

Enabling the Future of Mobility

Accelerating Electrification of
2- & 3-wheelers in ASEAN and India

An exclusive catalogue for  **INDUSTRY
TECH DAYS**
VIRTUAL CONFERENCE





Mobility depends on Technology...

The concept of mobility goes beyond people traveling around from one location to another. It helps to improve accessibility, efficiency and convenience by providing safer and more diverse transportation options.

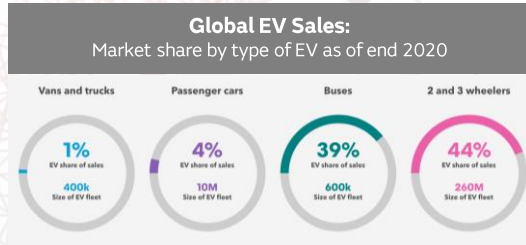
“**CASE**” (Connected, Autonomous, Shared & Services, Electric) are the four trends enabling this next generation of automotive industry.

As a leading manufacturer of components for a vast variety of devices, Murata has always been at the forefront of research and development, and recently we have been bringing this energy to the mobility market.



[Read more about mobility guide by Murata](#)

Mobility Trend in ASEAN and India

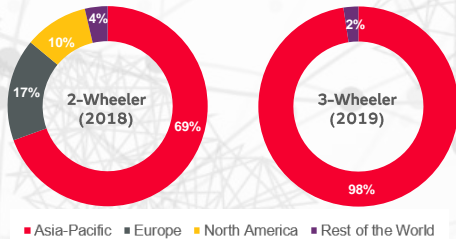


Source: Bloomberg NEF's sixth annual Long-Term Electric Vehicle Outlook

Vehicle electrification is expected to accelerate as the electric-vehicle (EV) sales set another sales record globally, especially for 2- and 3-wheelers with 260M on the road.

Being the most common vehicle type and economical mode of transportation in ASEAN and India, 2- and 3-wheelers market have grown significantly in the recent years. Partly driven by the environmental regulations, the electrification of 2- and 3-wheelers in ASEAN and India is also expanding.

Global Electric 2- & 3-Wheeler Market by Region



Source: MRFR Analysis (2-wheeler, 3-wheeler)

With this expansion, demand for electronic components continues to increase. Murata delivers products that offer high reliability to respond to the ever-increasing high-performance needs for vehicle parts and components.

