

Solutions for Automotive Electronics



①xEV Applications

High Voltage Inverter

Gate Driver

DC/DC Converter

On-Board Charger

BMS

Micromobility (48V Power)



②12V Power Line Applications

ECU for Direct Injection System

Power for Microcomputer

Driver for BLDC Motors (SMD)

Driver for BLDC Motors (Lead Type)

Noise Reduction for DC Motors



③Active & Passive Safety

LiDAR · Radar · Camera

Airbag ECU

Buck-up Power for X-by-wire

④Body Control ECU & Infotainment

Central ECU

Instrument Cluster · Display

Audio Equipment

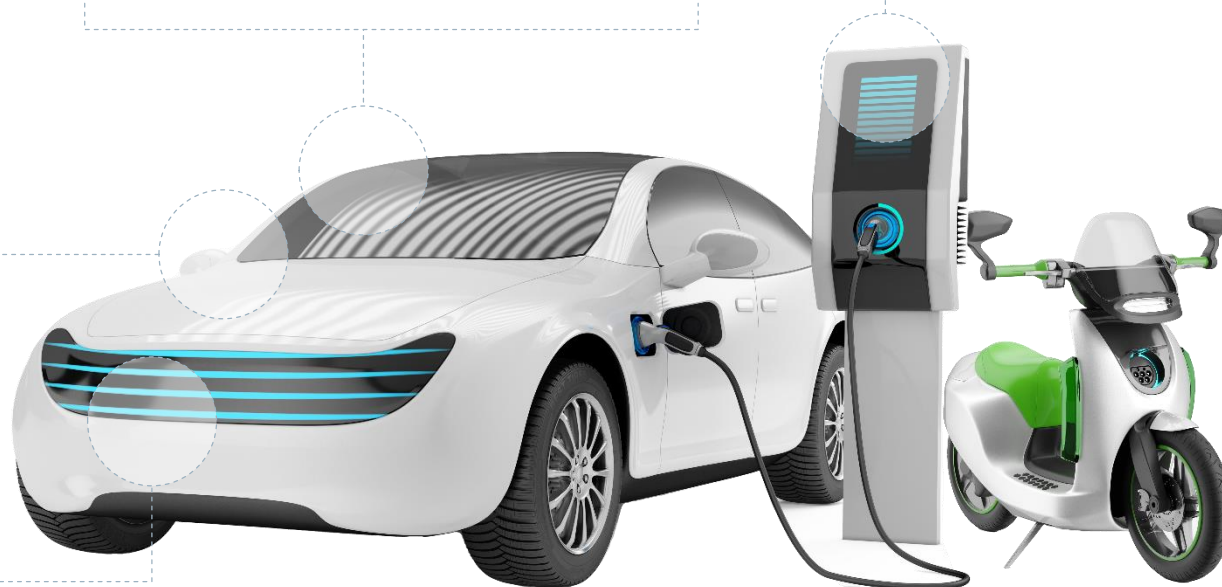
LED Driver

USB



⑤Charging Pile

Quick Charger · Cable



⑥Power for Control Circuits

Drive Recorder · Rearview Camera


Battery Back-up

Approach to Implementation Improvement

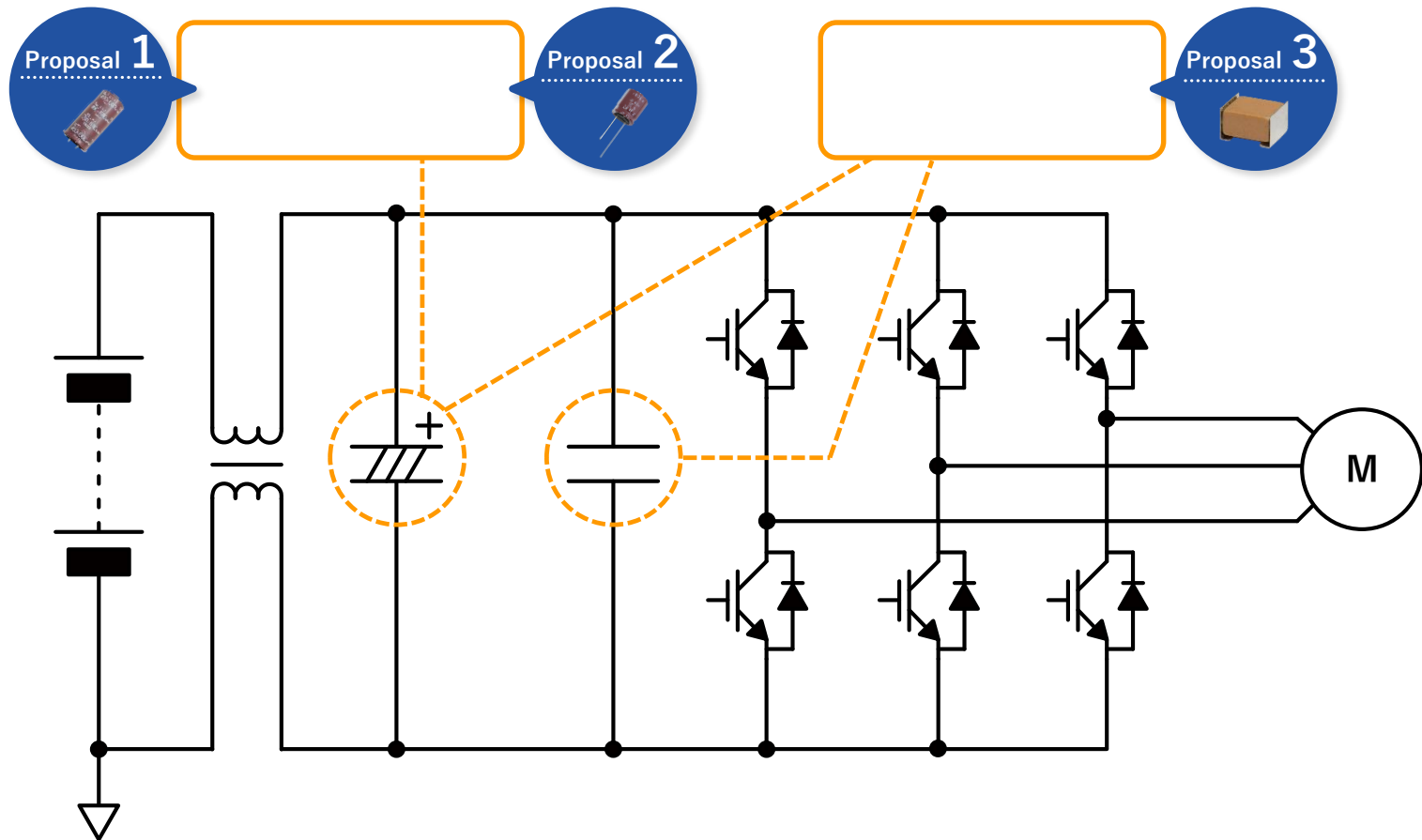
Control Circuit Applications

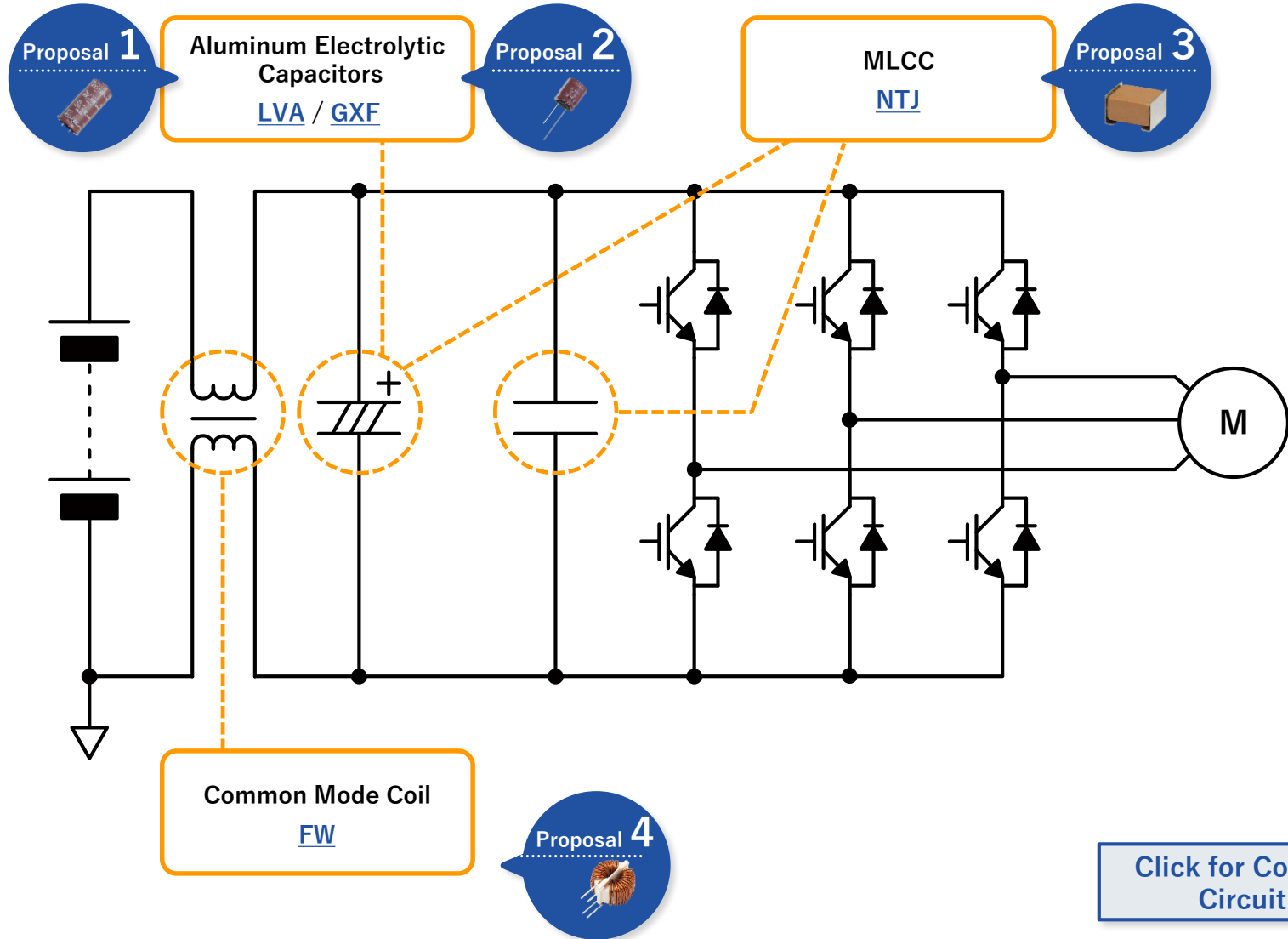
Reinforce Anti-Vibration Structure



 Electronic products related to small mobility such as motorcycles

Nippon Chemi-Con provides total support to use several types of our high reliability products. You can easily view a typical circuit diagram and the product best suited for the function of each block. Click on the pop out to see the series in more detail.





Aluminum Electrolytic Capacitors LVA Series

《Function in Circuit》

The LVA series' anti-vibration structure maintains high reliability until the end of its useful life, making the LVA series ideal for rectifiers of high voltage traction inverters for micromobility devices, etc. In addition, the LVA series has more capability to downsize than any film capacitors do. You can select from three categories of endurance: 2,000, 3,000, and 5,000 hours at 105°C. In addition, our lineup offers several capacitance values as standard products.



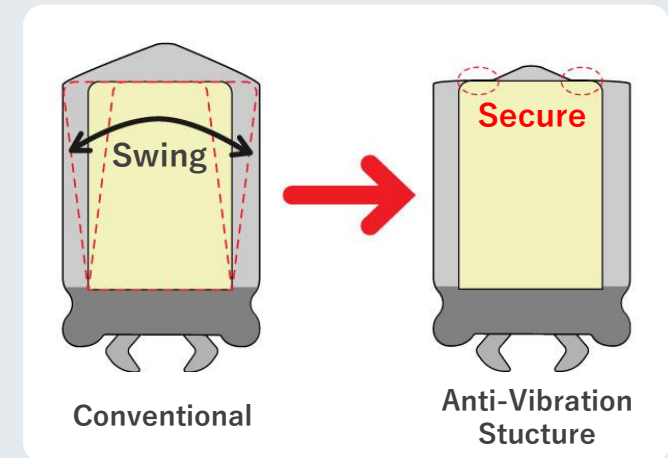
Similar Series : [KVA series](#) [KVB series](#) [Module](#)

Point

Secure Element to the Aluminum Can! Vibration Resistant Structure for High Reliability

The LVA series meets AEC-Q200 standards while maintaining basic performance equivalent to or better than that of conventional products*1. The keys are the raw materials and original anti-vibration design. Usually snap-in capacitors have a good airtight structure. However, internal pressure increases at the end of life which causes the element to move around inside as shown at right. We designed a new case structure to overcome this phenomenon at the end of life. The LVA series is guaranteed for 5,000 hours at 105°C. Customers can also select from the 2,000-hour KVA series and 3,000-hour KVB series.

*1 Our LXS Series

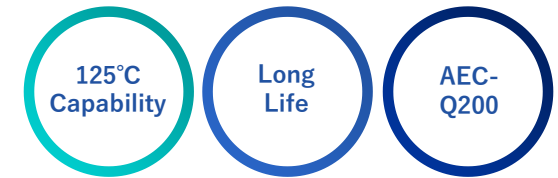


Anti-Vibration System

Aluminum Electrolytic Capacitors GXF Series

《Function in Circuit》

The GXF series is suitable for electric compressors for air conditioning, PTC heaters, and auxiliary inverters of electric pumps due to its excellent high voltage and high ripple current capability. As it is possible to replace film capacitors with GXF, the GXF series also exhibits excellent heat resistance, miniaturization, and cost performance. Nippon Chemi-Con can offer modules, which are designed based on customers' requirements. Our modules help to save time and downsize products.





[Specifications]

- Style : Radial
- Category temp range : -40~+125°C
- Rated voltage : 25~400V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 3,000hrs
- Shelf life : 125°C / 1,000hrs (25~100V)
125°C / 500hrs (160~400V)

See More > 

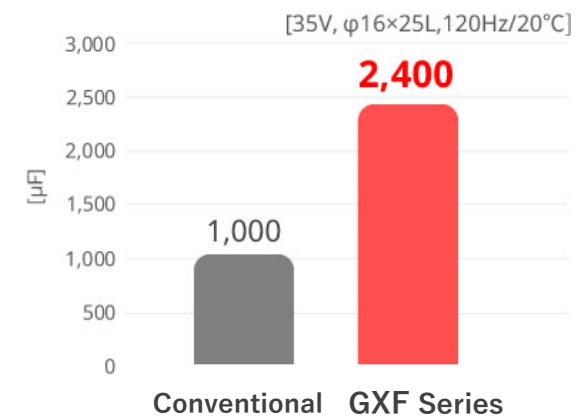
Similar item : [KXQ series](#) [KXJ series](#) [Module](#)

Point

High Gain Foil Makes Ripple Current Up to 6 Times Higher

The GXF series has a wide voltage range of 25V to 400V. Customers can select suitable items for their applications. The GXF series achieves higher ripple capability, higher capacitance, and lower ESR. For instance, we can offer GXF products with 6 times the ripple current capability than that of any conventional product*¹. The key technologies are high gain foil and low resistance electrolyte with thermal stability.

*¹ Our GXE series

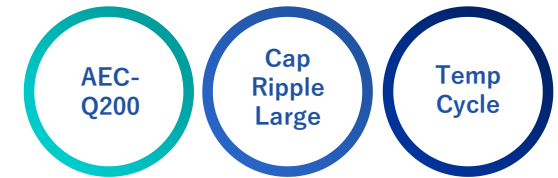


Difference in Capacitance

MLCC NTJ Series

《Function in Circuit》

Nippon Chemi-Con's MLCCs are targeted toward power electronics and especially contribute to the miniaturization, weight reduction, higher reliability, and higher current capability of power converters and inverters for electric mobility in the CASE era. The NTJ series is especially suitable for rectifiers in high-current, high-voltage main circuit inverter and noise suppression applications.

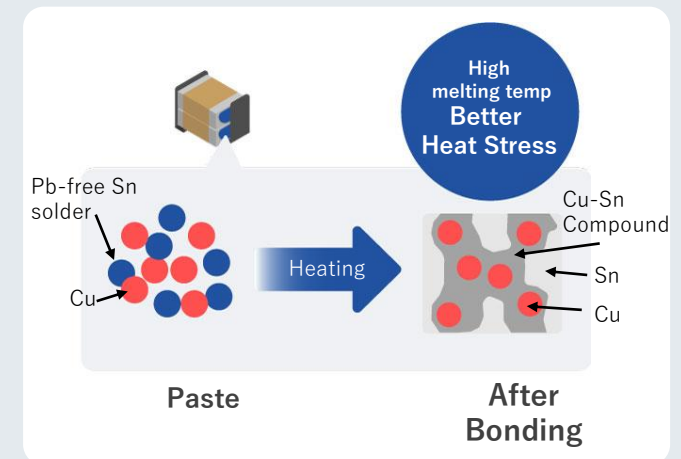


Similar item : [KVJ series](#)

Point

Metal Cap Terminals for High Reliability

The metal-capped NTJ series maximizes the technical strengths of large MLCCs. As shown in the image, two MLCCs are packed into a small space. This technique achieves larger capacitance, lower ESR, and higher current capability. The metal cap also reduces mechanical stress such as PCB warpage and heat shrink, which reduces cracking as a result. The metal cap and MLCC itself are mechanically and electrically connected with Nippon Chemi-Con's proprietary solder which also prevents desoldering during customers' reflow soldering process. The NTJ series is AEC-Q200 compliant and has a proven track record in many automotive applications.

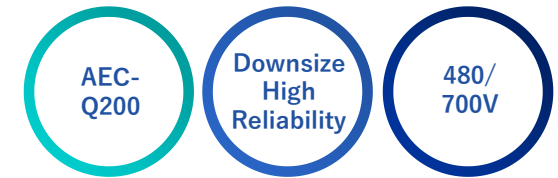


Pb-free high-heat solder method

Common Mode Coil **FW** Series

《Function in Circuit》

The FW series is our best common mode coil for noise filtering of auxiliary inverters in electric compressors of xEV and various electric pumps. An iron-based nanocrystalline alloy is used for the high magnetic permeability core (31,000 μ). This allows high inductance with a small number of turns. Reducing the turns has the benefit of suppressing stray capacitance and obtaining a high noise suppression effect over a wide frequency range. The high Curie Temperature provides stable behavior even in high-temperature environments like those of in-vehicle equipment.





[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Voltage range : 250~700V
- Rated current : 7~39A
- Rated inductance : 1.0~11.5mH, 100kHz
- Max DCR : 1.8~26 m Ω max

*1 Custom design is also available.

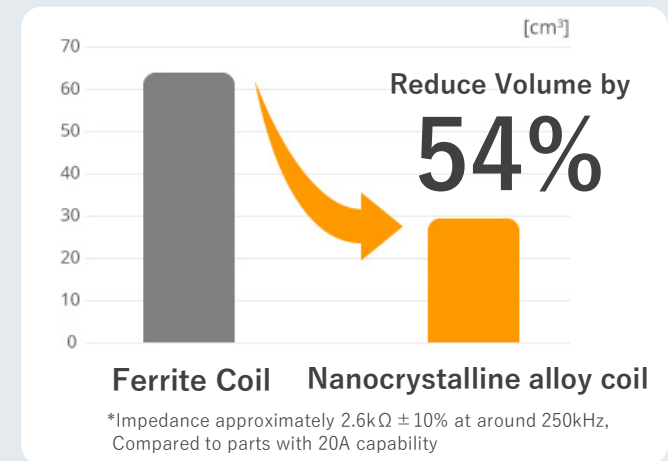
See More

Similar item : [FL-V series](#) [FL series](#)

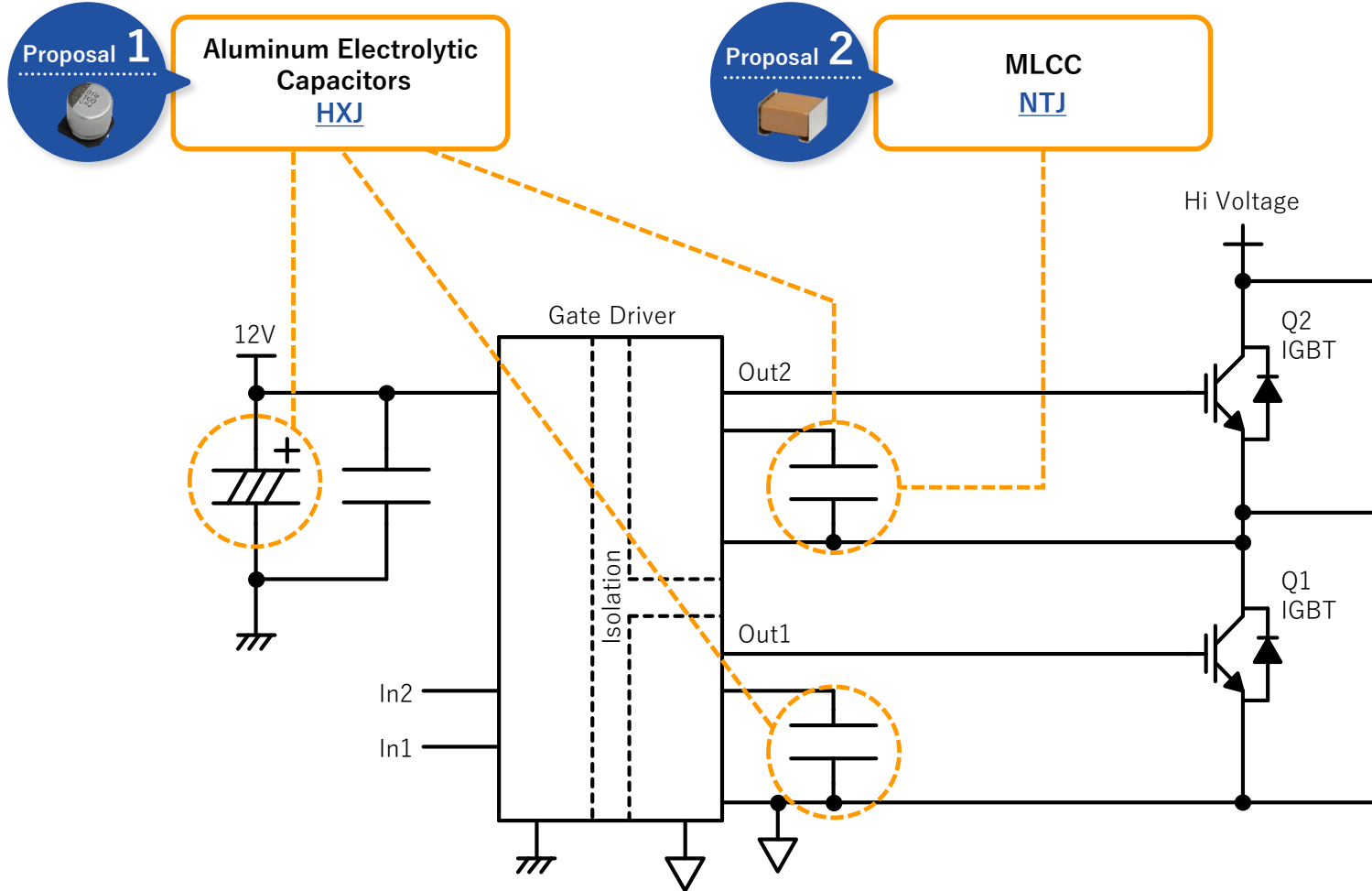
Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of 100,000 μ H at 10kHz and 31,000 μ H at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.



