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Innovative Solutions Catalog

Bharat Mobility GLOBAL EXPO 2025

18-21 JANUARY 2025 Yashobhoomi, Dwarka, New Delhi

We are pleased that Future Mobility Show 2025 is being held on a grand scale again this year and that Shindengen is able to exhibit at the show.

There has been remarkable growth in India's mobility market and India’s new car sales in 2023 surpassed Japan’s for the second consecutive year, maintaining its position as the world’s third-largest market after China and the United States.
In response to serious discussions for achieving carbon neutrality around the world, the Indian government is aiming for 30% of new cars sold to be EV by the year 2030, which is driving increased demand for EV parts.
Under our corporate mission of "Maximizing energy conversion efficiency for the benefit of humanity and society", we work to develop products which utilize technologies that contribute to reduction of power loss and more efficient power usage.
We established Shindengen India in 2012, and expanded our plant to 2.5 times its original scale for 10 years. We have been producing and selling the PCU (Power Control Units) DU012 for electric motorcycles in India since 2023.

Leveraging its track record, we intend to build a system in India that allow us to carry out everything from device development to unit development in a single integrated manner within one to two years.
In addition to these PCU, at Bharat Mobility 2025 we are also exhibiting MOSFETs, DC/DC converters, BCUs（Body Control Unit）, motorcycle EV chargers, and power modules . The PCU feature a collection of Shindengen technologies, including having MOSFET developed by Shindengen built-in to their inverters, and being equipped with software developed by Shindengen. In addition, various device products such as ideal diode ICs and MOSFETs are introduced.
We believe that we can be of service in helping India establish a sustainable mobility society going forward.
We hope you will have the opportunity to visit the Shindengen booth and speak with us.

Nobuyoshi Tanaka
President

CONTENTS

Power Control Unit	1
Potting-Free PCU	2
Invertor Integrated Motor Powered by Module	3
Future View	4
Charger for EV 2 Wheelers	5
500W DC/DC Converter	6
Body Control Unit	7
Engine Control Unit	8
Phase Control Regulator	9
Regulator Rectifier	10
SiC Power Module MG074	11
Motor Driven Transfer Power Module MG031	12
MOSFET EETMOS® 6 TOLL PKG	13
MOSFET EETMOS® 6 LF PKG	14
V-Diode MF2003SV / MF2013SV	15
V-Diode MF2008SW	16
Our Synergy and Global Network	17
Shindengen India Pvt. Ltd.	18
Shindengen India Pvt. Ltd.	19
Corporate Mission	20

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PCU Power Control Unit

Motor Control & Battery Charging for Motorcycle

1 Make in India

We have started manufacturing our global product, PCU DU012 and DU015, at our plant in Bengaluru to extend the benefits of localized content for OEMs.

2 Drivability

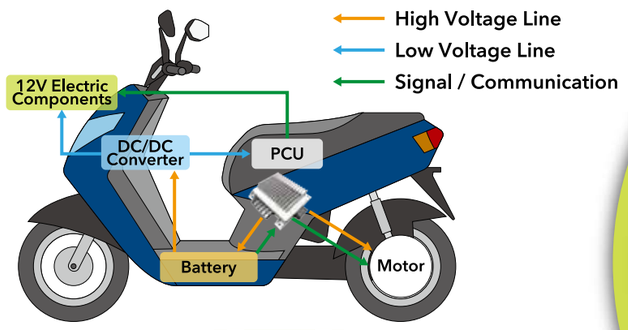
Real-Time detection of vehicle operating conditions coupled with swift response ensures smooth maneuverability.

3 High Efficiency

The long cruising range is achieved through power supply technology that has been developed over half a century.

Specification

PCU Line-up	2kWpk (Typ1.2kW)	4kWpk (Typ2.4kW)	6kWpk (Typ3.6kW)	8kWpk (Typ4.8kW)	10kWpk (Typ6.0kW)	12kWpk (Typ7.2kW)
House Name	DU012	TBD	DU015	TBD	TBD	TBD
Status	MP	Under Development until 2027	MP	Under Development until 2026	In Planning	In Planning
Input Operation Voltage	High 30-59.9V Low 8-16V	High 30-59.9V Low11-16V	High 30-59.9V Low 8-16V	High 30-59.9V Low 8-16V	High 30-59.9V Low 8-16V	High 30-59.9V Low 8-16V
Output Max Phase Current *Air Cooling	Start:100Arms (140Apk) Operation:30Arms	Start:130Arms (190Apk) Operation:50Arms	Start:160Arms (230Apk) Operation:65Arms	Start:200Arms (280Apk) Operation:100Arms	Start:230Arms (325Apk) Operation:130Arms	Start:270Arms (380Apk) Operation:150Arms
Size (W*L*H mm) *Excluding Mounting Part and Connector	115*108*40	100*179*60	133*168*47	164*200*63	182.8*233*63	TBD
Weight (kg)	0.84	1.5	1.7	2.7	3.5	TBD
Motor Type	3 Phase Synchronous Motor					



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Potting-Free PCU

Motor Control & Battery Charging for Motorcycle

1 Light Weight and Low Power Consumption

The smaller and lighter parts reduce the weight of the vehicle body, improving fuel economy.

