - Clockless link
- Signal Control/General Purpose**
 - Operational Amplifiers
 - Comparators
 - RESET ICs
 - MOSFETs
 - Diodes
 - Resistors
- Memory**
 - EEPROMs

Related Articles
 ■ New PMICs for Camera Modules in Next-Gen Vehicles: Compliant with the ISO 26262 Functional Safety Standard
 ■ New SerDes ICs and PMIC Optimized for Automotive Satellite Camera Modules

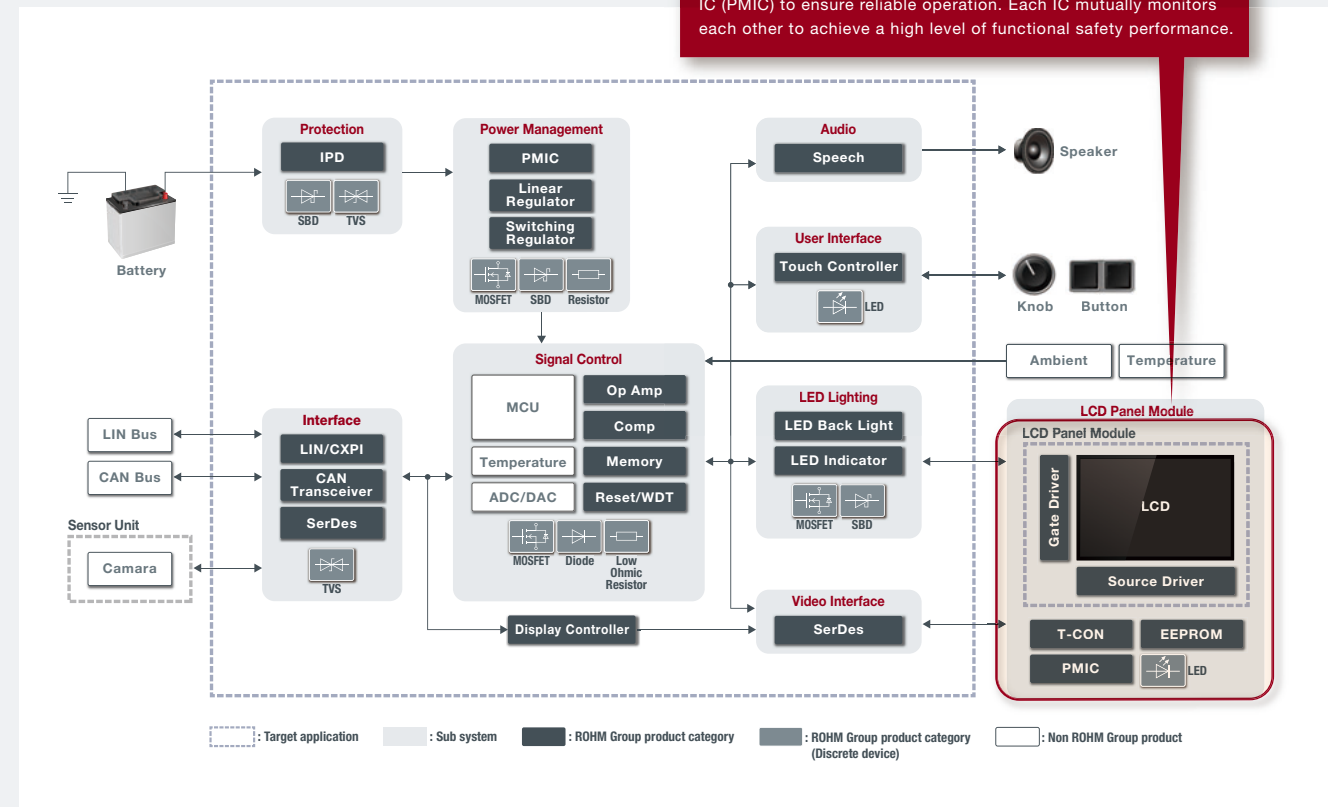
TFT CLUSTER AND CENTER INFORMATION DISPLAY

Clusters • CID

Following the electrification of cars and advancement of ADAS and autonomous driving systems, instrument clusters, and CIDs (Center Information Displays) that utilize LCD panels have become more high definition and sophisticated.

ROHM offers a variety of key devices for LCD panel modules, including panel driver ICs, timing controllers, and LED drivers for LCD backlights required by the latest vehicle displays.

HIGHLIGHT PRODUCT
 Chipset for High Resolution LCD Panel Modules: Consists of gate/source drivers, timing controller (T-CON), and a power supply IC (PMIC) to ensure reliable operation. Each IC mutually monitors each other to achieve a high level of functional safety performance.



TFT Cluster and Center Information Display (CID)

PRODUCT

Power Management

- PMIC
- Switching Regulators
- Linear Regulators
- Schottky Barrier Diodes
- MOSFETs
- Resistors
- Protection
- Smart Low/High Side Switch ICs (IPDs)
- Schottky Barrier Diodes
- Transient Voltage Suppressor Diodes

Audio

- Speech Synthesis LSI
- LED Lighting
- LED Back Light
- LED Indication Driver
- MOSFETs
- Schottky Barrier Diodes

Video Interface

- SerDes

LCD Panel Module

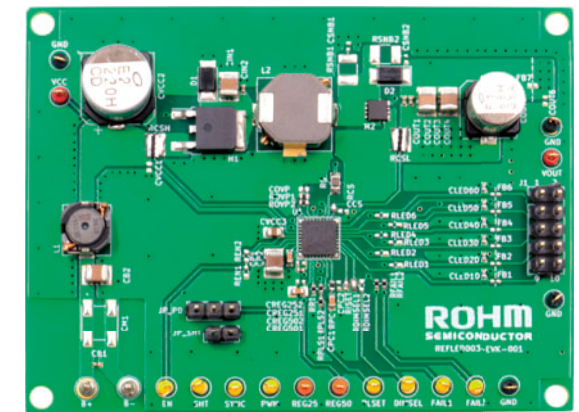
- Gate Drivers
- Source Driver
- T-CON
- EEPROMs
- PMIC
- LEDs

Signal Control/General Purpose

- EEPROMs
- Operational Amplifiers
- Comparators
- RESET ICs
- MOSFETs
- Diodes
- Resistors

White LED Reference Design for 6ch Automotive Backlight Applications [REFLED003]

REFLED003 is a reference design for driving automotive LCD backlight LEDs. The key component is the BD82A26MUF-M featuring a built-in 6ch current driver for driving LEDs with a maximum pin voltage of 50V, making it suitable for driving large LCD panels and high brightness LEDs. Dimming control up to 20,000:1 @100Hz is possible using PWM signals, while analog dimming is also supported that can be combined with PWM dimming to extend compatibility to higher brightness ranges.



Features

- Reference design for automotive panel backlights
- Supports boost operation of the BD82A26MUF-M
- Thermally tested
- PCB design files available

Specifications

Reference Board Part No.	REFLED003-EVK-001	REFLED003-EVK-002	REFLED003-EVK-003	REFLED003-EVK-004
Input Voltage	7V to 18V	7V to 18V	7V to 18V	7V to 18V
Output Channels	6ch	6ch	6ch	6ch
Output Current	120mA/ch	120mA/ch	125mA/ch	104mA/ch
Topology	Boost	Boost	Boost	Boost
LED	8pcs 750mA	12pcs 625mA	8pcs 750mA	12pcs 625mA
Size	60mm x 80mm	60mm x 80mm	60mm x 80mm	60mm x 80mm

Design Resources e.g.