Volume of coils



Aluminum Electrolytic Capacitors HXJ Series

《Function in Circuit》

The HXJ series is ideal for rectifier functions of gate drivers and control circuits, due to its super low ESR and high-temperature durability. Moreover, the HXJ series has another feature, high capacitance technology, which contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 16~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 4,000hrs

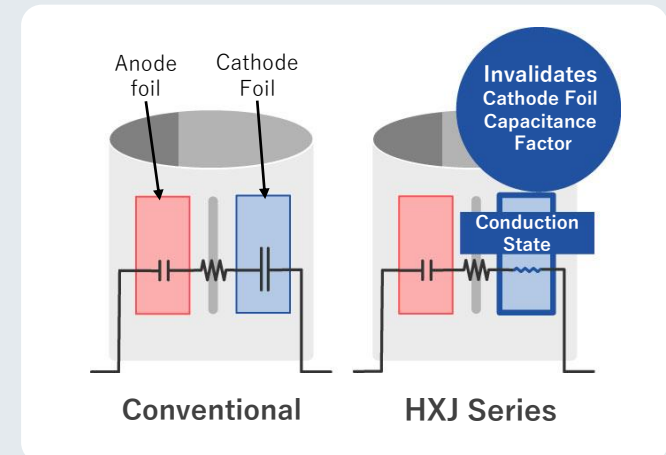
See More >

Similar item : [HXC series](#) [HXE series](#) [HXF series](#)

Point

New Type of Cathode Foil Enhances Values of High Gain Anode Foil

Nippon Chemi-Con has utilized advanced and innovative technology to create the new HXJ series. The capacitance of an aluminum electrolytic capacitor depends upon the combined capacitance of the anode and cathode foils. It is difficult to induce more capacitance even when the cathode foil shows high capacitance. However, newly established advanced technology can make the cathode foil extremely close to zero resistivity. In other words, the capacitance no longer depends upon the capacitance of the cathode foil but only on the genuine capacitance of the anode foil. As a result, the HXJ series achieves 20% to 40% greater capacitance than that of the previous series, HXC.

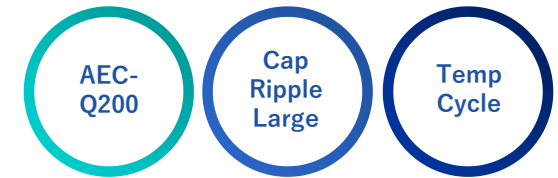


Difference in cathode foil (inside capacitance)

MLCC NTJ Series

《Function in Circuit》

Nippon Chemi-Con's MLCCs are targeted toward power electronics and especially contribute to the miniaturization, weight reduction, higher reliability, and higher current capability of power converters and inverters for electric mobility in the CASE era. The NTJ series is especially suitable for input/output smoothing in high-current, high-voltage main circuit inverter and noise suppression applications.




[Specifications]

- Style : Metal Cap
- Category temp range : -55~+125°C
- Voltage range : 25~250V
- Cap tolerance : -20~+20%(M) / 25°C
- Endurance : 125°C / 1,000hrs

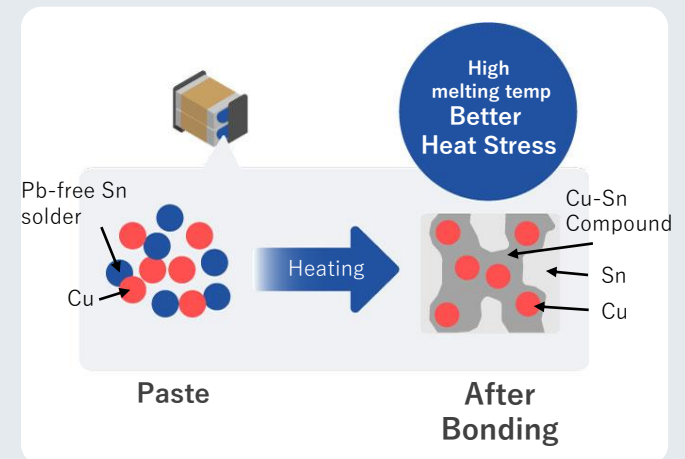
See More > 

Similar item : [KVJ series](#)

Point

Metal Cap Terminals for High Reliability

The metal-capped NTJ series maximizes the technical strengths of large MLCCs. As shown in the image, two MLCCs are packed into a small space. This technique achieves larger capacitance, lower ESR, and higher current capability. The metal cap also reduces mechanical stress such as PCB warpage and heat shrink, which reduces cracking as a result. The metal cap and MLCC itself are mechanically and electrically connected with Nippon Chemi-Con's proprietary solder which also prevents desoldering during customers' reflow soldering process. The NTJ series is AEC-Q200 compliant and has a proven track record in many automotive applications.



Pb-free high-heat solder method



Proposal 1

Common Mode Coil
FW



Proposal 2

Aluminum Electrolytic Capacitors
GXF



Proposal 3

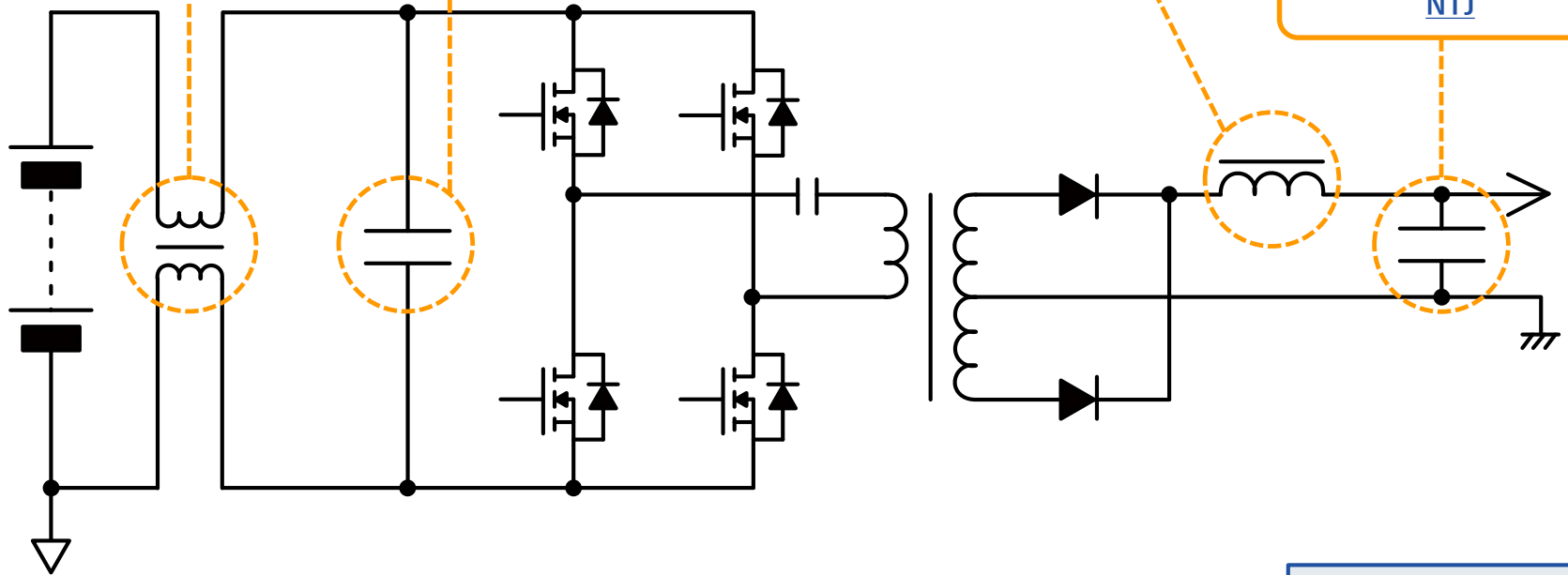
Normal Mode Coil
DM



Proposal 4

Aluminum Electrolytic Capacitors
HXF

MLCC
NTJ

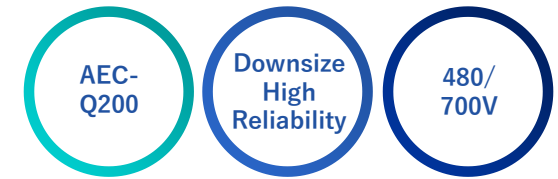


Click for Control Board

Common Mode Coil **FW** Series

《Function in Circuit》

The FW series is our best common mode coil for noise filtering in DC/DC converters for electric vehicles. An iron-based nanocrystalline alloy is used for the high magnetic permeability core ($31,000\mu$). This allows high inductance with a small number of turns. Reducing the turns has the benefit of suppressing stray capacitance and obtaining a high noise suppression effect over a wide frequency range. The high Curie Temperature provides stable behavior even in high-temperature environments like those of in-vehicle equipment.




[Specifications]

- Style : Toroidal
- Category temp range : $-40\sim+130^{\circ}\text{C}$
- Voltage range : 250~700V
- Rated current : 7~39A
- Rated inductance : 1.0~11.5mH, 100kHz
- *1 Custom design is also available.
- Max DCR : 1.8~26 mΩmax

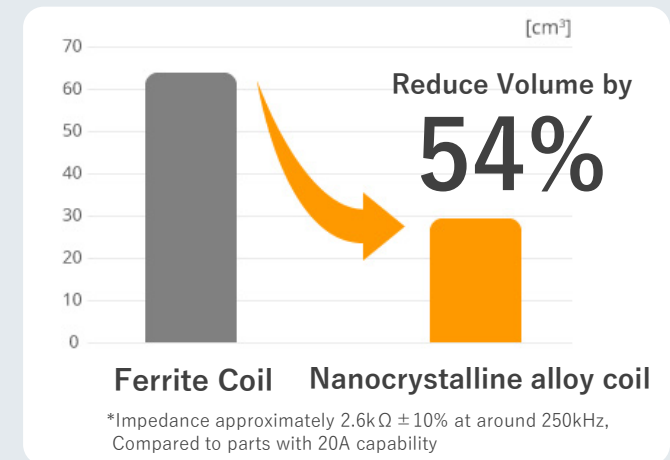
See More 

Similar item : [FL-V series](#) [FL series](#)

Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of $100,000\mu\text{H}$ at 10kHz and $31,000\mu\text{H}$ at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.

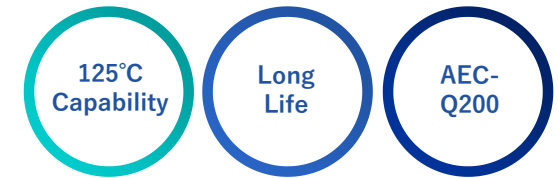


Volume of coils

Aluminum Electrolytic Capacitors GXF Series

《Function in Circuit》

The GXF series is ideal for rectifiers of DC/DC converter applications due to its excellent high voltage and high ripple current capability. As it is possible to replace film capacitors with GXF, the GXF series also exhibits excellent heat resistance, miniaturization, and cost performance. Nippon Chemi-Con can offer modules, which are designed based on customers' requirements. Our module helps to save time and downsize products.





[Specifications]

- Style : Radial
- Category temp range : -40~+125°C
- Rated voltage : 25~400V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 3,000hrs
- Shelf life : 125°C / 1,000hrs (25~100V)
125°C / 500hrs (160~400V)

[See More >](#)

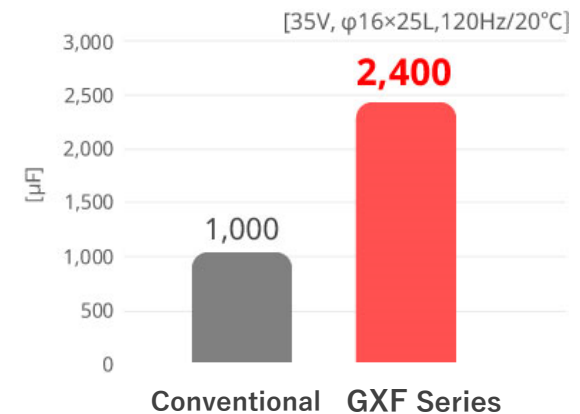
Similar item : [KXQ series](#) [KXJ series](#) [Module](#)

Point

High Gain Foil Makes Ripple Current Up to 6 Times Higher

The GXF series has a wide voltage range of 25V to 400V. Customers can select suitable items for their applications. The GXF series achieves higher ripple capability, higher capacitance, and lower ESR. For instance, we can offer GXF products with 6 times the ripple current capability than that of any conventional product*¹. The key technologies are high gain foil and low resistance electrolyte with thermal stability.

*¹ Our GXE series

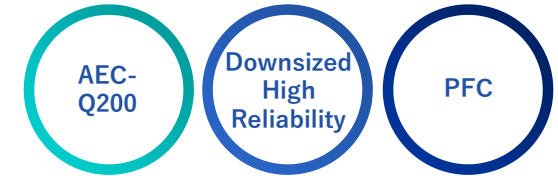


Difference in Capacitance

Normal Mode Coil **DM Series**

《Function in Circuit》

The DM series is the most suitable product for step-down coils in DC/DC converters that convert the high-voltage battery of an electric vehicle into 12V or 48V for auxiliary equipment. The highflux core has high magnetic density and low core loss. In addition, the toroidal dust core has a gap structure, so the magnetic flux leakage is smaller and the impact on adjacent parts can be minimized. The higher Curie Temperature of the material provides stable characteristics even in high temperature conditions for in-vehicle applications.




[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Rated current : 2~20A
- Rated inductance : 6~950μH, 100kHz
- *1 Custom-made items are available
- DCR : 6~260 mΩmax

See More 

Point

Adoption of HIGHFLUX; High Magnetic Flux Density and Low Core Loss

The DM series is a toroidal coil that uses an alloy dust core. There are three types of core materials: 1) HIGHFLUX with high magnetic flux density and low core loss 2) SENDUST with the second highest magnetic permeability next to Highflux, 3) MEGAFLUX*¹ with high magnetic flux density. Highflux in particular contributes to miniaturizing PCBs by taking advantage of its high performance. Highflux has three types of permeability. Three core selections make it easy to create custom-made items. In other words, a wide range of core sizes and designs make it possible to customize products to meet ripple current and switching frequency requirements.

*1 Megaflux cores are custom-made. If needed, please visit our website and contact us to request one.

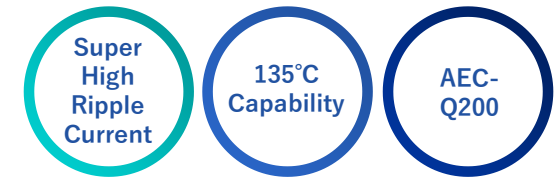


DM series enables high performance in limited space

Aluminum Electrolytic Capacitors HXF Series

《Function in Circuit》

HXF series is ideal for output filters of power supplies, which require higher current and longer life under harsh high temperature conditions as well as low ESR over a wide range of temperatures for stabilizing the output voltage. The better ripple current capability enables the HXF series to replace film capacitors. It has higher temperature resistance as well as a smaller size and lighter weight. The HXF series can also be mounted with reflow soldering.



[Specifications]

- Style : SMD
- Category temp range : -55~+135°C
- Rated voltage : 25~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 4,000hrs
125°C / 4,000hrs
- Shelf life : 135°C / 1,000hrs

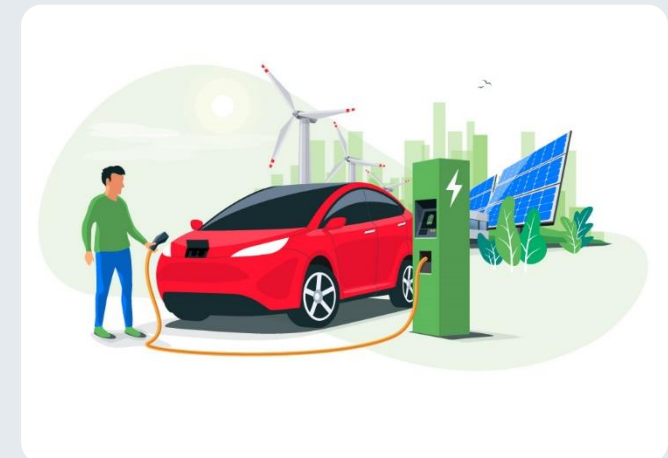
See More >

Similar item : [HXJ series](#) [HXE series](#) [Module](#)

Point

Maximizing the Effect of Carbon Neutrality in Electric Mobility

The HXF Series is a hybrid capacitor whose electrolyte has two materials: conductive polymer and electrolyte. The HXF series is the best in terms of input and output current capability because of the optimum combination of electrolyte and rubber sealing material. As a result, the HXF series is 30% smaller than the previous series, HXE. This miniaturization contributes to achieving the target of carbon neutrality of electric mobilities by minimizing size and weight. We expect the HXF series to be increasingly used in micro and e-mobility devices such as electric motorcycles and in last mile logistics and delivery applications. An anti-vibration base is optional and can withstand up to 30G.

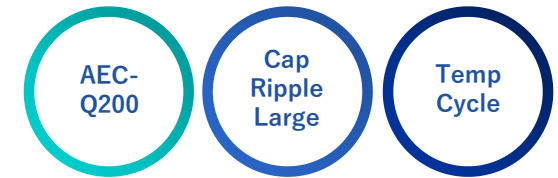


Environmentally-friendly Electric Mobility *Image picture

MLCC NTJ Series

《Function in Circuit》

Nippon Chemi-Con's MLCCs are targeted toward power electronics and especially contribute to the miniaturization, weight reduction, higher reliability, and higher current capability of power converters and inverters for electric mobility in the CASE era. The NTJ series is especially suitable for rectifiers in high-current, high-voltage main circuit inverter and noise suppression applications.





[Specifications]

- Style : Metal Cap
- Category temp range : -55~+125°C
- Voltage range : 25~250V
- Cap tolerance : -20~+20%(M) / 25°C
- Endurance : 125°C / 1,000hrs

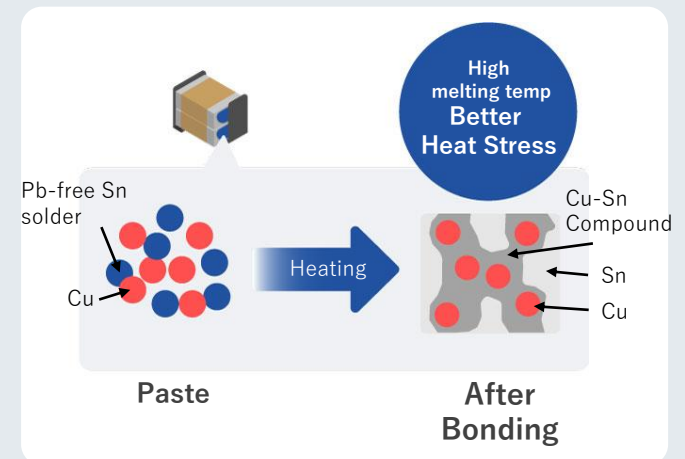
See More >

Similar item : [KVJ series](#)

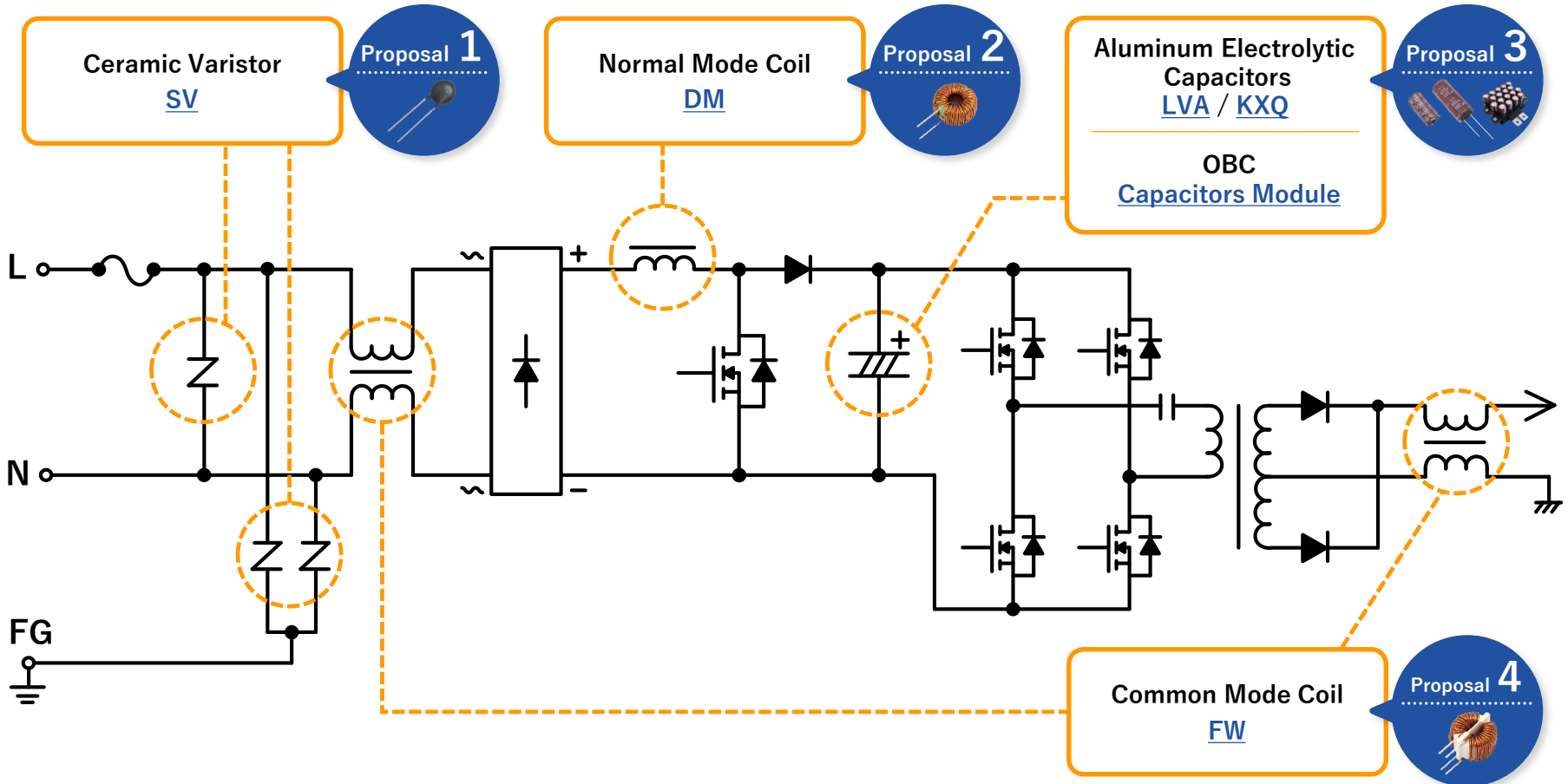
Point

Ideal for Output Filtering Because of Larger Capacitance and Lower ESR

The metal-capped NTJ series maximizes the technical strengths of large MLCCs. As shown in the image, two MLCCs are packed into a small space. This technique achieves larger capacitance, lower ESR, and higher current capability. The metal cap also reduces mechanical stress such as PCB warpage and heat shrink, which reduces cracking as a result. The metal cap and MLCC itself are mechanically and electrically connected with Nippon Chemi-Con's proprietary solder which also prevents desoldering during customers' reflow soldering process. The NTJ series is AEC-Q200 compliant and has a proven track record in many automotive applications.



Pb free high heat solder method



Reference

Common Mode Coil FW (3 phase)

Click for Control Circuit

Ceramic Varistor **SV** Series

《Function in Circuit》

It is important to protect circuits from surges and noise voltage induced by lightning surges and equipment failures from outside the circuits, which cause failures and malfunctions. Our varistors are non-linear elements whose main component is Zinc Oxide(ZnO) and have the characteristic that the resistance drops sharply when a certain voltage is exceeded and a large current flows. This can absorb surges and reduce abnormal voltage, which is very effective in protecting circuits.



[Specifications]

- Style : Radial
- Category temp range : -40~+125°C
- Varistor voltage : 220~1,000V
- Temp cycles : -40~+125°C / 1,000 cycles

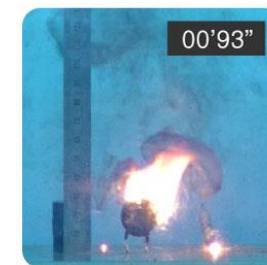
See More >

Similar item : [V series](#)

Point

Flame Resistant Silicone Resin Reduces the Risk of Vehicle Fires

The SV series is a new generation of ceramic varistor, which uses a highly flame-resistant silicone resin coating for the exterior, which greatly improves flame resistance compared to conventional products*¹, and which also achieves high reliability such as a 125°C guarantee and heat cycle resistance. In terms of safety, it is capable of suppressing the combustion and scattering of the exterior resin when the varistor is destroyed by excessive surge voltage that exceeds the withstand capacity. In the experiment*², it took approximately 7 seconds for the conventional products to cease burning but the SV series ceased burning within 1 second. This can contribute to reducing the risk of vehicle fire; that is why many automotive customers use our SV series. *¹ V series. *² samples; disk size φ20mm, V series (1,000V) and SV series



Conventional



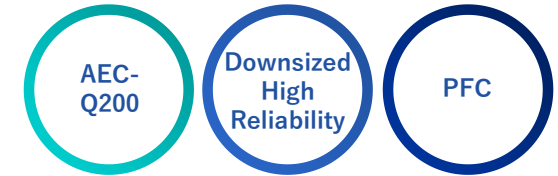
SV Series

Varistor overload test

Normal Mode Coil **DM Series**

《Function in Circuit》

The DM series is the most suitable product as a step-up coil for the PFC (continuous current mode) of OBC. The highflux core has high magnetic density and low core loss. In addition, the toroidal dust core has a gap structure, so the magnetic flux leakage is smaller and the impact on adjacent parts can be minimized. The higher Curie Temperature of the material provides stable characteristics even in high temperature conditions for in-vehicle applications.