2 Low Environmental Impact

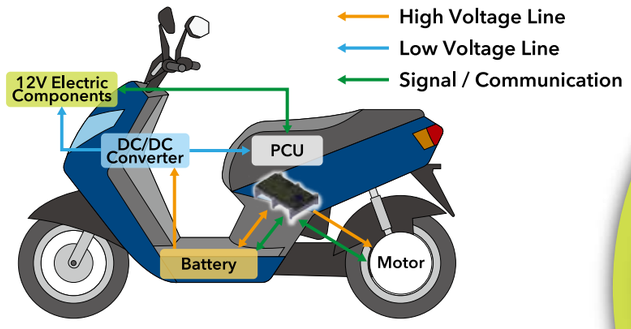
By not using potting resin, we contribute to sustainability and environmental protection through advanced, sturdy manufacturing technology.

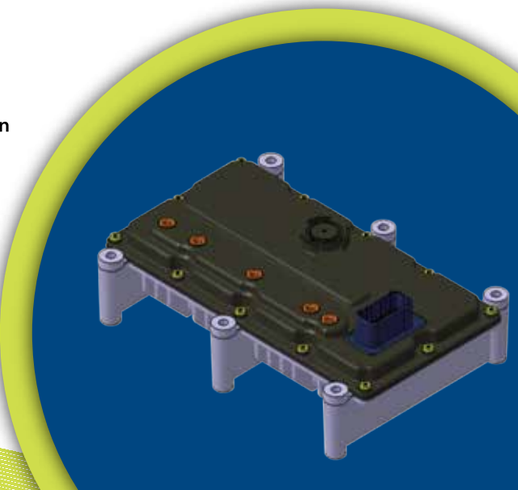
3 Great Durability without Potting Resin

Although it does not use resin, it has the same level of durability and vibration resistance as products that do.

Specification

Status	Under Development until 2027
Output	8kWpk (Typ 4.8kW)
Input Operation Voltage	High 30–59.9V / Low8-16V
Output Max Phase Current	Start:200Arms (280Apk) Operation:90Arms *Air cooling
Size (W*L*H mm) *mounting part & connector excluded	225*119*53
Weight (kg)	1.3





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Invertor Integrated Motor Powered by MODULE

Motor Control & Battery Charging for Motorcycle

1 Built-in Shindengen's Power Module

Shindengen's power modules can achieve the same performance in a smaller area than MOSFETs implemented as discrete components, contributing to product miniaturization.

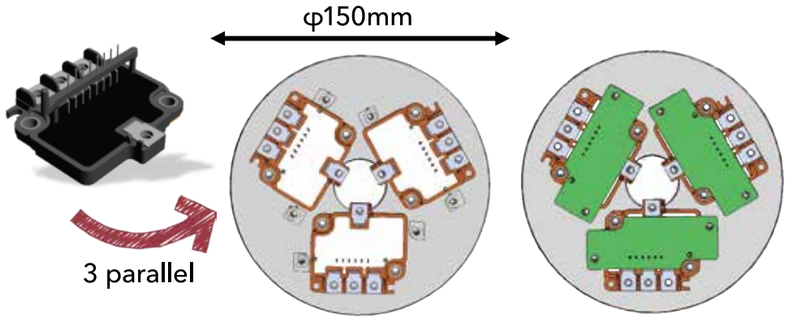
2 Streamline Assembly Process

Power module solution can streamline mounting/assembly process and no insulation is required on each chips.

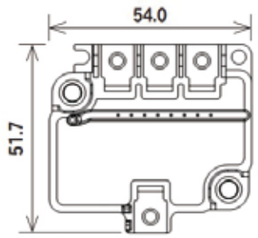
3 High Heat Dissipation

Insulation layer and Cu substrate can achieve heat decentration and dissipation.

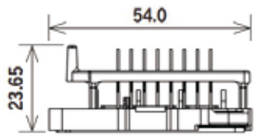
Concept Model for Automotive Mechatronics



Please feel free to contact us if you have any request for changing specification or adding optional feature.



