Information Meeting 2016

Murata and Market Environment

Core market (wireless communication market)

- Wireless communication devices become increasingly faster and integrate more functions, increasing demand for electronic components.
- To increase market shares for higher sales, Murata introduces high-value-added new products meeting customer needs and establishes an on-demand supply structure.

Priority markets (automobiles, energies, healthcare/medical care)

- Murata commits itself to developing and spreading new business models by offering products leveraging our strengths in growth markets and obtaining technologies through mergers and acquisitions.
- In the longer term, Murata works on providing value of combined sensing and communication technologies to meet the needs of IoT (Internet of Things) society.

Direction of Future Smartphone Development

muRata
INNOVATOR IN ELECTRONICS

Direction of future smartphone development and its possible impact on electronic components

Faster communication
(150 Mbps --> 300 Mbps --> 450 Mbps)

- LTE-U (*1)
- MIMO
- WiGig, etc.

More sophisticated functionality (faster calculation)
(40% increase in CPU performance)

- Improvement of camera functions
- AR functions (*2)
- Sensing functions, etc.

Greater convenience
(Global compatibility and longer battery life)

Wireless power transfer systems

More components per terminal Higher-value-added components

Customer needs

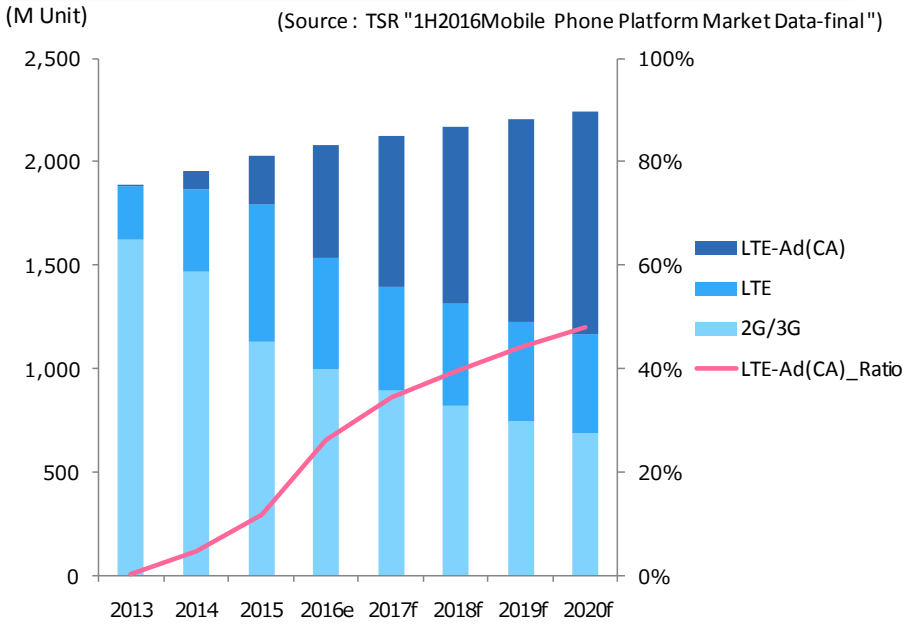
- Accommodating even higher radio frequencies
- High-performance communication modules
- Accommodating increasingly complex communication circuits
- Higher demand for compact components
- Lower power consumption

Companies offering technology and products that can meet customer needs can achieve growth.

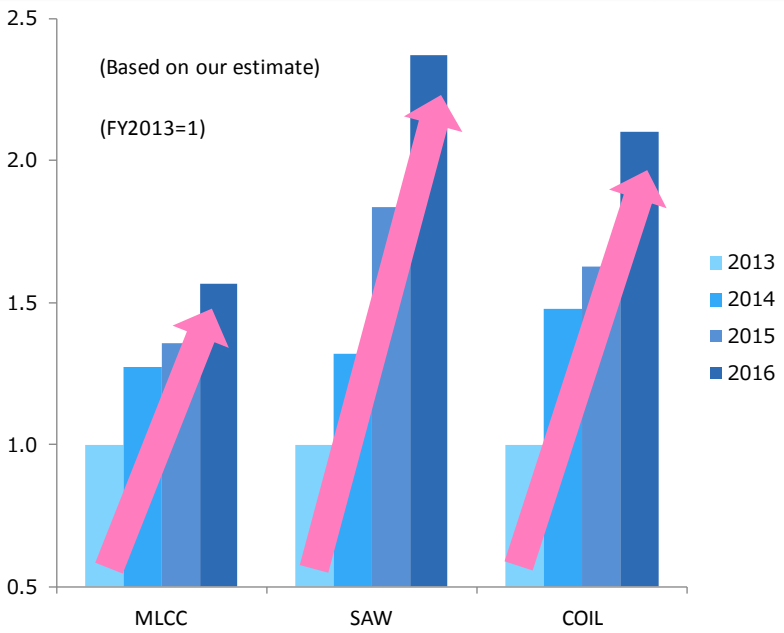
(*1) LTE-U: LTE in unlicensed spectrum
(*2) AR: Augmented Reality

Growth of the smartphone market

Evolution of CA-enabled terminals



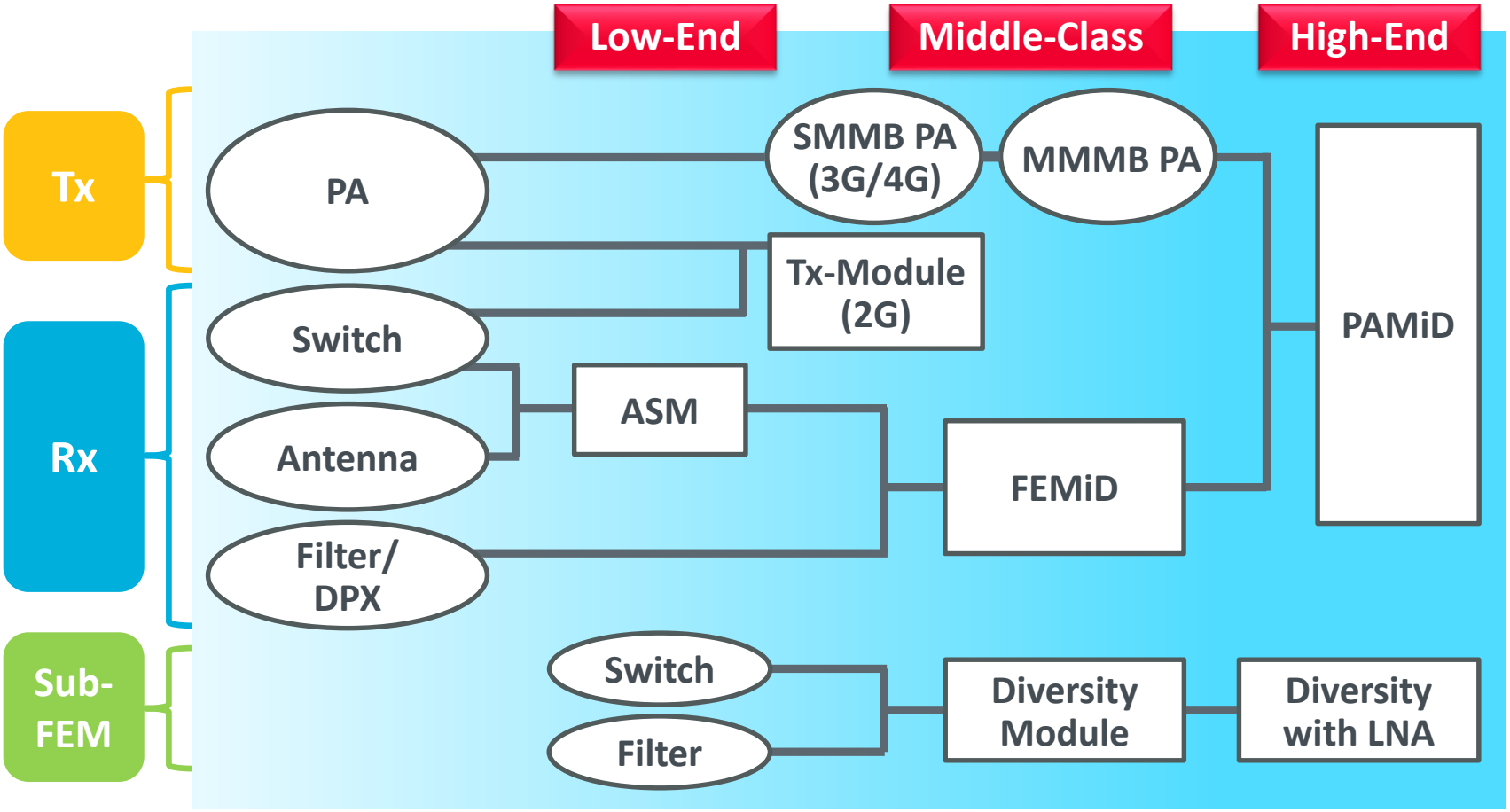
Trend in sales volume by product



	2G/3G	Low-End	Middle-Class	High-End
MLCC	100 to 200	200 to 400	300 to 500	550 to 900
(Ultra-Compact MLCC)	–	100 to 200	200 to 400	350 to 650
SAW Device	4 to 6	9 to 12	12 to 20	20 to 40
(Duplexer)	0 to 2	0 to 4	4 to 7	7 to 13
(Multiplexer)	–	–	–	0 to 2
RF Inductor	10	20	40 to 50	100
Module	×	△	○	◎