[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Rated current : 2~20A
- Rated inductance : 6~950μH, 100kHz
- *1 Custom-made items are available
- DCR : 6~260 mΩmax

See More > 

Point

Adoption of HIGHFLUX; High Magnetic Flux Density and Low Core Loss

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*1 Megaflux cores are custom-made. If needed, please visit our website and contact us to request one.



DM series enables high performance in limited space

Aluminum Electrolytic Capacitors LVA Series

《Function in Circuit》

The LVA series introduces Nippon Chemi-Con's leading-edge vibration resistant structure to avoid a disconnect inside the structure at the end-of-life of snap-in aluminum capacitors. The LVA series is ideal for rectifiers in OBC. LVA products enable customers to save space on PCBs because of the higher capacitance per piece. Customers can select from several capacitance values and three endurance categories: 2,000, 3,000, and 5,000 hours at 105°C.



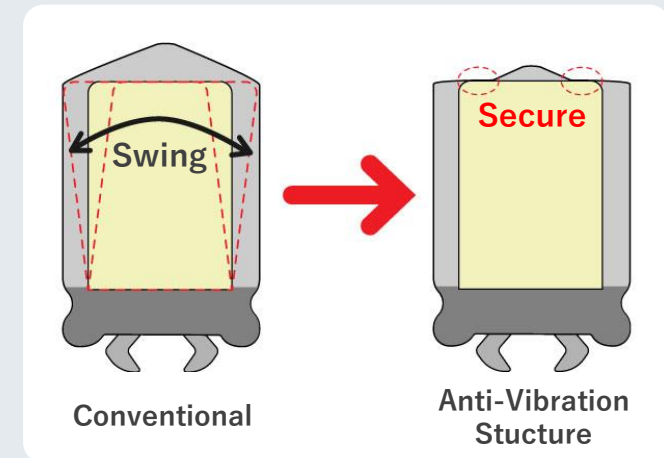
Similar item : [KVA series](#) [KVB series](#) [Module](#)

Point

Secure Element to the Aluminum Can! Vibration Resistant Structure for High Reliability

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*1 Our LXS Series



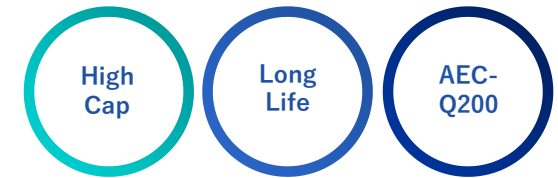
Anti-Vibration System

Aluminum Electrolytic Capacitors **KXQ** Series

《Function in Circuit》

Nippon Chemi-Con's KXQ series is a top-class high capacitance and long-life product that incorporates the latest foil technology. It is ideal for main circuit smoothing applications of OBCs. Compared with conventional products*¹, it is possible to reduce the number of pieces significantly. Nippon Chemi-Con can also design modules with KXQ to meet customer requirements.

*¹ Our KXJ Series



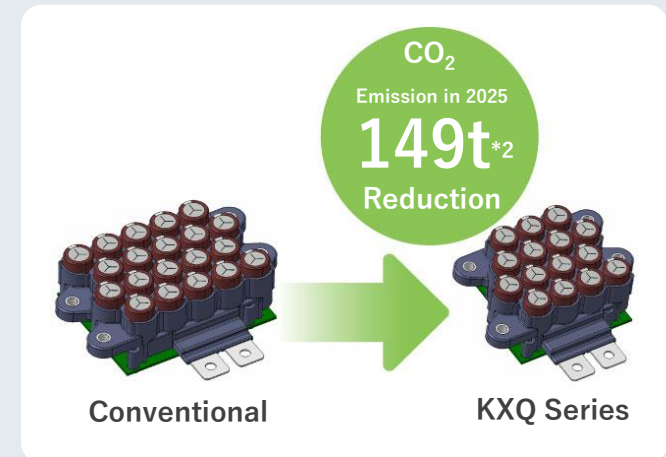
Similar item : [KXJ series](#) [Module](#)

Point

Example of CO₂ Emission Reduction by Weight Reduction of Capacitors

Aluminum electrolytic capacitors are used in OBCs installed in electric vehicles and plug-in hybrid vehicles. KXQ series uses a newly developed high gain foil to achieve 60% more capacitance than conventional series*¹. As a result, it is possible to reduce the units used from 20 to 15 pieces on board and reduce the weight by 69g on average per board. These reductions contribute to the improvement of electricity cost and CO₂ emission.

*¹ KXJ series. *² See 「Guidance on GHQ Emission Reduction Contribution Calculation of Electronics Components」 (JEITA, Y2016) In addition 1) The World Automobile Forecast by SMBC Nikko Securities Co., Ltd. Survey, 2) product weight difference in comparison with our conventional products, 3) Nippon Chemi-Con Share, 4) Annual Mileage by Ministry of Land, Infrastructure, Transport and Tourism.



KXQ can reduce CO₂ emission

On-Board Charger C-Module

《Function in Circuit》

Several aluminum electrolytic capacitors can be integrated in a capacitor module to save time in the design and manufacturing processes. We provide optimal solutions that meet the diverse needs of on-board equipment, such as solutions for the higher ripple current that affects factors of heat rise and the life of aluminum electrolytic capacitors.

Reduce
ProcessGood
DesignCustom-
Made

[Specifications]

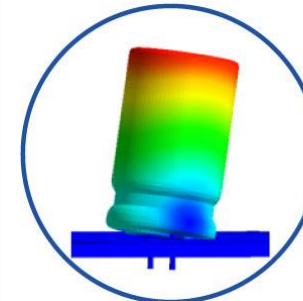
- Category temp range : -40~+105°C
- Rated voltage : 450V
- Capacitance : 2,160μF
- Item in module : EKXJ451ELL121MM45S

See More >

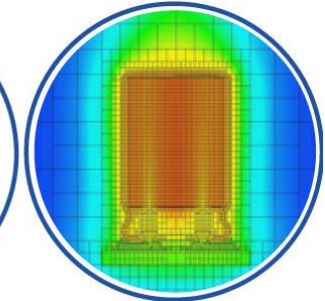
Point

Realization of Optimal Design Using CAE Analysis

For OBCs for xEVs, shortening charging time is one of the targets. Therefore, it is necessary to mount a large number of aluminum electrolytic capacitors for one application in order to support high voltage output. This causes various problems such as vibration resistance and heat generation. To solve these problems, Nippon Chemi-Con can offer high voltage output solutions through well-known electric component technologies and CAE analysis. At the same time, we can respond to diverse customer needs by considering all kinds of patterns, including structural (vibration) and thermal(heat rise) analysis, to select the optimal products.



Structural
Analysis



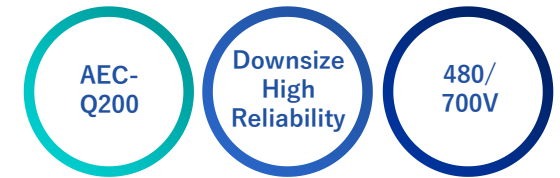
Thermal
Analysis

Example of Structural and Thermal Analysis

Common Mode Coil **FW** Series

《Function in Circuit》

The FW series is the most suitable common mode coil product for AC/DC noise filters in OBCs. An iron-based nanocrystalline alloy is used for the high magnetic permeability core ($31,000\mu$). This allows high inductance with a small number of turns. Reducing the turns has the benefit of suppressing stray capacitance and obtaining a high noise suppression effect over a wide frequency range. For AC applications, there are three categories: 1) single-phase, 2) three-phase, and three phase/four wires. For DC applications of 700Vdc or more, custom designs are available.





[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Voltage range : 250~700V
- Rated current : 7~39A
- Rated inductance : 1.0~11.5mH, 100kHz
- *1 Custom design is also available.
- Max DCR : 1.8~26 mΩmax

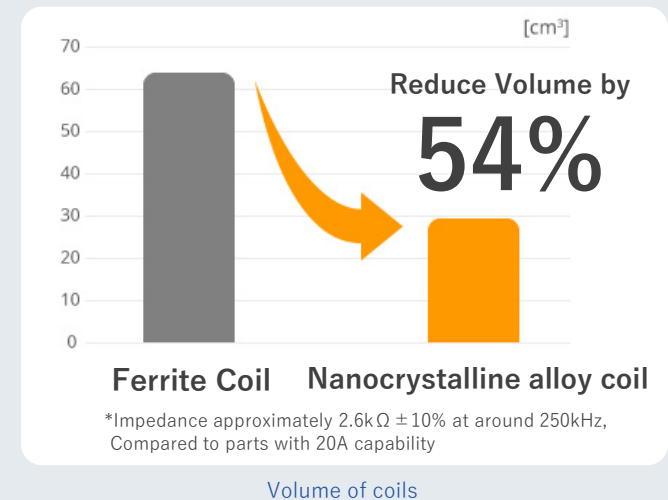
[See More >](#)

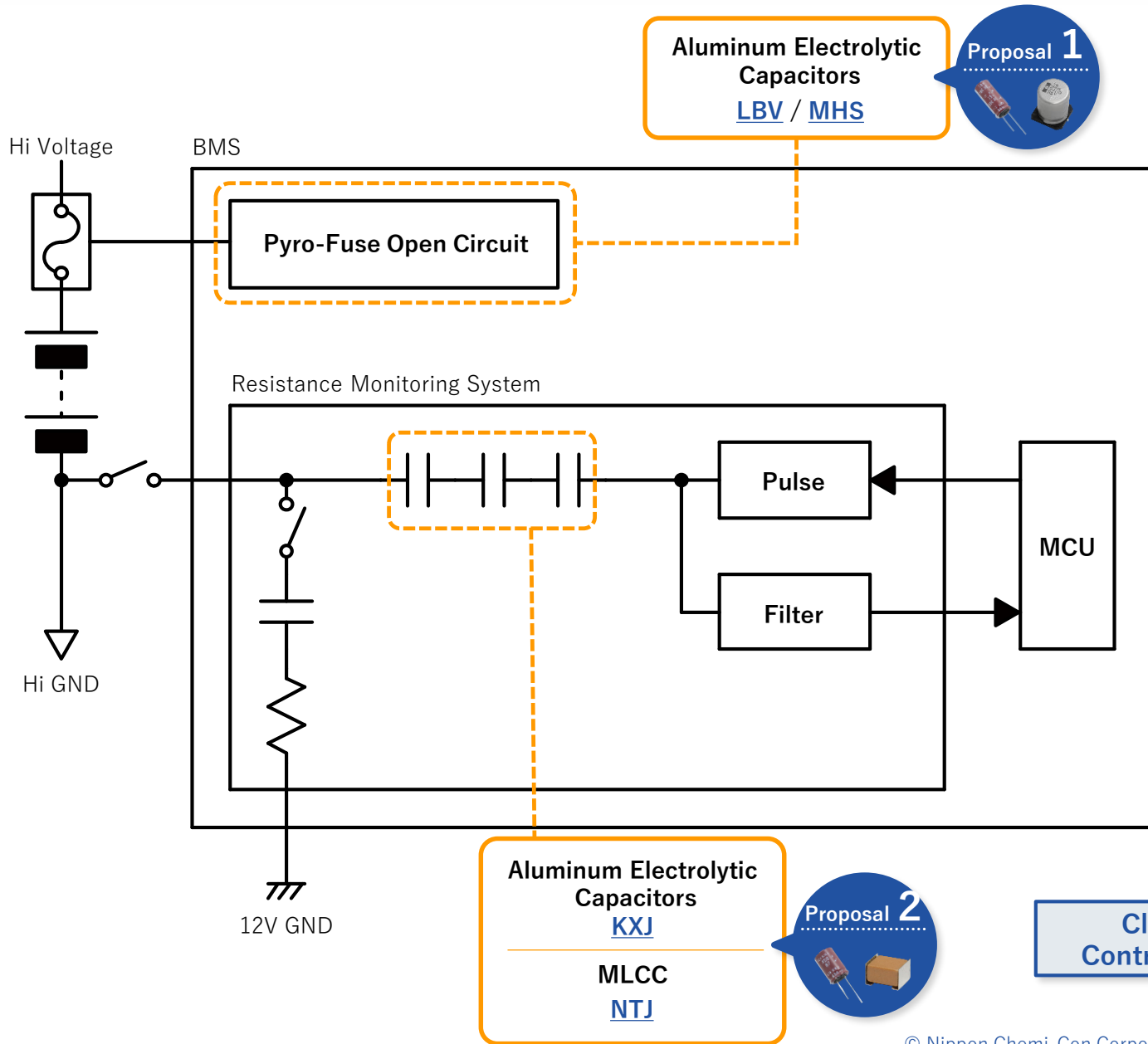
Similar item : [FL-V series](#) [FL series](#)

Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of $100,000\mu\text{H}$ at 10kHz and $31,000\mu\text{H}$ at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.





[Click for Control Circuit](#)

Aluminum Electrolytic Capacitors **LBV** Series

《Function in Circuit》

The LBV series has industry-leading high capacitance and incorporates our latest high gain foil technology, which makes it ideal for use in energy storage devices for the ignition of emergency battery shutdown devices in xEvs. Excellent performance at low temperatures ensures the safety and security of automobiles.



[Specifications]

- Style : Radial
- Category temp range : -55~+105°C
- Rated voltage : 25, 35V
- Cap tolerance : 0~+30%(A) / 20°C, 120Hz
- Endurance : 105°C / 5,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

Similar item : [LBG series](#) [Module](#)

Point

Excellent Storage Performance, Up to 30% Higher than Before*1

The LBV series incorporates Nippon Chemi-Con's newly developed high gain foil and achieves 30% more capacitance than conventional products*1. In addition, the LBV series shows better ESR at lower temperatures, even at -55°C. ESR behavior affects discharging characteristics. Therefore, it is necessary to maintain a stable and robust performance even at lower temperatures.

*1 Our LBG Series



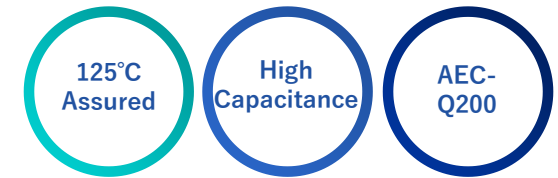
High capacitance reflects good storage characteristics

Aluminum Electrolytic Capacitors MHS Series

《Function in Circuit》

Nippon Chemi-Con's MHS series incorporates our latest high gain foil. It is the industry's top-class high-capacitance, high-temperature, and long-life product. The MHS series is suitable for storage devices for the ignition of emergency battery shut-down applications of xEVs. Based on our extensive experience in the airbag market, our products ensure safety and security. Additionally, compared with conventional products*¹, we upgraded the performance of the reflow soldering process with miniaturization. Moreover, the optional anti-vibration holder enables it to withstand 30G.

*¹ Our MVH Series



[Specifications]

- Style : SMD
- Category temp range : -40~+125°C
- Rated voltage : 16~100V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 5,000hrs
- Shelf life : 125°C / 1,000hrs

See More >

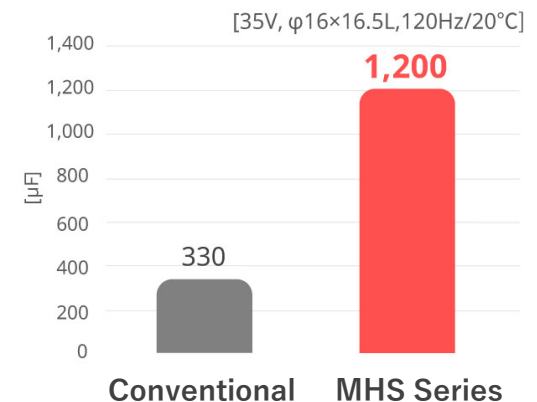
Similar item : [MZJ series](#)

Point

Achieved the Industry's Highest Capacitance Up to 3.8 Times More than Conventional Series

The MHS series uses thinner separator paper to increase the surface area and high gain foil while maintaining the same withstand voltage. These two raw materials make capacitance up to 3.8 times higher compared to conventional series*¹ and have achieved the industry's highest capacitance for a product with guaranteed long life at 125°C. In addition, it uses a high-performance electrolyte with excellent low temperature characteristics, low vapor pressure, and low evaporation at high temperatures. The newly developed sealing rubber suppresses the evaporation of the electrolyte at high temperatures. This has made it possible to meet both the 125°C long-life requirement and the high temperature reflow requirement.

*¹ Our MVH Series



Difference in capacitance

Aluminum Electrolytic Capacitors **KXJ** Series

《Function in Circuit》

The KXJ series has a long life at 105°C and a wide range of case sizes, which makes the KXJ series an ideal product for coupling capacitors of battery management systems (BMS). KXJ is also suitable for xEVs' supplemental applications such as OBCs and on-board electric outlets.



[Specifications]

- Style : Radial
- Cat temp range : -40~+105°C (160~450V)
- Rated voltage : 160~500V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 10,000~12,000hrs (160~450V)
- Shelf life : 105°C / 1,000hrs

See More >

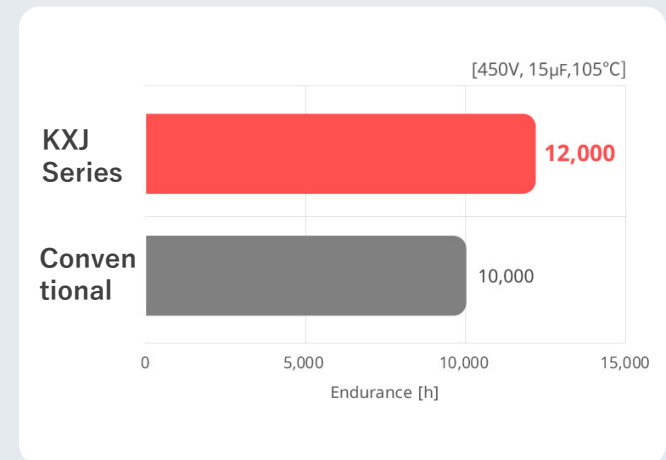
Similar item : [GXF series](#)

Point

Achieve Long Life of 12,000 Hours at 105°C and Also Possible to Place Horizontally

By adopting a newly developed high gain foil, the KXJ series has been reduced 20% or more in size compared to conventional products*1. The newly developed low-resistance, electrically-stable electrolyte extends the life to 12,000 hours at 105°C. The other good point is the lineup of up to 50mm maximum length products. Customers are able to place aluminum capacitors horizontally on the PCB to realize lower profile products.

*1 Our KXG Series

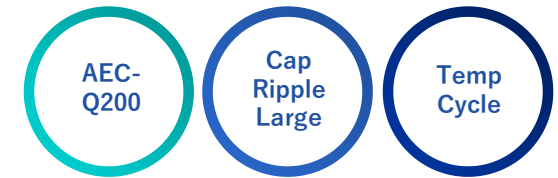


Difference in capacitance

MLCC NTJ Series

《Function in Circuit》

Nippon Chemi-Con's MLCCs are targeted toward power electronics and especially contribute to the miniaturization, weight reduction, higher reliability, and higher current capability of power converters and inverters for electric mobility in the CASE era. The NTJ series is especially suitable for rectifiers in high-current, high-voltage main circuit inverter and noise suppression applications.




[Specifications]

- Style : Metal Cap
- Category temp range : -55~+125°C
- Voltage range : 25~250V
- Cap tolerance : -20~+20%(M) / 25°C
- Endurance : 125°C / 1,000hrs

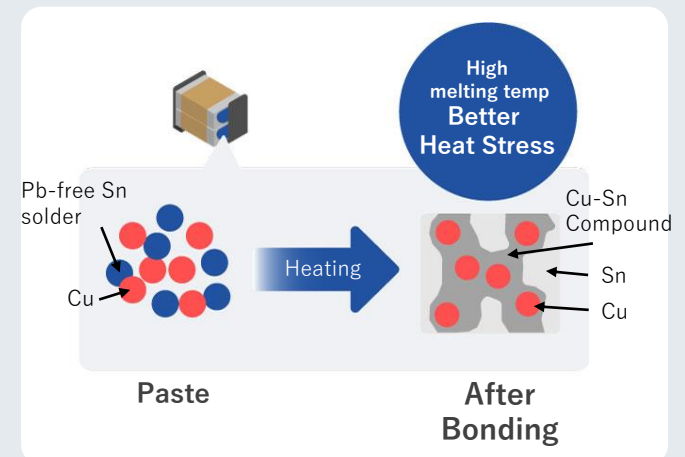
See More > 

Similar item : [KVJ series](#)

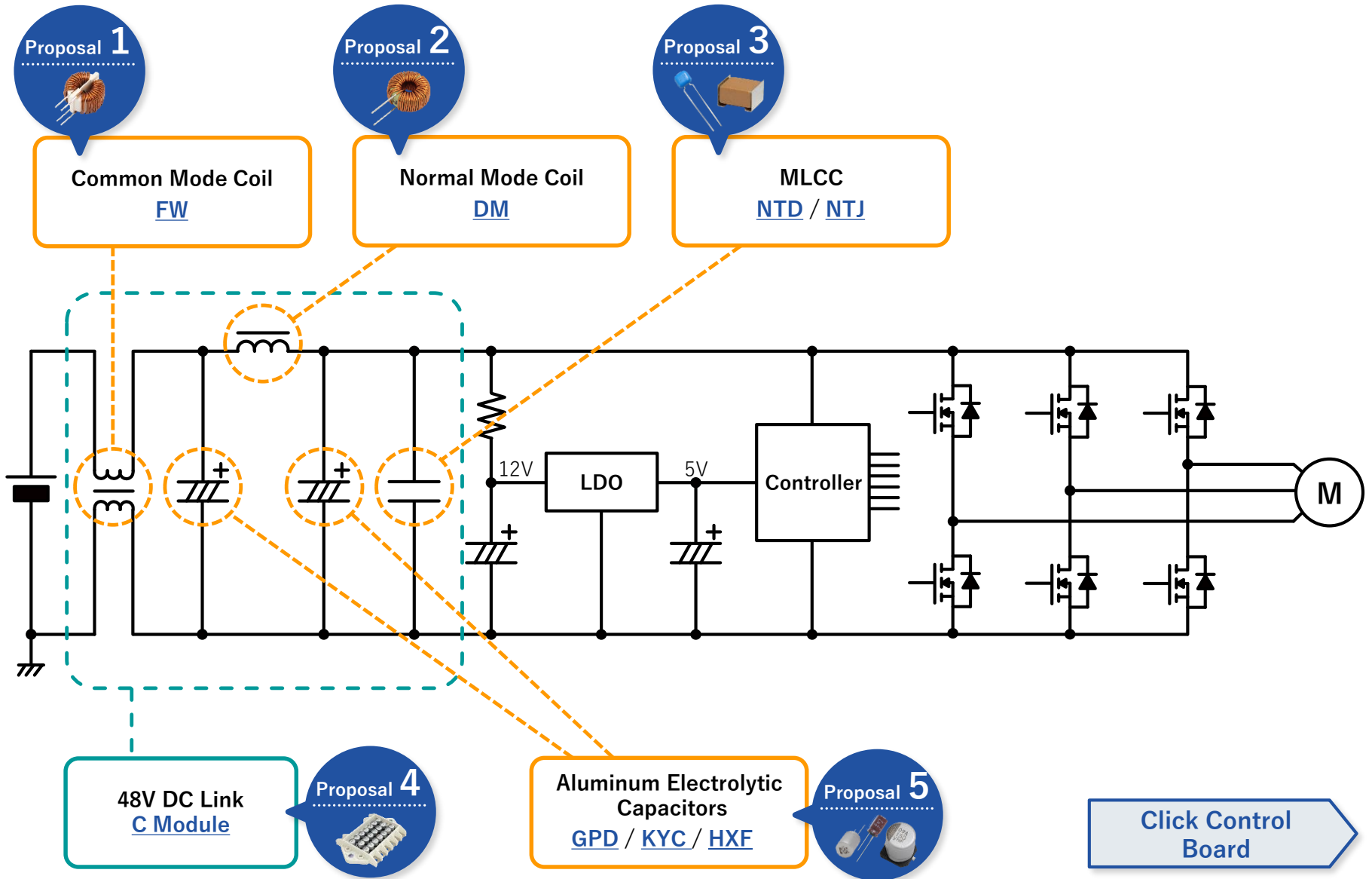
Point

Ideal for Output Filtering Because of Larger Capacitance and Lower ESR

The metal-capped NTJ series maximizes the technical strengths of large MLCCs. As shown in the image, two MLCCs are packed into a small space. This technique achieves larger capacitance, lower ESR, and higher current capability. The metal cap also reduces mechanical stress such as PCB warpage and heat shrink, which reduces cracking as a result. The metal cap and MLCC itself are mechanically and electrically connected with Nippon Chemi-Con's proprietary solder which also prevents desoldering during customers' reflow soldering process. The NTJ series is AEC-Q200 compliant and has a proven track record in many automotive applications.