MG034



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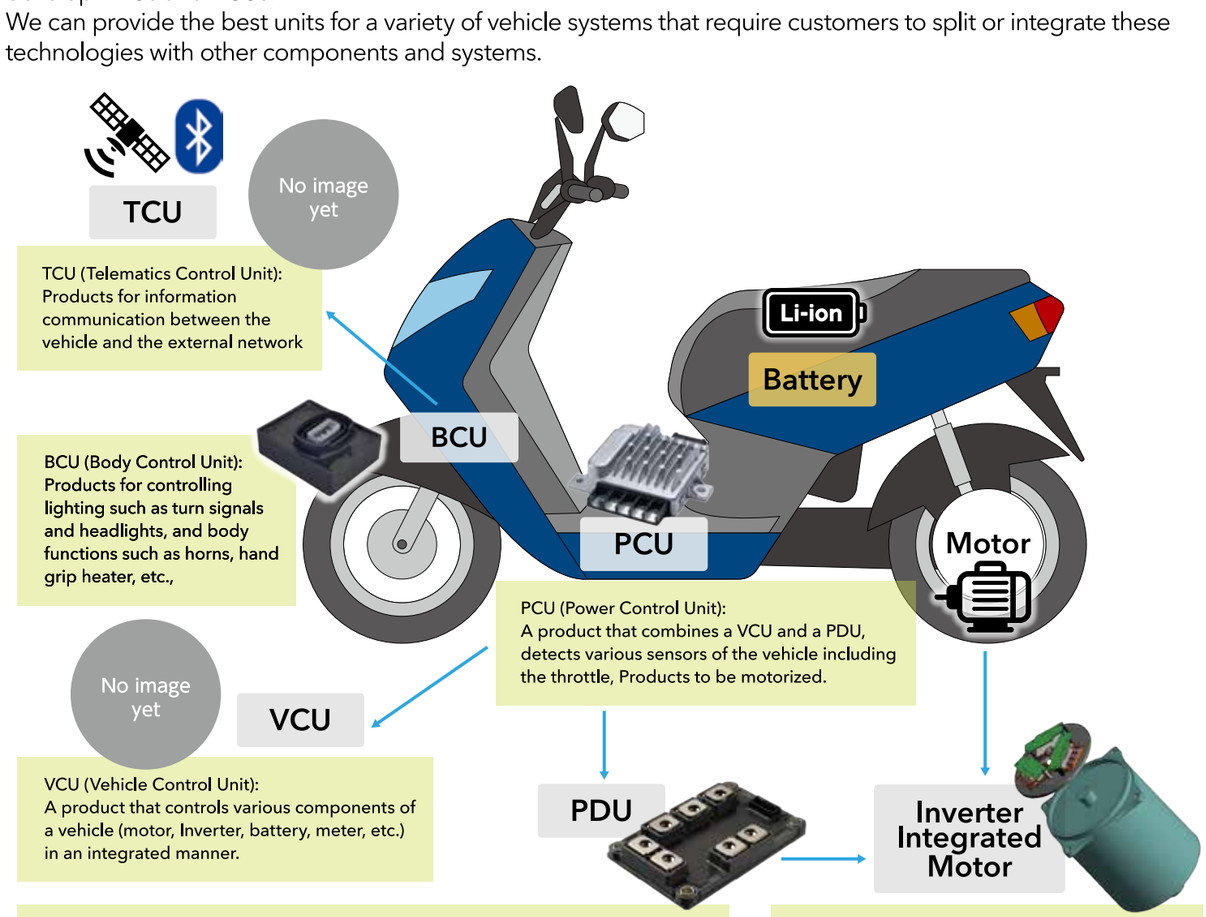
Future View

Controllers for EV 2 Wheelers

Adapted to Various Needs

In addition to BCUs and PCUs, which are currently in mass production, Shindengen has the technology to develop PDUs and VCUs.
We can provide the best units for a variety of vehicle systems that require customers to split or integrate these technologies with other components and systems.



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Charger for EV 2 Wheelers

Indian Made Reliable Charging Solution Based on Car Charging Technology

1 Total Charging Support
Supporting a variety of charging applications, from automotive to motorcycle applications.

2 High Performance
High-efficiency, high-capacity charger reduces charging time and improves usability.

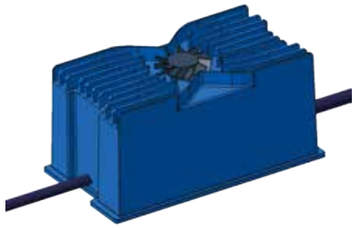
3 Based on EV Charger Technologies
The technology cultivated in development of DC quick charger and AC charger for EVs/PHEVs is applied.

4 High Durability and Long Life
High durability and long life ensure long-term reliable use.

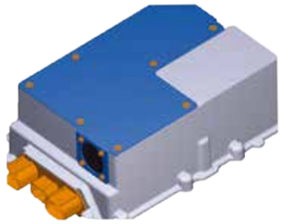
DC Quick Charger for EV

AC Charger for EVs/PHEVs

Specification		
Cooling	Off Board Charger	On Board Charger
Output Power (Peak)	Forced Air Cooling (Built-in Fan)	Forced Air Cooling (Built-in Fan)
Conversion Efficiency	1.2kW	2.0kW
Input Voltage	90% or more Vin=AC200V, Vo=48V, Wo=1200W	90% or more Vin=AC240V, Vo=200V, Wo=2000W
Output Voltage	AC85~264V	AC85~264V
Charging Method	30~60V, 20Amax	72~200V, 14Amax
Communication Method	CC-CV	CC-CV
Communication Method	CAN	CAN·EVSE



Off Board Charger for 2 wheelers



On Board Charger for 2 wheelers

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500W DC/DC Converter

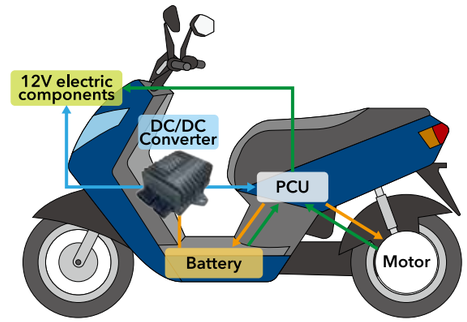
1 GaN Device
Shindengen's DC/DC converters now built with GaN Devices deliver higher efficiency and achieve smaller size.

2 Resistance
Our DC/DC converters have high resistance to vibration and can easily withstand 20G acceleration.

3 IP67 Equivalent
Our DC/DC converters are IP67 compliant assuring dust & waterproof robustness.

Specification	
Input Voltage	48V
Output Voltage	14.4V
Output Current	35A
Efficiency (max)	91%
Operating Temperature	-20 to 60°C
Size (W*L*H mm)	135*105*51

This converter is our own developed product. You can reduce tooling and development costs.
Samples are ready for testing if required.