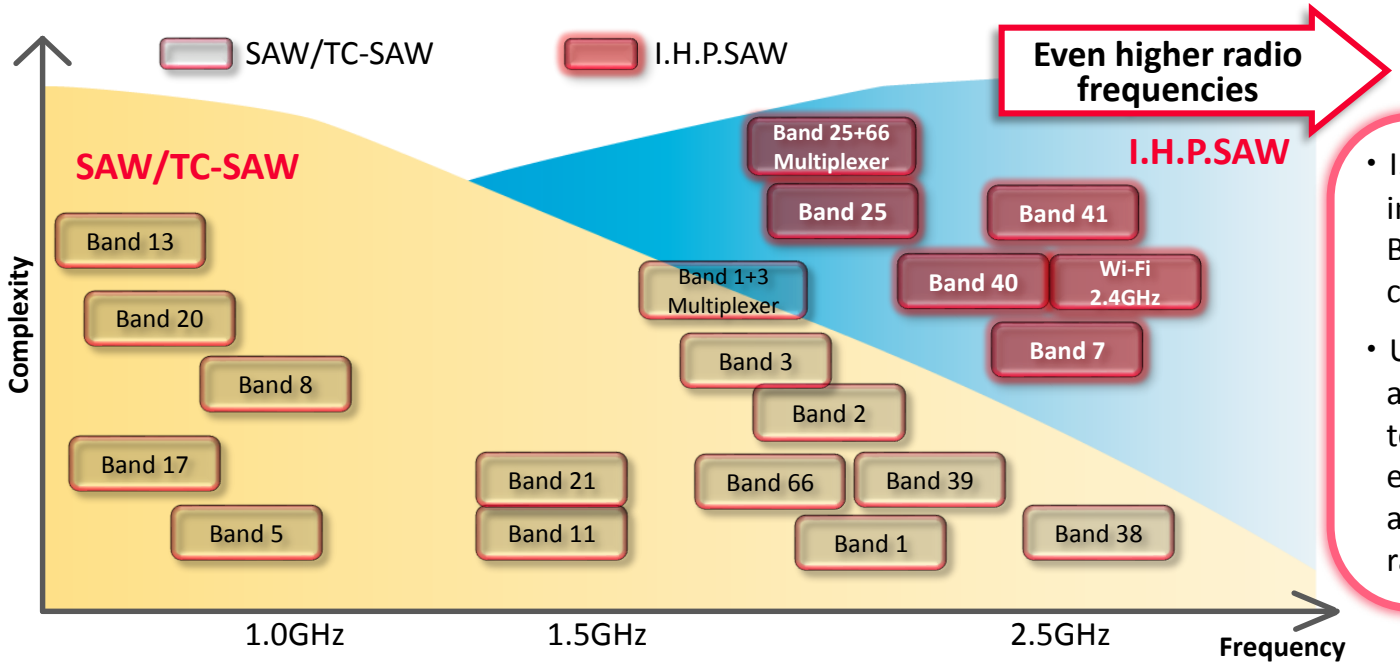
(Based on our estimate) *as of FY2016

Module Needs for Different Communication Methods

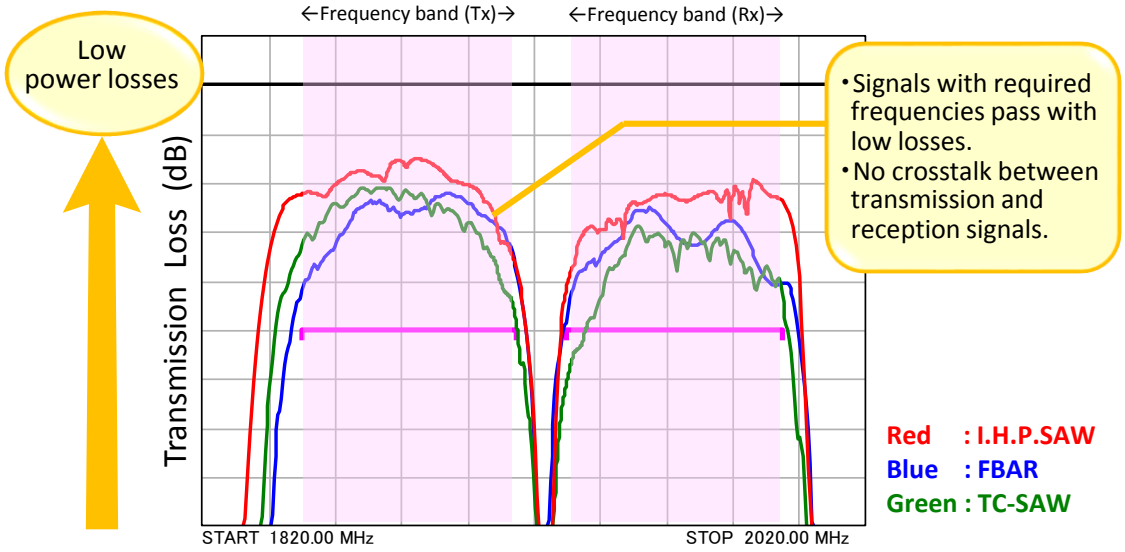


Module needs vary depending on the communication method.
--> With its key parts and various technologies (compact components and LTCC technology), Murata can meet such customer needs.

I.H.P.SAW



- I.H.P. SAW will be introduced in the region where BAW/FBAR was previously competitive to replace them.
- Using I.H.P. SAW technology and adapting traditional SAW technology to radio frequencies enables Murata to accommodate even higher radio frequencies.



- Signals with required frequencies pass with low losses.
- No crosstalk between transmission and reception signals.

Compared with the characteristics of existing RF filters:

- In highly challenging frequency bands, I.H.P. SAW technology features high attenuation comparable with that of FBAR/BAW.
- Reductions in frequency signal losses and resistance to temperature changes ensure low power consumption!

Increasing the Freedom of Circuit Configuration

Functional sophistication of smartphones leads to higher power consumption, a larger number of components per terminal, and a shortage of usable circuit area.

MetroCirc™

New **multilayered resin substrates** leveraging Murata's unique organic resin material, design technology, and monolithic and multilayer technology

Features

Outstanding radio-frequency characteristics (conductivity)

- Low power losses help reduce power consumption.

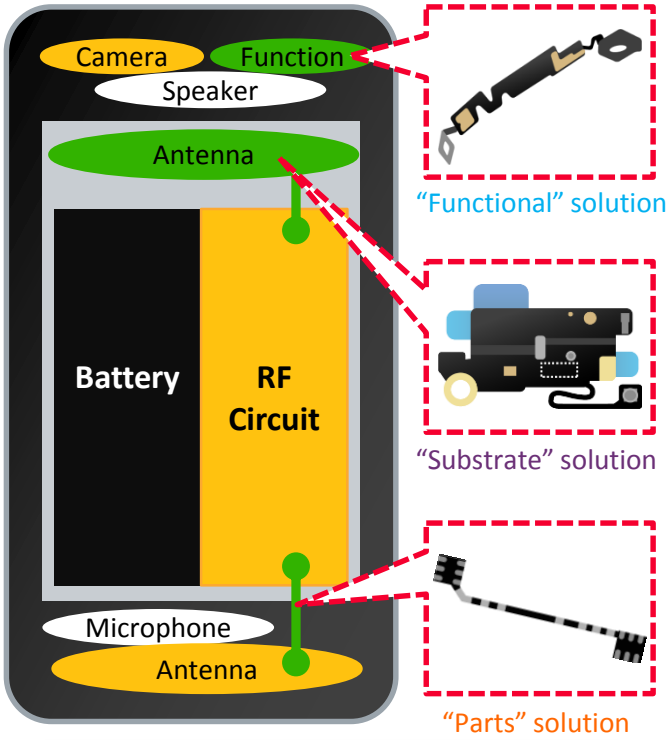
Flexibility conferred by resin and monolithic technology

- Unique resin material and monolithic technology make these substrates bendable.
- Can be formed freely because bending doesn't deteriorate their characteristics.

Components can be embedded in the low profile body

- Helps reduce the area and thickness of communication circuits.

Typical products



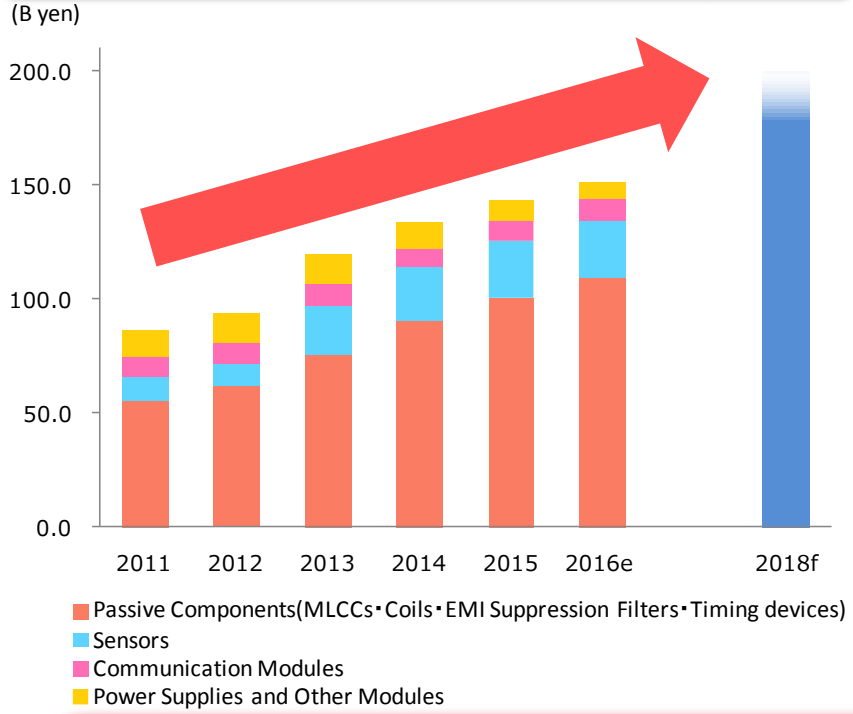
Use of **freely designable** MetroCirc™ allows Murata to meet customer needs and help them develop new applications and create new values!