Circuit Diagram

Bill of Materials

Ref	Package	Quantity	Part Number	Manufacturer	Notes
U1	144-pin QFN	1	BD82A26MUF-M	ROHM	6ch White LED Driver
U2	10-pin SMD	1	PMIC	ROHM	Power Management IC
U3	8-pin SMD	1	Op Amp	ROHM	Operational Amplifier
U4	8-pin SMD	1	EEPROM	ROHM	EEPROM
U5	8-pin SMD	1	T-CON	ROHM	Timing Controller
U6	8-pin SMD	1	Source Driver	ROHM	Source Driver
U7	8-pin SMD	1	LED	ROHM	LED
U8	8-pin SMD	1	LED	ROHM	LED
U9	8-pin SMD	1	LED	ROHM	LED
U10	8-pin SMD	1	LED	ROHM	LED
U11	8-pin SMD	1	LED	ROHM	LED
U12	8-pin SMD	1	LED	ROHM	LED
U13	8-pin SMD	1	LED	ROHM	LED
U14	8-pin SMD	1	LED	ROHM	LED
U15	8-pin SMD	1	LED	ROHM	LED
U16	8-pin SMD	1	LED	ROHM	LED
U17	8-pin SMD	1	LED	ROHM	LED
U18	8-pin SMD	1	LED	ROHM	LED
U19	8-pin SMD	1	LED	ROHM	LED
U20	8-pin SMD	1	LED	ROHM	LED
U21	8-pin SMD	1	LED	ROHM	LED
U22	8-pin SMD	1	LED	ROHM	LED
U23	8-pin SMD	1	LED	ROHM	LED
U24	8-pin SMD	1	LED	ROHM	LED
U25	8-pin SMD	1	LED	ROHM	LED
U26	8-pin SMD	1	LED	ROHM	LED
U27	8-pin SMD	1	LED	ROHM	LED
U28	8-pin SMD	1	LED	ROHM	LED
U29	8-pin SMD	1	LED	ROHM	LED
U30	8-pin SMD	1	LED	ROHM	LED
U31	8-pin SMD	1	LED	ROHM	LED
U32	8-pin SMD	1	LED	ROHM	LED
U33	8-pin SMD	1	LED	ROHM	LED
U34	8-pin SMD	1	LED	ROHM	LED
U35	8-pin SMD	1	LED	ROHM	LED
U36	8-pin SMD	1	LED	ROHM	LED
U37	8-pin SMD	1	LED	ROHM	LED
U38	8-pin SMD	1	LED	ROHM	LED
U39	8-pin SMD	1	LED	ROHM	LED
U40	8-pin SMD	1	LED	ROHM	LED
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U43	8-pin SMD	1	LED	ROHM	LED
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U45	8-pin SMD	1	LED	ROHM	LED
U46	8-pin SMD	1	LED	ROHM	LED
U47	8-pin SMD	1	LED	ROHM	LED
U48	8-pin SMD	1	LED	ROHM	LED
U49	8-pin SMD	1	LED	ROHM	LED
U50	8-pin SMD	1	LED	ROHM	LED
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U72	8-pin SMD	1	LED	ROHM	LED
U73	8-pin SMD	1	LED	ROHM	LED
U74	8-pin SMD	1	LED	ROHM	LED
U75	8-pin SMD	1	LED	ROHM	LED
U76	8-pin SMD	1	LED	ROHM	LED
U77	8-pin SMD	1	LED	ROHM	LED
U78	8-pin SMD	1	LED	ROHM	LED
U79	8-pin SMD	1	LED	ROHM	LED
U80	8-pin SMD	1	LED	ROHM	LED
U81	8-pin SMD	1	LED	ROHM	LED
U82	8-pin SMD	1	LED	ROHM	LED
U83	8-pin SMD	1	LED	ROHM	LED
U84	8-pin SMD	1	LED	ROHM	LED
U85	8-pin SMD	1	LED	ROHM	LED
U86	8-pin SMD	1	LED	ROHM	LED
U87	8-pin SMD	1	LED	ROHM	LED
U88	8-pin SMD	1	LED	ROHM	LED
U89	8-pin SMD	1	LED	ROHM	LED
U90	8-pin SMD	1	LED	ROHM	LED
U91	8-pin SMD	1	LED	ROHM	LED
U92	8-pin SMD	1	LED	ROHM	LED
U93	8-pin SMD	1	LED	ROHM	LED
U94	8-pin SMD	1	LED	ROHM	LED
U95	8-pin SMD	1	LED	ROHM	LED
U96	8-pin SMD	1	LED	ROHM	LED
U97	8-pin SMD	1	LED	ROHM	LED
U98	8-pin SMD	1	LED	ROHM	LED
U99	8-pin SMD	1	LED	ROHM	LED
U100	8-pin SMD	1	LED	ROHM	LED

Layout

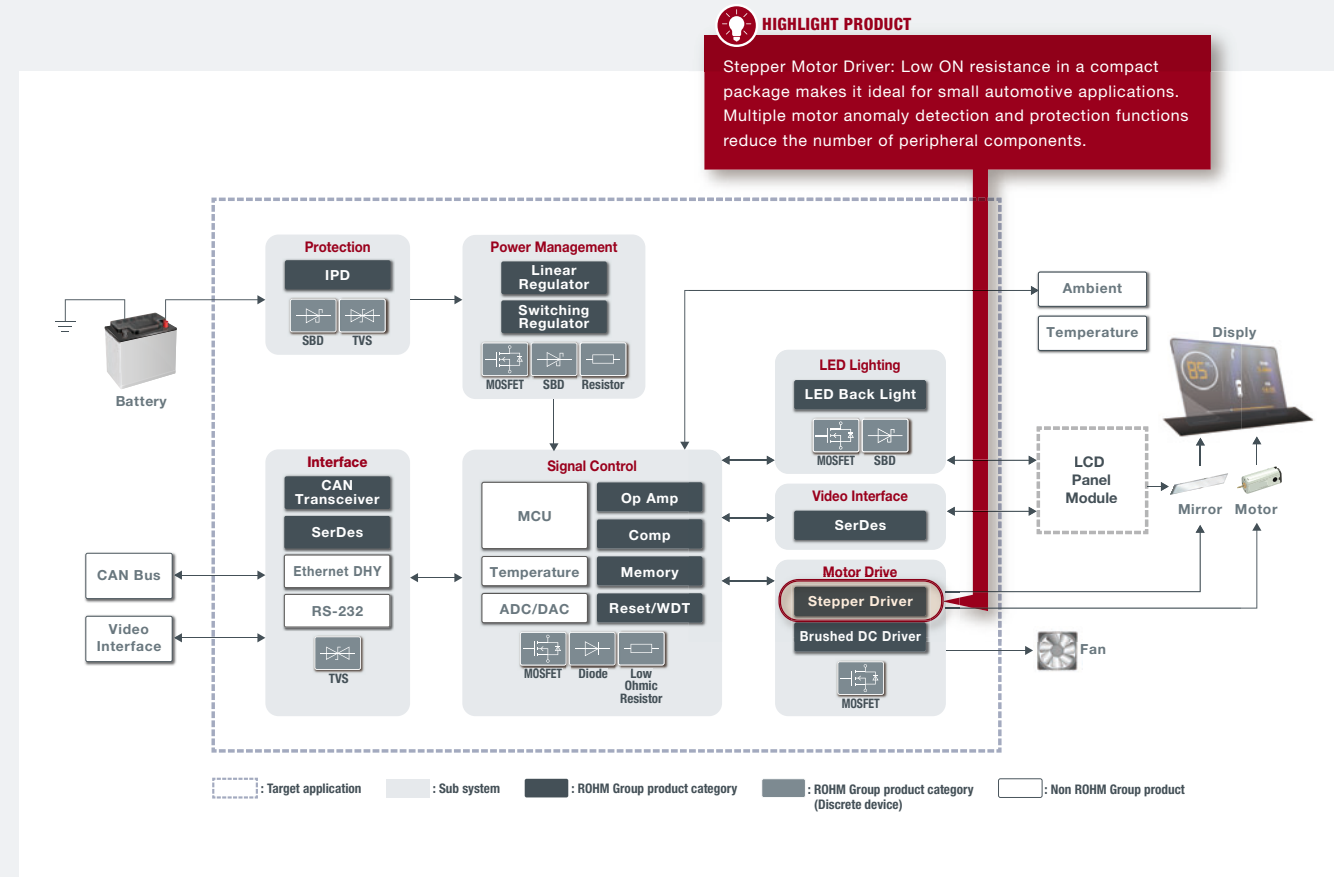
6ch White LED Driver Built-in Current Driver Boost DC-DC Converter for Automotive

HEAD UP DISPLAY

HUD

The Head-Up Display (HUD) reduces eye movement when driving by projecting speed and vehicle information from a light source onto the windshield or combiner (a small translucent panel), reducing fatigue.