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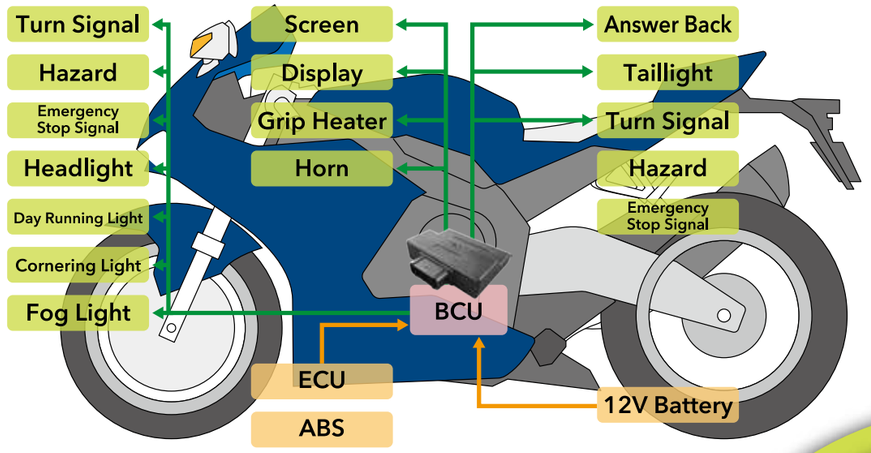
BCU Body Control Unit

All-In-One Unit for Motorcycle

1 Reducing the Number of Parts
By using BCU, it is possible to reduce the number of parts such as harnesses.

2 Cost Reduction
Reducing the number of parts enables cost reduction for the entire system.

3 Improved Functionality
Reducing fuses by sending power from BCU



Specification		
BCU Type	TL203	TL201
Size (W*L*H mm)	64*61*28	108*84*28
Weight (kg)	0.11	0.26

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ECU Engine Control Unit

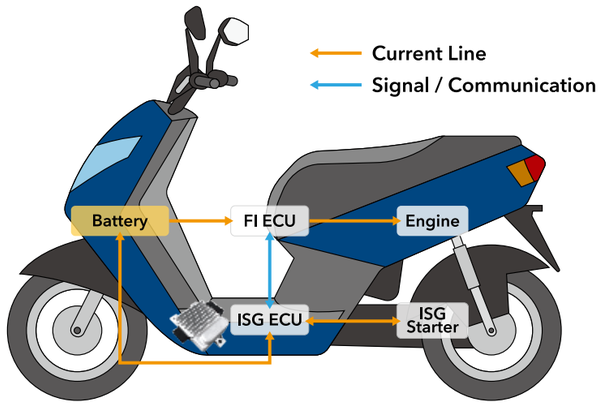
Improving Fuel Efficiency for Motorcycle

1 Quiet Engine Start
Quiet engine starting is achieved by reducing relays and starter motors.

2 Improved Durability
Improved durability through the use of a brushless motor.

3 Improved Fuel Efficiency
Idle stop function improves fuel efficiency.

Specification	
ECU	Hall Sensor Type
Input Operation Voltage	14.5±0.2V
Maximum Phase Current	30Arms
Size (W*L*H mm)	103*86*35
Weight (kg)	0.5
Control Method	Phase Control



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Phase Control Regulator

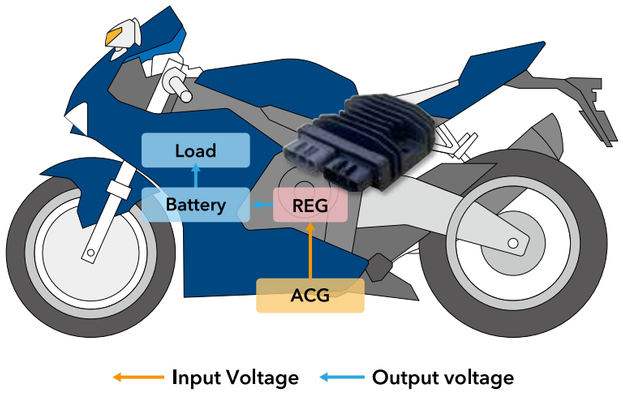
Rectifies the Output of an Alternating Current Generator (ACG), and Charges the Battery

1 Increased Power Output at Low RPM
Compared with shunt type and series type, PCR can increase 25% in output.

2 Lighter Vehicle Body
By reducing the ACG size, the vehicle body has become lighter.

3 System Cost Reduction
By reducing ACG output vehicle system cost are reduced.

Specification		
REG	Phase Control Reg	
Line-up	L size	M size
Current@40°C (Average)	72.5/80.0A	49.5/50.0A
Maximum Current	80A	50A
Regulate Voltage	14.5±0.4	



※50A Tentative Size

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Regulator Rectifier

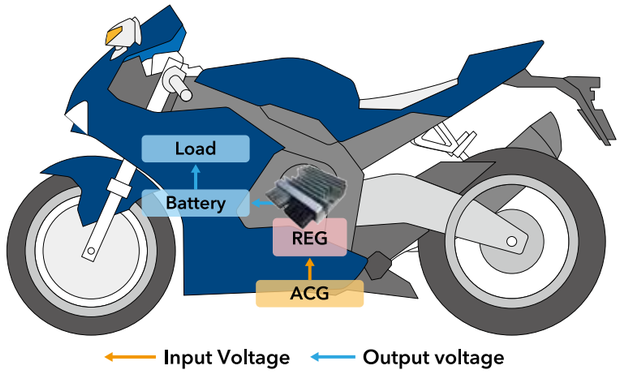
Keeping Battery Voltage at a Constant Level