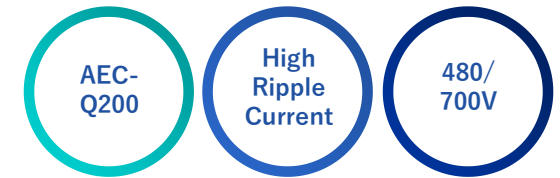
Pb free high heat solder method



Common Mode Coil **FW** Series

《Function in Circuit》

The FW series is the most suitable common mode coil product for AC/DC noise filters in OBCs. An iron-based nanocrystalline alloy is used for the high magnetic permeability core (31,000 μ). This allows high inductance with a small number of turns. Reducing the turns has the benefit of suppressing stray capacitance and obtaining a high noise suppression effect over a wide frequency range. For AC applications, there are three categories: 1) single-phase, 2) three-phase, and three phase/four wires. For DC applications of 700Vdc or more, custom designs are available.




[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Rated voltage : 250~700V
- Rated current : 7~39A
- Rated inductance : 1.0~11.5mH, 100kHz
- *1 Custom design is also available.
- Max DCR : 1.8~26 m Ω max

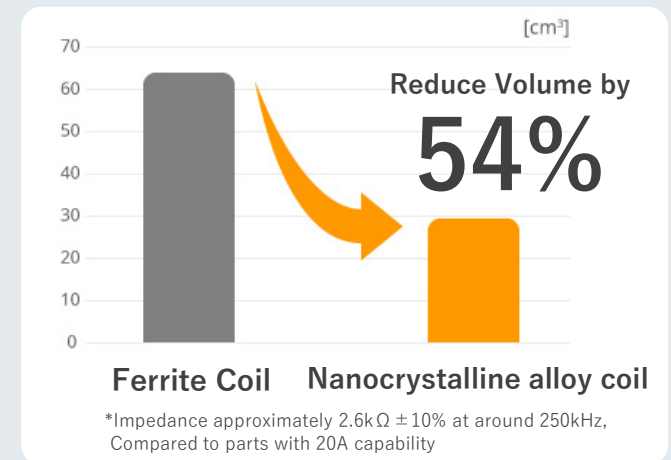
See More > 

Similar item : [FL-V series](#) [FL series](#)

Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of 100,000 μ H at 10kHz and 31,000 μ H at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.

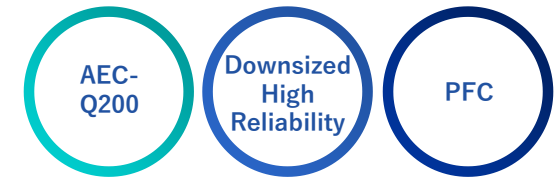


Volume of coils

Normal Mode Coil **DM Series**

《Function in Circuit》

DM series is the most suitable product as a step-up/down coil in DC/DC Converters of micromobility and PFC circuits. The highflux core with high magnetic density and low core loss is used to achieve high efficiency. In addition, the toroidal dust core has a gap structure, so the magnetic flux leakage is smaller and the impact on adjacent parts can be minimized. This enables high-density mounting. The higher Curie Temperature of the material provides stable characteristics even in high temperature conditions for in-vehicle applications.




[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Rated current : 2~20A
- Rated inductance : 6~950μH, 100kHz
- *1 Custom-made items are available
- DCR : 6~260 mΩmax

See More > 

Point

Adoption of HIGHFLUX; High Magnetic Flux Density and Low Core Loss

The DM series is a toroidal coil that uses an alloy dust core. There are three types of core materials: 1) HIGHFLUX with high magnetic flux density and low core loss 2) SENDUST with the second highest magnetic permeability next to Highflux, 3) MEGAFLUX*¹ with high magnetic flux density. Highflux in particular contributes to miniaturizing PCBs by taking advantage of its high performance. Highflux has three types of permeability. Three core selections make it easy to create custom-made items. In other words, a wide range of core sizes and designs make it possible to customize products to meet ripple current and switching frequency requirements

*¹ Megaflux cores are custom-made. If needed, please visit our website and contact us to request one.



DM series enables high performance in limited space

MLCC NTD Series

《Function in Circuit》

Nippon Chemi-Con's MLCCs are targeted toward power electronics and especially contribute to the miniaturization, weight reduction, higher reliability, and higher current capability of power converters and inverters for electric mobility in the CASE era. The latest series, NTD, is ideal for low-profile and light-weight applications such as rectifiers and for noise reduction of inverters for 48V micromobility and motorcycle applications.

Downsized
High Cap

High
Current

High
Reliability



[Specifications]

- Style : Radial
- Category temp range : -55~+125°C
- Voltage range : 25~500V
- Cap tolerance : -20~+20%(M) / 25°C
- Endurance : 125°C / 1,000hrs

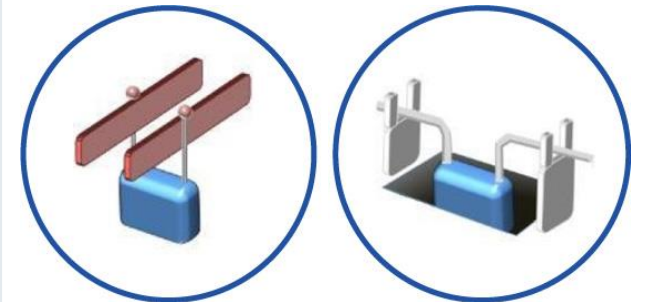
See More >

Similar item : [KVD series](#)

Point

Easier to install; We Offer Customized Lead Wire Configurations

The NTD series is suitable for noise reduction for motors, snubber circuits, and power supplies for ECUs because of its lower ESR, larger capacitance, and non-polarized structure. The radial configuration is customized for the direct connection of a mechanical and electrical integrated motor. The lead wire type of MLCC is less sensitive to stress from the PCB, plus shows better heat stress cycles. Also, it is possible to customize the plating metals and configuration of the lead wires to accommodate customers' welding processes. As a result, the NTD series has been used in a number of automotive applications.

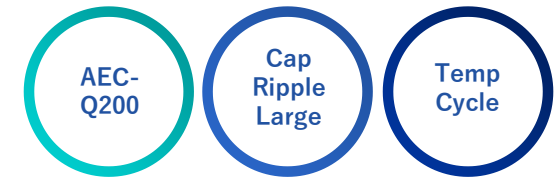


Example of custom-made lead configuration

MLCC NTJ Series

《Function in Circuit》

Nippon Chemi-Con's MLCCs are targeted toward power electronics and especially contribute to the miniaturization, weight reduction, higher reliability, and higher current capability of power converters and inverters for electric mobility in the CASE era. Especially the NTJ series is designed for rectifiers of inverters that require high current and high voltage, and light-weight and low-profile noise reduction applications.




[Specifications]

- Style : Metal Cap
- Category temp range : -55~+125°C
- Voltage range : 25~250V
- Cap tolerance : -20~+20%(M) / 25°C
- Endurance : 125°C / 1,000hrs

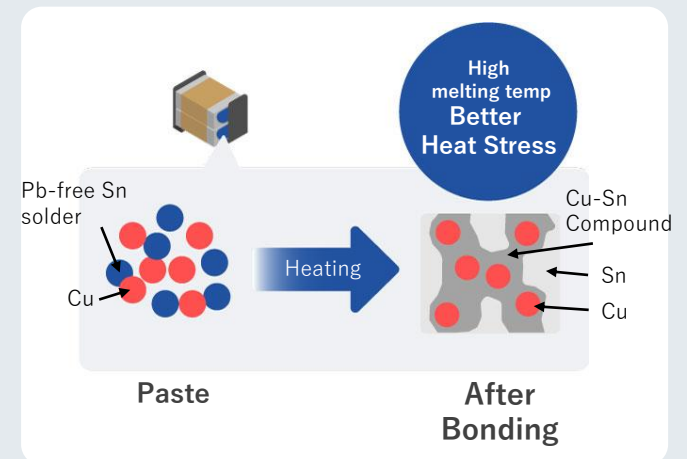
See More > 

Similar item : [KVJ series](#)

Point

Ideal for Output Filtering Because of Larger Capacitance and Lower ESR

The metal-capped NTJ series maximizes the technical strengths of large MLCCs. As shown in the image, two MLCCs are packed into a small space. This technique achieves larger capacitance, lower ESR, and higher current capability. The metal cap also reduces mechanical stress such as PCB warpage and heat shrink, which reduces cracking as a result. The metal cap and MLCC itself are mechanically and electrically connected with Nippon Chemi-Con's proprietary solder which also prevents desoldering during customers' reflow soldering process. The NTJ series is AEC-Q200 compliant and has a proven track record in many automotive applications.

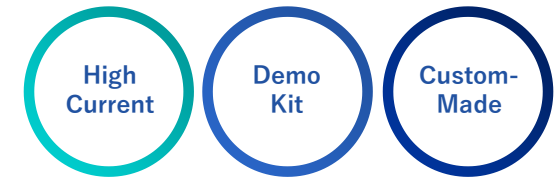


Special Pb-free high heat solder method

C-Module for 48V DC Link

《Function in Circuit》

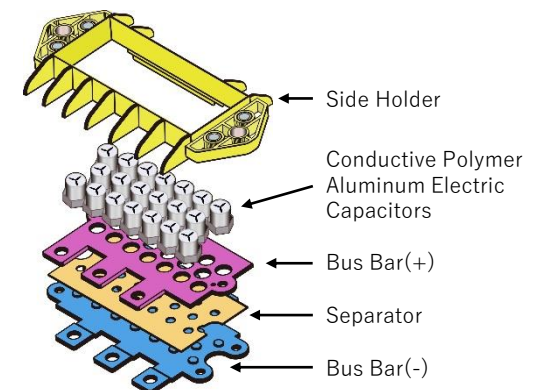
Nippon Chemi-Con offers C modules for 48V DC Link, which are installed in ISG and BSG of mild HVs 4-wheel vehicles, miniaturized electric mobility vehicles, and EV scooters and motorcycles. We are ready to submit evaluation boards for quick initial evaluation.



Point

Bus Bar Provides Huge Current Capability and Heat Dissipation

Recently the market, especially the European Market, has started to study 48V systems, which require capacitors to withstand more current than previously, especially in rectifiers of motor drivers. It is costly to place several pieces of aluminum electrolytic capacitors on board to meet high current needs. Nippon Chemi-Con proposes that 20 pieces of hybrid capacitors are directly mounted on a bus bar structure which maximizes the effective cross-sectional area. In addition, placing a heat conductive sheet directly on the bottom of the bus bar assists heat dissipation more effectively. Consequently, customers have benefits like maximizing permissible current and minimizing the pieces (miniaturization) .

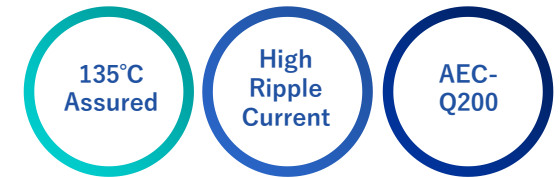


Configuration of DC module for 48V DC link

Aluminum Electrolytic Capacitors **GPD Series**

《Function in Circuit》

The GPD Series is the best fit for rectifiers of inverters, applications for mild hybrid vehicles, and micromobility as it is the industry's first product introduced with high temperature and high ripple current characteristics. In addition, we guarantee the GPD series at 150°C for short-time use and its robustness has been upgraded to withstand huge transient current in motors. The coated case of the GPD series will help ensure your automotive products are useable under harsh conditions. We also offer modules in which GPD series parts are placed horizontally in a plastic holder on the PCB. GPD series products will meet customer's expectations for a variety of markets.





[Specifications]

- Style : Radial
- Category temp range : -40~+135°C
- Rated voltage : 25~100V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 3,000hrs (25~50V)
135°C / 2,000hrs (63~100V)
125°C / 3,000hrs
- Shelf life : 125°C / 1,000hrs

[See More >](#)

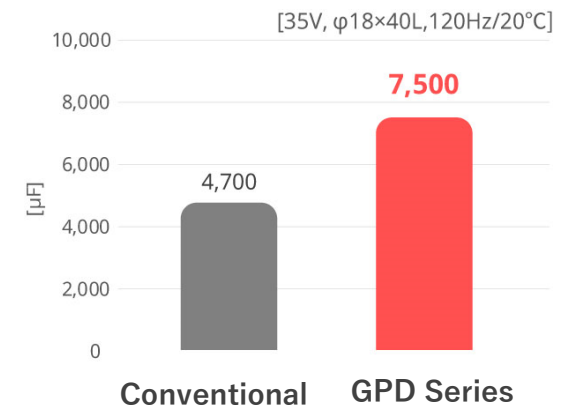
Similar item : [GXF series](#) [GVD series](#) [Module](#)

Point

Introduction of In-House Developed High Gain Foil; 30% to 40% Higher Capacitance than Before

GPD series products are capable of withstanding temperatures of 135°C. The key raw materials, developed by Nippon Chemi-Con, are the wide-temperature range (-40°C to 135°C) stable electrolyte and highly-durable rubber seal. These two materials make the GPD series capable of 30% to 60% higher ripple current than conventional series*1. The new electrolyte especially contributes to maintaining high ripple current in 63V to 100V products while showing 30% to 40% lower ESR than conventional products.

*1 Our GPA Series



Difference in capacitance

Aluminum Electrolytic Capacitors **KYC Series**

《Function in Circuit》

The KYC series is a product that introduces Chemi-Con's original technology to make it the industry's leading high capacitance and high ripple current product at 105°C. It is especially suitable for idling stop inverters and traction control inverters equipped in motorcycles. In emerging markets, electrification of motorcycles and other 2-wheel devices is expanding rapidly, and we have prepared several ratings (voltage and capacitance) to match the battery voltage.





[Specifications]

- Style : Radial
- Category temp range : -40~+105°C
- Rated voltage : 16~50V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 3,000~5,000hrs
- Shelf life : 105°C / 500hrs

See More >

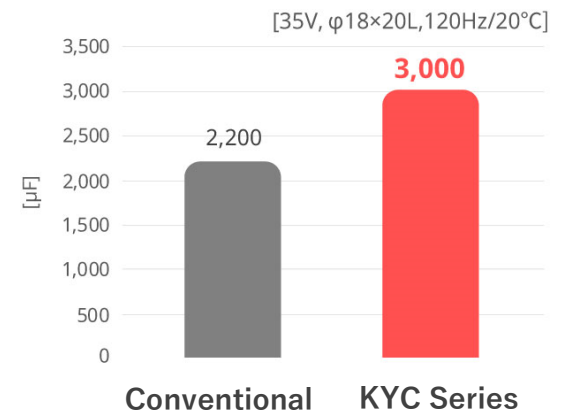
Similar item : [KYB series](#) [KZN series](#) [Module](#)

Point

For Small Equipment, Upgraded to Higher Capacitance and Higher Ripple Current

The KYC series uses high gain foil and high-reliability, stable electrolyte. The capacitance is 2 times more and the ripple current capability is 1.3 times more compared to conventional products*1.

*1 Our KY Series



Comparison in capacitance

Aluminum Electrolytic Capacitors HXF Series

《Function in Circuit》

Inverter drivers for micro-inverters have to withstand two risks: one is exposure to heat stress from motors and the other is huge current. We recommend the HXF series for these applications. In other words, HXF series is the best fit for drivers of inverter circuits for micromobilities. We can offer 80Arms ripple current capacitor modules. This module is 252g*² lighter than conventional ones*¹.

*¹ difference from GPD series in volume

*² Weight ratio to an aluminum capacitor mounted module



[Specifications]

- Style : SMD
- Category temp range : -55~+135°C
- Rated voltage : 25~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 4,000hrs
125°C / 4,000hrs
- Shelf life : 135°C / 1,000hrs

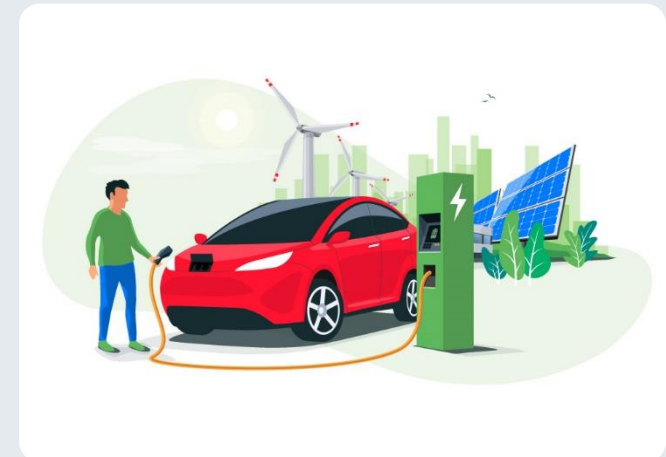
See More >

Similar item : [HXE series](#) [HXJ series](#) [HXU series](#)

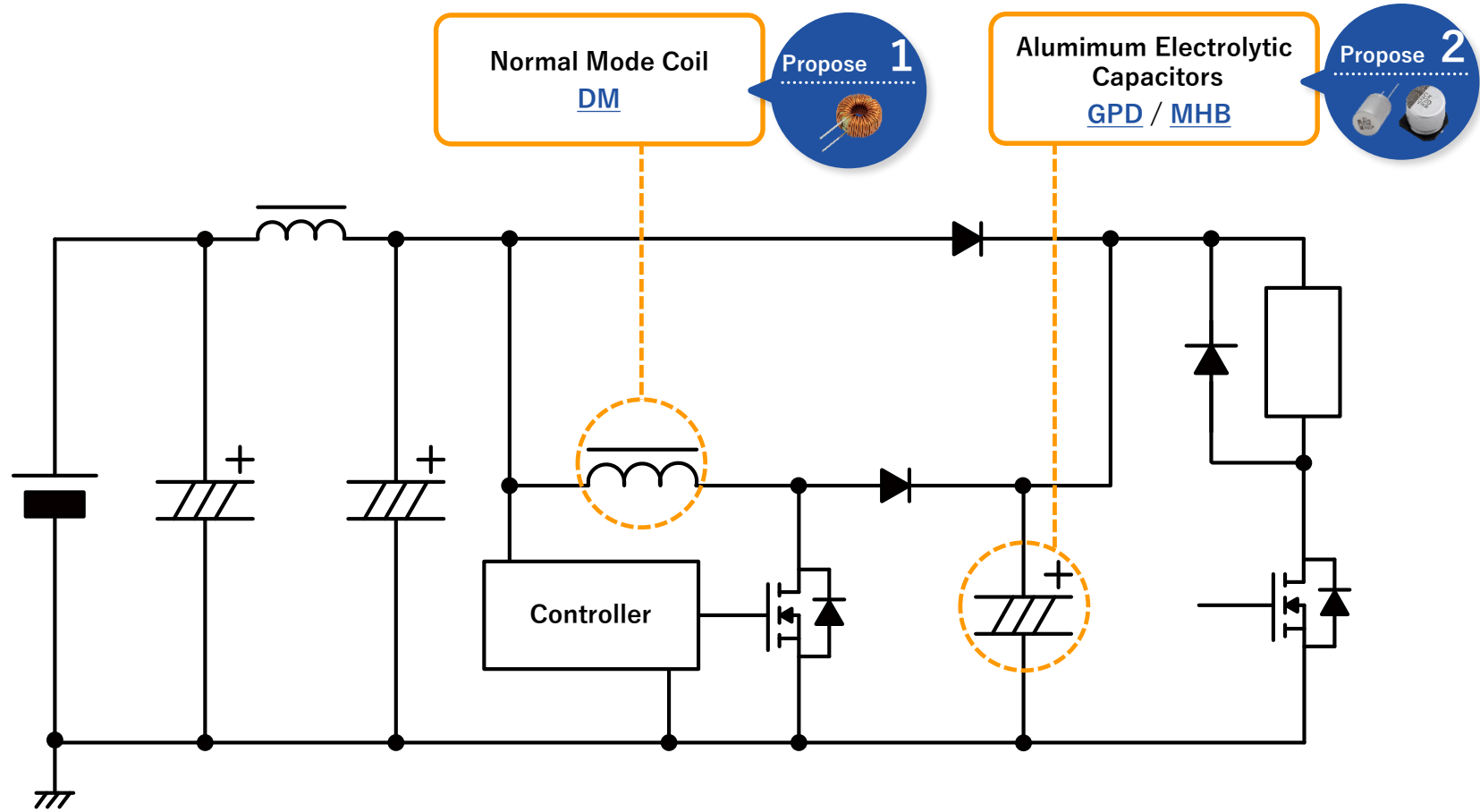
Point

Maximizing the Effect of Carbon Neutrality of Electric Mobility

The HXF Series is a hybrid capacitor whose electrolyte has two materials: conductive polymer and electrolyte. The HXF series is the best in terms of input and output current capability because of the optimum combination of electrolyte and rubber sealing material. As a result, the HXF series is 30% smaller than the previous series, HXE. This miniaturization contributes to achieving the target of carbon neutrality of electric mobilities by minimizing size and weight. We expect the HXF series to be increasingly used in micro and e-mobility devices such as electric motorcycles and in last mile logistics and delivery applications. An anti-vibration holder is optional and can withstand up to 30G.



Environmentally-friendly Electric Mobility *Image picture

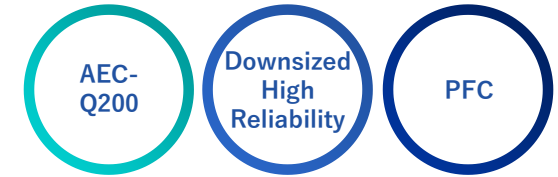


Click for
Control Circuit

Normal Mode Coil **DM** Series

《Function in Circuit》

The DM series is most suitable product as a step-up coil in the power supply of direct injector ECU. The highflux core with high magnetic density and low core loss is used to achieve high efficiency. In addition, the toroidal dust core has a gap structure, so the magnetic flux leakage is smaller and the impact on adjacent parts can be minimized. This enables high-density mounting. The higher Curie Temperature of the material provides stable characteristics even in high temperature conditions for in-vehicle applications.




[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Rated current : 2~20A
- Rated inductance : 6~950μH, 100kHz
- *1 Custom-made items are available
- DCR : 6~260 mΩmax

See More > 

Point

Adoption of HIGHFLUX; High Magnetic Flux Density and Low Core Loss

The DM series is a toroidal coil that uses an alloy dust core. There are three types of core materials: 1) HIGHFLUX with high magnetic flux density and low core loss 2) SENDUST with the second highest magnetic permeability next to Highflux, 3) MEGAFLUX*¹ with high magnetic flux density. Highflux in particular contributes to miniaturizing PCBs by taking advantage of its high performance. Highflux has three types of permeability. Three core selections make it easy to create custom-made items. In other words, a wide range of core sizes and designs make it possible to customize products to meet ripple current and switching frequency requirements

*1 Megaflux cores are custom-made. If needed, please visit our website and contact us to request one.

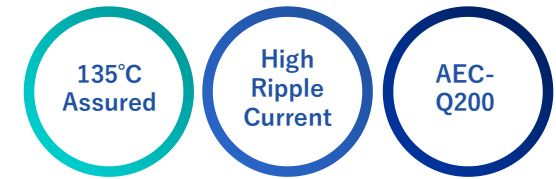


DM series enables high performance in limited space

Aluminum Electrolytic Capacitors **GPD Series**

《Function in Circuit》

The GPD Series is the best fit for rectifiers of power supply applications in direct injection ECUs as it is the industry's first product introduced with high temperature and high ripple current characteristics. In addition, we guarantee the GPD series at 150°C for short-time use and its robustness has been upgraded to withstand huge transient current in motors. The coated case of the GPD series will help ensure your automotive products are useable under harsh conditions. We also offer modules in which GPD series parts are placed horizontally in a plastic holder on the PCB. GPD series products will meet customers' expectations for a variety of markets.