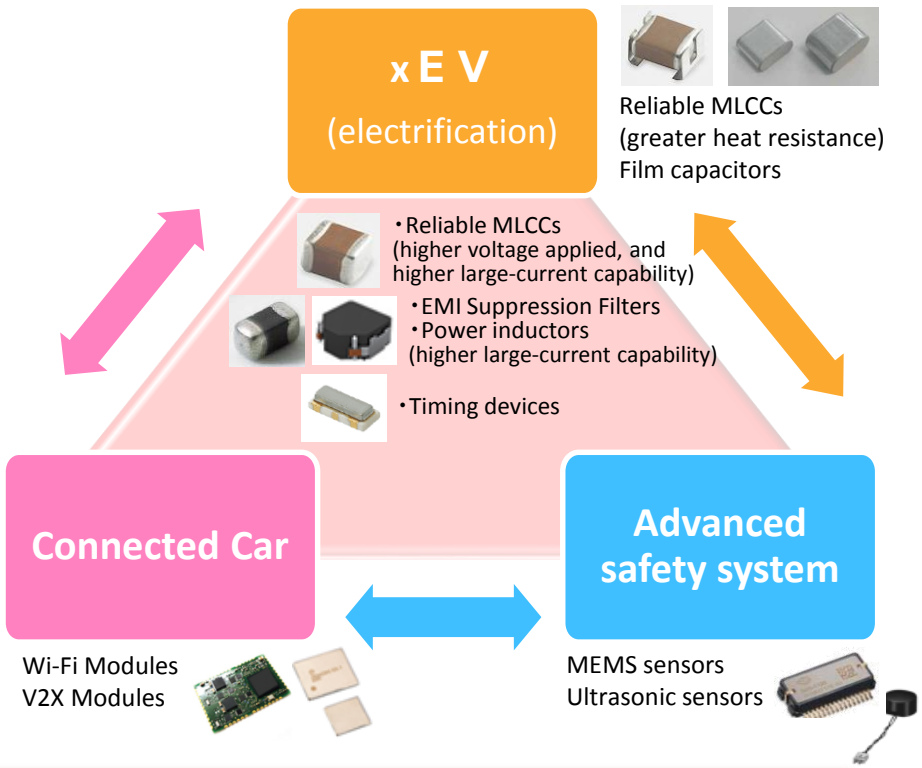
Potential of MetroCirc™

Using MetroCirc™ makes it possible to integrate various functions such as sensing in the substrate. MetroCirc™ per se then serves as a functional module, thereby helping to reduce size and thickness and increasing functionality in various products including mobile terminals of smartphone and IoT equipment.

Murata's performance in Automotive market

Murata's automotive electronics sales





Further electrification will increase the number of ECUs (electronic control units) installed per vehicle.

↓

This will lead to growing sales of passive components such as reliable capacitors and sensors used for advanced safety technology.

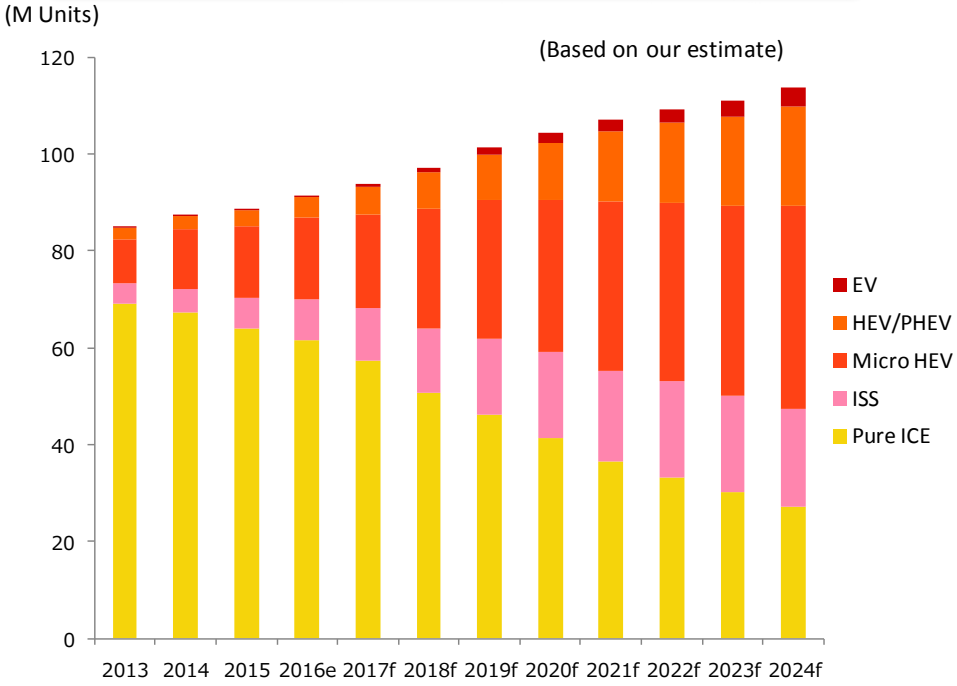
Integration of smartphones in vehicle systems and the introduction of communication functions in vehicles will also increase demand for communication modules.

↓

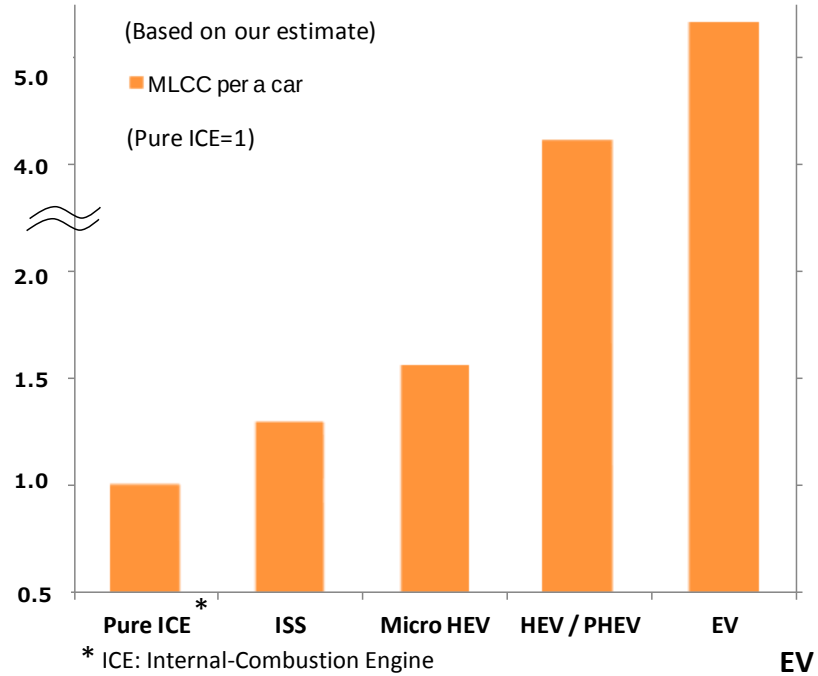
Sustainable growth of more than 10% will be achieved each year up to 2018.

