



# CORPORATE PROFILE

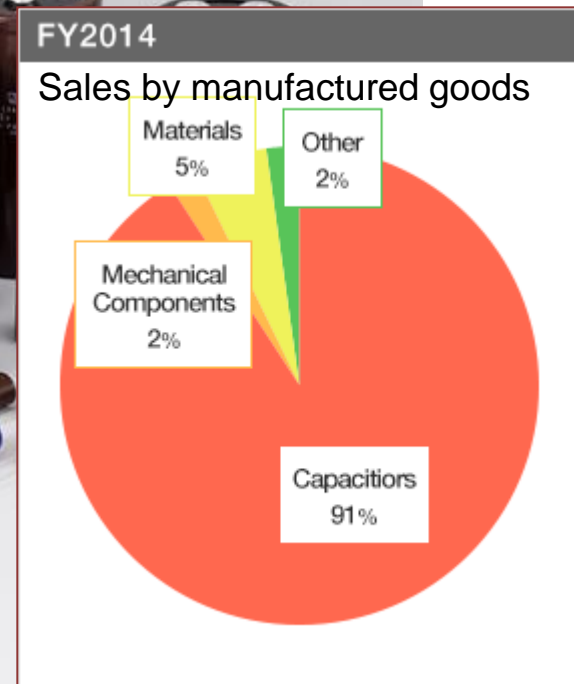
## Our Performance for Automotive Electronics Market

Focusing on Electric Double Layer Capacitors



# We're "The Capacitor Company"

- ✓ Aluminum Electrolytic Capacitors
- ✓ Conductive Polymer Aluminum Solid Capacitors
- ✓ Conductive Polymer Hybrid Electrolytic Capacitors
- ✓ Multi Layer Ceramic Capacitors
- ✓ Film Capacitors
- ✓ Electric Double Layer Capacitors
- ✓ Metal Oxide Varistors TNR™
- ✓ Amorphous / Dust Choke Coils
- ✓ CMOS Camera Modules
- ✓ Custom Made Battery Chargers





# Company Overview

The Origin of Our Company is  
Miyagi prefecture "Akiu-Village"

Company Name

Nippon Chemi-Con Corporation

Date Founded

August, 1931

Head Office

5-6-4 Osaki, Shinagawa-ku, Tokyo, Japan

Capital

¥21.5 billion

Net Sales

¥123.3 billion (total group sales in fiscal 2014)

Number of Employees

Consolidated: 6,891 / Non-Consolidated: 925 (as of March 31, 2015)

Stock Exchange Listings

Tokyo Stock Exchange, First Section (code 6997)

Domestic Main Plants

Chemi-Con Miyagi / Iwate / Fukushima

Chemi-Con Yamagata / Chemi-Con Yonezawa

Chemi-Con Nagaoka / Marcon Denso (Iide-Machi Yamagata-Pre.)