ROHM offers a broad lineup of compact products ranging from resistors to discrete semiconductors and ICs, including stepper motor drivers for HUDs that provide functional safety with low consumption, contributing to greater energy efficiency and miniaturization of HUDs



HIGHLIGHT PRODUCT
 Stepper Motor Driver: Low ON resistance in a compact package makes it ideal for small automotive applications. Multiple motor anomaly detection and protection functions reduce the number of peripheral components.

Head Up Display (HUD)

PRODUCT

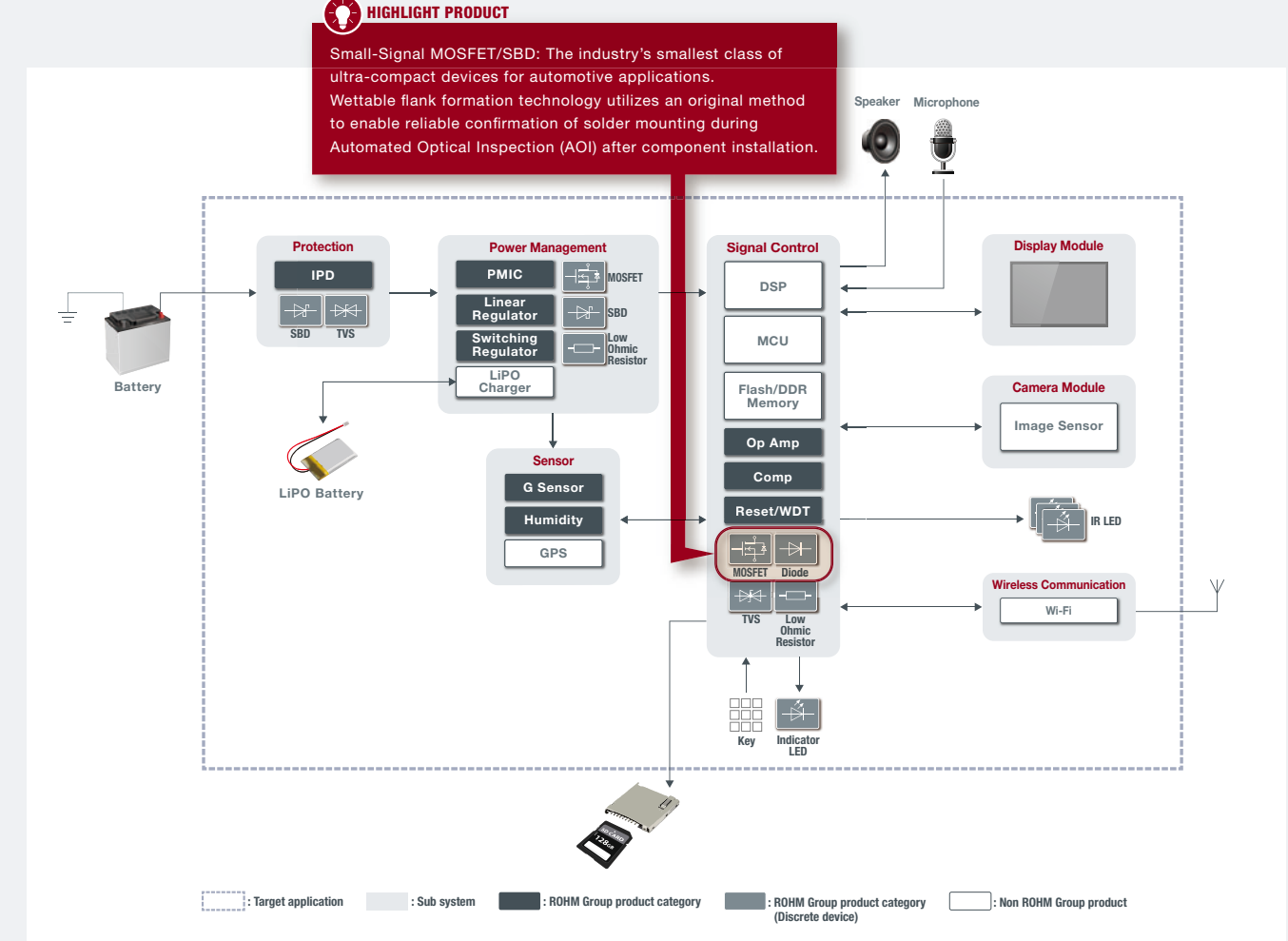
- Power Management**
 - Switching Regulators
 - Linear Regulators
 - Schottky Barrier Diodes
 - MOSFETs
 - Resistors
- Protection**
 - Smart Low/High Side Switch ICs (IPDs)
 - Schottky Barrier Diodes
 - Transient Voltage Suppressor Diodes
- Interface**
 - SerDes
 - CAN Transceivers
 - Transient Voltage Suppressor Diodes
 - Display Controller
 - Touch Switch Controller
- LED Lighting**
 - LED Back Light
- Motor Drive**
 - Stepper Driver
 - Brushed DC Driver
- Signal Control**
 - EEPROMs
 - Operational Amplifiers
 - LCD Panel
 - Gate Drivers
 - RESET ICs
 - T-CON
 - Diodes
 - Resistors

DASHBOARD CAMERA

Dash Cam

As vehicle safety performance continues to improve, dashboard cams (drive recorders) are becoming increasingly valuable as a defense against unforeseen events and to further enhance safety.

ROHM offers a broad lineup of compact, high-reliability general-purpose products, including ultra-compact small signal devices (MOSFETs and SBDs) in wettable flank packages, allowing users to achieve high-performance applications that prioritize safety and security.



HIGHLIGHT PRODUCT
 Small-Signal MOSFET/SBD: The industry's smallest class of ultra-compact devices for automotive applications. Wettable flank formation technology utilizes an original method to enable reliable confirmation of solder mounting during Automated Optical Inspection (AOI) after component installation.

Dashboard Camera

PRODUCT

- Protection**
 - Smart Low/High Side Switch ICs (IPDs)
 - Transient Voltage Suppressor Diodes
 - Schottky Barrier Diodes
- Power Management**
 - PMIC
 - DC-DC Converter ICs
 - Linear Regulators
 - MOSFETs
 - Schottky Barrier Diodes
 - Resistors
- Signal Control**
 - Operational Amplifiers
 - Comparators
 - MOSFETs
 - Diodes
 - Resistors
 - LEDs
 - IR LED
 - Voltage Detectors (Reset ICs)
- Sensor**
 - Shock Sensor (Impact Sensor) Amplifier
 - G Sensors
 - Humidity
- Audio**
 - Class-D Speaker Amplifier

Related Articles
 Reducing the Size of Automotive Designs with Ultra-Compact 1mm² MOSFETs