Advances in Powertrain Technology

Forecasted vehicle production

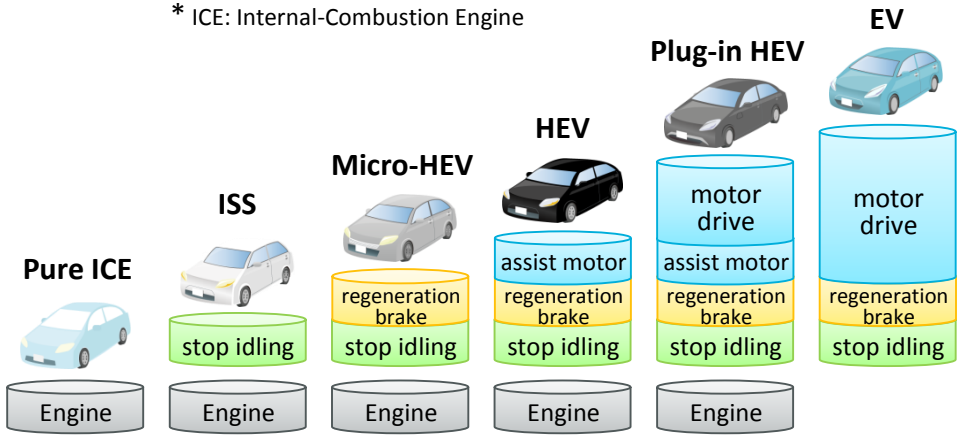


Number of in-vehicle MLCCs by powertrain type

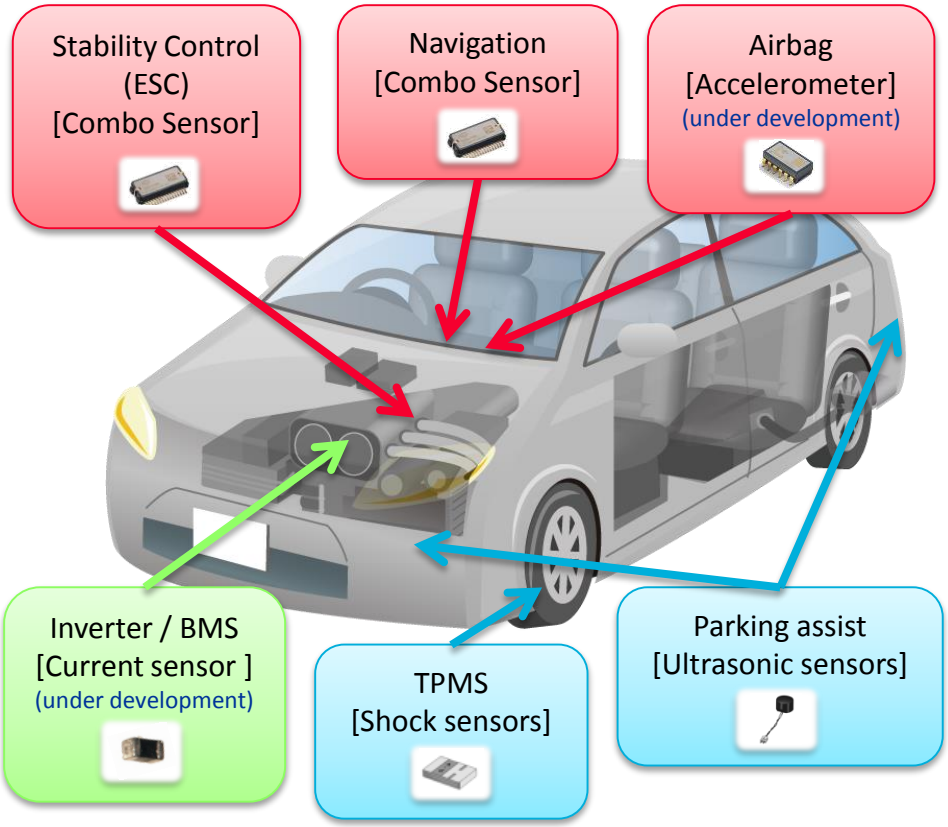


Powertrains will be increasingly electrified (by use of xEV technologies) to meet environmental regulations in major countries.

There will be growing demand for components such as capacitors, inductors (coils) and timing devices that can operate at 125°C.



In-vehicle sensors for ensuring safety



- **Safety Critical**
  - Stability Control (ESC)
  - Airbag
- **ADAS Autonomous Driving**
  - Parking Assist System
  - Tire Pressure Monitoring System
  - High Accurate Locator
  - Driver Status Monitor
- **xEV**
  - Inverter
  - Battery Management System

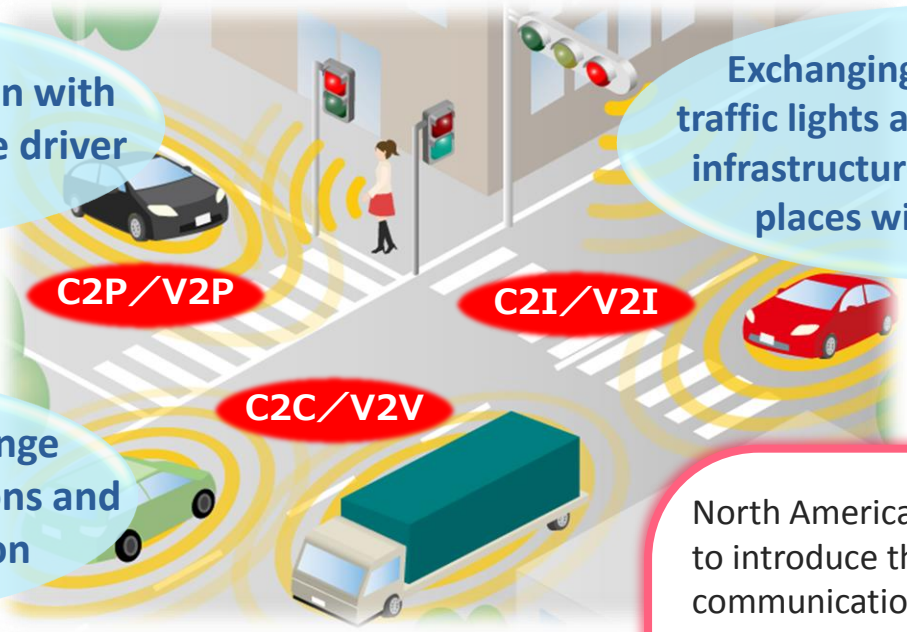
- Increasing use of driving assistance systems raises demand for sensors.
- Increasing opportunities for Murata's MEMS sensors for ESC (Electronic Stability Control) and ultrasonic sensors that help support automatic parking.
- High precision sensors for monitoring the vehicle's state of operation are indispensable in making intelligent traffic and Advanced Driving Assistant Systems a reality.

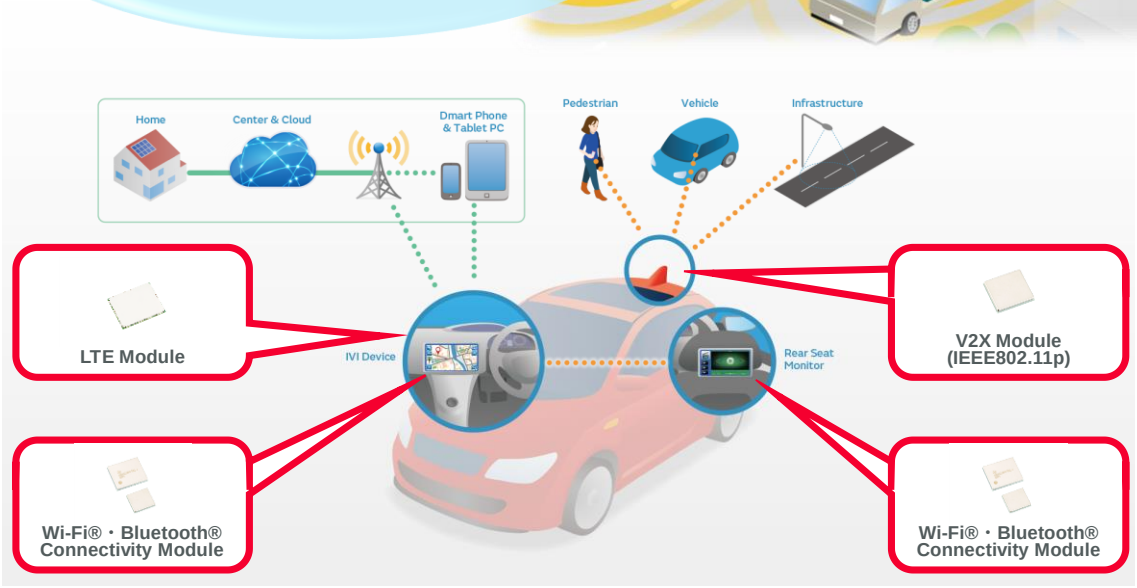
Connected Car (C2X/V2X)

Exchanging information with pedestrians to alert the driver

Exchanging information with traffic lights and other elements of infrastructure to ensure safety at places with poor visibility

Vehicles mutually exchange information on their locations and speeds to avoid collision





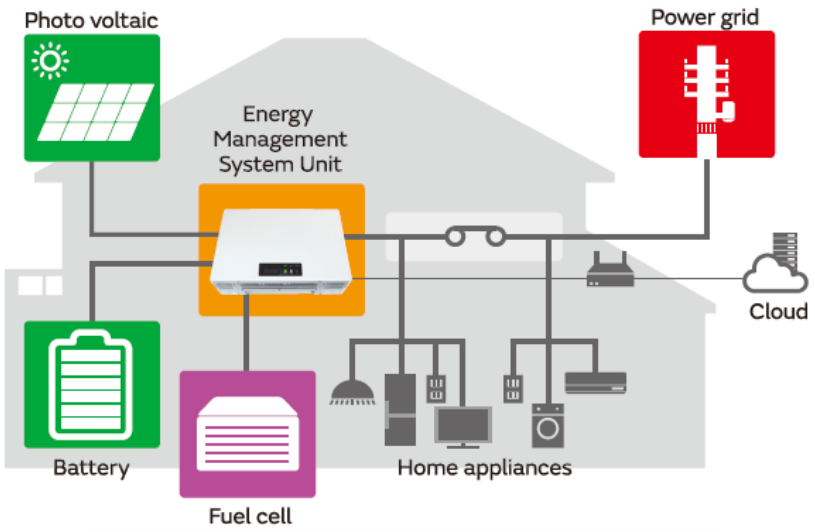
North America and Europe have plans to introduce the IEEE 802.11p V2X communication method starting in 2019.

--> V2X wireless communication modules and software are now being developed at Murata.

- Stable characteristics at high temperatures
- Competitive software support services allow us to get involved in the early phase of customers' design/development process.