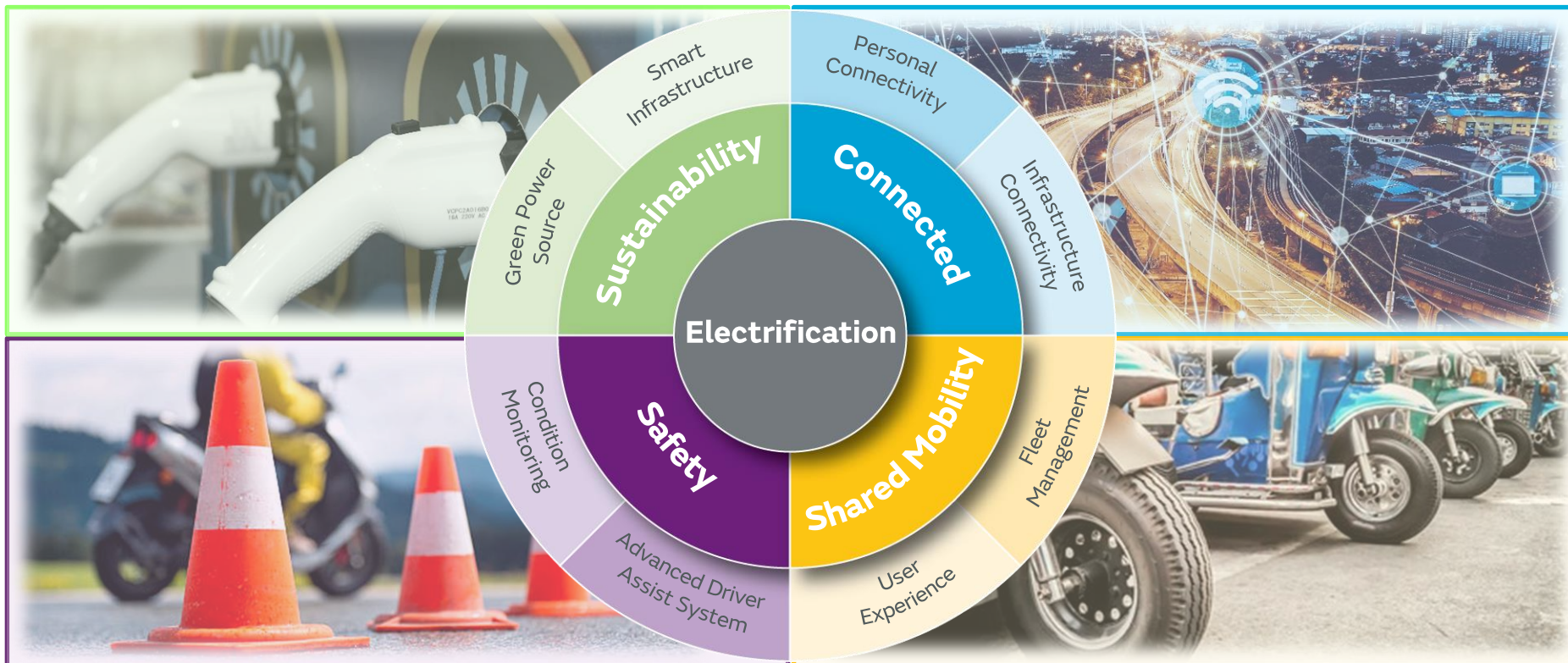
ASEAN and India

Accelerating electrification of 2- & 3-wheelers

Enabling the Future of Mobility

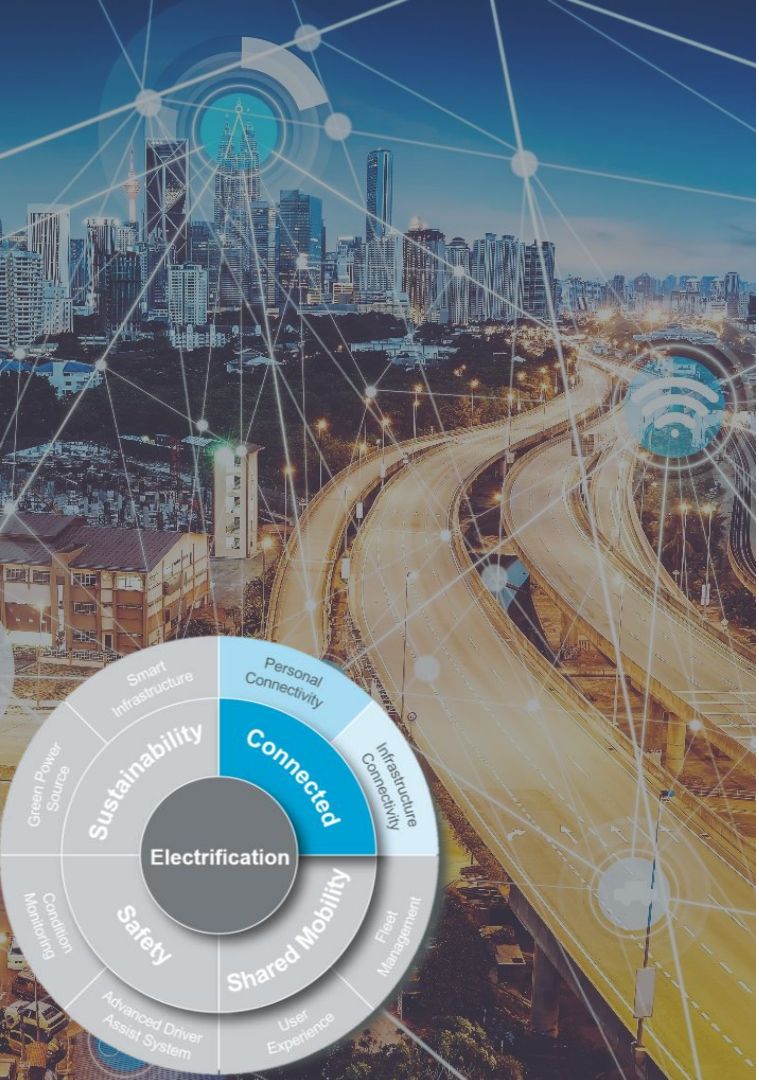


Technology Trends for 2 & 3 Wheelers



⚠ Note: Some products in this material are not automotive grade products.
Please contact our sales representatives or product engineers for more information.