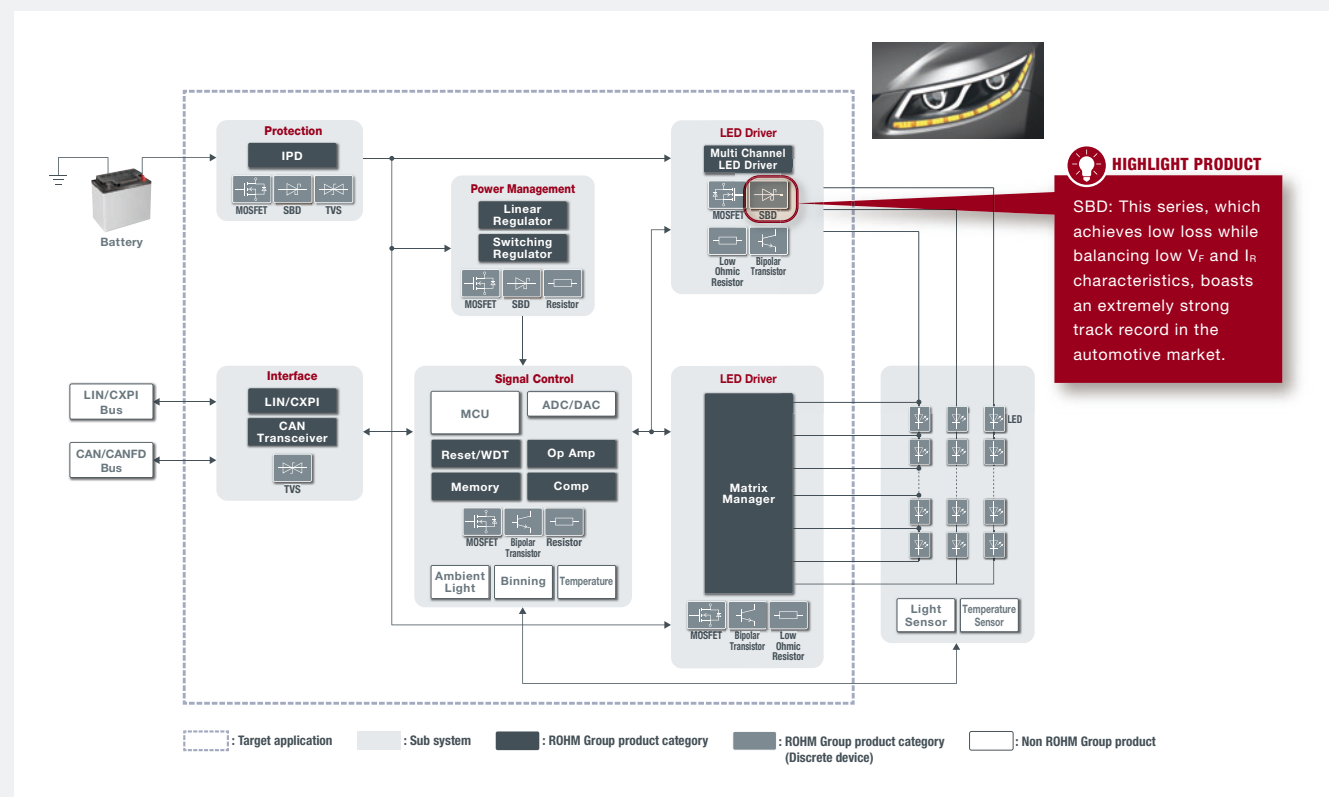
FRONT LIGHT WITH ADAPTIVE DRIVING BEAM

Front Light (Headlamps)

The advancement of LED technology for automotive headlamps has made it possible to achieve functions not possible before. For example, Adaptive Driving Beams (ADB) ensure safety by controlling the distribution of high beams to avoid causing glare to oncoming and preceding vehicles.

In addition, by controlling the direction of the headlamps, driver visibility is greatly improved when driving around curves or at intersections with poor visibility.

ROHM offers LED driver ICs capable of driving LEDs with no flicker and low heat generation, together with an SBD series that balances important characteristics, contributing to the evolution of LED headlamps.



Front Light with ADB Front Light

PRODUCT

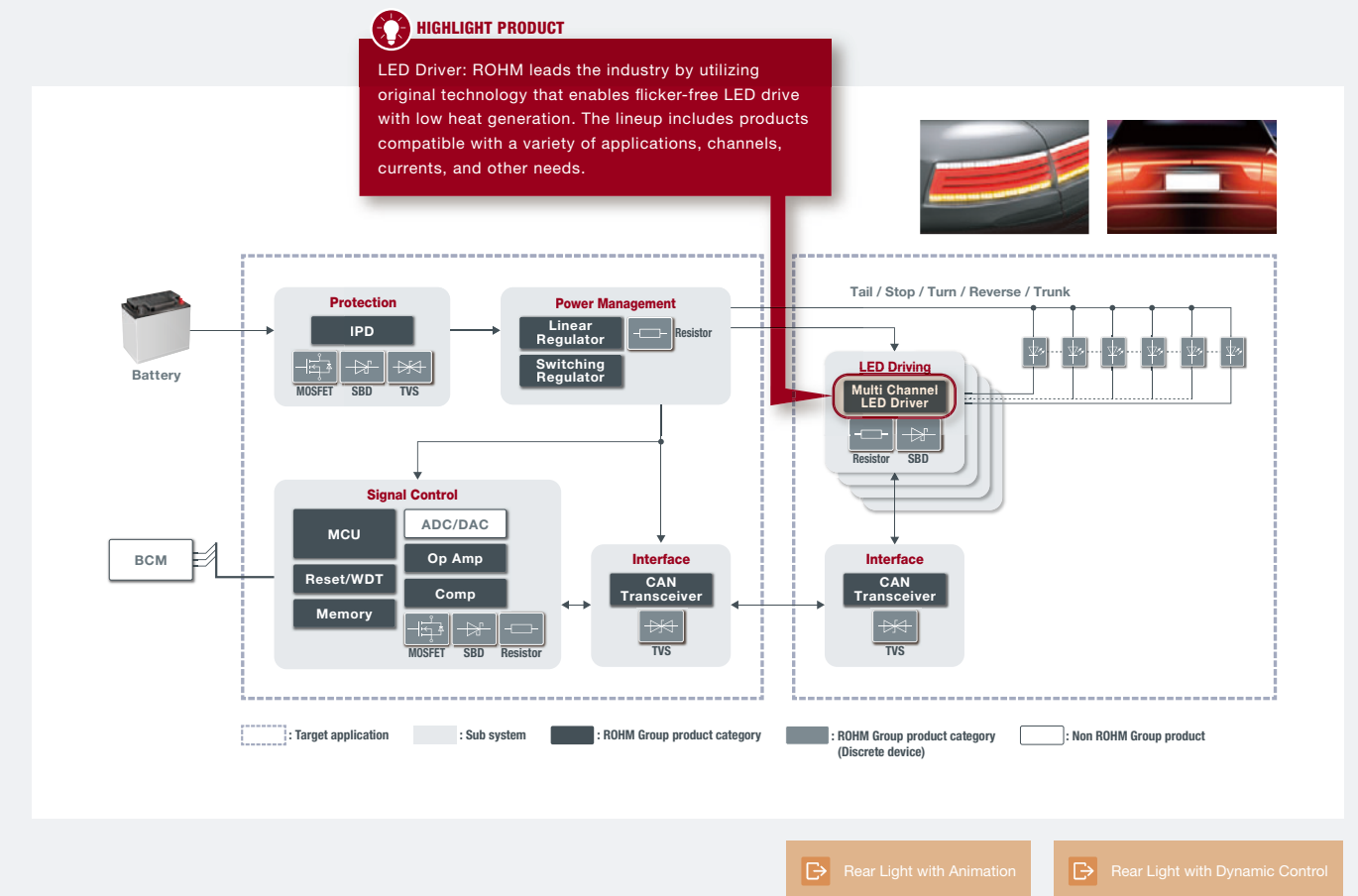
- LED Driving**
 - Multi Channel LED Drivers
 - Matrix Drivers
 - Schottky Barrier Diodes
 - MOSFETs
 - Bipolar Transistors
 - Current Detection Resistors
- LEDs**
 - Chip LEDs
- Protection**
 - Smart Low/High Side Switch ICs (IPDs)
 - MOSFETs
 - Schottky Barrier Diodes
 - Transient Voltage Suppressor Diodes
- Power Management**
 - Switching Regulators
 - Linear Regulators
 - Schottky Barrier Diodes
 - MOSFETs
 - Resistors
- Signal Control/General Purpose**
 - EEPROMs
 - Operational Amplifiers
 - Comparators
 - RESET ICs
 - MOSFETs
 - Diodes
 - Resistors

Related Articles
 • Expands Its Lineup of Compact Market-Proven High Efficiency SBDs for Automotive Applications
 • New SBDs: Achieving Class-Leading Reverse Recovery Time with 100V Breakdown Voltage

REAR LIGHT WITH ANIMATION

Rear Light (Rearlamps)

As electrification in the automotive field continues to advance, the use of LEDs in vehicle lamps has progressed due to their longer life and superior energy efficiency compared halogen lamps, allowing for more efficient utilization of battery power. ROHM provides LED driver ICs compliant with functional safety, making it possible to achieve high reliability rear lamps.