Energy

Energy management system

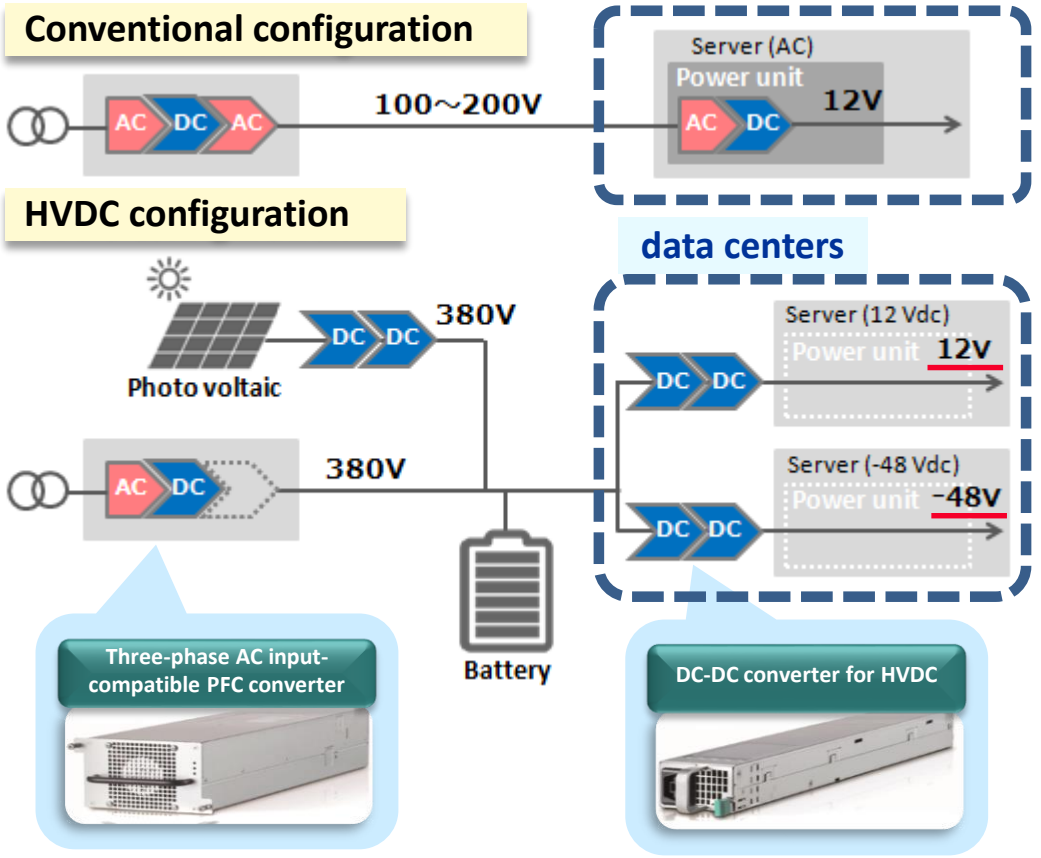


- Combining generated power, grid power, and **rechargeable batteries** allows for automatic peak shaving and peak shifting.
- Multiple conversion functions between generated power, batteries, and grid power are integrated in a single compact unit.
- Communication function ensures connection to the Cloud.
- In blackouts, the system automatically switches to independent operation.

⇩

Murata builds an energy management system to "create," "store," and "wisely use" energy.

HVDC for data centers



- Lower power conversion losses reduce power consumption by the server in the data center.
- Combinations with photovoltaic generation and **rechargeable batteries** ensure on-demand response.

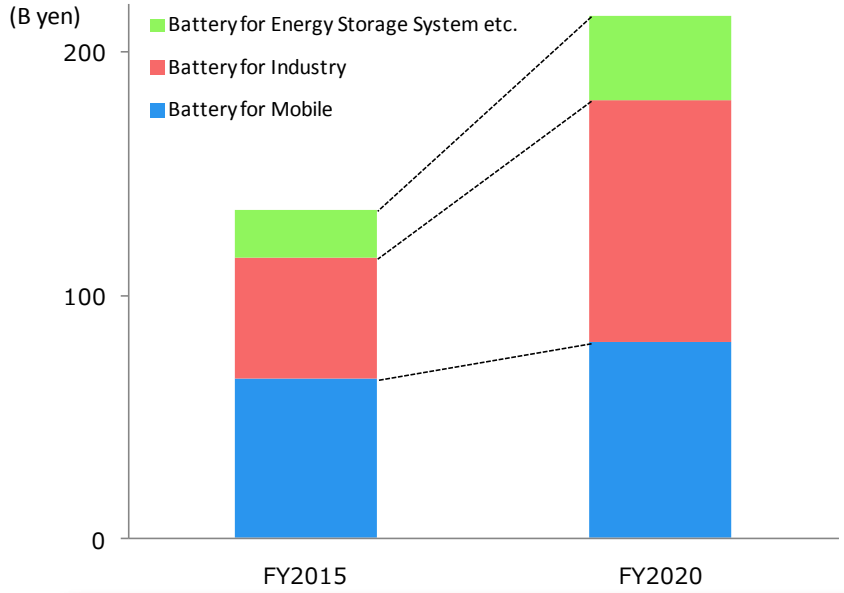
Acquisition of a Lithium-ion Secondary Battery Business

Overview of Business Subject to Transfer	
Business subject to transfer	Sony Group's battery business (excluding sales, etc. to general consumers)
Purchase Price Amount	Approximately JPY 17.5 billion
Stock Transfer Closing Date	Early April 2017 (Scheduled) Note: The stock transfer closing date may be change depending on the progress of the obtainment of the required regulatory approvals.
Financial impact	This matter is not expected to have an impact on Murata's consolidated business results in fiscal year ending in March 2017.
anticipated efficacy	➢ The business will be developed into a core of energy-related operations likely to grow in the future to expand our business portfolio. ➢ Sony's cylindrical battery technology is combined with Murata technologies for efficient power converters and sensor networks to deliver a successful energy management system. ➢ New markets for industrial electrical equipment will be developed which promise stable growth of electrical tools. ➢ Fusing Murata production technologies/processes with Sony expertise on batteries and battery materials will lead to new products such as Solid-state batteries.

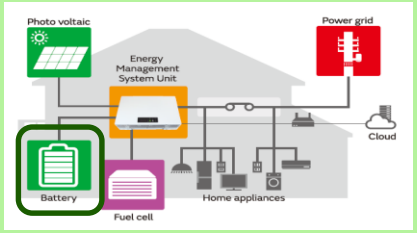
Acquisition of a Lithium-ion Secondary Battery Business

Focus on power batteries and stationary rechargeable batteries for industrial electrical equipment to achieve 10% annual growth.

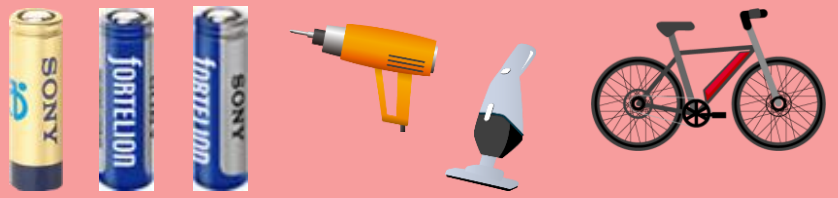
(Battery sales)



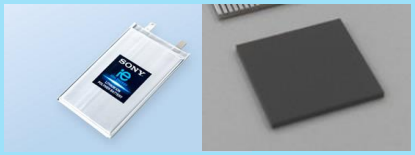
Energy Storage System



Metal can-type



Laminate-type **Solid-state battery**



- By leveraging Murata's sales network, we will gain access to major customers to increase our share of the market for batteries used in mobile devices.
- Powerful batteries with high-output and high capacity will increase sales in the steadily growing market for industrial electrical equipment.
- Murata's strong converter technology will be combined with highly safe Sony rechargeable batteries to expand the business of power management systems for homes and industrial electrical equipment.

Healthcare & Medical

Silicon capacitor technology

October 2016
IPDiA S.A.

MEMS technology

January 2012
VTI Technologies Oy

Expansion through mergers and aquisitions

Features of silicon capacitors

Highly reliable, compact and low-profile, resistant to heat

Help expand business in the healthcare/medical market.

MEMS sensor for BCG (ballistocardiography)

Consistent expansion of healthcare/medical business

Used for implant medical equipment:
- **MLCCs**
- **Bluetooth Low Energy**

- Miniaturizing implant medical equipment to achieve lower invasiveness.
- So reliable as to accommodate implant medical equipment.