Niigata Plant / Takahagi Plant / Fukushima Electrolytic Industry

Chemi-Con Machinery

Corporate Philosophy

Contribution to technology with attention to environment and people

International Certification

TS16949 / ISO9001, ISO14001 ...etc

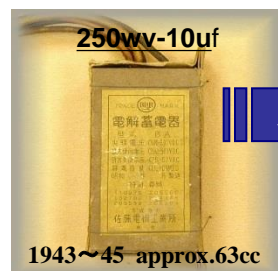


The late sato of our  
founder

& 10 plants  
located overseas



Our strength is business structure of the Verticalization



▲98%

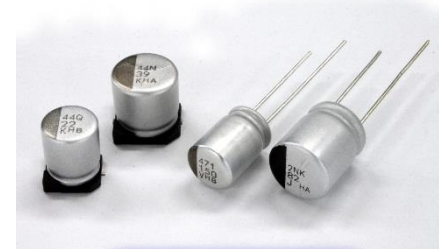
2005 approx.1cc



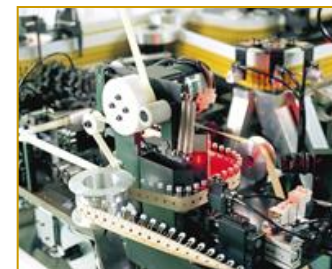
Machines

R&D

Materials



Global  
№1 Share



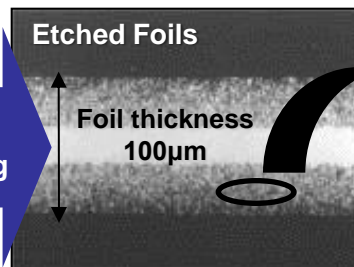
Electrode Foils



After  
Etching

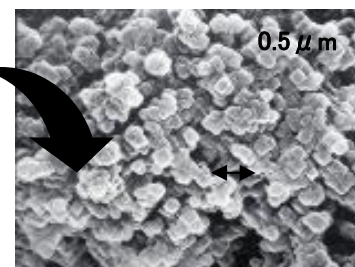
Etched Foils

Foil thickness  
100μm



Cross section of etched foil

0.5 μm



Cubic pit

The surface area  
of the etched foil is  
about **200 times larger**  
than those of a plain foil