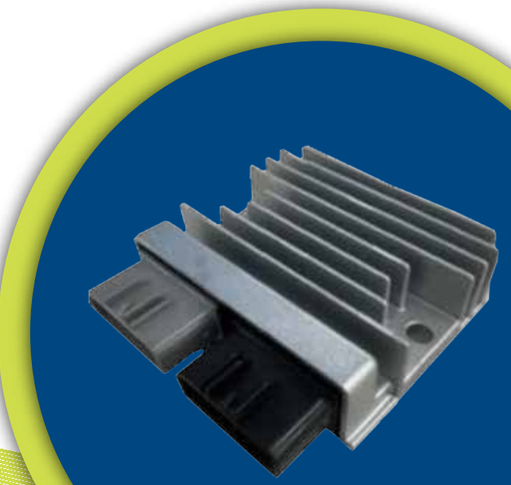
1 Number One in Global Market Share
More than one in every three motorcycles in the world is equipped with our Regulator Rectifier.

2 Locally Produced in India
Local production available at our factory in Bengaluru.

3 A Comprehensive Lineup
Meeting a wide range of needs, from low voltage to high voltage.

Specification			
REG	Shunt (SCR)	Series (SCR)	Shunt (FET)
Line-up	SH868	SH874	FH027
Size (W*L*H mm)	94*78.5*28	86.5*70*28	104.7*90*32
Weight (Kg)	0.27	0.180	0.315
Current@40°C (Average)	14.8/27.0A	11.6/19.1A	31.8/50.0A
Maximum Current	35A	25A	50A





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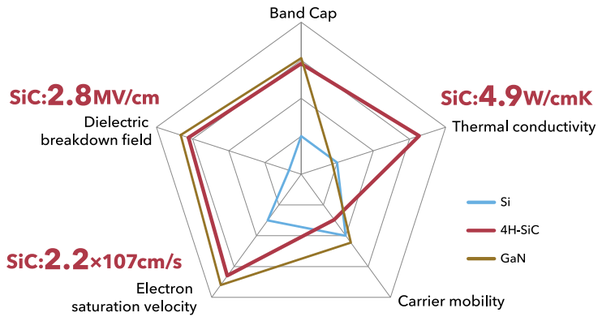
SiC Power Module MG074

SiC vs Si

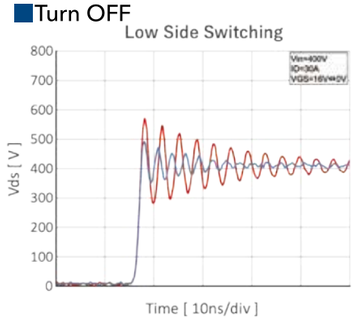
- High Voltage & Low Loss
- High Speed Operation
- High Temp. Operation



1 High-Speed Switching & Low-Noise Performance

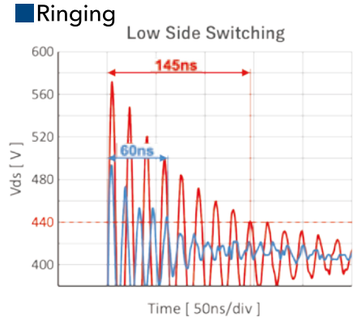
Low stray inductance by our proprietary packaging technology can improve switching performance and suppress noise generation.

■Turn OFF

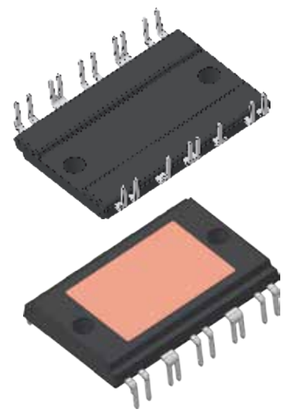


Surge Voltage Reduction by More than 50V

■Ringing



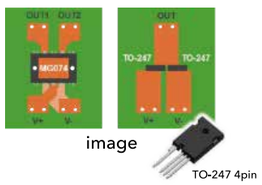
Suitable for Noise Suppression



2 Low Inductance Structure

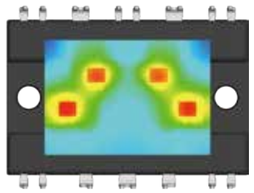
Terminal and pattern layout inside the module can reduce stray inductance by 66% compared to using two discrete components.

	SiC Module	TO-247 4pin
Measured Value	7.24nH	21.48nH



3 Reduction in Temperature Rise

Suitably distributed chip placement can suppress heat interference.



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Motor Driven Transfer Power Module MG031

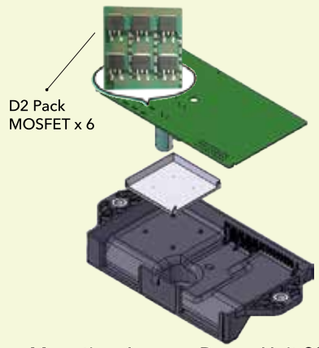
1 Compactness and High Integration

Integrating the driver section into a power module can not only reduce mounting area but also simplify part mounting process.