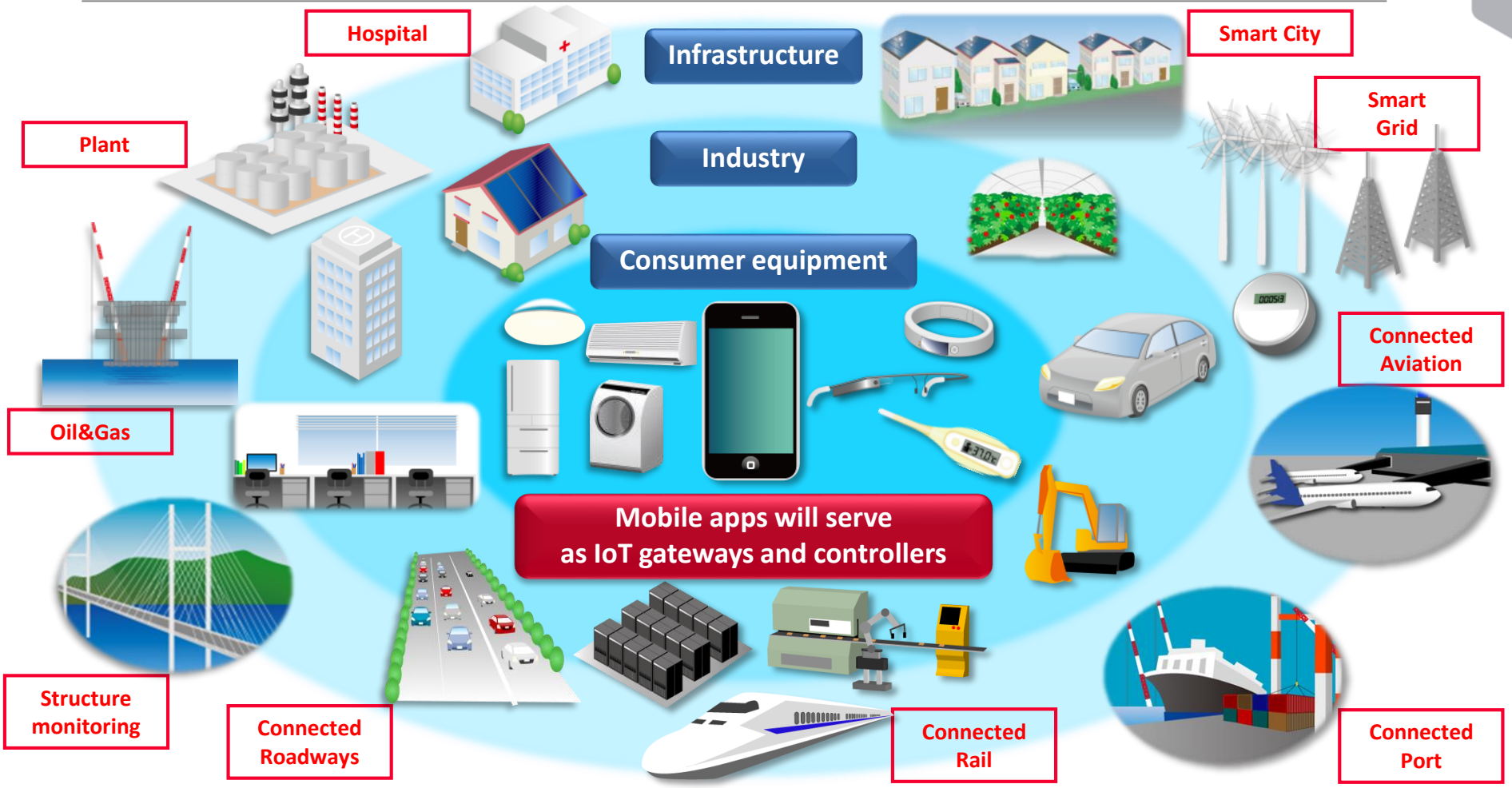
Development of components for healthcare/medical uses

Microblower

Murata microblower technology features a structure designed to function as an air pump driven by the ultrasonic vibration of ceramics.

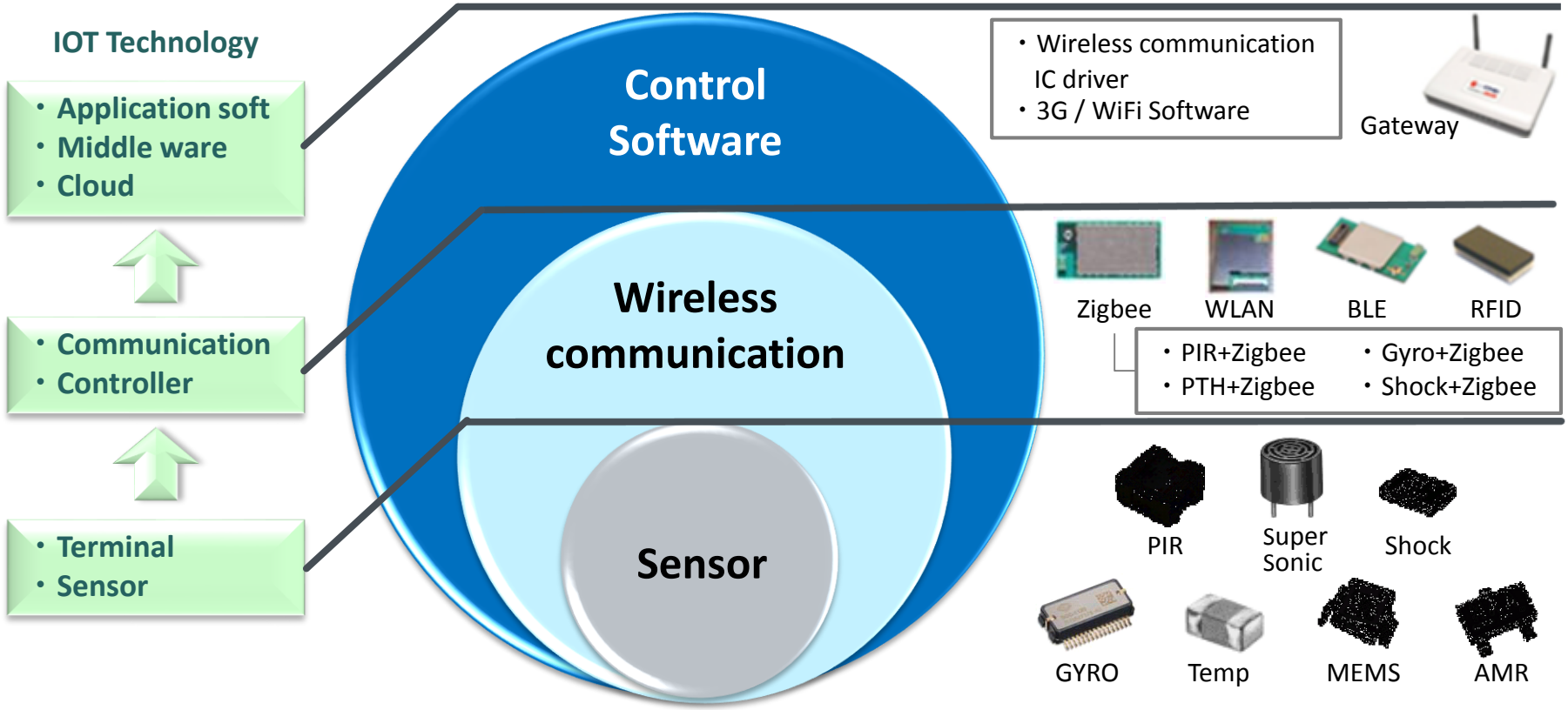
Features
- Extremely thin and extremely compact body
- High discharge pressures of air
- Lower power consumption due to its ceramic based drive system

The Connected World



All things are digitalized and mutually connected via the Internet:
From “a closed world” to “a connected world”

Advantages of Murata in IoT Market



Wireless communication: Ensuring a connection with a target without crosstalk in a network comprised of multiple devices.
Sensors: Murata is a comprehensive component manufacturer with strong components.
Software: Software technology developed in the markets for mobile phones and Wi-Fi.

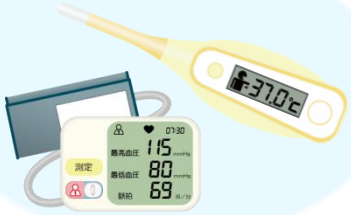
Murata will provide total solutions combining sensors, wireless technology and software to help build infrastructure for the "Internet of Things"

Examples of projects in the IoT market

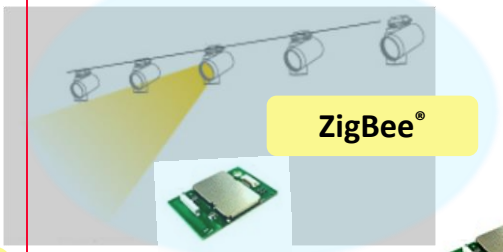
muRata
INNOVATOR IN ELECTRONICS

Detection of bio-information

Healthcare



Lighting system



Smartmeter

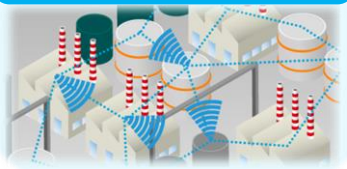
Wi-SUN

BLE (Bluetooth Low Energy) WiFi

e-commerce

Orals care

Wireless network of Plant field



Gateway

ISA100 Wireless™

For consumers

- Established communication standards such as WiFi and BLE
- Internet access via smartphones