№1 Share

# Our Strategic Markets

## Automotive Electronics Market

*ECU, EPS, Airbag...etc*

## Industrial Use Inverter Market

*AC Servo Amplifier,  
General Inverters...etc*

## New Energy Market

*PV Generation,  
Wind Power Generation...etc*

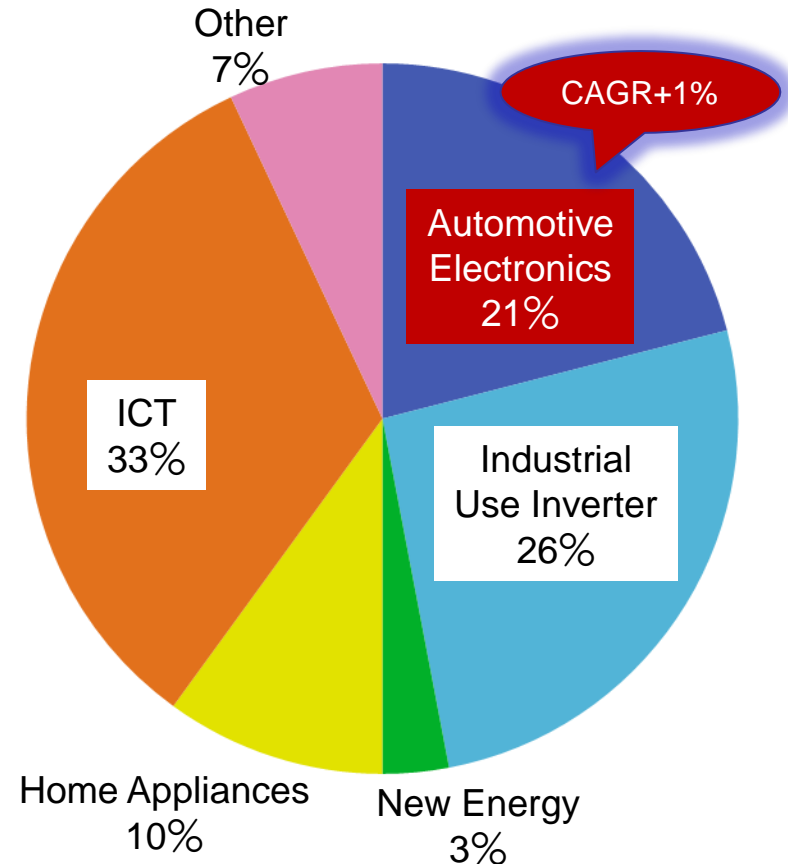
## Home Appliances Market

*Inverter for Air Conditioner, Refrigerator,  
Washing Machines, Sweeper...etc*

## ICT Market

*PC, TV, Game Console,  
Communication Base Station...etc*

**FY 2014**



## Accumulators EDLC



## Battery Charger Varistor TNR™

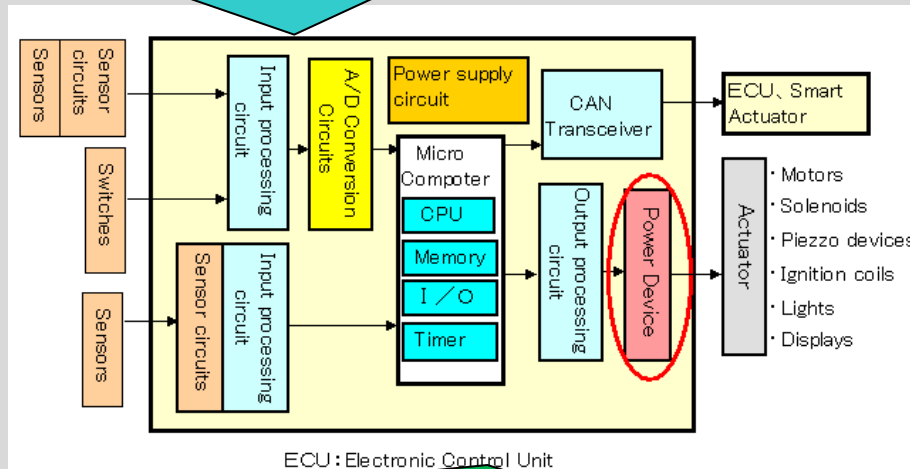


## Driving Inverters Al & Film cap



## ECU (Power Supply to CPU)

+B (Battery Voltage) : 14v  $\Rightarrow$  Vcc (CPU Voltage) : 3.3v  
SMD AL-Cap (Up to  $\phi 10$ : ~10pcs/Car)

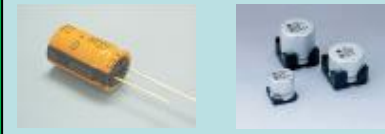


## Technology Trend

- ✓ Downsizing
- ✓ High Temperature
- ✓ High Vibration
- ✓ High Ripple Current
- ✓ High Voltage
- ✓ Emerging Country
- ✓ Ultra-Small Mobility

## EDU (DC-LINK / Energy Reserve for Airbag & Direct Injection)

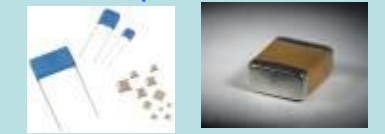
Al-Caps ( $\phi 10 \sim 18$ )  
(2~3pcs/Vehicle)



Coils  
(1~3pcs/Vehicle)



MLCC  
(2~3pcs/Vehicle)



# Focused Products: EDLC

New Comer!  
Mazda MX5 Miata  
( Roadstar )

12-25V



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# Why did MAZDA use EDLC?

EDLC is a very Heavy Duty Accumulator!

	Capacitor		Lithium-ion batteries		Nickel-metal Hydride batteries		Lead-acid storage batteries	
Type	Electric Double Layer		HEV application		HEV application		Vent type	
Energy density (Wh/kg)	×	5~10	○	100~200	○	50~80	○	30~40
Voltage (V)	△	2.5	○	3~3.7	△	1.2	△	2
Maximum Output (W/kg)	○	10,000>	○	4,000	△	1,000~2,000	×	200
Resistance (mΩ)	○	1	△	2.5	△	3	△	5
Operating temperature(°C)	○	-30~70	△	-30~60	△	-30~60	○	-30~80
Cycle life (soc 0 ⇄ 100% @25°C)	○	1,000,000>	△	3,000>	△	1,000 >	×	300>
Safety	○	—	△	—	○	—	○	—
Environmental load	○	—	×	Li,Co,Ni,Mn	×	Ni	×	Pb