[Specifications]

- Style : Radial
- Category temp range : -40~+135°C
- Rated voltage : 25~100V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 3,000hrs (25~50V)
135°C / 2,000hrs (63~100V)
125°C / 3,000hrs
- Shelf life : 125°C / 1,000hrs

[See More >](#)

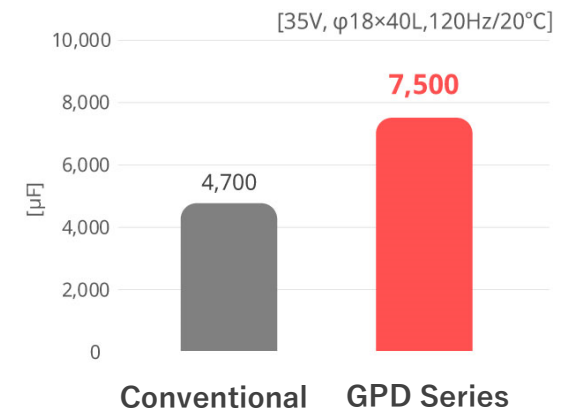
Similar item : [GXF series](#) [GVD series](#) [Module](#)

Point

Introduction of In-House Developed High Gain Foil; 30% to 40% Higher Capacitance than Before

GPD series products are capable of withstanding temperatures of 135°C. The key raw materials, developed by Nippon Chemi-Con, are the wide temperature range (-40°C to 135°C) stable electrolyte and highly durable rubber seal. These two materials make the GPD series capable of 30% to 60% higher ripple current than conventional series*1. The new electrolyte especially contributes to maintaining high ripple current in 63V to 100V products while showing 30% to 40% lower ESR than conventional products.

*1 Our GPA Series



Difference in capacitance

Aluminum Electrolytic Capacitors **MHB Series**

《Function in Circuit》

The MHB series has realized high heat resistance and high ripple current by introducing superior materials. The ESR of the MHB series is also specified after endurance testing, making this product good for power supplies of ECUs for direct injection engines. The MHB series is one of our SMD items, so it is compatible with reflow soldering for process optimization. An optional anti-vibration holder is available, which can withstand 30G. Please note that a higher capacitance series is also available: the MHS series. Please also visit the MHS page.

125°C
Assured

ESR at
End of Life

AEC-
Q200



[Specifications]

- Style : SMD
- Category temp range : -40~+125°C
- Rated voltage : 10~100V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 1,500~3,000hrs
- Shelf life : 125°C / 1,000hrs

See More >

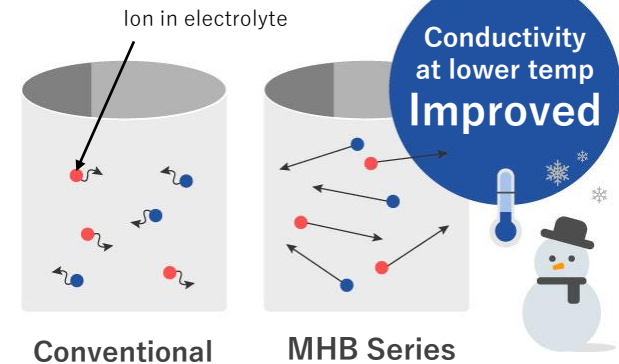
Similar item : [MHS series](#)

Point

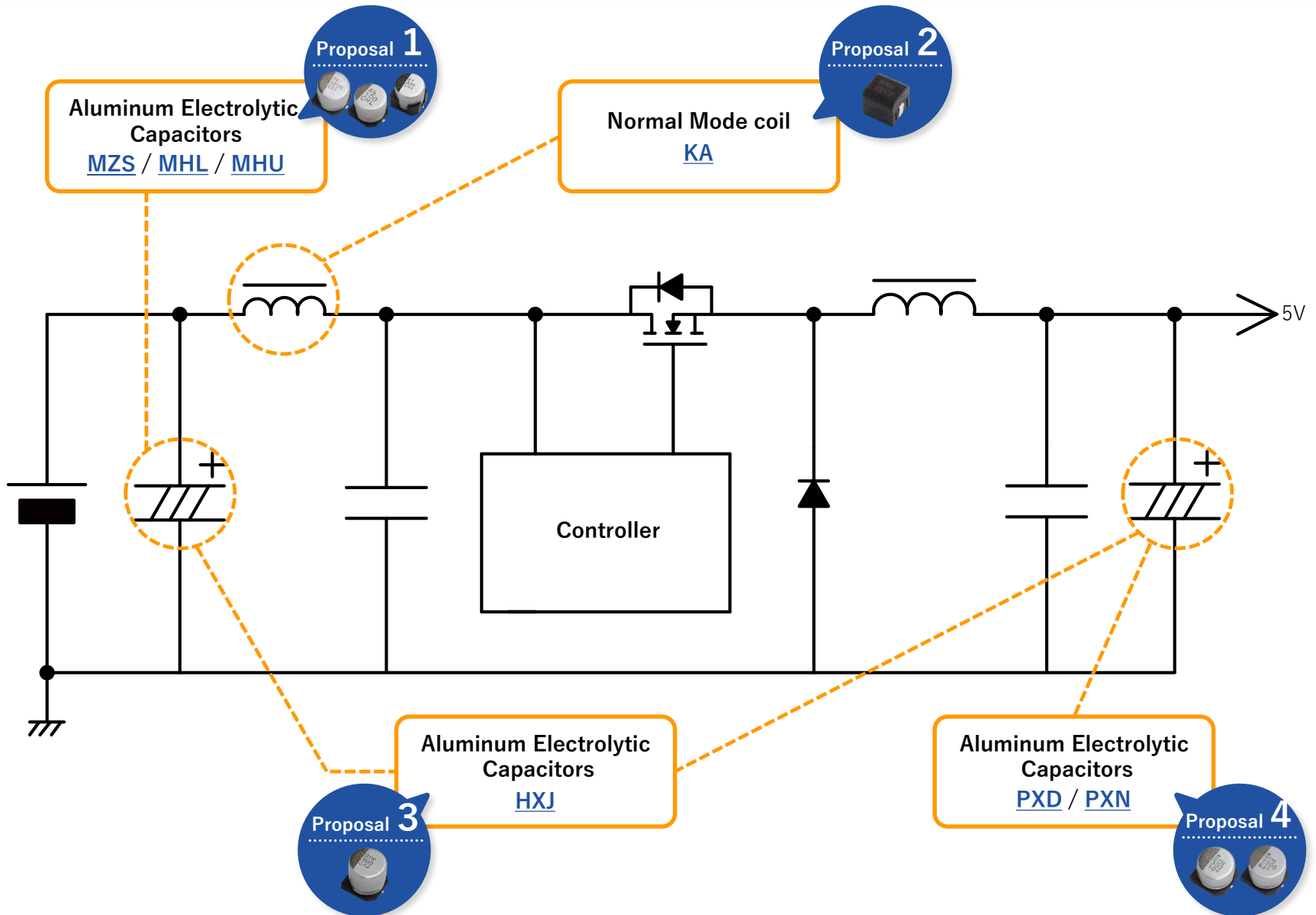
ESR at -40°C is Specified! Shows Better Conductivity at -40°C

The automotive electronics market requires electrically well-performing devices at a variety of temperatures, especially in low temperatures, due to varied driving conditions. The MHB series introduces a new type of electrolyte, which only shows a small change when compared between lower temperatures and ordinary room temperature. Technically speaking, ions move slowly at lower temperatures. However, the electrolyte for the MHB series is very activate even at low temperatures; at -40°C, the ESR stays low and the conductivity is better than the previous electrolyte. This electrolyte shows good performance at higher temperatures also. This has doubled the life compared to conventional products*1.

*1 Our MVH Series



Electrolyte behaviour at lower temperature (Image)



Aluminum Electrolytic Capacitors **MZS Series**

《Function in Circuit》

The MZS series uses superior raw materials to provide high capacitance and low ESR. It is ideal for areas which need more capacitance against an instantaneous power loss due to more advanced functionality and larger power consumption. The large capacitance products contribute to reducing the pieces and area occupied on the PCB. The optional anti-vibration holder enables the vibration resistance to reach 30G.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 25, 35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 2,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

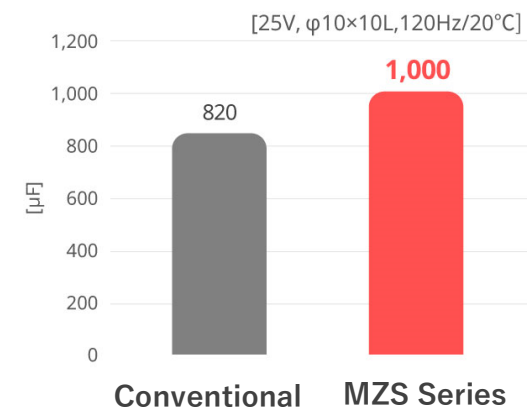
Similar item : [MZR series](#) [MZA series](#)

Point

Uses High Gain Foil, Up to 40% More Capacitance than Conventional Products*1

The MZS series uses high gain foil which makes the capacitance 40% more than conventional products*1. Innovative technology is required to maintain automotive standards. Nippon Chemi-Con is able to overcome this difficulty because it is a vertically integrated company; we develop and manufacture raw materials, especially foil and production machines, ourselves. This allows us to introduce new technologies and continuously develop new markets. The MZS series provides benefits to our customers such as a lower profile and highly efficient reflow soldering. The MZS series works in countermeasures against instantaneous power loss; graphic applications such as car navigations, car audio sets and instrument panels; and in supplemental power supplies.

*1 Our MZR Series

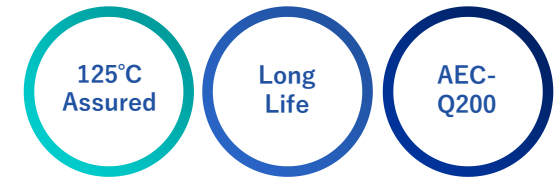


Difference in Capacitance

Aluminum Electrolytic Capacitors **MHL Series**

《Function in Circuit》

The MHL series has realized high heat resistance and super-long life by using superior rubber seal materials. These two features make MHL suitable for power supplies of several types of ECUs. We have developed this highly durable material to address the issue of rising internal temperature due to extended-life vehicle designs, deterioration of the installation environment, and increased heat generation in semiconductors. An optional anti-vibration holder is available and reaches vibration resistance of 30G.



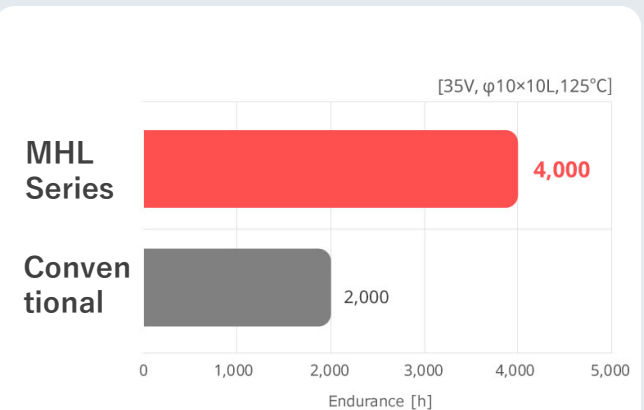
Similar item : [MVH series](#) [MHB series](#) [MHK series](#)

Point

Reached Industry Highest Level of Durability 4,000 Hours at 125°C

By precisely controlling the amount of electrolyte, the MHL series has achieved approximately twice the life of conventional products*¹ as well as reduced ESR and size. The combination of our original durable electrolyte and the precise production process can extend the to life 4,000 hours at 125°C, even with a rubber seal structure.

*¹ Our MVH Series

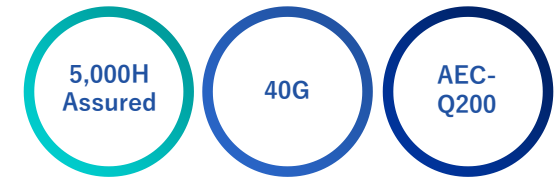


Difference in Capacitance

Aluminum Electrolytic Capacitors MHU Series

《Function in Circuit》

The MHU series is designed with an original sealing structure that achieves a dramatically longer life, an outstanding vibration resistance of 40G, and higher temperature reflow soldering resistance. The rubber seal, which is considered a weak point of aluminum electrolytic capacitors, has been modified and enhanced to achieve automotive grade quality. The MHU series' outstanding endurance characteristics makes integrated ECUs and ADAS function smoothly. The original anti-vibration holder is can be changed to a standard cover.



[Specifications]

- Style : SMD
- Category temp range : -40~+125°C
- Rated voltage : 35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 5,000hrs
- Shelf life : 125°C / 1,000hrs

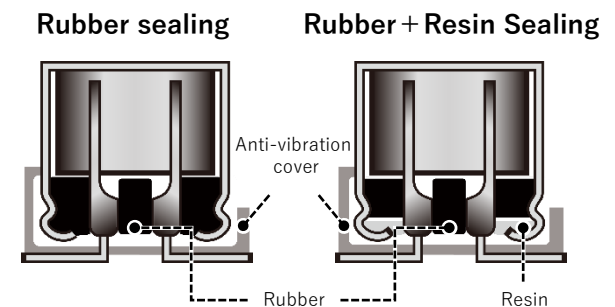
See More >

Similar item : [MHL series](#)

Point

Leading Edge Technology

The MHU series features the industry's first "Two-Way Sealing Structure (Ultimate Structure™)", which combines two sealing methods, rubber and resin, to dramatically improve airtightness. **Ultimate Structure™** makes it possible to suppress 40% of the evaporation of electrolyte compared to conventional products. As a result, the MHU series achieves an extended life of 2.5 times longer than conventional products*1, and is guaranteed for 5,000 hours at 125°C. In addition, the combination of the anti-vibration cover and **Ultimate Structure™** gives it 40G vibration resistance. In summary, **Ultimate Structure™** is Nippon Chemi-Con's proposed new SMD platform for the automotive market. The first generation has two models: MHU aluminum electrolytic capacitors and HXU hybrid capacitors. *1 Our MVH Series



Sealing method (Cross-section)

Normal Mode Coil KA Series

《Function in Circuit》

The KA series is an SMD type of normal mode coil and is ideal for noise reduction applications in DC/DC converters of ECUs. The non-wound type of iron-based amorphous core (one copper wire penetrates two cores) has the advantage of lower DCR and is very stable under high temperature conditions. In addition, it is robust against vibration and useable at 150°C. We offer three types of core permeability.



[Specifications]

- Style : SMD
- Category temp range : -40~+150°C
- Rated voltage : 10~50V
- Rated inductance : 0.3~0.53μH, 20kHz
- *1 Custom,-made products are also Available.
- DCR : 0.78 mΩmax

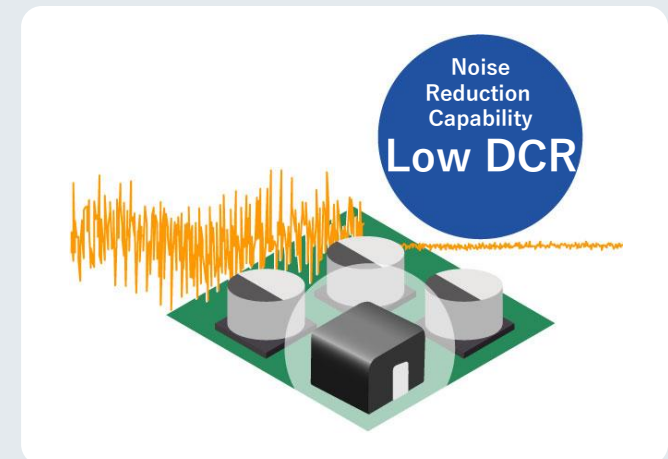
See More >

Similar item : [SM series](#)

Point

SMD Type Needs Less Area on PCB

The KA series is an SMD style of normal mode choke coil. Unlike other wound coil products, a thicker copper wire penetrates the iron-based (highly-saturated magnetic flux density) amorphous cores to ensure coil performance. These cores are processed through heat treatment, which makes it possible for the KA series to maintain high inductance even at high currents. This amorphous material has a high Curie Temperature, which means it maintains stable characteristics even at high temperatures. We utilize high-heat compatible resin for the exterior to ensure the KA series is useable at 150°C. Inductance can be set by optimizing the permeability according to the current used, which makes it possible to customize KA products.

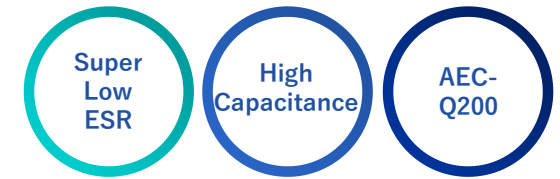


KA series is best for noise reduction

Aluminum Electrolytic Capacitors **HXJ** Series

《Function in Circuit》

The HXJ series is ideal for rectifier and noise reduction functions in various types of ECUs and DC/DC converters due to its super low ESR and high temperature characteristics. Moreover, the HXJ series has another feature, high capacitance technology, that contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 16~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 4,000hrs

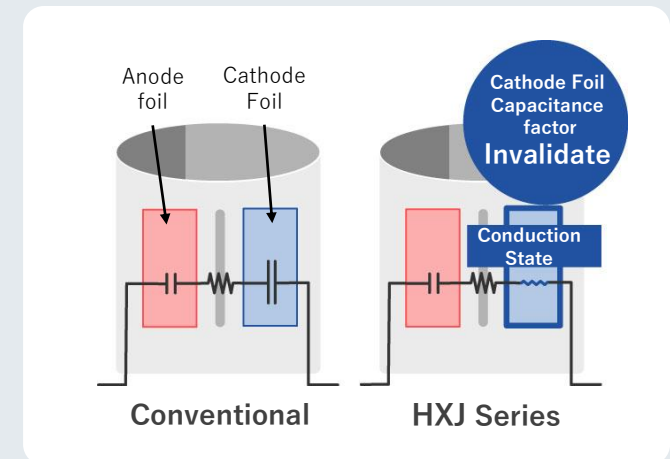
See More >

Similar item : [HXC series](#) [HXE series](#) [HXF series](#)

Point

New Type of Cathode Foil Enhances Values of High Gain Anode Foil

Nippon Chemi-Con has utilized advanced and innovative technology to create the new HXJ series. The capacitance of an aluminum electrolytic capacitor depends upon the combined capacitance of the anode and cathode foils. It is difficult to induce more capacitance even when the cathode foil shows high capacitance. However, newly established advanced technology can make the cathode foil extremely close to zero resistivity. In other words, the capacitance no longer depends upon the capacitance of the cathode foil but only on the genuine capacitance of the anode foil. As a result, the HXJ series achieves 20% to 40% greater capacitance than that of the previous series, HXC.



Difference in cathode foil (inside capacitance)

Aluminum Electrolytic Capacitors PXD Series

《Function in Circuit》

The PXD series uses our original conductive polymer technology, which features state of the art super low ESR and long life. It is most suitable for rectifiers of DC/DC converters and decoupling of semiconductors like SoC. ECUs are becoming more complex every day as they become more sophisticated in functionality and information processing. The ultra-low ESR and long life PXD is an optimized solution to replace and reduce the number of MLCCs installed.



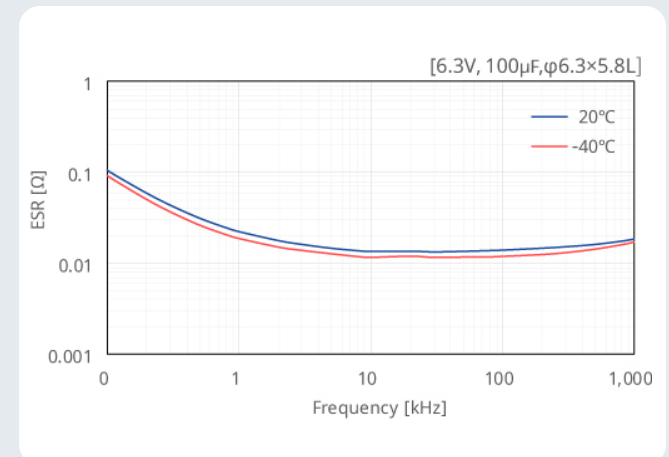
See More >

Similar item : [PXN series](#)

Point

Super Low ESR and Extend up to 125°C

The PXD series uses conductive polymer technology, which features the characteristics of super low ESR and high capacitance. It is guaranteed to withstand temperatures up to 125°C and is compliant with AEC-Q200. In addition, our original polymer technology resolves the problem of open mode failure at the end of life. Our polymer technology does not use liquid electrolyte at all, allowing for high reliability.



ESR vs Frequency

Aluminum Electrolytic Capacitors **PXN** Series

《Function in Circuit》

The PXN series uses our original conductive polymer technology, which features state of the art super low ESR and long life. It is most suitable for rectifiers of DC/DC converters and decoupling of semiconductors like SoC. In addition, 16V products have been newly added for automotive grade, which increases robustness. ECUs are becoming more complex every day as they become more sophisticated in functionality and information processing. The ultra-low ESR and long-life PXN series is an optimized solution to replace and reduce the number of MLCCs installed.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 2.5~16V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 5,000hrs

See More >

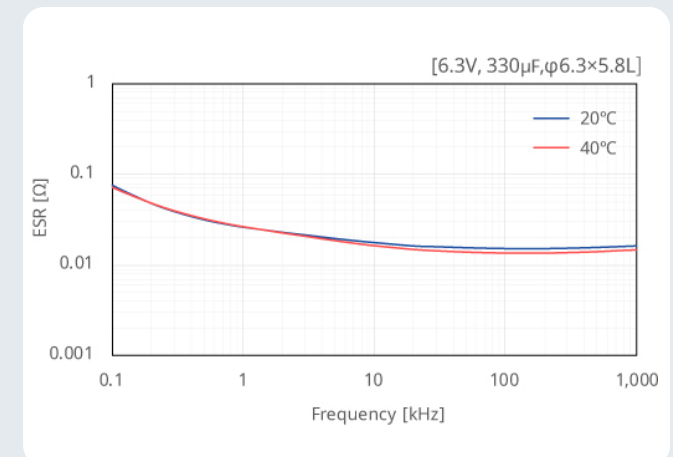
Similar item : [PXD series](#)

Point

Adopting High Gain Foil and Optimizing Element Structure Provides Ultra Low ESR

The PXN series uses high gain foil and optimizes element structure. In addition, the PXN series is compliant with AEC-Q200. Compared to conventional series*¹, the PXN series offers 3.2 times more capacitance as well as achieves 1,000 hours of humidity resistance (85°C 85%RH). The PXN series maintains the same high reliability of open mode failure at the end of life as liquid electrolyte aluminum electrolytic capacitors and adds a rated voltage of 16V, one level up from conventional products.

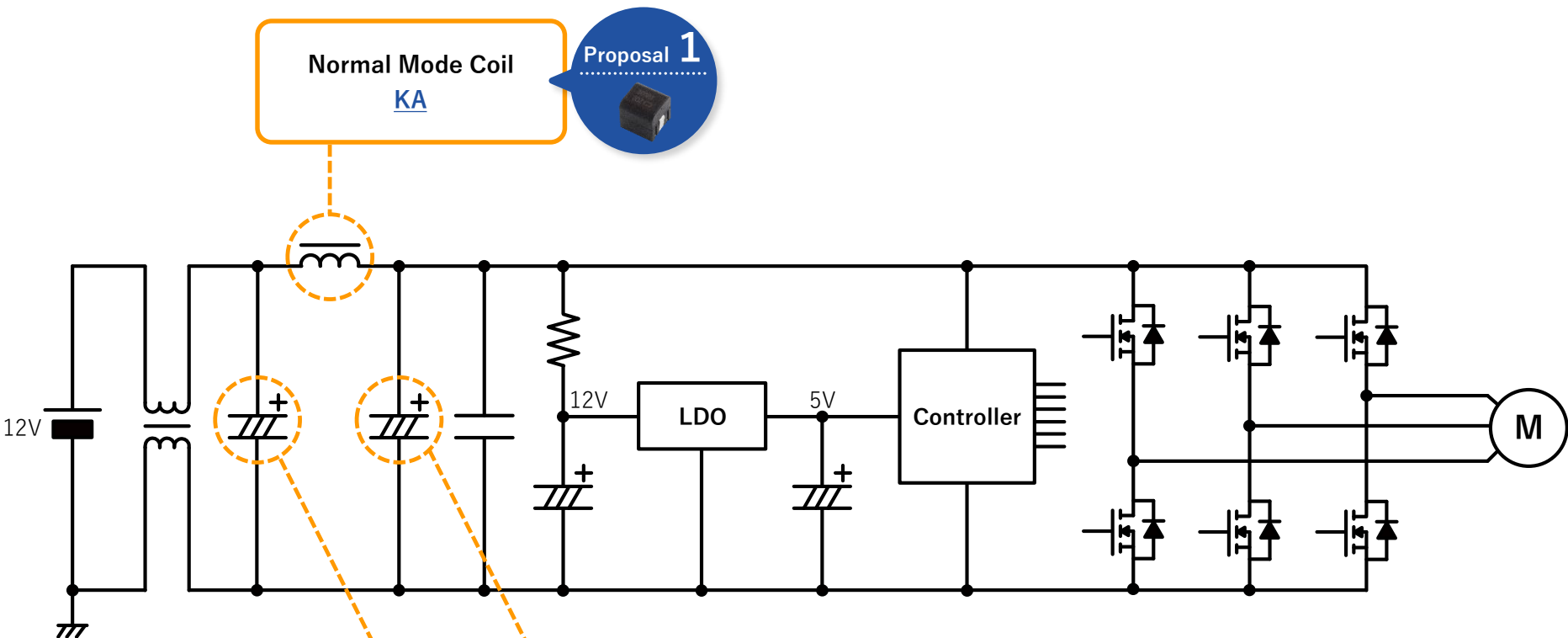
*¹ Our PXD Series



ESR vs Frequency

Normal Mode Coil
KA

Proposal 1



Aluminum Electrolytic Capacitors
MXB / HXF / HXJ

Proposal 2



Normal Mode Coil KA Series

《Function in Circuit》

The KA series is an SMD type of normal mode coil and is ideal for noise reduction applications in inverters of mechanical and electrical integrated devices such as electric power steering and electric pumps. The non-wound type of iron-based amorphous core (one copper wire penetrates two cores) has the advantage of lower DCR and is very stable under high temperature conditions. KA products are not damaged by instantaneous high current from load dump surges, making them good for protecting the back end of circuits. In addition, it is robust against vibration and useable at 150°C. We offer three types of core permeability.