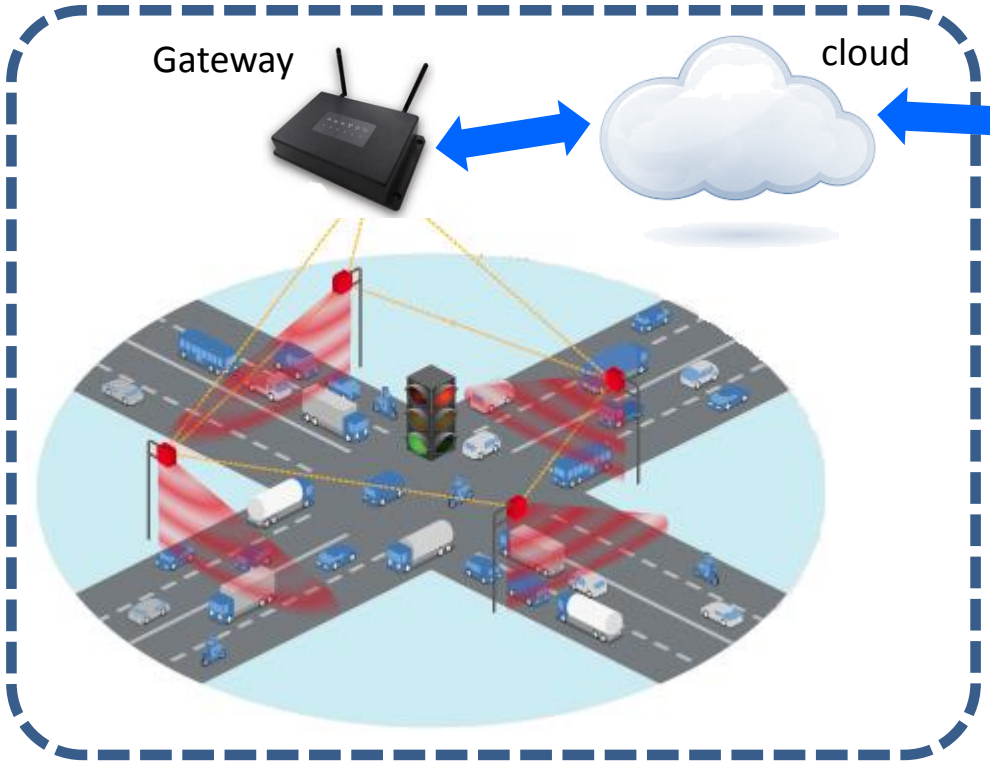
IoT devices

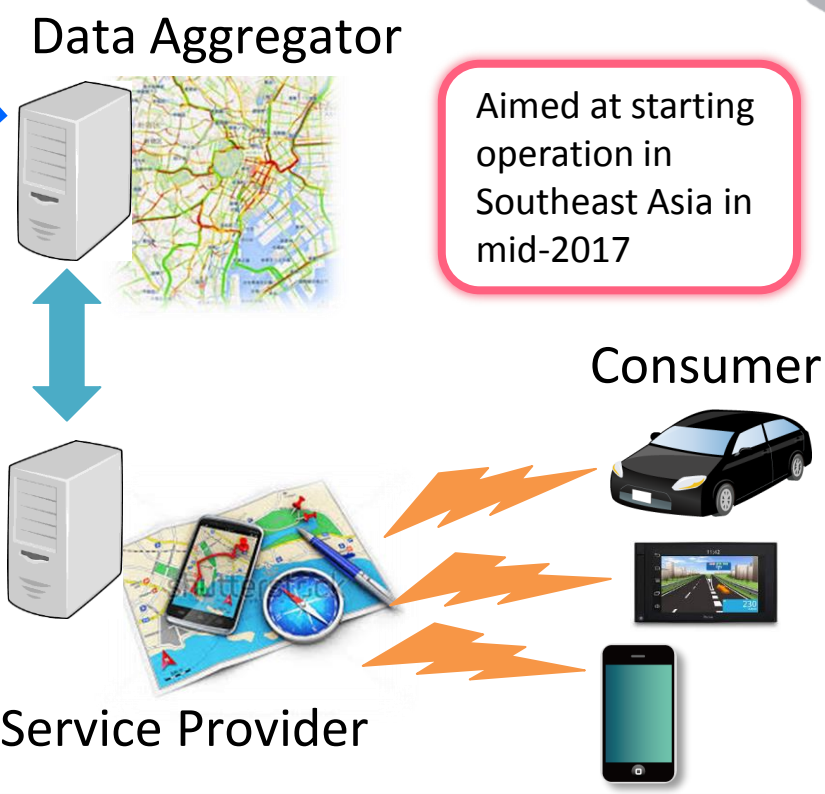
- Many competing communication standards
- Gateways are required for Internet access

Offering new value by combining sensors with communication modules

Collection of information --> summarizing information --> Information-based control

Various Initiatives on IoT Technology: Traffic Counter System





Aimed at starting operation in Southeast Asia in mid-2017

Sensor nodes are installed on traffic signals and signs to collect various information by lane, including the number and types of vehicles, vehicle speeds, traffic flow, ambient temperature, road surface temperatures, vibration, and atmospheric conditions.

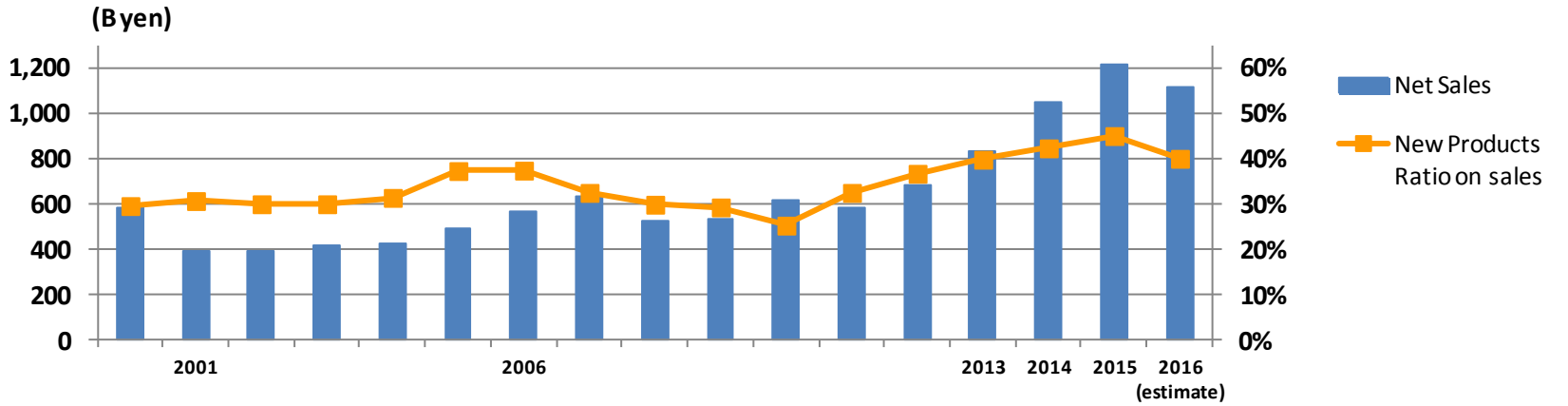
The collected information is stored in the Cloud and network via gateways.

The information is distributed to road administrators, map data providers, weather information service providers, etc.

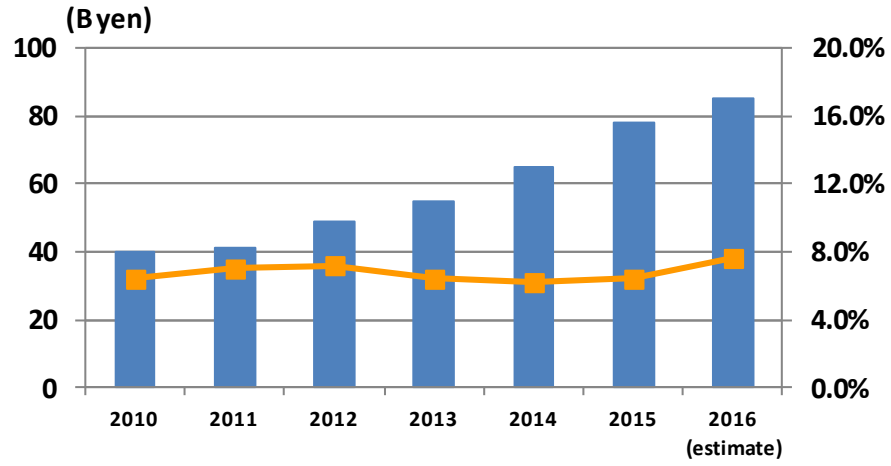
The information is provided for users to gain compensation for its value.