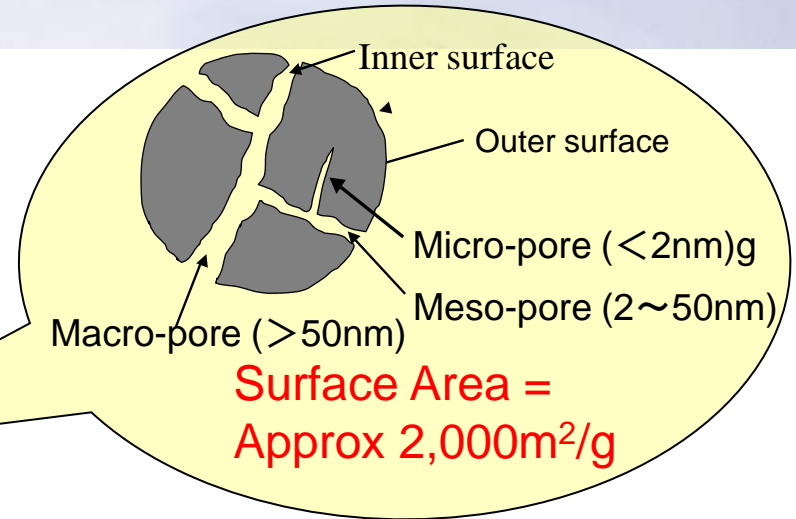
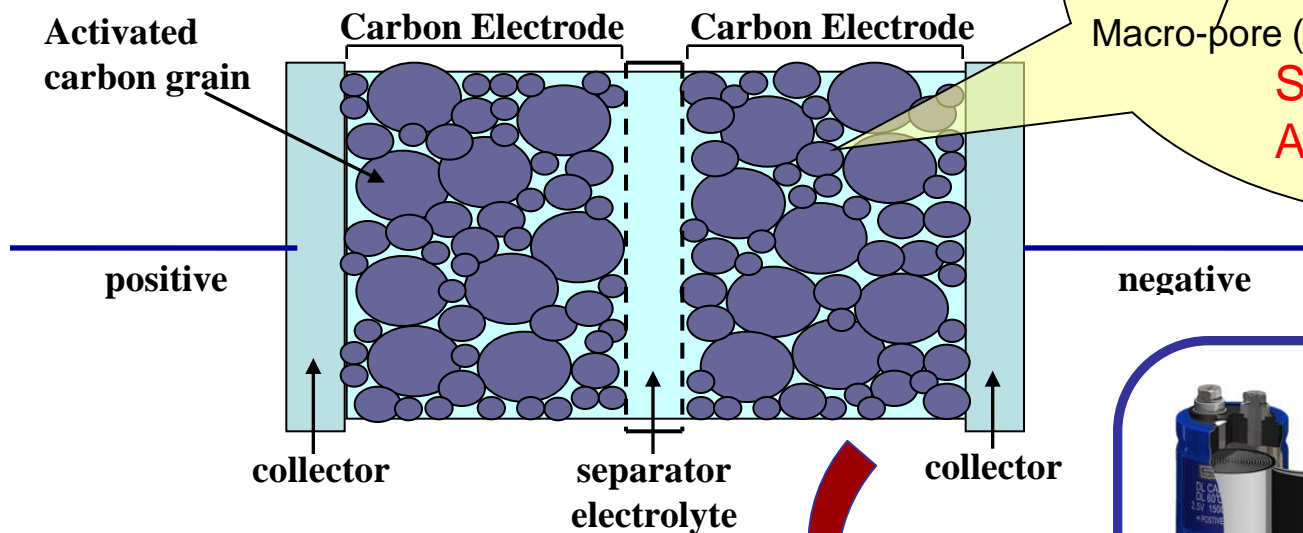
From Mazda's 2012 No30 Technology Report

(Courtesy of Mazda Motor Corporation. Copying and/or distributing this slide is prohibited.)



# Mechanism of EDLC

EDLC uses activated carbon for electrode to achieve high capacitance by expanding electrode surface area.



## 【Advantages of Non-Chemical Reactions】

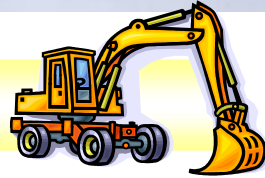
- ① Long cycle life
- ② Rapid charge/discharge
- ③ Good performance at low temperature (-40°C)
- ④ Environment friendly without using heavy metal