2 Mounting Area Reduced by 60% ECU Volume Reduced by 35%

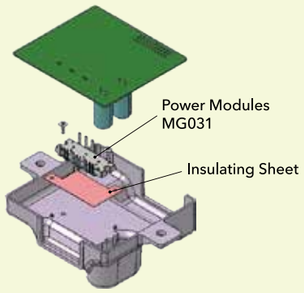
Our power module contributed to achieving substantially smaller and lighter unit than that made of existing discrete MOSFETs by integrating them into the power module.

6 Discrete MOSFETs Mounted ECU



Mounting Area on Power Unit 22㎠

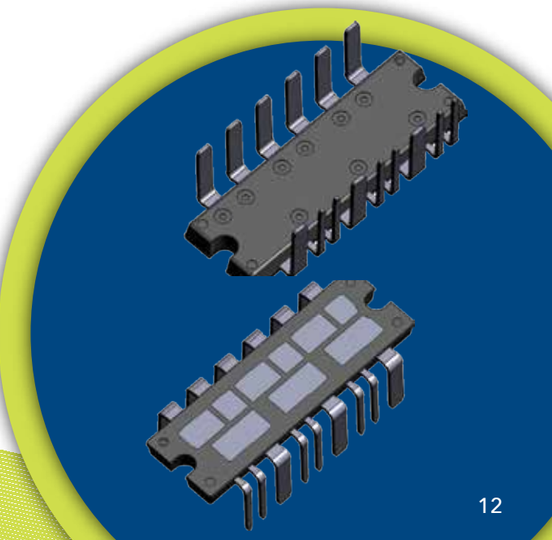
6 Discrete MOSFETs Mounted ECU



Mounting Area on Power Unit 8.8㎠

3 Available for Automotive

Our power module has been used for Automotive EPSs, DC/DC converters, electronic braking, Electric bicycle and Industrial equipment, etc.



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MOSFET
EETMOS® 6 TOLL PKG

40V to 200V Low Withstand Voltage MOSFETs

1 Highest Current Capability

250A and higher current devices. Contributing to device downsizing and increased efficiency through low RDS(ON).

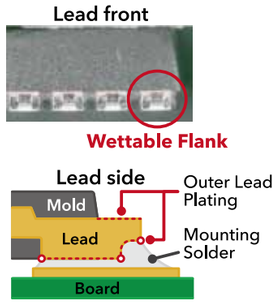
2 Board Mounting Space Reduced by 25%

*compared to D2PAK(TO-263).

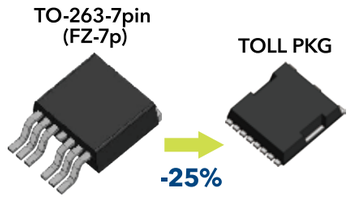
3 TOLL MOSFET Are Used in Our PCU

Shindengen can combine our own long expertise in Semiconductor/Mounting/Circuit, that can create the best solutions to you.

Wettable Flank



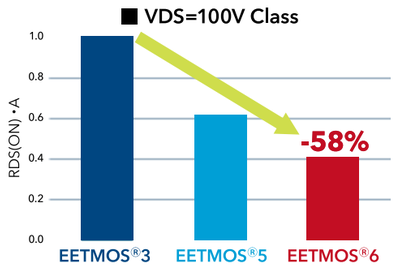
Package Size



Application Example

- Motor Driving, Relay, ECU
- Power Supply

RDS(ON)/A Comparison



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MOSFET
EETMOS® 6 LF PKG

40V to 100V Low Withstand Voltage Dual MOSFETs

1 Reduced Number of Parts and Mounting Area

Two low-loss power MOSFETs are mounted in one package.
5×6 mm size package(Can replace SOP8 and HSON types)

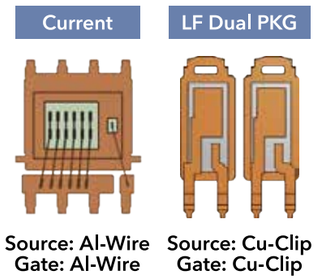
2 High Reliability in Soldering

Gull-Wings lead type make it possible to relieve mechanical stress onto PCB.
The lead tips are Au-coated to increase reliability in soldering.

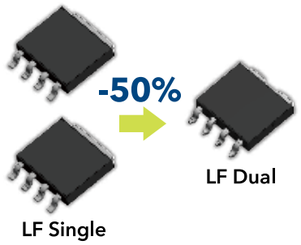
3 Lowest RDS(ON) by Cu-Clip Structure

Cu-Clip structure can reduce the resistance and improve heat dissipation, which leads to lower RDS(ON) and High Current (~180A).