[Specifications]

- Style : SMD
- Category temp range : -40~+150°C
- Rated current : 10~50A
- Rated inductance : 0.3~0.53μH, 20kHz
- *1 Custom,-made products are also available.
- DCR : 0.78 mΩmax

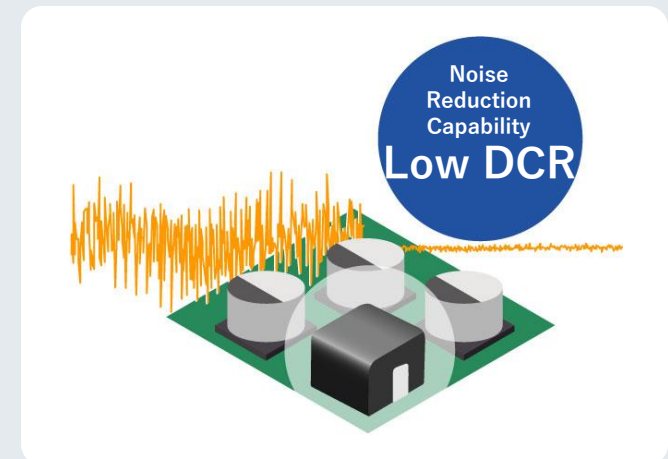
See More >

Similar item : [SM series](#)

Point

SMD Type Needs Less Area on PCB

The KA series is an SMD style of normal mode choke coil. Unlike other wound coil products, a thicker copper wire penetrates the iron-based (highly-saturated magnetic flux density) amorphous cores to ensure coil performance. These cores are processed through heat treatment, which makes it possible for the KA series to maintain high inductance even at high currents. This amorphous material has a high Curie Temperature, which means it maintains stable characteristics even at high temperatures. We utilize high-heat compatible resin for the exterior to ensure the KA series is useable at 150°C. Inductance can be set by optimizing the permeability according to the current used, which makes it possible to customize KA products.



KA series is best for noise reduction

Aluminum Electrolytic Capacitors **MXB** Series

《Function in Circuit》

The MXB series is a 150°C assured, high reliability product that uses superior raw materials. MXB is ideal for drivers of motor devices such as pumps and fans. The high capacitance performance unique to aluminum electrolytic capacitors provides excellent current supply at motor startup. These items are also reflowable. In addition, the optional anti-vibration holder reinforces vibration resistance up to 30G.

150°C
Assured

High
Capacitance

AEC-
Q200



[Specifications]

- Style : SMD
- Category temp range : -40~+150°C
- Rated voltage : 25, 35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 150°C / 1,000hrs
- Shelf life : 150°C / 1,000hrs

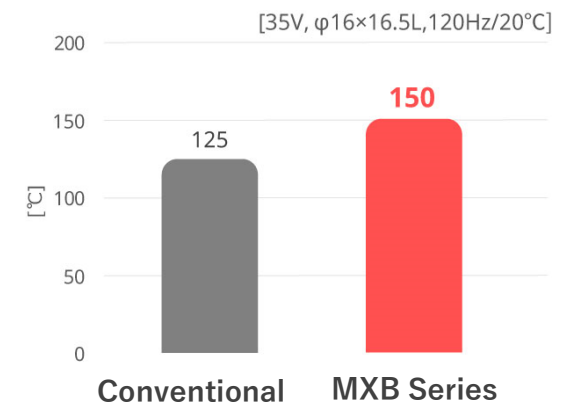
See More >

Similar item : [MHS series](#)

Point

Our Original Electrolyte and Sealing Rubber Technologies Achieve More Capacitance

The MXB series has been upgraded to 150°C heat resistance from the 125°C MVH series by introducing high heat resistance electrolyte and sealing rubber (with sealing method), as well as high gain foil. These three materials give the MXB series superior reflow soldering, higher reliability, and miniaturization. As a result, the MXB series meets the needs of high heat resistance engine and motor equipment.



Capacitance Comparison

Aluminum Electrolytic Capacitors **HXF** Series

《Function in Circuit》

Inverter drivers for mechanical and electrical integrated devices such as electric fans and electric pumps require high heat resistance and high ripple current capability aluminum electrolytic capacitors. We offer the HXF series, which can withstand vibration (optional anti-vibration holder is required) and is suitable for integrated applications to reduce the area of the PCB. The HXF series can withstand 150°C applications for a short period of time, such as when heat rises quickly when the car stops and at the same time the cooling system also temporarily stops.



[Specifications]

- Style : SMD
- Category temp range : -55~+135°C
- Rated voltage : 25~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 4,000hrs
125°C / 4,000hrs
- Shelf life : 135°C / 1,000hrs

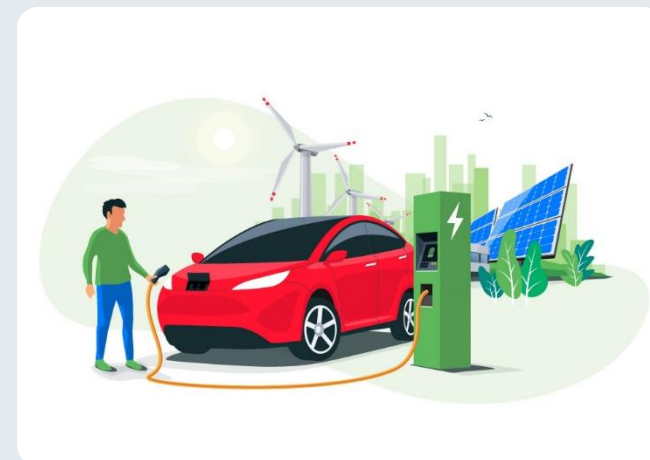
See More >

Similar item : [HXE series](#) [HXU series](#) [HXJ series](#)

Point

Maximizing the Effect of Carbon Neutrality of Electric Mobility

The HXF Series is a hybrid capacitor whose electrolyte has two materials: conductive polymer and electrolyte. The HXF series is the best in terms of input and output current capability because of the optimum combination of electrolyte and rubber sealing material. As a result, the HXF series is 30% smaller than the previous series, HXE. This miniaturization contributes to achieving the target of carbon neutrality of electric mobilities by minimizing size and weight. We expect HXF to be increasingly used in micro and e-mobility devices such as electric motorcycles and in last mile logistics and delivery applications. An anti-vibration holder is optional and can withstand up to 30G.

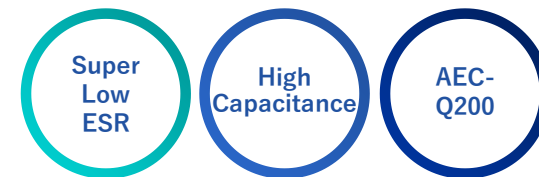


Environmentally-friendly Electric Mobility *Image picture

Aluminum Electrolytic Capacitors HXJ Series

《Function in Circuit》

The HXJ series is ideal for the electrification of various auxiliary equipment such as rectifiers of inverter circuits for EPS and electric brakes due to its super-low ESR and high temperature characteristics. Moreover, the HXJ series has another feature, high capacitance technology, that contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 16~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 4,000hrs

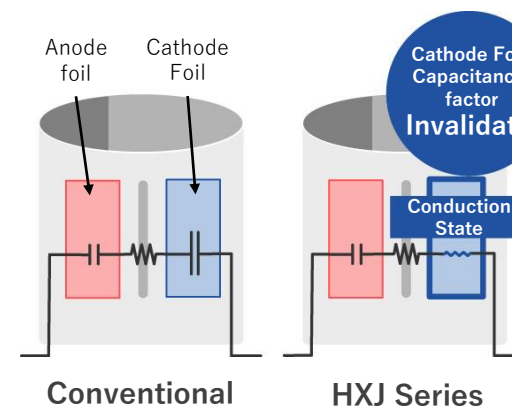
See More >

Similar item : [HXC series](#) [HXD series](#)

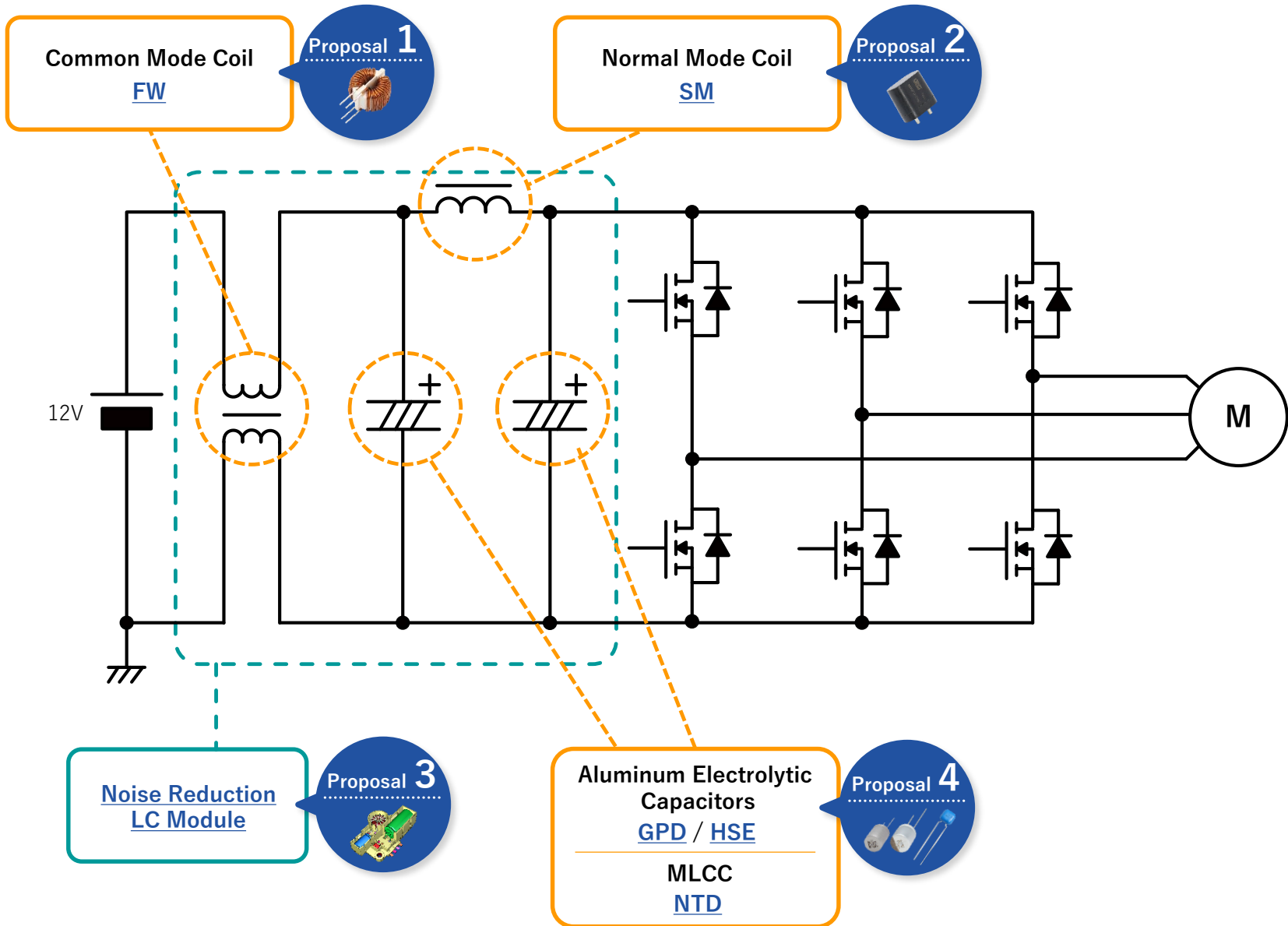
Point

New Type of Cathode Foil Enhances Values of High Gain Anode Foil

Nippon Chemi-Con has utilized advanced and innovative technology to create the new HXJ series. The capacitance of an aluminum electrolytic capacitor depends upon the combined capacitance of the anode and cathode foils. It is difficult to induce more capacitance even when the cathode foil shows high capacitance. However, newly established advanced technology can make the cathode foil extremely close to zero resistivity. In other words, the capacitance no longer depends upon the capacitance of the cathode foil but only on the genuine capacitance of the anode foil. As a result, the HXJ series achieves 20% to 40% greater capacitance than that of the previous series, HXC.



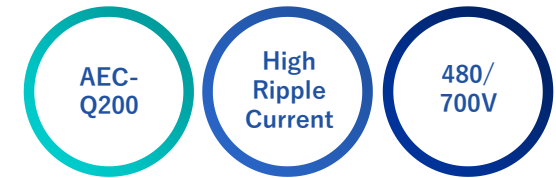
Difference in cathode foil (inside capacitance)



Common Mode Coil **FW** Series

《Function in Circuit》

The FW series is the most suitable common mode coil product for noise filters of EPS and electric pumps. An iron-based nanocrystalline alloy is used for the core material, achieving a high magnetic permeability core (31,000 μ). As a result, high inductance can be obtained even with a small number of turns, so it is possible to suppress stray capacitance and obtain a high noise suppression effect over a wide frequency range. For AC applications there are three categories: 1) single-phase, 2) three-phase, and three phase/four wires. For DC applications of 700Vdc or more, custom designs are available.




[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Voltage range : 250~700V
- Rated current : 7~39A
- Rated inductance : 1.0~11.5mH, 100kHz
- *1 Custom design is also available.
- Max DCR : 1.8~26 m Ω max

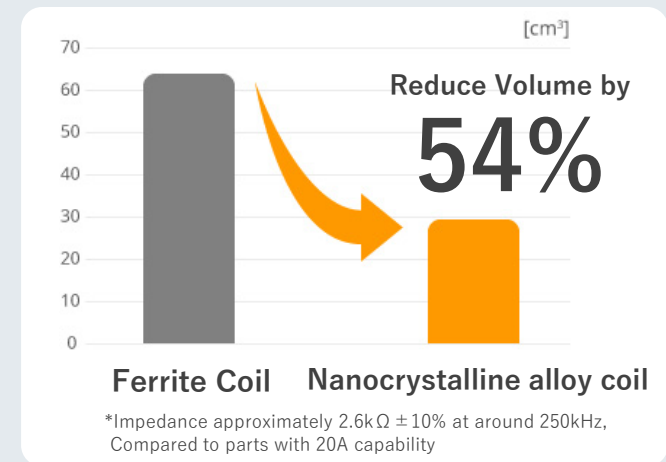
See More 

Similar item : [FL-V series](#) [FL series](#)

Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of 100,000 μ H at 10kHz and 31,000 μ H at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.



Volume of coils

Nomal Mode Coil **SM** Series

《Function in Circuit》

The SM series is a normal mode coil that is ideal for mechanical and electrical integrated inverters of electric power steering and electric pumps. The SM series consists of a U-shape copper wire and two cores, which makes the DCR very small. SM products are not damaged by instantaneous high current from load dump surges, making them good for protecting the back end of circuits. Also, with SM series coils, there is no chance of layer short-circuits like those that occur with toroidal coils because of the U-shaped copper wire (no contact between leads); this makes it a secure and safe product.



See More >

Similar item : [KA series](#)

Point

Achieve Ultra-Low ESR Resistance with a Copper Lead-Penetration Structure

The SM series is a normal mode choke coil that has a high current capability. This product does not have a toroidal structure, but rather one copper lead wire that penetrates two cores. The iron-based amorphous material has a high saturation magnetic flux density. Nippon Chemi-Con utilizes heat treatment technology to maintain inductance with high magnetic permeability even at high currents. The copper loss is so small that the DCR is greatly reduced, allowing the voltage drop to be reduced even at high currents. We can offer a custom-made items by adjusting the magnetic permeability to control inductance.

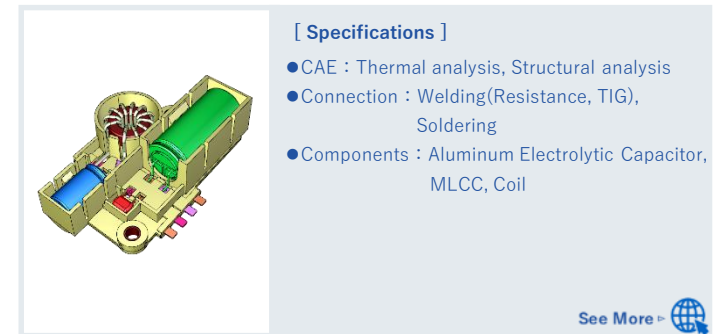
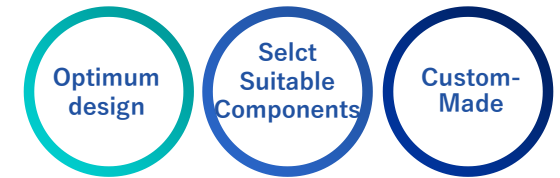


SM Series can powerfully reduce noise

Noise Reduction LC Module

《Function in Circuit》

It is necessary to put capacitors and coils together to constitute a filter to absorb noise. Nippon Chemi-Con manufactures several kinds of electronic components, so we are able to provide one-stop-solutions by proposing each component and integrating them into modules.



Point

One-stop Solutions as Only a Consolidated Electronics Component Manufacturer Can

Requirements for electronic components are changing with recent accelerations in electrification and computerization of automobile technology. In addition, the use of multiple capacitors for higher currents and LC modules that combine a coil and capacitor for noise reduction are being considered. As a result, the time needed to select components and create practical designs has increased. Under these circumstances, Chemi-Con lines up a wide variety of products: aluminum electrolytic capacitors, coils, MLCCs, varistors and double layer capacitors. We can combine these components to meet the diverse needs of applications and we also offer advanced welding technology and CAE analysis.

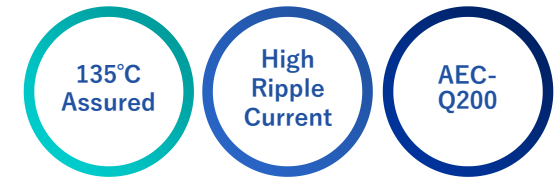



Nippon Chemi-Con Product Lineup

Aluminum Electrolytic Capacitors **GPD Series**

《Function in Circuit》

The GPD Series is ideal for rectifiers of inverter circuits for EPS and cooling fan applications as it is the industry's first product introduced with high temperature and high ripple current characteristics. In addition, we guarantee the GPD series at 150°C for short-time use, and its robustness has been upgraded to withstand huge transient current in motors. The coated case of the GPD series will help ensure your automotive products are useable under harsh conditions. We also offer modules in which GPD series parts are placed horizontally in a plastic holder on the PCB. GPD series products will meet customers' expectations for a variety of markets.





[Specifications]

- Style : Radial
- Category temp range : -40~+135°C
- Rated voltage : 25~100V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 3,000hrs (25~50V)
135°C / 2,000hrs (63~100V)
125°C / 3,000hrs
- Shelf life : 125°C / 1,000hrs

[See More >](#) 

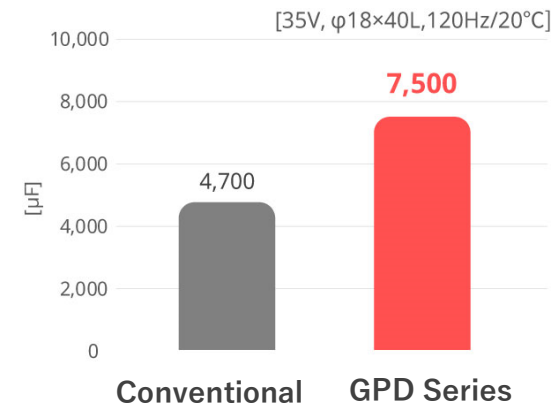
Similar item : [GXF series](#) [Module](#)

Point

Introduction of In-House Developed High Gain Foil; 30% to 40% Higher Capacitance than Before

GPD series products are capable of withstanding temperatures of 135°C. The key raw materials, developed by Nippon Chemi-Con, are the wide temperature range (-40°C to 135°C) stable electrolyte and highly durable rubber seal. These two materials make the GPD series capable of 30% to 60% higher ripple current than conventional series*1. The new electrolyte especially contributes to maintaining high ripple current in 63V to 100V products while showing 30% to 40% lower ESR than conventional products.

*1 Our GPA Series



Difference in capacitance

Aluminum Electrolytic Capacitors HSE Series

《Function in Circuit》

The HSE series is categorized as a hybrid capacitor that features high heat resistance and high ripple current capability. The HSE series is ideal for mechanical and electrical integrated inverter circuits of supplemental applications such as electric fans and electric pumps. Expanding the lineup of radial types has enhanced compatibility with flow soldering and welding methods. The HSE series is also available as a module that combines multiple pieces. It is a highly versatile product suitable for diverse needs.




[Specifications]

- Style : Radial
- Category temp range : -55~+135°C
- Rated voltage : 25~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 4,000hrs
125°C / 4,000hrs
- Shelf life : 135°C / 1,000hrs

See More > 

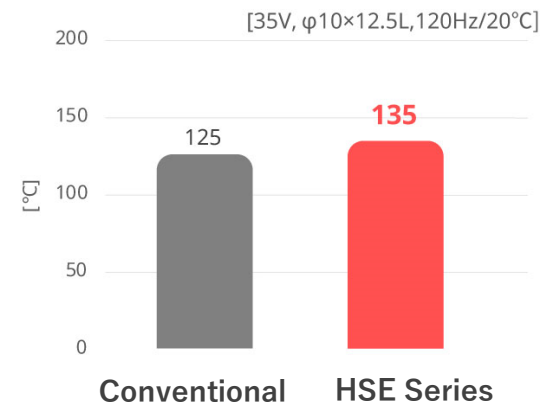
Similar item : [HSC series](#) [HSD series](#) [Module](#)

Point

Pursuit of High Temperature Range Stability

The HSE series is a hybrid capacitor, which uses both conductive polymer and electrolyte. The hybrid combines the best of both types: lower ESR and high heat resistance of conductive polymer and oxide layer self-healing properties of electrolyte. These two materials allow the HSE series to provide lower ESR and higher reliability. In addition, the new electrolyte, which is a good combination of conductive polymer and lower resistance*¹, provides higher heat resistance and higher ripple current capability. As a lead type product, it is ideal for flow soldering.

*¹ Our HSC Series



Difference in maximum temperature

MLCC NTD Series

《Function in Circuit》

Nippon Chemi-Con's MLCCs are targeted toward power electronics. They have widely contributed to miniaturization, weight reduction, greater current capability, and higher reliability in inverters and power supplies for electric mobility in the CASE era. Our latest series, NTD, should be directly connected to motors to reduce noise more effectively, and is especially suitable for brushless DC motors.