# Adaptation Example of EDLC

**Energy Emission Reduction  
(electricity, gasoline)**

① Peak power assist



② Effective use of regenerated energy

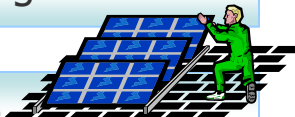


**New Energy:  
Wind Power, Solar,  
Fuel Batteries**

③ Stabilization of wind power



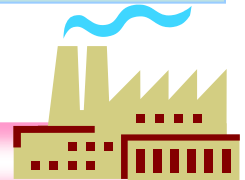
④ Improvement of solar power charge



⑤ Electricity assist for fuel batteries

**Safety and Security**

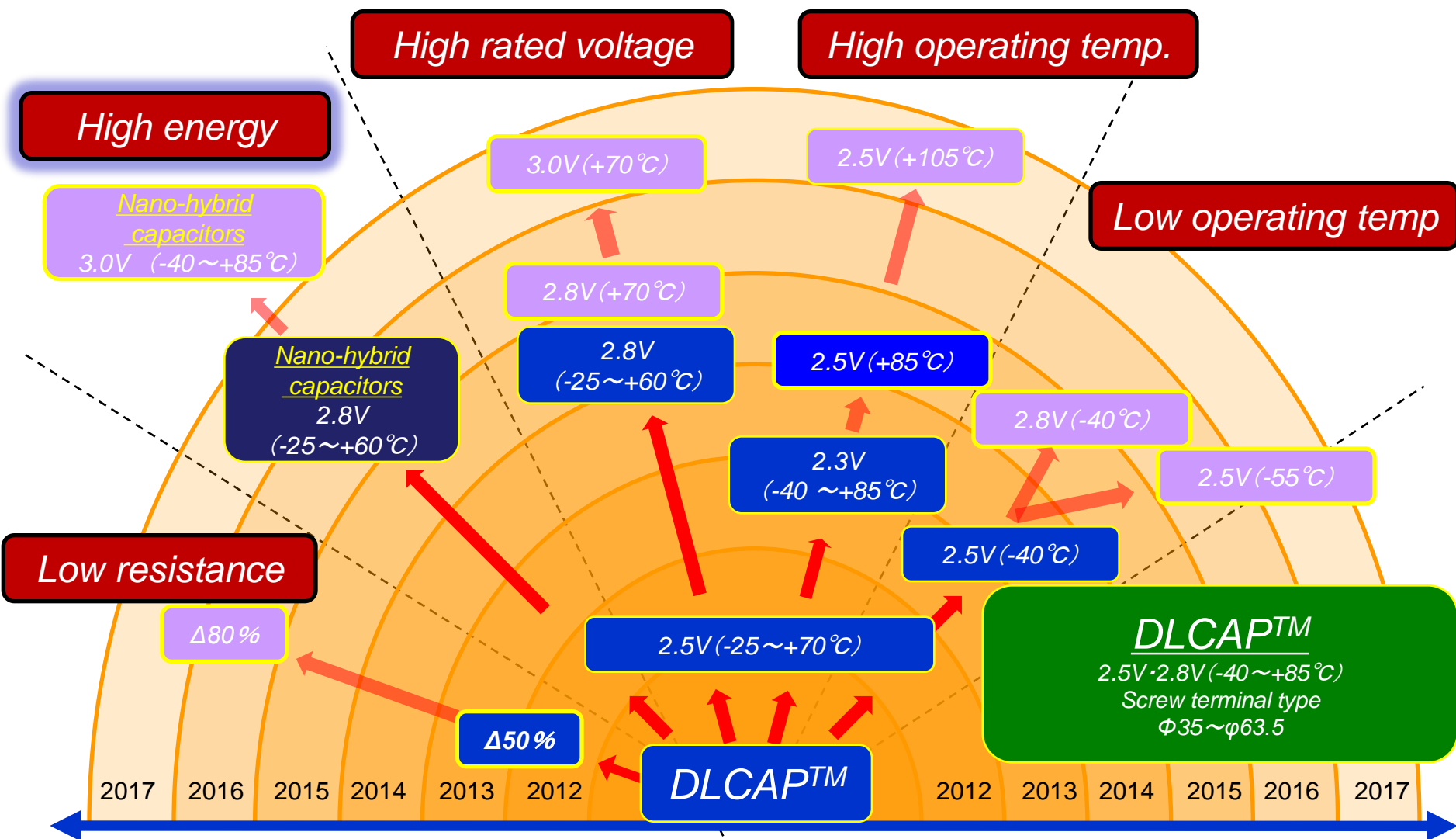
⑥ Measure for voltage drop



⑦ Safety measure for disasters



# 5 Points of Technical Development





## “Contribution to technology with attention to environment and people”

As a global supplier of aluminum electrolytic capacitors, Nippon Chemi-Con will continue to make comprehensive efforts to develop and utilize innovative new technologies.

### Contact:

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Thank you for your kind attention.