Rear Light with Animation Rear Light with Dynamic Control

PRODUCT

- Protection**
 - Smart Low/High Side Switch ICs (IPDs)
 - MOSFETs
 - Schottky Barrier Diodes
 - Transient Voltage Suppressor Diodes
- Power Management**
 - Switching Regulators
 - Linear Regulators
 - Schottky Barrier Diodes
 - MOSFETs
 - Resistors
- LED Driving**
 - Multi Channel LED Drivers
 - Schottky Barrier Diodes
 - MOSFETs
 - Bipolar Transistors
 - Current Detection Resistors
- Interface**
 - CAN Transceivers
 - LIN Transceivers
 - CXPI Transceivers
 - Transient Voltage Suppressor Diodes
- LEDs**
 - Chip LEDs
- Signal Control/General Purpose**
 - MCU 32bit
 - EEPROMs
 - Operational Amplifiers
 - Comparators
 - RESET ICs
 - MOSFETs
 - Diodes
 - Resistors

Related Articles
 • New Automotive Monolithic LED Driver that Ensures Stable Lighting Even During Battery Voltage Drops

FEATURED PRODUCTS

Distinctive products that contribute to technical innovation in automotive applications

ROHM develops hundreds of new products every year. Here, we will introduce products* that contribute to automotive technical innovation along with related brochures.

*Target products: Products announced after April 2021

Power Semiconductors/Power Devices

- Power Transistors P28
- Power Diodes P29

ICs

- Power ICs P29
- Sensor ICs P31
- General Purpose ICs P31

Discrete Devices

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Passive Devices/Opto Devices

- Resistors P33
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[Latest Product Brochure](#)

* Power Transistors

Power Semiconductors/Power Devices

In the power device field, ROHM is strongly committed to the development of not only Si-based transistors and diodes, but also devices that use new materials such as SiC as well as products that incorporate various structures, packages, and modularization. We can provide a wide range of solutions to meet different power supply and motor drive needs, including ICs (control/drive ICs) that maximize the performance of power devices.

Power Transistors

4th Gen SiC MOSFETs

As the first supplier in the world to begin mass production of SiC MOSFETs in 2010, ROHM continues to develop industry-leading SiC power device technologies. ROHM's latest 4th Gen SiC MOSFETs deliver improved short-circuit withstand time along with the industry's lowest ON-resistance, contributing to lower power consumption and greater miniaturization in applications such as inverters and switching power supplies.

*ROHM study

Part No.	Polarity [ch]	V _{GS} [V]	I _D [A]	P _D [W] (T _C =25°C)	R _{DS(on)} (Typ)[mΩ]		Q _g (Typ)[nC]		Package [mm]	Automotive Grade (AEC-Q101)
					V _{GS} =18V	V _{GS} =18V	Drive Voltage [V]			
SCT4026DEHR	N	750	56	176	26	94	15 to 18	TO-247 (TO-247N) 41.0x16.0	YES	
SCT4045DEHR			34	115	45	63	15 to 18		YES	
SCT4036KEHR		1,200	43	176	36	91	15 to 18		YES	
SCT4062KEHR			26	115	62	64	15 to 18		YES	
SCT4026DRHR	N	750	56	176	26	94	15 to 18	TO-247-4L 41.0x16.0	YES	
SCT4045DRHR			34	115	45	63	15 to 18		YES	
SCT4036KRHR		1,200	43	176	36	91	15 to 18		YES	
SCT4062KRHR			26	115	62	64	15 to 18		YES	
SCT4026DW7HR	N	750	51	150	26	94	15 to 18	TO-263-7L 15.4x10.2	YES	
SCT4045DW7HR			31	93	45	63	15 to 18		YES	
SCT4062KW7HR		24	93	62	64	15 to 18	YES			
SCT4026DWAHR	N	750	51	150	26	94	15 to 18	TO-263-7LA 15.4x10.2	YES	
SCT4045DWAHR			31	93	45	63	15 to 18		YES	
SCT4062KWAHR		24	93	62	64	15 to 18	YES			

Note: Packages in parentheses () denote ROHM's package type.

[Dedicated 4th Gen SiC MOSFET Page](#)

[SiC Power Device Brochure](#)

IGBTs with Built-in SiC Schottky Barrier Diode (Hybrid IGBTs) RGWxx65C series

The RGWxx65C series of hybrid IGBTs utilize ROHM's low-loss SiC Schottky barrier diode as the IGBT's freewheeling diode, resulting in significantly lower ON switching loss vs conventional IGBTs.

Part No.	V _{CE(sat)} [V]	I _C [A]		P _D [W]	V _{CE(sat)}		t _{sc} Min [μsec]	I _{F(Diode)} [A]		V _{F(Diode)}		Package [mm]	Internal Circuit Diagram	Automotive Grade (AEC-Q101)
		T _C =25°C	T _C =100°C		Typ[V]	I _C [A]		T _C =25°C	T _C =100°C	Typ[V]	I _F [A]			
RGW60TS65CHR	650	64	39	178	1.5	30	—	39	25	1.35	20	TO-247N 41.0x16.0		YES
RGW80TS65CHR		81	48	214	1.5	40	—	39	25	1.35	20			YES
RGW00TS65CHR		96	58	254	1.5	50	—	39	25	1.35	20			YES

[RGWxx65C series Featured Product Catalog](#)

Power Diodes

Trench MOS Structure Schottky Barrier Diodes YQ series

The YQ series of Schottky barrier diodes adopt an original trench MOS structure that reduces both V_F and I_R compared with conventional planar-type products. This minimizes switching loss along with the risk of thermal runaway, contributing to lower application power consumption.

Trench MOS Structure 100V withstand High Performance Schottky Barrier Diodes												
Product No.			Absolute Maximum Ratings			Electrical Characteristics(T _J =25°C)				Package [mm]	Circuit	Automotive Grade (AEC-Q101)
Part No.	Grade Code	Taping Code	V _{FM} [V]	I _O [A]	T _J [°C]	V _F (Max) [V]	I _F [A]	I _R (Max) [μA]	V _R [V]			
YQ1VWM10A	TF	TR	100	1	175	0.7	1	6	100	(PMDE) 2.5x1.3	Single	YES
YQ2VWM10B	TF	TR	100	2	175	0.77	2	10	100			YES
YQ2MM10A	TF	TR	100	2	175	0.77	2	10	100	SOD-123FL (PMDU) 3.5x1.6	Single	YES
YQ3MM10B	TF	TR	100	3	175	0.77	3	15	100			YES
YQ2LAM10B	TF	TR	100	2	175	0.67	2	15	100	SOD-128 (PMDTM) 4.7x2.5	Single	YES
YQ3LAM10D	TF	TR	100	3	175	0.64	3	30	100			YES
YQ5LAM10C	TF	TR	100	5	175	0.77	5	25	100	SOD-128 (PMDTM) 4.7x2.5	Single	YES
YQ5LAM10D	TF	TR	100	5	175	0.73	5	30	100			YES
YQ5LAM10E	TF	TR	100	5	175	0.61	5	50	100	TO-277A (TO-277GE) 6.5x4.6	Single	YES
YQ3RSM10SD	TF	TL1*	100	3	175	0.64	3	30	100			YES
YQ5RSM10SD	TF	TL1*	100	5	175	0.77	5	25	100	TO-277A (TO-277GE) 6.5x4.6	Single	YES
YQ8RSM10SD	TF	TL1*	100	8	175	0.67	8	60	100			YES
YQ10RSM10SD	TF	TL1*	100	10	175	0.67	10	80	100	TO-277A (TO-277GE) 6.5x4.6	Single	YES
YQ12RSM10SD	TF	TL1*	100	12	175	0.67	12	90	100			YES
YQ15RSM10SD	TF	TL1*	100	15	175	0.68	15	100	100	TO-252AA (TO-252M) 10.60x6.6	Single	YES
YQ20BM10SD	FH	TL	100	20	150	0.86	20	80	100			YES
☆YQ20NL10SD	FH	TL	100	20	150	0.96	20	70	100	TO-263AB (TO-263L) 15.1x10.1	Cathode common dual	YES
YQ20NL10SE	FH	TL	100	20	150	0.86	20	80	100			YES
☆YQ30NL10SD	FH	TL	100	30	150	0.99	30	95	100	TO-263AB (TO-263L) 15.1x10.1	Cathode common dual	YES
YQ30NL10SE	FH	TL	100	30	150	0.86	30	150	100			YES
YQ20NL10CD	FH	TL	100	20	150	0.71	10	70	100	TO-263AB (TO-263L) 15.1x10.1	Cathode common dual	YES
☆YQ30NL10CD	FH	TL	100	30	150	0.72	15	100	100			YES
☆YQ40NL10CD	FH	TL	100	40	150	0.72	20	160	100	TO-263AB (TO-263L) 15.1x10.1	Cathode common dual	YES
☆YQ60NL10CD	FH	TL	100	60	150	0.77	30	200	100			YES