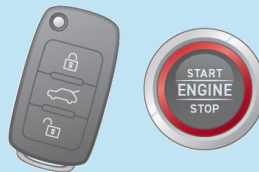
Murata Technology for **Connected**



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Personal Connectivity

Remote Keyless Entry (RKE)



Murata Product(s): Antenna Coil, Micro-battery, EMI Filter, Timing Device

Positioning through Ultra Wide Band (UWB)

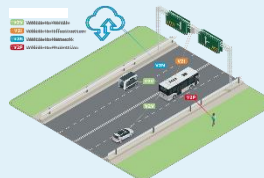


Murata Product(s): UWB Module



Infrastructure Connectivity

V2X

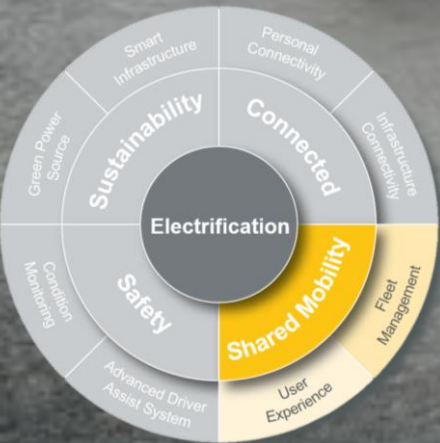


Murata Product(s): Wireless Modules



Telematics



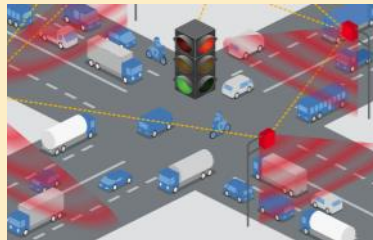


Murata Technology for Shared Mobility

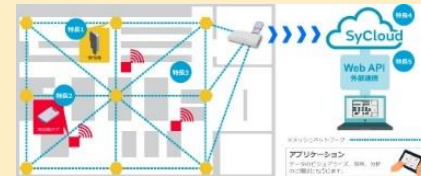
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Fleet Management

Traffic Counter System



Position Detection



Murata Product(s):

OWLiQ
tracking
BLE Solution

LOCIX
Wi-Fi Module*

NB-IoT/ GPS Module

User Experience

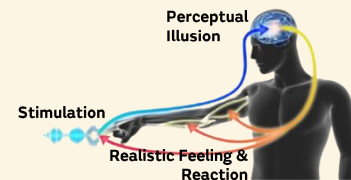
AI + Wireless (e.g. Voice Control)



Murata Product(s): Coral (local AI platform)



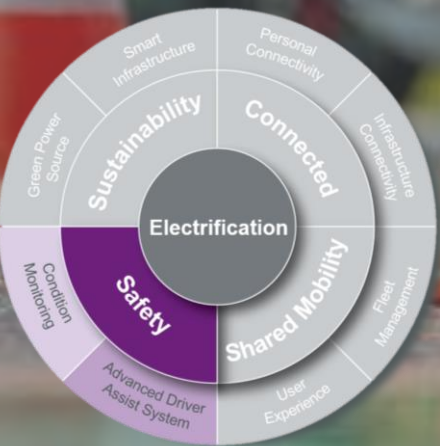
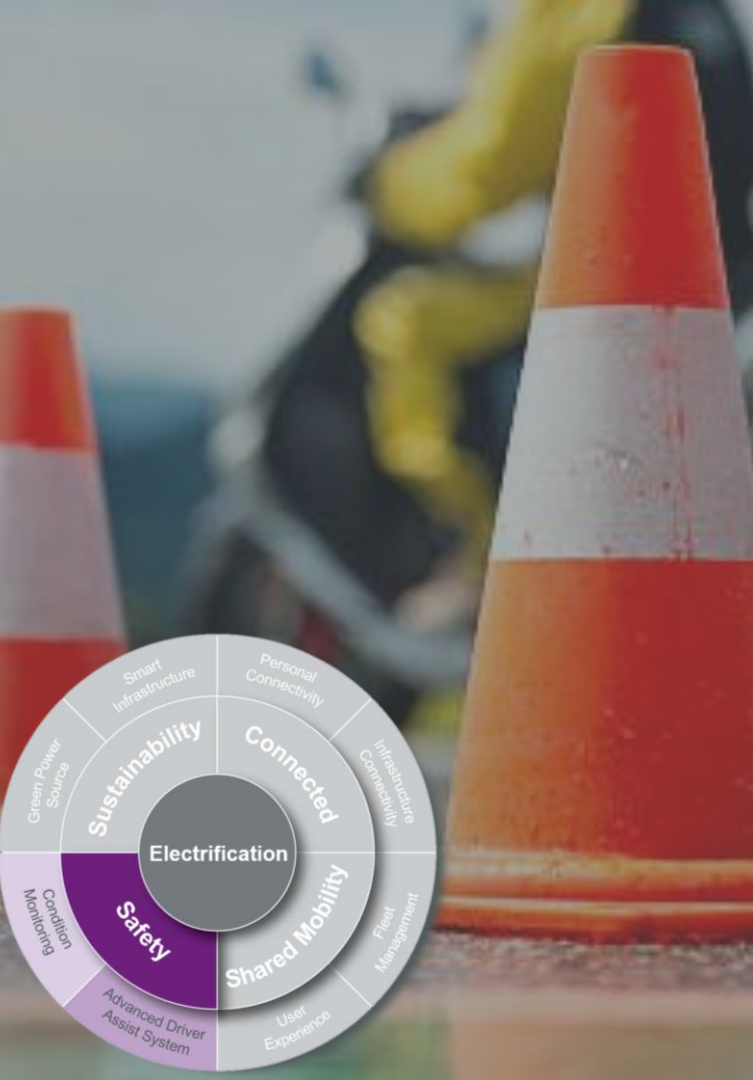
Haptic for Handle Bar