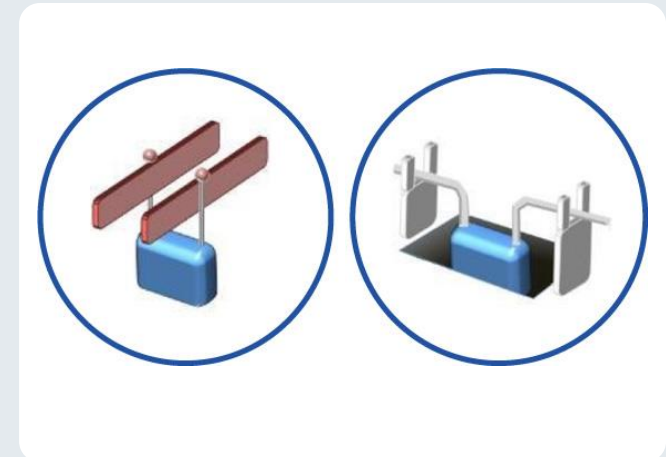
See More >

Similar item : [KVD series](#)

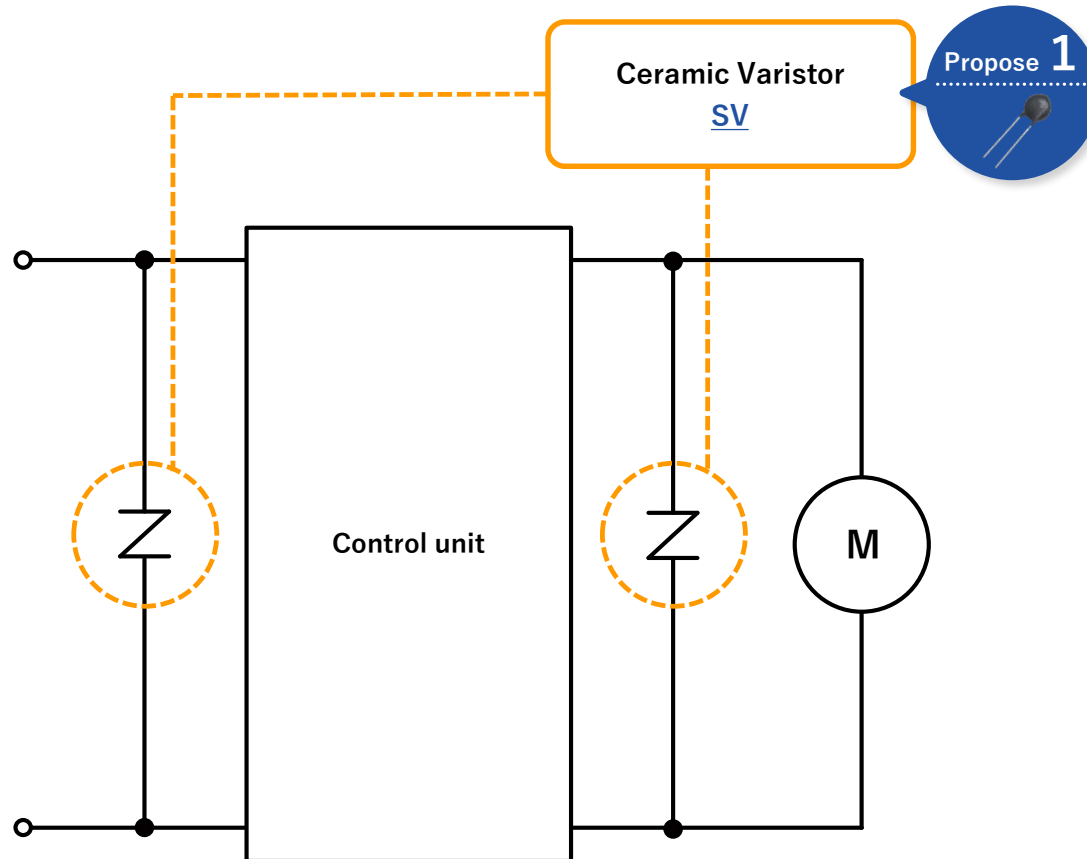
Point

Easier to install; We Offer Customized Lead Wire Configurations

The NTD series is suitable for noise reduction for motors, snubber circuits, and power supplies for ECUs because of its lower ESR, larger capacitance, and non-polarized structure. The radial configuration is customized for the direct connection of a mechanical and electrical integrated motor. The lead wire type of MLCC is less sensitive to stress from the PCB, plus shows better heat stress cycles. Also, it is possible to customize the plating metals and configuration of the lead wires to accommodate customers' welding processes. As a result, the NTD series has been used in a number automotive applications.



Example of custom-made lead configuration



Ceramic Varistor SV Series (Lower Voltage Type)

125°C

AEC-Q200

Nonflammability

《Function in Circuit》

Automotive-use brushed DC Motors for windshield wiper and power window applications are susceptible to sparking at the contact point between the brush and commutator, which can cause electrical noise. The SV series can suppress sparking and noise when products are installed inside the motor or between terminals.



[Specifications]

- Style : Radial
- Category temp range : -40~+125°C
- Varistor voltage range : 22~68V
- Endurance : 125°C / 1,000hrs
- Temp cycle : -40~+125°C / 1,000 cycles

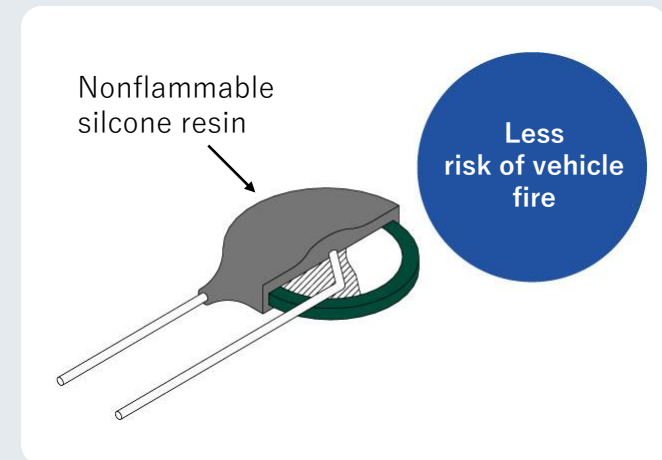
See More >

Similar item : [V series](#)

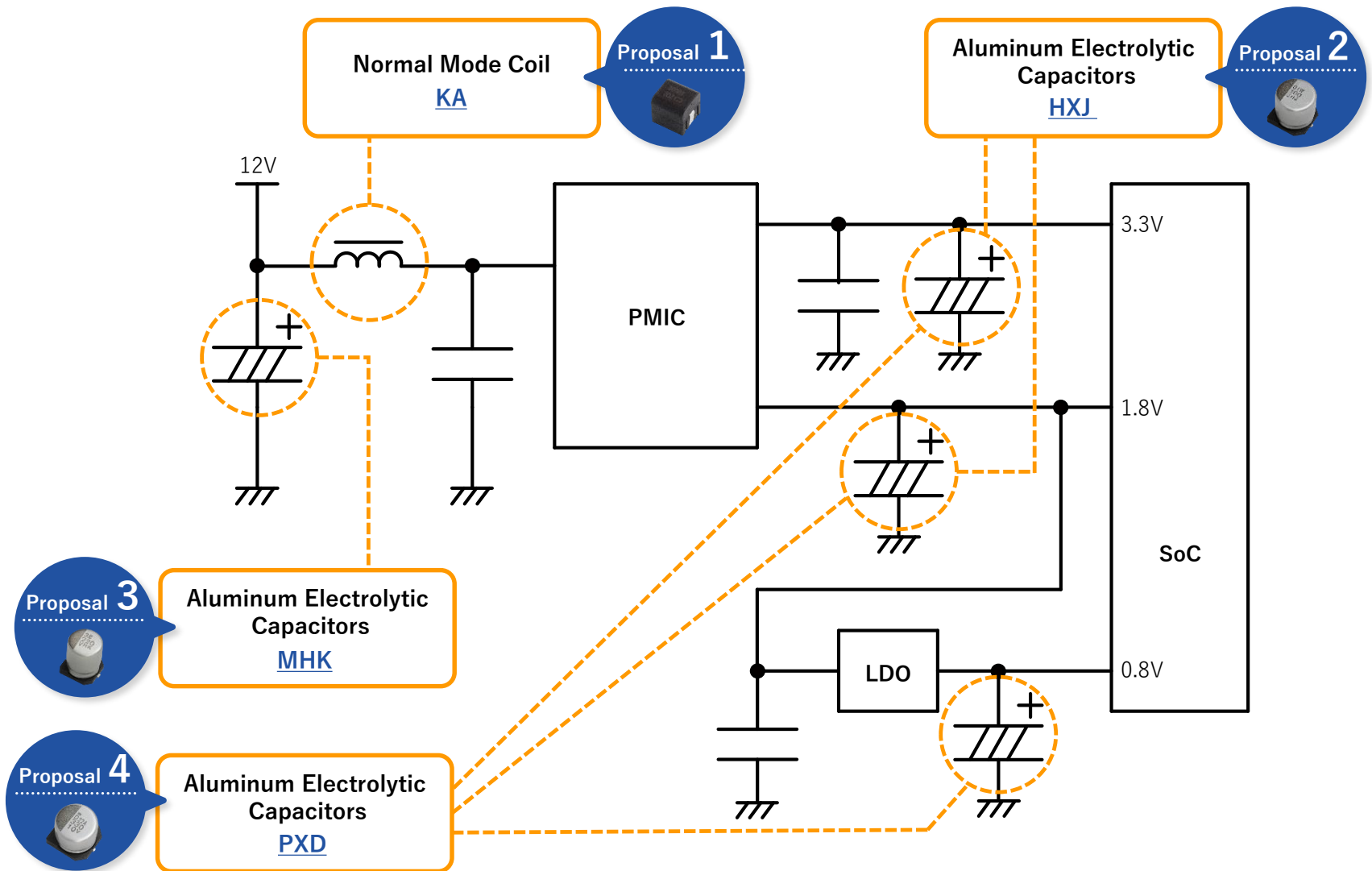
Point

Better Weatherability; Ideal for Noise Reduction and Spark Suppression

The SV series is a new generation of ceramic varistor, which uses a highly flame-resistant silicone resin coating for the exterior that greatly improves flame resistance compared to conventional products*¹ and maintains high reliability, including a 125°C guarantee and heat stress resistance (-40°C⇔+125°C、1,000 cycles) . The low voltage types comply with AEC-Q200 and are targeted toward DC 12V and 24V applications like windshield wipers, power windows, power seats, door mirrors, and headlamp leveling. Our ceramic varistors contribute to automotive safety and are widely used in vehicles.

*¹ Our V Series

Outside layer coated with nonflammable silicone resin



Normal Mode Coil **KA** Series

《Function in Circuit》

The KA series is an SMD type of normal mode coil and can function as a noise filter in power supplies for LiDAR, radar, and camera applications. The non-wound type of iron-based amorphous core (one copper wire penetrates two cores) has the advantage of lower DCR and is very stable under high temperature conditions. KA products are not damaged by instantaneous high current from load dump surges, making them good for protecting the back end of circuits. In addition, it is robust against vibration and useable at 150°C. We offer three types of core permeability.



[Specifications]

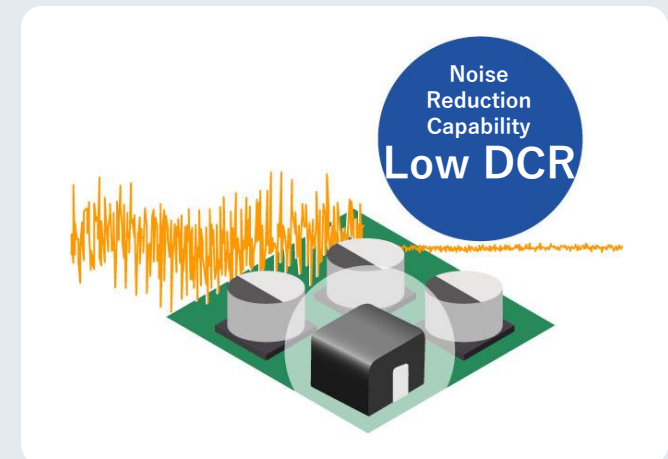
- Style : SMD
- Category temp range : -40~+150°C
- Rated current : 10~50A
- Rated inductance : 0.3~0.53μH, 20kHz
- *1 Custom,-made products are also available.
- DCR : 0.78 mΩmax

See More >

Similar item : [SM series](#)

Point SMD Type Needs Less Area on PCB

The KA series is an SMD style of normal mode choke coil. Unlike other wound coil products, a thicker copper wire penetrates the iron-based (highly-saturated magnetic flux density) amorphous cores to ensure coil performance. These cores are processed through heat treatment, which makes it possible for the KA series to maintain high inductance even at high currents. This amorphous material has a high Curie Temperature, which means it maintains stable characteristics even at high temperatures. We utilize high-heat compatible resin for the exterior to ensure the KA series is useable at 150°C. Inductance can be set by optimizing the permeability according to the current used, which makes it possible to customize KA products.

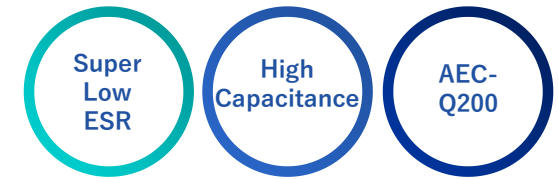


KA series is best for noise reduction

Aluminum Electrolytic Capacitors **HXJ** Series

《Function in Circuit》

The HXJ series is ideal for rectifier and noise reduction applications in various types of ECUs and DC/DC converters due to its super low ESR and high temperature characteristics. Moreover, the HXJ series has another feature, high capacitance technology, that contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 16~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 4,000hrs

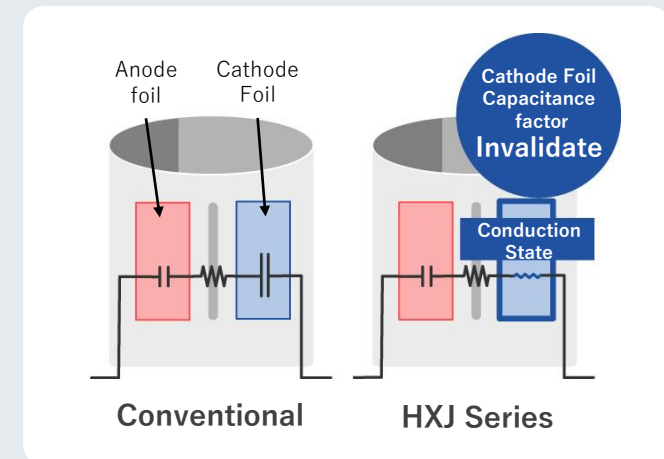
See More >

Similar item : [HXC series](#)

Point

New Type of Cathode Foil Enhances Values of High Gain Anode Foil

Nippon Chemi-Con has utilized advanced and innovative technology to create the new HXJ series. The capacitance of an aluminum electrolytic capacitor depends upon the combined capacitance of the anode and cathode foils. It is difficult to induce more capacitance even when the cathode foil shows high capacitance. However, newly established advanced technology can make the cathode foil extremely close to zero resistivity. In other words, the capacitance no longer depends upon the capacitance of the cathode foil but only on the genuine capacitance of the anode foil. As a result, the HXJ series achieves 20% to 40% greater capacitance than that the previous series, HXC.



Difference in cathode foil (inside capacitance)

Aluminum Electrolytic Capacitors **MHK Series**

《Function in Circuit》

The MHK series is categorized as a miniaturized, high temperature (125°C), and low ESR SMD. In addition, the ESR at -40°C is specified at the end of life making it ideal for ECU power supply for active safety systems such as ADAS. The MHK series is designed to fit several types of ECUs and many of our customers use the MHK series. An optional anti-vibration holder is also available that can withstand 30G.



Similar item : [MHB series](#) [MHL series](#) [MVH series](#)

Point

New Raw Material Improves Low and High Temperature Behavior

At the end of life of aluminum electrolytic capacitors, ESR changes along with capacitance, and this is especially noticeable at low temperatures. The MHK series uses a new sealing rubber that greatly improves the sealing performance. The new material suppresses evaporation of the electrolyte. In addition, the electrolyte composition has been improved, and this results in stability at the lower and higher end of the temperature range. The MHK series is suitable for ECU circuits due to its small size and reliability even in high heat engine compartments. In summary, the MHK series is smaller, more stable at high temperatures, and more stable at low temperatures close to end of life.

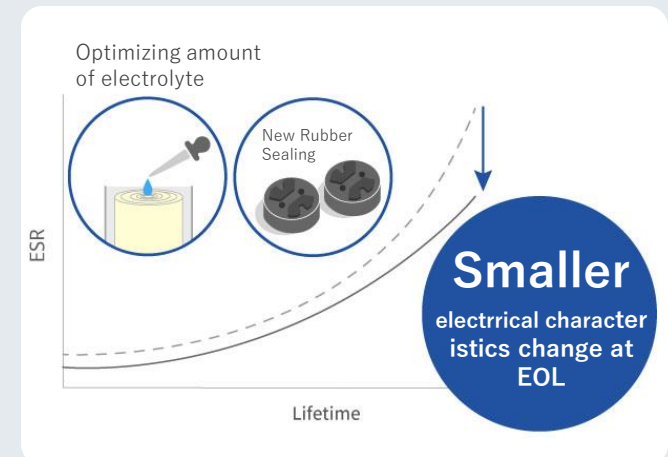


Image) Variation in ESR characteristics at the end of life

Aluminum Electrolytic Capacitors PXD Series

《Function in Circuit》

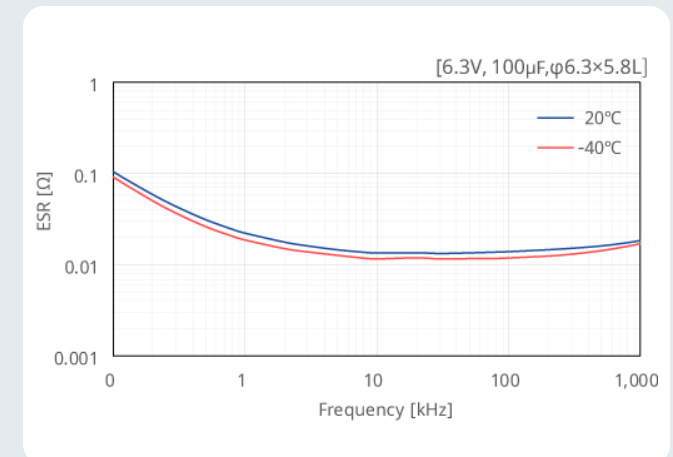
The PXD series uses our original conductive polymer technology, which features state of the art super low ESR and long life. It is most suitable for rectifiers of DC/DC converters and decoupling of semiconductors like SoC. ECUs are becoming more complex every day as they become more sophisticated in functionality and information processing. The ultra low ESR and long life PXD is an optimized solution to replace and reduce the number of MLCCs installed.



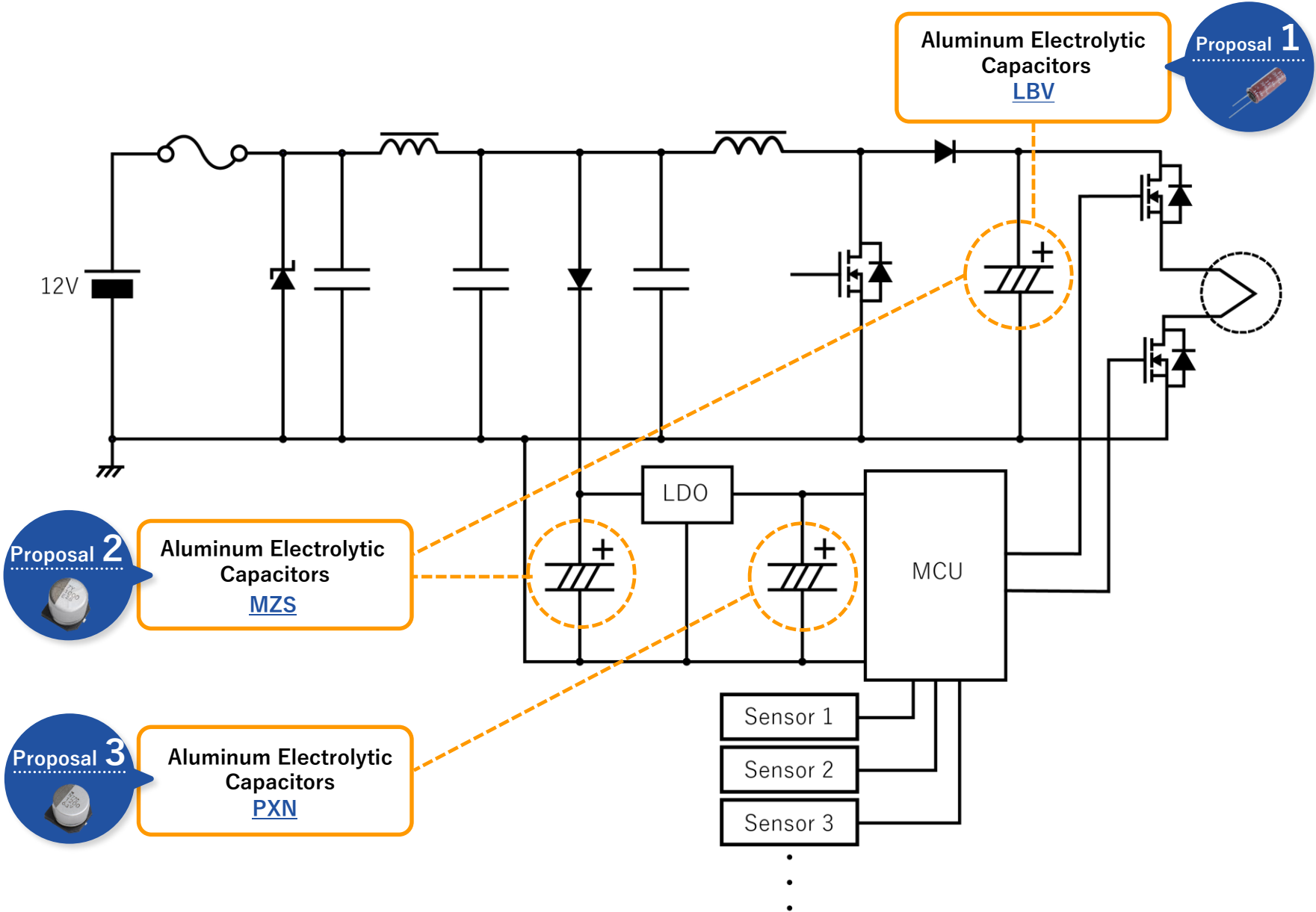
Similar item : [PXN series](#)

Point Super Low ESR and Extend up to 125°C

The PXD series uses conductive polymer technology, which features the characteristics of super low ESR and high capacitance. It is guaranteed to withstand temperatures up to 125°C and is compliant with AEC-Q200. In addition, our original polymer technology resolves the problem of open mode failure at the end of life. Our polymer technology does not use liquid electrolyte at all, allowing for high reliability.



ESR vs Frequency



Aluminum Electrolytic Capacitors **LBV** Series

《Function in Circuit》

The LBV series has industry-leading high capacitance and incorporates our latest foil technology, which makes it ideal as an energy storage device for power supplies for multi-channel air bag ignition. The LBV series is the most used capacitor in airbag modules all over the world and contributes to the reliability and safety of airbags. LBV products are also available for modularization by combining with holders. The horizontal type of module (LBV) contributes to lower profile ECUs.



[Specifications]

- Style : Radial
- Category temp range : -55~+105°C
- Rated voltage : 25, 35V
- Cap tolerance : 0~+30%(A) / 20°C, 120Hz
- Endurance : 105°C / 5,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

Similar item : [LBG series](#) [Module](#)

Point

Excellent Storage Performance, Up to 30% Higher than Before*¹

The LBV series incorporates Nippon Chemi-Con's newly developed high gain foil and achieves 30% more capacitance than conventional products*¹. In addition, the LBV series shows better ESR at lower temperatures, even at -55°C. ESR behavior affects discharging characteristics. Therefore, it is necessary to maintain a stable and robust performance even at lower temperatures.

*¹ Our LBK Series



LBV series is best for airbag *According to our research

Aluminum Electrolytic Capacitors **MZS Series**

《Function in Circuit》

The MZS series uses superior raw materials to provide high capacitance and low ESR. It is ideal for power supplies for airbag ignition. Typically, capacitors for airbag ECUs are radial lead type capacitors. Nippon Chemi-Con offers the SMD-type MZS series to give the benefits of weight reduction and the ability to withstand reflow soldering. An optional anti-vibration holder is available and withstands 30G.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 25, 35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 2,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

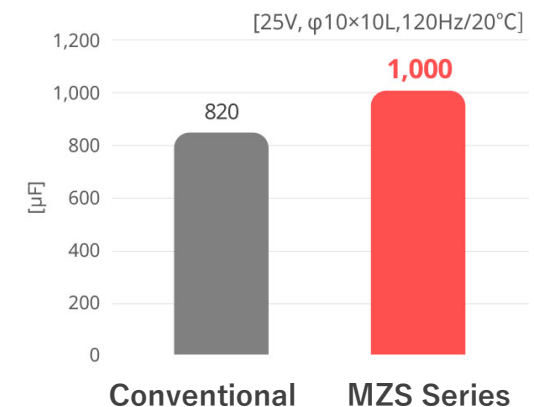
Similar item : [MZR series](#)

Point

Uses High Gain Foil, Up to 40% More Capacitance than Conventional Products*1

The MZS series uses high gain foil which makes the capacitance 40% more than conventional products*1. Innovative technology is required to maintain automotive standards. Nippon Chemi-Con is able to overcome this difficulty because it is a vertically integrated company; we develop and manufacture raw materials, especially foil and production machines, ourselves. This allows us to introduce new technologies and continuously develop new markets. The MZS series provides benefits to our customers such as a lower profile and highly efficient reflow soldering. The MZS series works in countermeasures against instantaneous power loss; graphic applications such as car navigations, car audio sets and instrument panels; and in supplemental power supplies.