Note: Packages in parentheses () denote ROHM's package type.
 *The TO-277A (TO-277GE) package of automotive-grade products are rated for car infotainment and body systems.
 ☆: Under Development

[YQ series Featured Product Catalog](#)

ICs

Since the development of its first ICs in the 70's, ROHM has established and refined a three-pronged development system that thoroughly aligns analog technologies covering circuit design, layout, and processes. These technologies are utilized in the development of high value-added products centered on control and driver ICs that can maximize the performance of power supply ICs and power devices.

Power ICs

45V Withstand 150mA Output Nano Cap™ LDO Regulators BD9xxN1 series

The BD9xxN1 series supports small output capacitances down to 100nF utilizing proprietary Nano Cap™ ultra-stable control technology, ensuring extremely stable operation even when the input voltage or output load current fluctuates. In addition to reducing the size of components and substrates, the number of design resources can be significantly reduced by enabling compatibility with a wide range of capacitors.

45V Withstand Low Iq 150mA Output LDO Regulators Featuring Nano Cap™ Technology												
Type	Input Voltage [V]	Output Voltage [V]	Output Voltage Accuracy [%]	Output Current [A]	Input/Output Voltage Difference [V]	Circuit Current [μA]	Operating Temperature [°C]	Shutdown Switch	Protection Circuits	Package/Part No.		Automotive Grade (AEC-Q101)
										HTSOP-J8	SSOP5	
BD900N1	3 to 42	Adjustable	±2.0	0.15	0.5(I _O =100mA)	28	T _J =-40 to +150	—	Over-Current/ Temperature	BD900N1EFJ-C	BD900N1G-C	YES
BD933N1		3.3								BD933N1EFJ-C	BD933N1G-C	YES
BD950N1		5.0								BD950N1EFJ-C	BD950N1G-C	YES
BD900N1W	3 to 42	Adjustable	±2.0	0.15	0.5(I _O =100mA)	28	T _J =-40 to +150	✓	Over-Current/ Temperature	BD900N1WEFJ-C	BD900N1WG-C	YES
BD933N1W		3.3								BD933N1WEFJ-C	BD933N1WG-C	YES
BD950N1W		5.0								BD950N1WEFJ-C	BD950N1WG-C	YES

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[BD9xxN1 series Featured Product Catalog](#)

45V Withstand 50mA Output Compact Ultra-Low Quiescent Current LDO Regulators BD7xxL05G-C series

Despite its small size (2.9mmx2.8mm), the BD7xxL05G-C series achieves a withstand voltage of 45V with low 6μA quiescent current, enabling suitability for a wide range of applications that require a small form factor, low power consumption, and constant operation.

45V Withstand Low Iq 50mA Output LDO Regulators											
Part No.	Input Voltage [V]	Output Voltage [V]	Output Voltage Accuracy [%]	Output Current [A]	Input/Output Voltage Difference [V]	Circuit Current [μA]	Operating Temperature [°C]	Shutdown Switch	Protection Circuits	Package [mm]	Automotive Grade (AEC-Q101)
BD725L05G-C	3.5 to 42.0	2.5	±2 (T _J =-40 to +150°C)	0.05	—	6	-40 to +125	—	Over-Current/ Temperature	SSOP5 2.9x2.8 t=1.25	YES
BD730L05G-C	3.5 to 42.0	3.0			0.3(I _O =50mA)						
BD733L05G-C	3.8 to 42.0	3.3			0.3(I _O =50mA)						
BD750L05G-C	5.6 to 42.0	5.0			0.35(I _O =50mA)						

[BD7xxL05G-C series Featured Product Catalog](#)

7V Withstand 4A Output DC-DC Converter ICs Featuring QuiCur™ Technology BD9S402MUF-C

ROHM's unique ultra-high-speed pulse control technology Nano Pulse Control™ provides next-generation 0.6V low voltage output, much lower than the 1.0V output required by current SoCs and MCUs. At the same time, utilizing original QuiCur™ high-speed load response technology ensures stable operation (load response characteristics) by maintaining the output voltage to within ±5% even at low output voltages below 1.0V or during load current fluctuations, making it ideal for secondary power supplies in advanced ADAS applications.

7V Withstand 4A Output DC-DC Converter ICs Featuring QuiCur™ Technology											
Part No.	Withstand Voltage [V]	Output Current (Max)[A]	Input Voltage [V]	Output Voltage [V]	Output Voltage Accuracy [%]	Switching Frequency [MHz]	ON Resistance (Typ)[mΩ]		Operating Temperature [°C]	Package [mm]	Automotive Grade (AEC-Q101)
							Pch FET	Nch FET			
BD9S402MUF-C	7	4	2.7 to 5.5	Adj. (0.6 to V _{IN} x0.75)	±1	2.2	60	35	-40 to +125	VQFN16FV3030 3.0x3.0 t=1.0	YES

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[BD9S402MUF-C Featured Product Catalog](#)

40V Withstand Low Power Bipolar Stepper Motor Driver BD63800MUF-C

The BD63800MUF-C stepper motor driver IC with built-in low power bipolar transistor features a rated output current of 1.35A and withstand voltage of 40V. Support for a wide variety of excitation modes (STEP) and current damping methods (DECAY) enables optimal control for a wide range of motors. What's more, the IC is offered in a 5mm² wettable flank package suitable for ECUs that require greater miniaturization.

40V Withstand Low Power Bipolar Stepper Motor Driver									
Part No.	Withstand Voltage [V]	Supply Voltage [V]	Output Current [A] (Peak Current [A])	Control Input Signal	Drive	DECAY	Output ON Resistance (Typ)[Ω]	Package [mm]	Automotive Grade (AEC-Q101)
BD63800MUF-C	40	6 to 28	1.21 (1.35*)	CLK/SPI	1/32	Slow/Fast/Mix/Auto	0.75	VQFN32FBV050 5.0x5.0 t=1.0	YES (Grade1)

*Pulse width tw< 1ms, Duty 20% of pulse

[BD63800MUF-C Featured Product Catalog](#)

40V Low-Side IPDs (Smart Switches) with Error Flag BV1LExxEFJ-C/BM2LExxFJ-C series

Both series provide the advantage of easy design through a circuit configuration that facilitates replacement of standalone mechanical relays and MOSFETs when placed in the lower (ground side) circuits of equipment to be controlled. Low ON resistance together with heat suppression are enabled in a small size (difficult to achieve), contributing to significantly lower power loss and safer device operation.