Murata Product(s): Haptic Technology*

* Under development



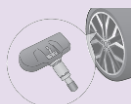


Murata Technology for Safety



Condition Monitoring

Tire Pressure Monitoring System



Murata Product(s): Antenna, Micro-battery, EMI, Timing Device, Thermistor, Sensor, Piezoelectric Sounders

Driver Condition Monitoring



Stress*



Vital Signs*

Passenger Rider Monitoring



Tremor Detection
(even with gloves)*



Vital signs monitoring
(w/o physical contact with skin)*

Advanced Driver Assist System

Altitude Stability, Hill Assist (slope detection)



Murata Product(s): MEMS Sensor



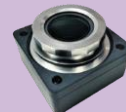
Angular Sensor for Motor Control



Murata Product(s): TMR Sensor



Camera Lens Maintenance



Murata Product(s): Ultrasonic Cleaning Device

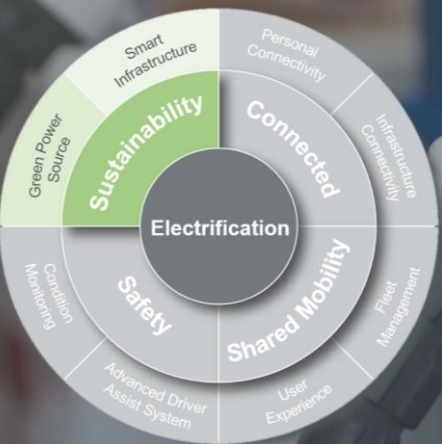
Blind Spot/Distance Detection



Murata Product(s): Ultrasonic Sensor



* Under development



Murata Technology for **Sustainability**

Smart Infrastructure

Fast Internet Hotspots



Charging Monitoring



Murata Product(s):
DC-DC Converter, HPHF Transformer,
Current Control Sensor



Green Power Source

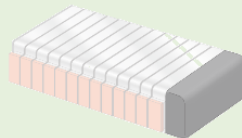
Green Energy Source



Murata Product(s): Energy Storage System



Battery Management System



Murata Product(s): Thermistor, Piezoelectric Sounders,
EMI Filter, Power Inductors, Common Mode Choke Coils,
Timing Device