Net Sales and New Products Ratio on sales/ R&D expense and R&D ratio on sales

Net Sales and New Products Ratio on sales



R&D expense and R&D Ratio on sales

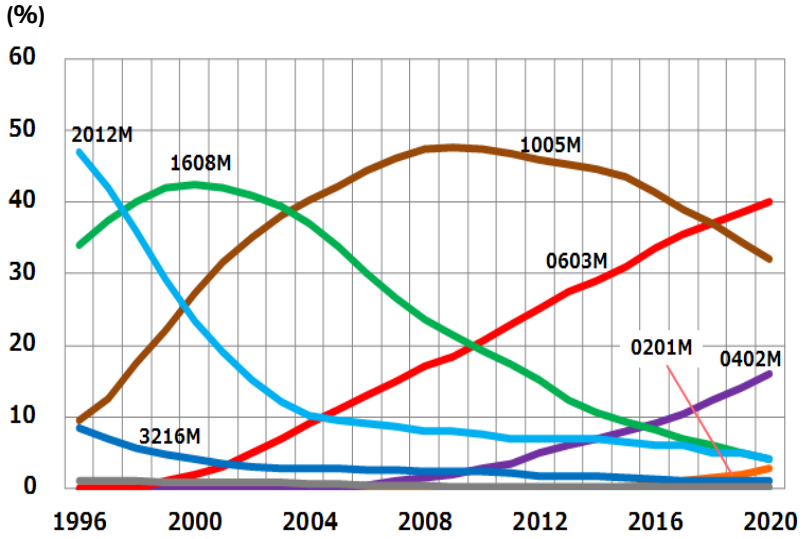


Fiscal year 2015
- R&D expense : 78 billion yen
- R&D Ratio on sales : 6.4 %

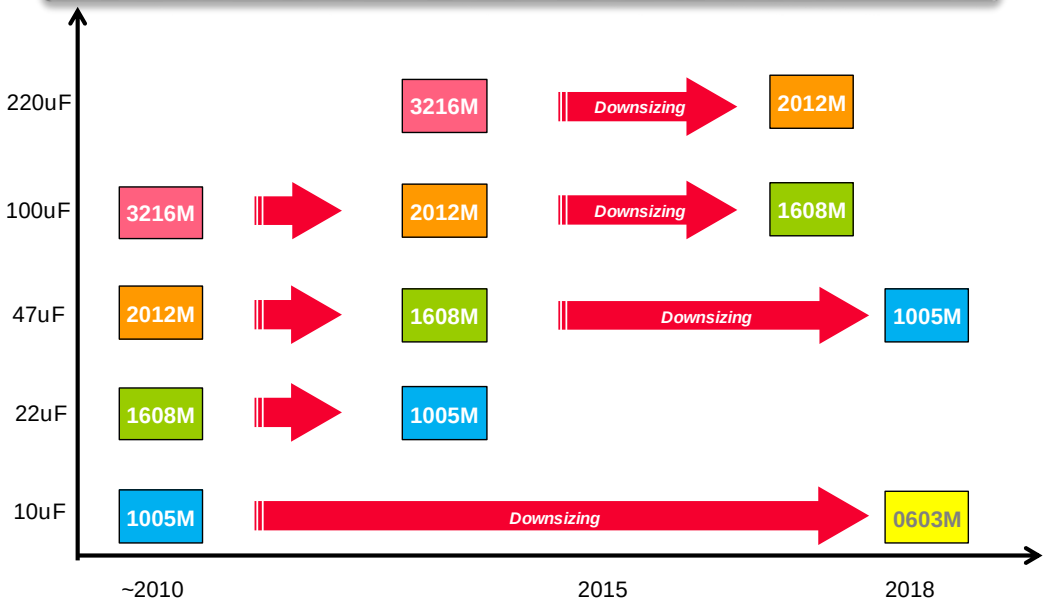
Fiscal year 2016 (estimate)
- R&D expense : 85 billion yen
- R&D Ratio on sales : 7.6 %

“Technology Breakthrough” as Top Runner in MLCCs

MLCC Size Trend



Trend toward High-Capacitance MLCCs



- Ultra-compact MLCC market (in which Murata has large share) will expand. 0603 size will be used as mainstream from 2017.
- The usage of 0402 (0.4×0.2mm) size will expand.
- We started mass production of the world’s smallest 0201 size (0.25×0.125mm).

- MLCC’s density of electrostatic capacity increases year by year.
- Trend of MLCC’s miniaturization and hi-capacitance will continue.
- Increase added value by shifting high-technology product in product mix.

We are pursuing trend toward ultra-compact and high-capacitance MLCCs as the top runner of the market, and continue to lead the electronics industry.

M&A / Business Alliance

2012
- Acquisition of VTI Technologies
- ***MEMS Sensors***

2013
- Acquisition of NEC ***MR sensor*** Business
- Acquisition of Tokyo Denpa Co., Ltd
- ***Crystal Devices***

2014
- Acquisition of Renesas ***High Power Amplifier*** Business
- Acquisition of RF Monolithics
- ***Wireless Connectivity Solutions***
- Toko,Inc.became a consolidated subsidiary of Murata
- ***Coils***
- Acquisition of Peregrine Semiconductor
- ***RF solutions incl. RF swiches***

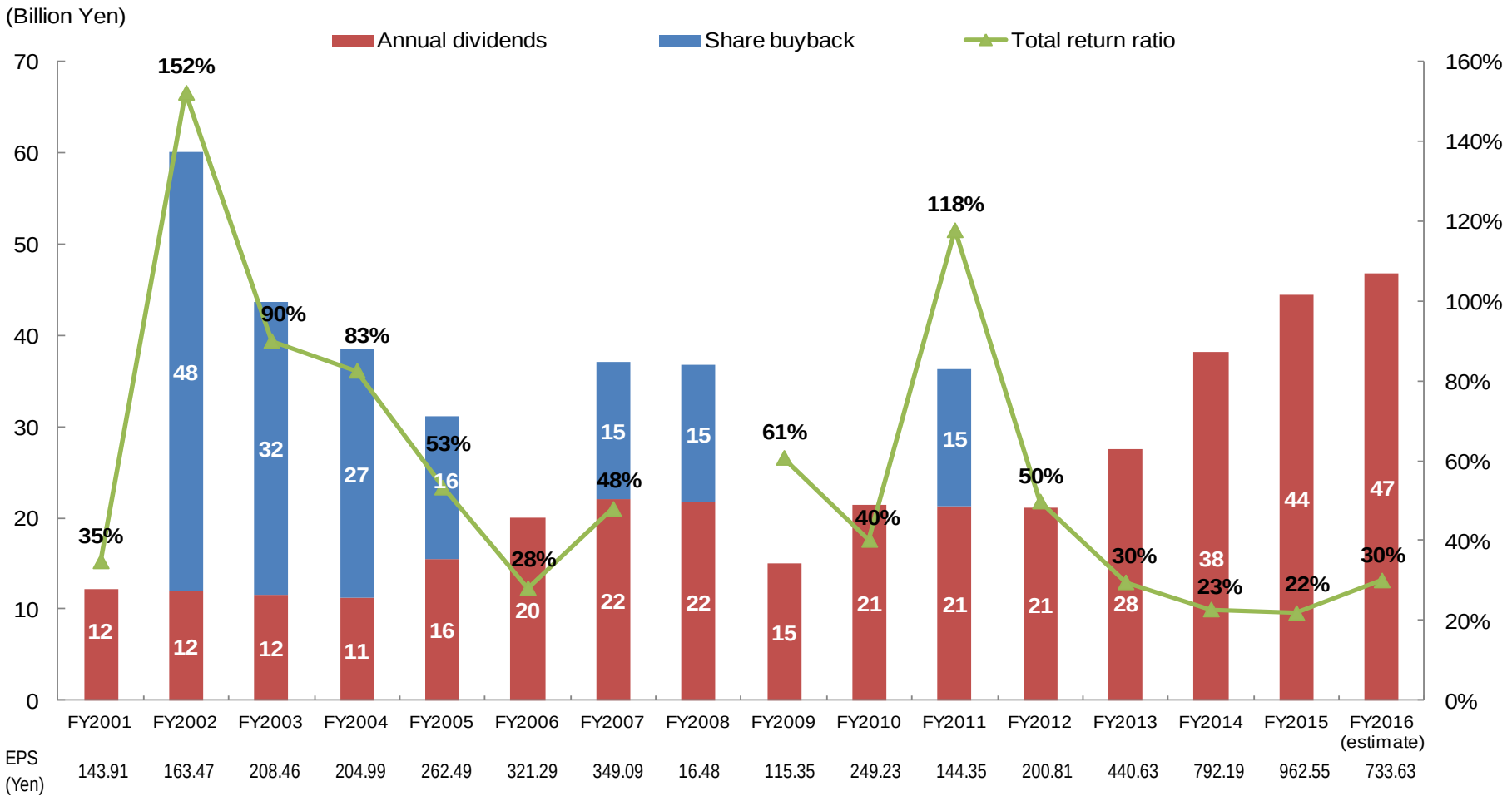
2016
- Joint venture establishment with Shizuki Electric Co., Inc.
- ***Film Capacitor***
- Acquisition of IPDiA S.A.
- ***Silicon Capacitors***
- Acquisition of Primatec Inc.
- ***LCP (liquid crystal polymer) electronic materials***

2017
- Acquisition of ***Battery Business*** from Sony Group

Closing: April 2017 (Scheduled)

Proceed M&A for capturing new technologies and new market demand for Murata step by step.

Return to Shareholders



Our basic policy of profit distribution to shareholders is to prioritize the sharing of gains through payment of dividends. We will steadily raise the dividends by increasing profit per share, and aim to achieve a payout ratio of about 30% in the mid-term.

This report contains forward-looking statements concerning Murata Manufacturing Co., Ltd. and its group companies' projections, plans, policies, strategies, schedules, and decisions. These forward-looking statements are not historical facts; rather, they represent the assumptions of the Murata Group (the "Group") based on information currently available and certain assumptions we deem as reasonable. Actual results may differ materially from expectations due to various risks and uncertainties. Readers are therefore requested not to rely on these forward-looking statements as the sole basis for evaluating the Group. The Company has no obligation to revise any of the forward-looking statements as a result of new information, future events or otherwise.

Risks and uncertainties that may affect actual results include, but are not limited to, the following: (1) economic conditions of the Company's business environment, and trends, supply-demand balance, and price fluctuations in the markets for electronic devices and components; (2) price fluctuations and insufficient supply of raw materials; (3) exchange rate fluctuations; (4) the Group's ability to provide a stable supply of new products that are compatible with the rapid technical innovation of the electronic components market and to continue to design and develop products and services that satisfy customers; (5) changes in the market value of the Group's financial assets; (6) drastic legal, political, and social changes in the Group's business environment; and (7) other uncertainties and contingencies.

The Company undertakes no obligation to publicly update any forward-looking statements included in this report.

Thank you