Low-Side IPDs (Smart Switches) with 40V Error Flag										
Part No.	Supply Voltage [V]	V _{DS} (Max) [V]	ch	I _{oip} (Max) [A]	ON Resistance (Typ) [mΩ]	TSD	Package [mm]	Automotive Grade (AEC-Q101)		
BV1LE040EFJ-C	3.0 to 5.5	40	1	17.5	40	Self-restart	HTSOP-J8 4.9x6.0	YES		
BV1LE080EFJ-C								9.0	80	YES
BV1LE160EFJ-C								5.0	160	YES
BV1LE250EFJ-C								3.0	250	YES
BM2LE040FJ-C	3.0 to 5.5	40	2	17.5	40		SOP-J8 4.9x6.0	YES		
BM2LE080FJ-C								9.0	80	YES
BM2LE160FJ-C								5.0	160	YES
BM2LE250FJ-C								3.0	250	YES

[BV1LExxEFJ \(1ch\)/BM2LExxFJ-C \(2ch\) Featured Product Catalog](#)

Sensor ICs

42V Withstand Hall Sensor ICs **BD5310xG-CZ/BD5410xG-CZ series**

The BD5310xG-CZ/BD5410xG-CZ series are AEC-Q100 qualified high withstand voltage Hall Sensor ICs.

Two types are offered: unipolar and latch detection, in a variety of sensitivity options that allow users to select the ideal product based on application needs.

42V Withstand Hall Sensor ICs											
Part No.	Detection Type	Operating Voltage [V]	Magnetic Flux Density[mT]		Magnetic Field Input Frequency (Max) [kHz]	Current Consumption (Max) [mA]	Output Type	Operating Temperature [°C]	Protection Functions	Package [mm]	Automotive Grade (AEC-Q100)
			S-pole	N-pole							
BD53103G-CZ	Unipolar Detection	2.7 to 38	3.5	-	10	1.9	Nch Open Drain	-40 to +150	Overcurrent Protection Over Temperature Protection Reverse Connection Protection UVLO (Under Voltage Lockout)	SSOP3A (SOT23-3 equivalent) 2.92x2.4	YES
☆ BD53104G-CZ			7.5								YES
☆ BD53105G-CZ			10.0								YES
☆ BD53106G-CZ			12.5								YES
☆ BD53107G-CZ			18.0								YES
BD53108G-CZ			28.0								YES
BD54102G-CZ	Latch Detection	2.7 to 38	2.0	-2.0	10	1.9	Nch Open Drain	-40 to +150	Overcurrent Protection Over Temperature Protection Reverse Connection Protection UVLO (Under Voltage Lockout)	SSOP3A (SOT23-3 equivalent) 2.92x2.4	YES
☆ BD54103G-CZ			5.0	-5.0							YES
☆ BD54104G-CZ			7.5	-7.5							YES
☆ BD54105G-CZ			10.0	-10.0							YES
☆ BD54107G-CZ			15.0	-15.0							YES

☆: Under Development

[BD5310xG-CZ/BD5410xG-CZ series Featured Product Catalog](#)

General Purpose ICs

3.5ms High-Speed Write Automotive EEPROMs (Endurance=4 million times) **BR24Hxxx-5AC/BR25Hxxx-5AC series**

These series of automotive-grade EEPROMs achieve a write speed of 3.5ms by leveraging original data read/write circuit technology. What's more, ensuring up to 4 million times not only extends application service life, but makes them ideal for automotive data logging applications requiring frequent data rewrites.

BR24Hxxx-5AC series I ² C BUS EEPROMs (2-Wire)																	
Part No.	Package and Suffix						Density [bit]	Bit Format [word×bit]	Supply Voltage [V]	Current Consumption(Max)		Write Cycle Time (Max) [ms]	Clock Frequency (Max) [Hz]	Operating Temperature [°C]	Endurance [Times]	Data Retention [Years]	Automotive Grade (AEC-Q100)
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X22030	VSON08AX22030				Operating [mA]	Standby [μA]						
BR24H01	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	1K	128x8	1.7 to 5.5	1.7	10	3.5	1M	-40 to +125	4x10 ⁶	100	YES
BR24H02	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	2K	256x8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H04	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	4K	512x8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H08	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	8K	1Kx8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H16	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	16K	2Kx8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H32	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	32K	4Kx8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H64	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	64K	8Kx8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H128	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	-	128K	16Kx8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H256	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	-	256K	32Kx8	1.7 to 5.5	1.7	10	3.5	1M				YES
BR24H512	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	-	512K	64Kx8	1.7 to 5.5	3	20	3.5	1M				YES
BR24H1M	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	-	1M	128Kx8	1.7 to 5.5	3	20	3.5	1M				YES

BR25Hxxx-5AC series SPI BUS EEPROMs with ECC Function																	
Part No.	Package and Suffix						Density [bit]	Bit Format [word×bit]	Supply Voltage [V]	Current Consumption(Max)		Write Cycle Time (Max) [ms]	Clock Frequency (Max) [Hz]	Operating Temperature [°C]	Endurance [Times]	Data Retention [Years]	Automotive Grade (AEC-Q100)
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X22030	VSON08AX22030				Operating [mA]	Standby [μA]						
BR25H010	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	1K	128x8	1.7 to 5.5	8	10	3.5	20M	-40 to +125	4x10 ⁶	100	YES
BR25H020	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	2K	256x8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H040	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	4K	512x8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H080	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	8K	1Kx8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H160	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	ANUX-5AC	16K	2Kx8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H320	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	-	32K	4Kx8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H640	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	-	64K	8Kx8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H128	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	-	128K	16Kx8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H256	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	-	256K	32Kx8	1.7 to 5.5	8	10	3.5	20M				YES
BR25H512	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	-	512K	64Kx8	1.7 to 5.5	8	20	3.5	20M				YES
BR25H1M	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	-	-	1M	128Kx8	1.7 to 5.5	8	20	3.5	20M				YES

[Serial EEPROM Selection Guide](#)

Ultra-Low Operating Current 160nA, Low Offset Voltage High Accuracy Op Amp **LMR1901YG-M**

The LMR1901YG-M Op Amp utilizes original Nano Energy™ technology to achieve an ultra-low operating current of 160nA.

Features include minimal variations in operating current due to changes in power supply voltage or temperature along with superior input offset voltage characteristics - despite being an ultra-low current product - making it suitable for a wide range of applications, including sensing in battery-powered devices.

160nA Operating Current Low Input Offset Voltage High Accuracy Op Amp										
Part No.	ch	Supply Voltage [V]	Circuit Current (Typ)[nA]	Input Offset Voltage (Max)[mV]	Input Offset Voltage Temperature Drift (Max)[μV/°C]	Operating Temperature [°C]	Input Equivalent Noise Voltage Density (Typ)[nV/√Hz]	Package [mm]	Automotive Grade (AEC-Q100)	
LMR1901YG-M	1	1.7 to 5.5	160	0.55	7.0	-40 to +105	740	SSOP5 2.9x2.8	YES	(Grade2)

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[LMR1901YG-M Featured Product Catalog](#)

40V Window-Type Voltage Detectors (Reset ICs) **BD48HW0G-C**

The BD48HW0G-C achieves operating voltages up to 40V along with an ultra-high voltage detection accuracy of ±0.75% while minimizing current consumption to just 500nA utilizing original Nano Energy™ technology. What's more, a flexible detection voltage enables use in a wide range of applications, from the low voltage region around MCUs to the high voltages used in automotive power supplies.