* Under development

Focused Products

01	Connectivity Modules
02	MEMS Sensors
03	Thermistor
04	Timing Device
05	Buzzer
06	Power - Batteries

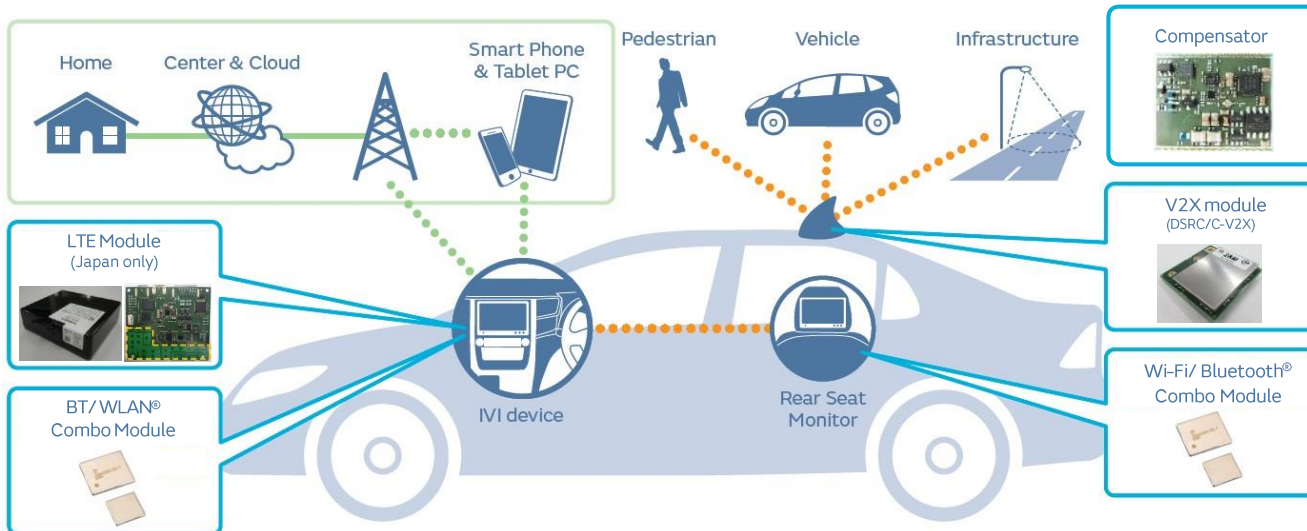


01. Connectivity Modules

Murata RF modules are designed to simplify wireless development and certification by minimizing the amount of RF expertise you need to wirelessly enable a wide range of applications.



- Long-distance communication
- Low power consumption
- Extremely small



- Website
- Leaflet
- Video
- Murata Community

02. MEMS Sensor

Murata is the market leading manufacturer and supplier of sensitive (low-g) acceleration and inclination sensors to the global automotive industry. Based on over 20 years of experience, we are the pioneer in the active application of silicon sensor technology to road safety.



One-package 6DoF sensor suitable for AD/ ADAS

Flexible integration

System size significantly reduced

AEC-Q100, ASIL compatibility



Electronic Stability Control (ESP/ESC)



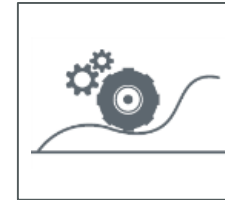
Advanced Driver Assistance Systems (ADAS)



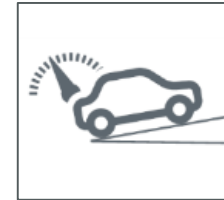
Hill Start Assistance (HSA)



Electronically Controlled Suspension (ECS)



Transmission Control (TCM)



Electric Parking Brake (EPB)



Website



Leaflet



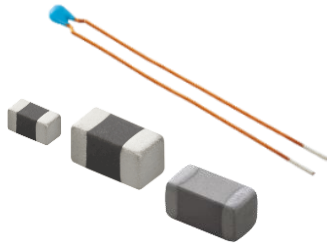
Video



Inquiry

























03. Thermistor



- NTC Thermistor
- PTC Thermistor



Thermal management is key consideration factor in Automotive design. Murata offers a line-up of thermistor with excellent thermal response suitable for temperature sensing, temperature compensation for various application in the automobile/ automotive devices.

- Excellent solderability and high stability
- High accuracy in resistance and B-constant
- High reliability
- AEC-Q200 compliance for automotive grade

mm-Wave  NTC PTC	Telematics  NTC PTC	HUD  NTC	LCD Display  NTC	Mirror  NTC PTC	ADAS ECU  NTC
Sensing Camera  NTC PTC	Lidar  NTC	Car navigation / Audio  NTC PTC	HVAC / Seat  NTC	RKE / Immobilizer  NTC	e-call  NTC
Lighting  NTC PTC	MAF / MAP  NTC	Vehicle stability control  NTC	EPS  NTC	Air bag  NTC	ISS  NTC
Motor  NTC PTC	Engine control unit  NTC	Transmission  NTC	Inverter / BMS  NTC	DC-DC converter  NTC	ABS / ESC  NTC