Cu-Clip Structure



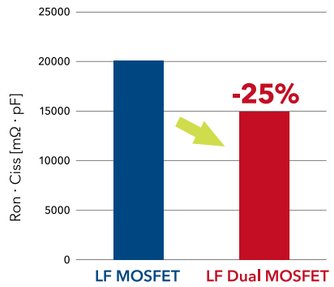
Mounting Area and Number of Parts



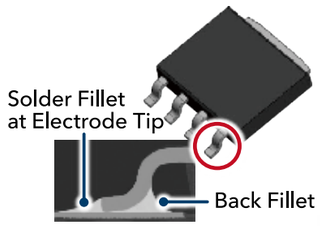
Application Example

- Motor Driving, Relay, ECU
- Power Supply

RDS(ON)/A Comparison



Gull-Wings Lead Type



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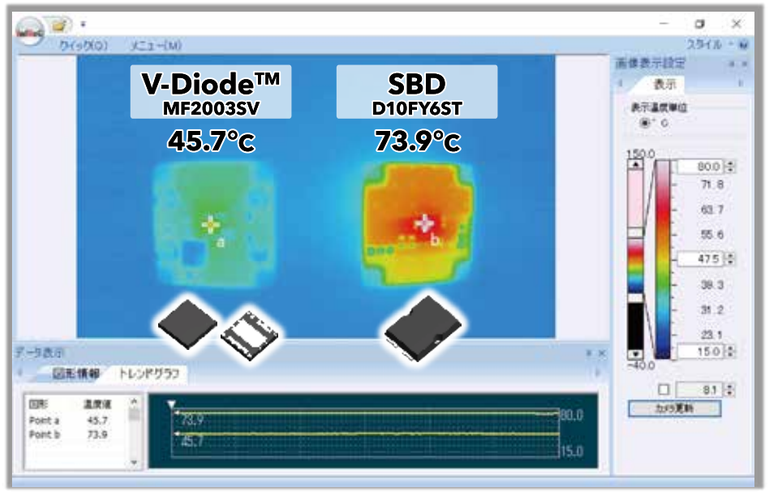
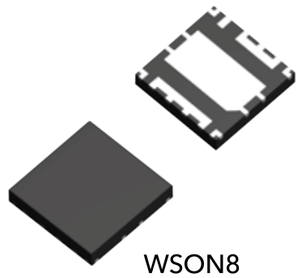
V-Diode™ MF2003SV MF2013SV

Ideal Diode for Low loss and Reverse Polarity Protection

1 Heat Generation Reduction by 37%

Heat generation was 37% less when using a V-Diode than when using conventional SBD.

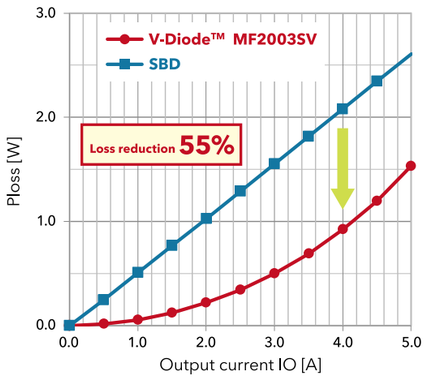




WSON8

2 Loss Reduction by 55%

Losses were 55% lower when using V-Diodes than when using conventional SBD.



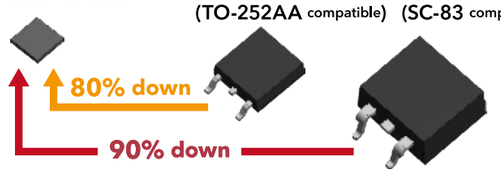
3 Compact Package

Wettable flank plated leadless package. Mounting area is reduced by 90% compared to conventional SBD.

MF2003/13SV
V-Diode™
WSON8 PKG

D15FR4ST
Ratings：40V/15A
FR PKG
(TO-252AA compatible)

D30FDC4S
Ratings：40V/30A
FD PKG
(SC-83 compatible)



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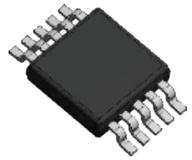
New power. Your power.

V-Diode™ MF2008SW

Ideal Diode Control IC with External Nch-MOSFET for Low loss and Reverse Polarity Protection

1 Wide Input Voltage Range

Range of input voltages from 4.5 to 65V

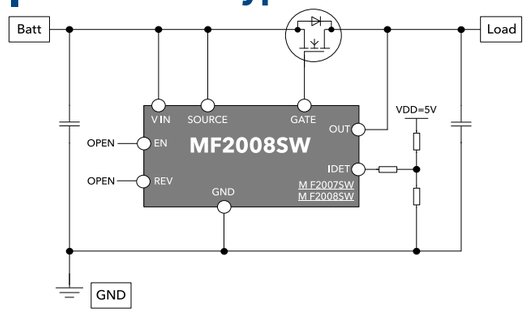


TSSOP10

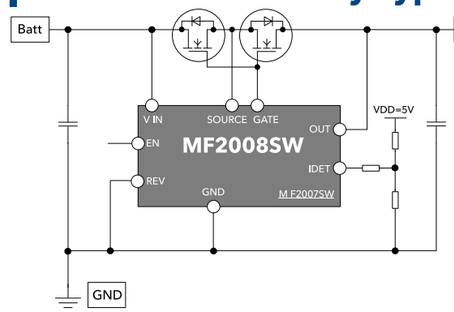
2 Switch to Ideal diode and Semiconductor relay

This V-diode can be used as a bidirectional semiconductor relay, with Nch MOSFET of back-to-back connection. It can achieve high speed ON/OFF, low loss, and downsizing compared to mechanical relay. The reverse current blocking function can be switched ON and OFF via the REV terminal Hi/Lo status.