Window-Type Voltage Detectors (Reset ICs)														
Part No.	Operating Supply Voltage [V]	Voltage Detection Accuracy Within The All Temperature [%]	Overvoltage Detection [V]	Low Voltage Detection [V]	Output Type	Circuit Current [nA]	Hysteresis Voltage [V]	"L" Output Current [mA] (V _{OS} =0.4V)	Reset Release Propagation Delay Time [ms]	Delay Time Accuracy [%]	Package [mm]	Automotive Grade (AEC-Q100)		
BD48HW0G-C	1.8 to 40	±0.75	1.277	1.277	Open Drain	500	V _{DET} ×0.01	2 or more (V _{OS} =1.8V)		-	SSOP6 2.9x2.8	YES		
BD48W00G-C	1.6 to 6.0	±5	1.32	1.08		3000		1 or more (V _{OS} =1.6V)				Variable	±50 (All Temperature)	YES
BD52W01G-C						1.65		1.35	2 or more (V _{OS} =2.4V)					YES
BD52W02G-C						1.98		1.62	YES					
BD52W04G-C						2.75		2.25	YES					
BD52W05G-C						3.63		2.97	YES					
BD52W06G-C						5.5		4.5	YES					

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[BD48HW0G-C Featured Product Catalog](#)

Discrete Devices

ROHM's discrete devices are a family of products that have been offered since shortly after the company was founded. With a diverse portfolio that includes Schottky barrier diodes and MOSFETs, ROHM has maintained its position as a leading company for many years, due in large part to superior quality, remarkable miniaturization, and stable production capacity that have earned high praise from customers.

ROHM continues to contribute to the development of electrical and electronic equipment while reducing environmental impact by supplying discrete components that efficiently utilize limited power and resources over the long term.

Small-Signal Semiconductors/Devices

Ultra-Compact 1006 Size Schottky Barrier Diodes (Wettable Flank Package)

The RBxxxASA-x0FH (general rectification) and RB886ASAFH (detection) series are the industry's smallest class of Schottky barrier diodes designed for automotive applications. These new ultra-compact products improve heat dissipation over conventional products, making them ideal for automotive ECUs and ADAS-related devices where higher board densities are being pursued. *ROHM July 2023 study

Ultra-Compact 1006 Size Schottky Barrier Diodes (For General Rectification)												
Part No.	Absolute Maximum Ratings(T _a =25°C)					Electrical Characteristics(T _j =25°C)				Package [mm]	Equivalent Circuit Diagram	Automotive Grade (AEC-Q101)
	V _{RM} [V]	V _R [V]	I _O [mA]	I _{FSM} [A] 60Hz,1cycle	V _F (Max) [V]	I _F [mA]	I _R (Max) [μA]	V _{RR} [V]				
RB551ASA-30FH	30	20	500	1	0.47	500	100	20	DFN1006-2W 1.0x0.6 t=0.9		YES	
RB751ASA-40FH	40	30	30	0.5	0.37	1	0.5	30				YES
RB520ASA-30FH	30	30	200	1	0.58	200	1	10				YES
RB521ASA-30FH	30	30	200	1	0.47	200	30	10				YES
RB550ASA-30FH	30	30	500	1	0.59	500	35	30				YES
RB520ASA-40FH	40	40	200	1	0.55	100	10	40				YES

Ultra-Compact 1006 Size Schottky Barrier Diodes (For Detection)												
Part No.	Absolute Maximum Ratings(T _a =25°C)				Electrical Characteristics(T _j =25°C)					Package [mm]	Equivalent Circuit Diagram	Automotive Grade (AEC-Q101)
	V _R [V]	I _F [mA]	T _j [°C]	T _{stg} [°C]	V _F (Max) [V]	I _F [mA]	C _i (Max) [pF]	V _{RR} [V]	f [MHz]			
RB886ASAFH	5	10	150	-50 to +150	0.35	1.0	0.8	1.0	1.0	DFN1006-2W 1.0x0.6 t=0.9		YES

[RBxxxASA-x0FH series \(For General Rectification\)/RB996ASAFH \(For Detection\) Featured Product Catalog](#)

- Resistors
- Opto Devices

Passive Devices/Opto Devices

ROHM also develops resistors (a founding product) as well as opto devices that incorporate various elements.

We continue to contribute to the evolution of automotive equipment by leveraging our strengths as a comprehensive semiconductor manufacturer to provide optimized solutions utilizing ICs and discrete components.

Resistors

Ultra-Low Ohmic High Power Metal Plate Shunt Resistors PSR series

The PSR series consists of high power ultra-low-ohmic metal plate shunt resistors ideal for current sensing applications. A full lineup of sizes and resistances is available, enabling high accuracy current detection in a wider range of applications.

Ultra-Low Ohmic High Power Metal Plate Shunt Resistors (PSR series)										
Part No.	Size Code mm (inch)	Resistance [mΩ]	Rated Power [W] (Rated Terminal Temperature)		Resistance Tolerance	Temperature Coefficient of Resistance* [ppm/°C]	Rated Current [A]	Operating Temp. [°C]	Automotive Grade (AEC-Q200)	
			Low Temperature Side	High Temperature Side						
PSR100	6432 (2512)	☆0.2	12 (120°C)		F (±1%)	150±50	36 to 163 200	-65 to +175	YES	
		0.3	8 (75°C)	4 (140°C)						0 to +150
		0.5								0 to +100
		1.0	0 to +100							
		2.0	6 (75°C)	4 (140°C)						0 to +50
3.0	4 (75°C)	3 (140°C)	0 to +50							
☆PSR330	6464 (2525)	0.1	15 (120°C)		F (±1%)	100±50	77 to 387		YES	
		0.5	8 (100°C)							0 to +100
		1.0	6 (100°C)							0 to +50
PSR350	7.9×5.6 (3222)	0.27	12 (120°C)		F (±1%)	0 to +150	Up to 210		YES	
PSR400	10×5.2 (3921)	0.2	12 (75°C)	5 (130°C)	F (±1%)	125±50	40 to 244		YES	
		0.3	10 (75°C)	5 (130°C)						0 to +100
		0.5	10 (75°C)	5 (130°C)						0 to +100
		1.0	8 (75°C)	5 (130°C)						0 to +75
		2.0	6 (75°C)	4 (115°C)						0 to +75
PSR500	15×7.75 (5931)	0.1	15 (75°C)	10 (120°C)	F (±1%)	200±50	59 to 387		YES	
		0.2	15 (75°C)	10 (120°C)						0 to +150
		0.3	10 (75°C)	7 (120°C)						0 to +150
		0.4	10 (75°C)	7 (120°C)						0 to +150
		0.5	10 (75°C)	7 (120°C)						0 to +150
		1.0	10 (75°C)	6 (120°C)				0 to +75		
		2.0	7 (70°C)	4 (115°C)				0 to +75		

* (+20°C to +175°C)

☆: Under Development

PSR series Featured Product Catalog

Opto Devices

RGB Chip LEDs for Automotive Interiors SMLVN6RGBFU

The SMLVN6RGBFU RGB chip LED significantly reduces chromaticity variation by utilizing in-house elements. The ability to precisely match colors makes it ideal for light sources for in-vehicle applications where image colors are important, such as instrument clusters and cabin decorative lighting.

RGB Chip LED for Automotive Interiors																			
Emitting Color	Part No.	Absolute Maximum Ratings (T _a =25°C)						Electrical-Optical Characteristics (T _a =25°C)						Size [mm]	Automotive Grade (AEC-Q102)				
		Power Dissipation P ₀ [mW]	Forward Current I _F [mA]	Peak Forward Current I _{Fp} [mA]	Reverse Voltage V _R [V]	Operating Temperature Topr [°C]	Storage Temp. Tstg [°C]	Forward Voltage V _F [V]	Reverse Current I _R [μA]	Dominant Wavelength λ _d [nm]	Luminous Intensity I _v [mcd]								
Red	SMLVN6RGBFU	400	50	100	5	-40 to +100	-40 to +100	Typ	I _F	Max	V _R	Typ	I _v	Min	Typ	Max	I _F	3.5×2.8 t=0.6	YES
Green			40	100	—			3.3	20	—	—	525	20	1,440	1,800	2,160	20		
Blue			40	100	—			3.3	20	—	—	470	20	320	430	540	20		

*1 Duty: 1/10, 1kHz

SMLVN6RGBFU Featured Product Catalog

WEB SITE

ROHM Website

ROHM's website provides product materials including datasheets, technical documents such as application notes, design tools, and other content useful for development and learning.

These can be used not only for product searches, but also for collecting information and solving problems.

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