-  Website
-  Catalog
-  Video
-  Inquiry

Ceramic Resonator

Crystal Units

04. Timing Device

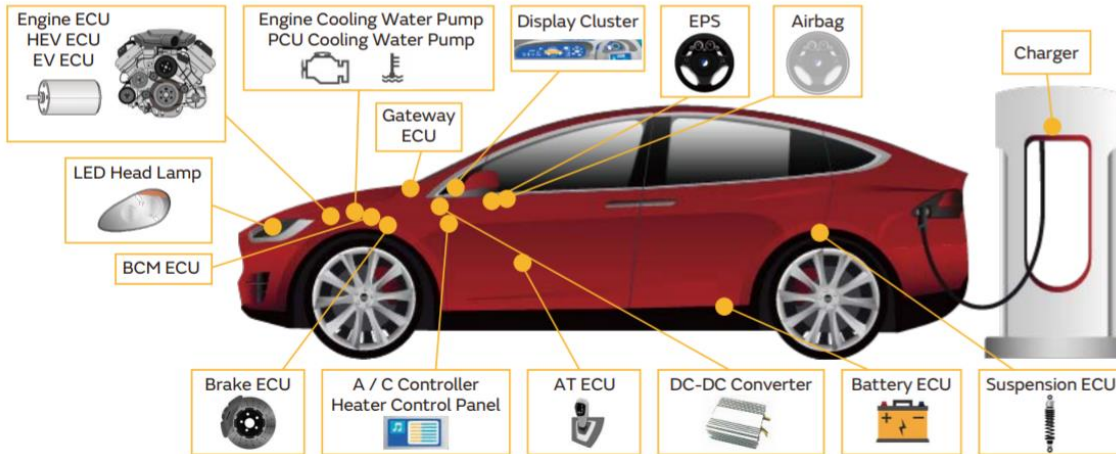


Advancements in automobile electrification have raised the importance of clocks essential for IC operations. Murata has implemented high-precision and high reliability crystal resonator (HCR®: Hybrid Crystal Resonator) by using crystal units, based on technologies cultivated by ceramic resonators (CERALOCK®).

Quicker start-up time

Cost saving

Space saving



- **CAN/ CAN-FD**
(e.g. Airbag, EPS, Cluster, BCM, Water pump, etc...)
- **Gateway ECU**
- **Powertrain ECU**
(e.g Engine, EV/ HEV ECU, etc...)
- **Flex Ray/ Ethernet**
- **View - Sensing Camera/ Radar/ LIDAR**
- **TPMS**
- **RKE**
- **Image processing ECU**



Website



Leaflet



Video



Inquiry

05. Sound Components - Buzzer

In recent years, the demand for the electrification of sliding doors and hatch doors has been rising mainly for safety and convenience purposes. Murata's new SMD type piezo sounder with high sound pressure level, has better quality compared with magnetic one because of less material number which compose the component.



High sound pressure level

Wide operating temperature range

Low power consumption

Small, thin and lightweight

- Power slide door
- Remote keyless answer back



- ADAS
- PAS (Collision prevention warning alarm)
- Instrument Cluster
- Battery Management System



Website



Leaflet



Video



Sample Request

06. Power - Batteries

Murata offers a wide range of micro-batteries with high performance and reliability, taking advantage of our state-of-art design and production technologies. It is used in a wide variety of applications, including IoT devices and automotive devices of tire-pressure monitoring systems (TPMS) and smart entry systems.

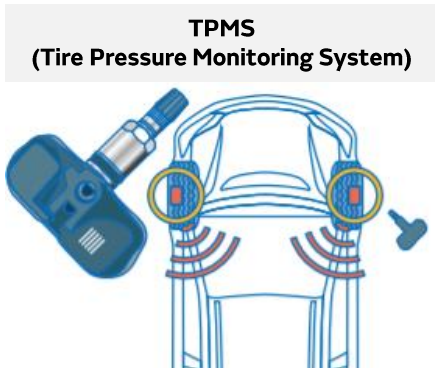


Manufacturing excellence

Outstanding temperature characteristics

Excellent discharge performance

Acquisition of ISO/TS16949 certification



Website



Leaflet



Video



Inquiry

Electronics – Key to the cars of tomorrow

In accordance with the progress of the CASE* trend, more advanced electrical and electronic circuits will be utilized in greater numbers than before.

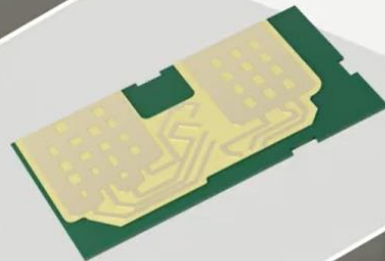
Going forward, Murata will continue to support this automobile industry revolution through our technical, production, and support capabilities to produce the key to the cars of tomorrow.

Ultrasonic Sensor
Wide range



Radar module

Concept product



Meeting future needs



■ Useful Resources



On-Demand Webinars



Mobility Guide



Technology Articles



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Catalogs

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in

f



YouTube



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