Ideal Diode Type

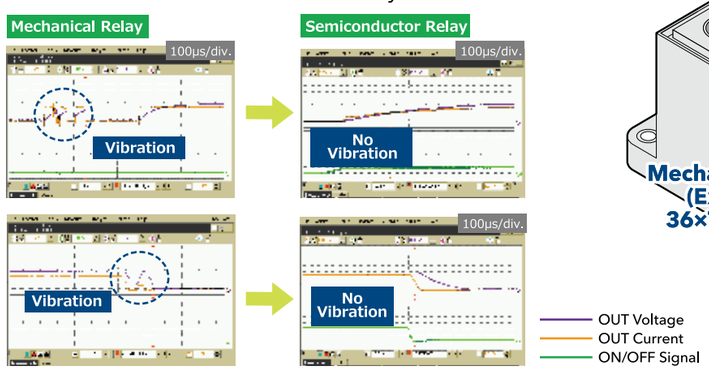


Semiconductor Relay Type

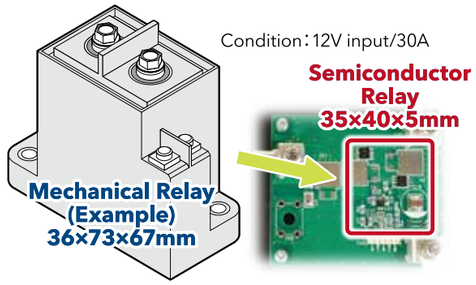


Vibration

Mechanical vs Semiconductor relay



Mounting Size



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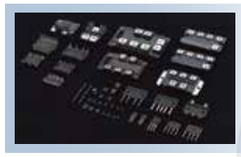
Our Synergy and Global Network



Electronic Device

- Bridge Diodes
- High Speed Rectifier Diodes
- Thyristors
- SIDACs
- Power MOSFETs
- Power IC
- Power Modules

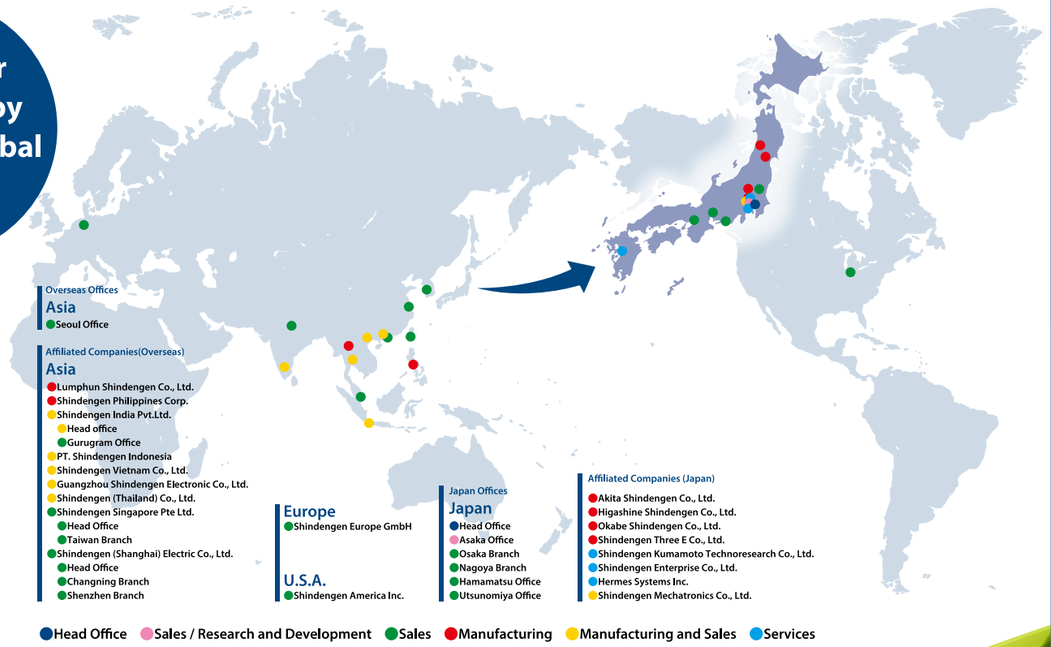
Car Electronics

- Products for Motorcycles
- Products for Automobiles
- Products for Power Equipment

Energy Systems & Solutions

- Rectifiers for Communication Stations
- Rectifiers for Mobile-Phone Base Stations
- Inverters for Communication Stations
- Monitoring Units
- AC Charger/DC Charger for Evs/PHEVs
- Energy Management Systems

Be with our Customers by using our Global Outlook



Shindengen India Pvt. Ltd.

Gurugram Office

Office Unit No.103C, First Floor, Time Tower, MG Road, Gurugram, Haryana-122002, India

Bengaluru Plant

Plot No.283/2, Bommasandra-Jigani Link Road, Jigani Industrial Area, Jigani Hobli, Anekal Taluk, Bangalore, Karnataka - 560 105 India

Managing Director

Kenji Fuseya

Employee Numbers

885 persons

Capitals

1,840,000,000 Rs.

Established

Aug 21 2012

2012
Established COI

2014
Started Production
Lamp REG
Ignitor Units

2017
Started Production
Single phase Full wave REG

2018
Started Production
3 phase Full wave REG

2019
Started Production
BS6 ECU

2023
Started Production
3 Motor Controller
for EV 2wheelers

2024
Started Semiconductor
Selling

Contact

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Address Office Unit No. 103C, First Floor, Time Tower, MG Road, Gurugram, 122002, Haryana, India

Phone +91-9810302005

Shindengen India
Pvt. Ltd.

Semiconductor Direct Sales Started
in Gurugram Office and Bengaluru Plant
in 2024

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oj_bora@shindengen.co.in +91 9690897129

Corporate Mission

Maximizing energy conversion efficiency for the benefit of humanity and society.

Shindengen Electric Manufacturing Co., Ltd.

https://www.shindengen.com/company/