*1 Our MZR Series



Difference in Capacitance

Aluminum Electrolytic Capacitors **PXN** Series

《Function in Circuit》

The PXN series uses our original conductive polymer technology, which features state of the art super low ESR and long life. It is most suitable for rectifiers of DC/DC converters and decoupling of semiconductors like SoC. In addition, 16V products have been newly added for automotive grade, which increases robustness. ECUs are becoming more complex every day as they become more sophisticated in functionality and information processing. The ultra low ESR and long life PXN series is an optimized solution to replace and reduce the number of MLCCs installed.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 2.5~16V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 5,000hrs

See More >

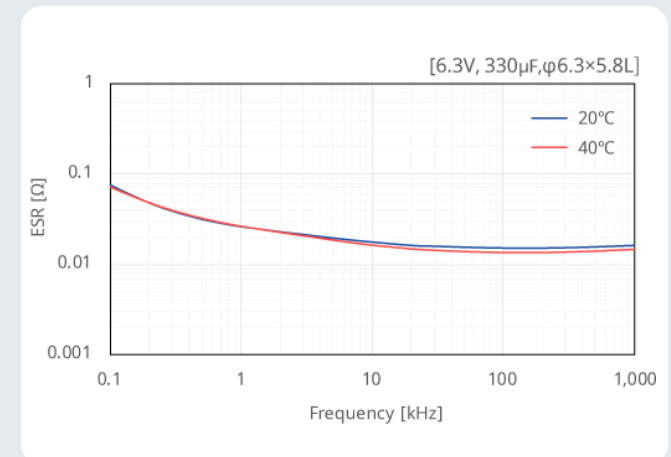
Similar item : [PXD series](#)

Point

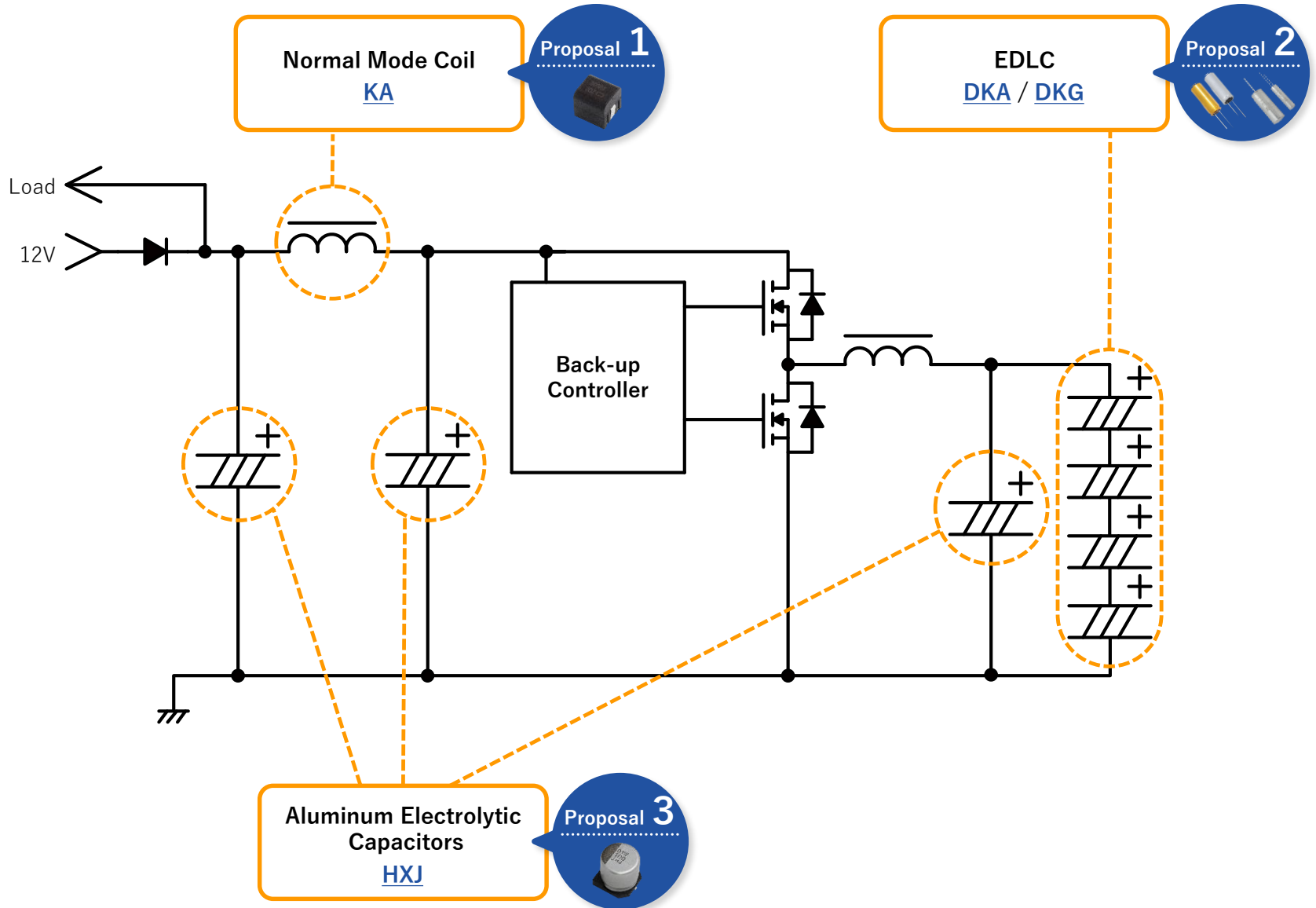
Adopting High Gain Foil and Optimizing Element Structure Provides Ultra Low ESR

The PXN series uses high gain foil and optimizes element structure. In addition, the PXN series is compliant with AEC-Q200. Compared to conventional series*1, the PXN series offers 3.2 times more capacitance as well as achieves 1,000 hours of humidity resistance (85°C 85%RH). The PXN series maintains the same high reliability of open mode failure at the end of life as liquid electrolyte aluminum electrolytic capacitors and adds a rated voltage of 16V, one level up from conventional products.

*1 Our PXD Series



ESR vs Frequency



Normal Mode Coil **KA** Series

《Function in Circuit》

The KA series is an SMD type of normal mode coil and can function as a noise filter in supplemental power supplies of ECUs. The non-wound type of iron-based amorphous core (one copper wire penetrates two cores) has the advantage of lower DCR and is very stable under high temperature conditions. KA products are not damaged by instantaneous high current from load dump surges, making them good for protecting the back end of circuits. In addition, it is robust against vibration and useable at 150°C. We offer three types of core permeability.



[Specifications]

- Style : SMD
 - Category temp range : -40~+150°C
 - Rated current : 10~50A
 - Rated inductance : 0.3~0.53μH, 20kHz
 - DCR : 0.78 mΩmax
- ¹ Custom,-made products are also available.

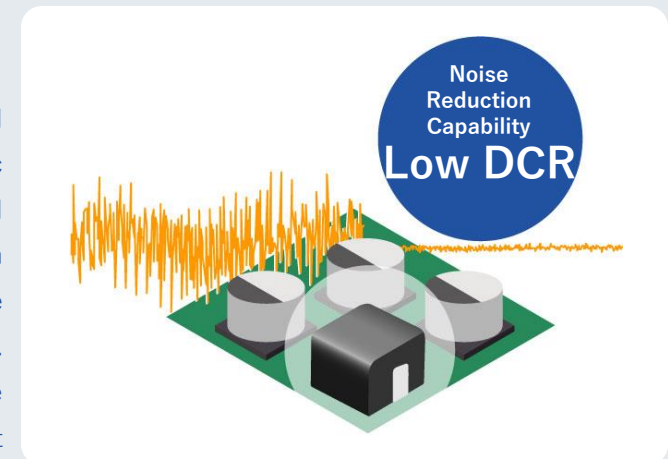
See More >

Similar item : [SM series](#)

Point

SMD Type Needs Less Area on PCB

The KA series is an SMD style of normal mode choke coil. Unlike other wound coil products, a thicker copper wire penetrates the iron-based (highly-saturated magnetic flux density) amorphous cores to ensure coil performance. These cores are processed through heat treatment, which makes it possible for the KA series to maintain high inductance even at high currents. This amorphous material has a high Curie Temperature, which means it maintains stable characteristics even at high temperatures. We utilize high-heat compatible resin for the exterior to ensure the KA series is useable at 150°C. Inductance can be set by optimizing the permeability according to the current used, which makes it possible to customize KA products.

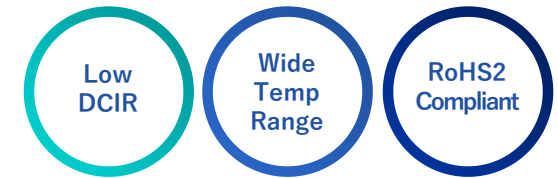


KA series is best for noise reduction

EDLC DKA Series

《Function in Circuit》

Nippon Chemi-Con's radial type of double layer capacitor is called DLCAPTM, which is designed as an energy storage device corresponding to needs such as dual electric power supply and redundancy. The DKA series achieves the industry's lowest DCIR, highest power density, super heavy-duty charging and discharging cycles, and longest duration at high temperature. The DKA series supports the long-term reliability and safety of automotive power supplies. It is ideal for applications such as high current by-wire systems and back-up power supplies for any electric device.



See More >

Similar item : [DKG series](#)

Point

Safe and Environmentally-friendly Design Contributes to SDGs

DKA series products are safe double layer capacitors; they use a non-acetonitrile-based electrolyte, so no cyanide gas is generated even during combustion. In addition, the DKA series does not contain any heavy metals, which contributes to its environmental friendliness and the development of SDG concepts. In terms of electrical characteristics, the DKA series maintains low DCIR no matter what the ambient temperature is. Its level of performance is the highest in the industry. Horizontal holders and custom-made modules are also available for secure mounting.

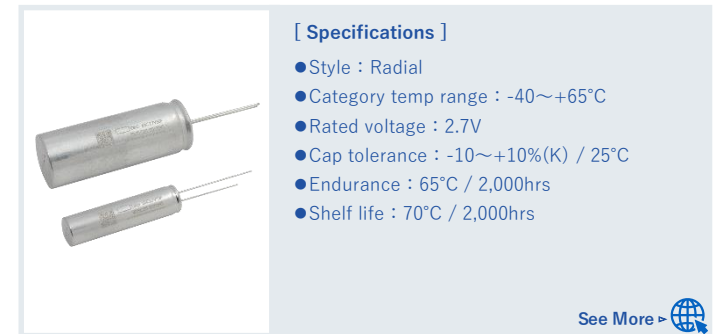


Environmentally-friendly DKA Series

EDLC DKG Series

《Function in Circuit》

The DKG series has achieved high energy density by increasing the rated voltage to 2.7V. Furthermore, the DKG series has the characteristics of low DCIR, better charging and discharging cycles, and better performance at high temperature. The durability of the DKG series contributes to the safety and security of automotive power supplies and requires less maintenance compared to rechargeable batteries. The DKG series is optimized for use in supplemental power supplies for applications such as electric door lock cancellation systems, x-by-wire systems, and electric brake systems.



[Specifications]

- Style : Radial
- Category temp range : -40~+65°C
- Rated voltage : 2.7V
- Cap tolerance : -10~+10%(K) / 25°C
- Endurance : 65°C / 2,000hrs
- Shelf life : 70°C / 2,000hrs

See More >

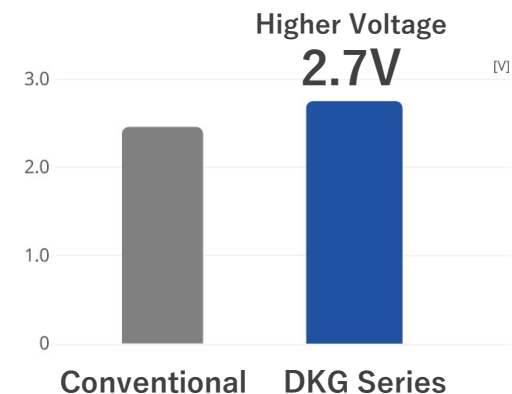
Similar item : [DKA series](#)

Point

Upgrading to 2.7V Creates Higher Energy Density

The DKG series has improved the rated voltage to 2.7V from the 2.5V of conventional products*¹ thanks to its superior sealing technology and raw materials. In addition, the improved capacitance per volume has resulted in higher energy density. This leads to an increase in backup time and reliability. Horizontal holders and custom-made modules are also available for secure mounting.

*¹ Our DKA Series



Difference in rated voltage

Aluminum Electrolytic Capacitors HXJ Series

《Function in Circuit》

The HXJ series is ideal for rectifier and noise reduction applications in various types of ECUs and DC/DC converters due to its super-low ESR and high temperature characteristics. Moreover, the HXJ series has another feature, high capacitance technology, that contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 16~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 4,000hrs

See More >

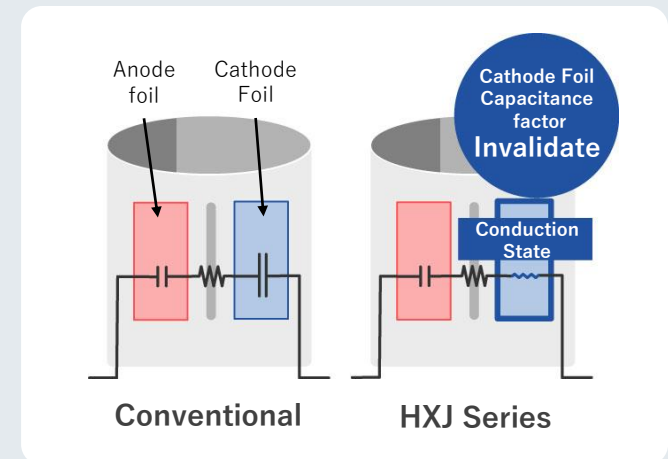
Similar item : [HXC series](#) [HXD series](#)

Point

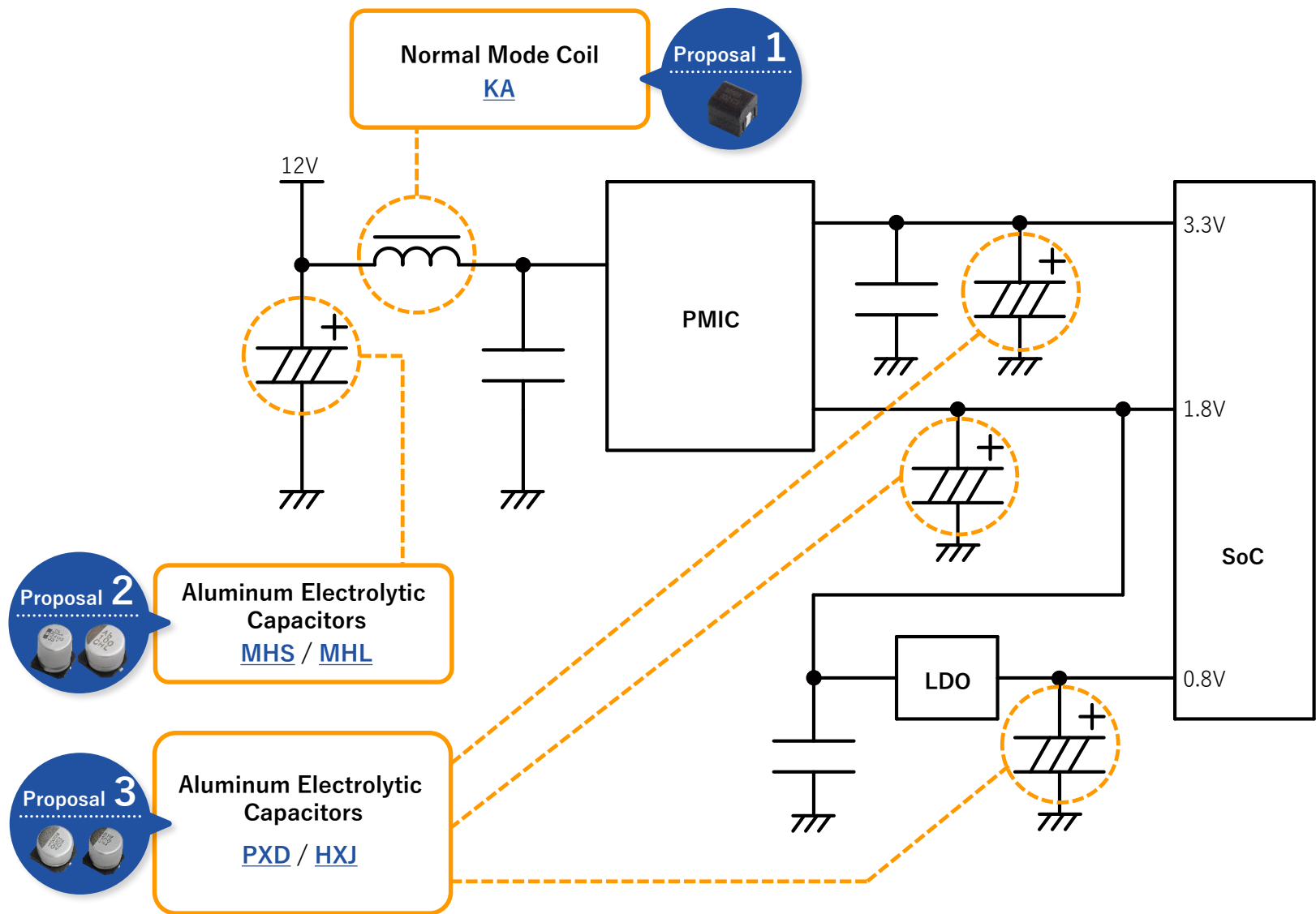
New Type of Cathode Foil Enhances Values of High Gain Anode Foil

Nippon Chemi-Con has utilized advanced and innovative technology to create the new HXJ series. The capacitance of an aluminum electrolytic capacitor depends upon the combined capacitance of the anode and cathode foils. It is difficult to induce more capacitance even when the cathode foil shows high capacitance. However, newly established advanced technology can make the cathode foil extremely close to zero resistivity. In other words, the capacitance no longer depends upon the capacitance of the cathode foil but only on the genuine capacitance of the anode foil. As a result, the HXJ series achieves 20% to 40% greater capacitance than conventional products*¹. We will continue to promote innovative approaches to achieve further advances in the near future.

*¹ Our HXC Series



Difference in cathode foil (inside capacitance)



Normal Mode Coil KA Series

《Function in Circuit》

The KA series is an SMD type of normal mode coil and can function as a noise filter in supplemental power supplies of ECUs. The non-wound type of iron-based amorphous core (one copper wire penetrates two cores) has the advantage of lower DCR and is very stable under high temperature conditions. KA products are not damaged by instantaneous high current from load dump surges, making them good for protecting the back end of circuits. In addition, it is robust against vibration and useable at 150°C. We offer three types of core permeability.



[Specifications]

- Style : SMD
- Category temp range : -40~+150°C
- Rated current : 10~50A
- Rated inductance : 0.3~0.53μH, 20kHz
*1 Custom-made products are also available.
- DCR : 0.78 mΩmax

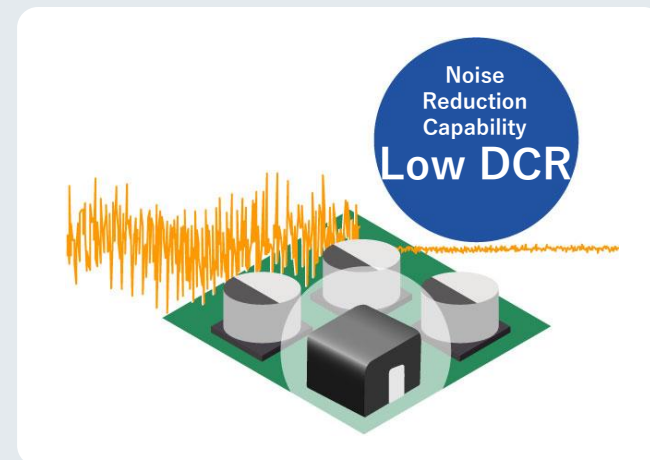
See More >

Similar item : [SM series](#)

Point

SMD Type Needs Less Area on PCB

The KA series is an SMD style of normal mode choke coil. Unlike other wound coil products, a thicker copper wire penetrates the iron-based (highly-saturated magnetic flux density) amorphous cores to ensure coil performance. These cores are processed through heat treatment, which makes it possible for the KA series to maintain high inductance even at high currents. This amorphous material has a high Curie Temperature, which means it maintains stable characteristics even at high temperatures. We utilize high-heat compatible resin for the exterior to ensure the KA series is useable at 150°C. Inductance can be set by optimizing the permeability according to the current used, which makes it possible to customize KA products.



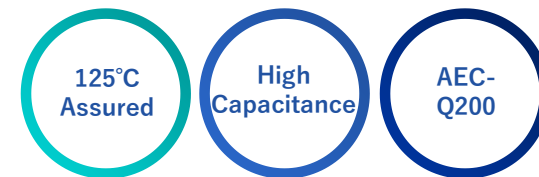
KA series is best for noise reduction

Aluminum Electrolytic Capacitors MHS Series

《Function in Circuit》

Nippon Chemi-Con's MHS series incorporates our latest high gain foil. It is the industry's top-class high capacitance, high temperature, and long-life product. The MHS series is suitable for power supplies of integrated ECUs, central ECUs, and Zone ECUs. Based on our extensive experience in the airbag market, our products ensure security and safety. Additionally, compared with conventional products*¹, we upgraded the performance of the reflow soldering process with miniaturization. Moreover, the optional anti-vibration holder enables it to withstand 30G.

*¹ Our MVH Series



[Specifications]

- Style : SMD
- Category temp range : -40~+125°C
- Rated voltage : 16~100V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 5,000hrs
- Shelf life : 125°C / 1,000hrs

See More >

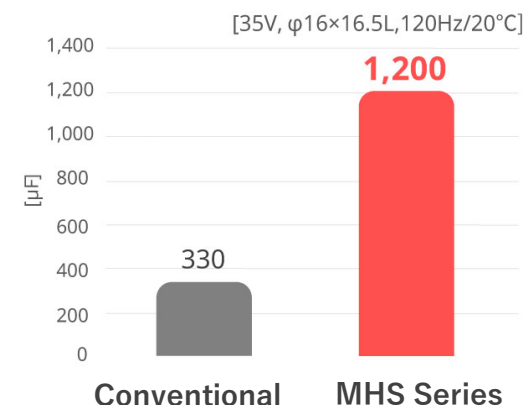
Similar item : [MZJ series](#)

Point

Achieved the Industry's Highest Capacitance Up to 3.8 Times More than Conventional Series

The MHS series uses thinner separator paper and high gain foil to increase the surface area while maintaining the same withstand voltage. These two raw materials make capacitance up-to 3.8 times higher compared to conventional series*¹ and have achieved the industry's highest capacitance for a product with guaranteed long-life at 125°C. In addition, it uses a high-performance electrolyte with excellent low temperature characteristics, low vapor pressure, and low evaporation at high temperatures. The newly developed sealing rubber suppresses the evaporation of the electrolyte at high temperatures. This has made it possible to meet both the 125° C long-life requirement and the high temperature reflow requirement.

*¹ Our MVH Series

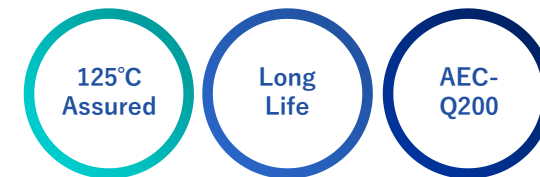


Difference in capacitance

Aluminum Electrolytic Capacitors MHL Series

《Function in Circuit》

The MHL series has realized high heat resistance and super-long life by using superior rubber seal materials. These two features make MHL suitable for power supplies of several types of ECUs. We have developed this highly durable material to address the issue of rising internal temperature due to extended life vehicle designs, deterioration of the installation environment, and increased heat generation in semiconductors. This approach of pursuing high durability through these material technologies will contribute to enhancing the functionality of automotive devices. An optional anti-vibration holder is available and reaches vibration resistance of 30G.



[Specifications]

- Style : SMD
- Category temp range : -40~+125°C
- Rated voltage : 10~35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 2,000~4,000hrs
- Shelf life : 125°C / 1,000hrs

See More >

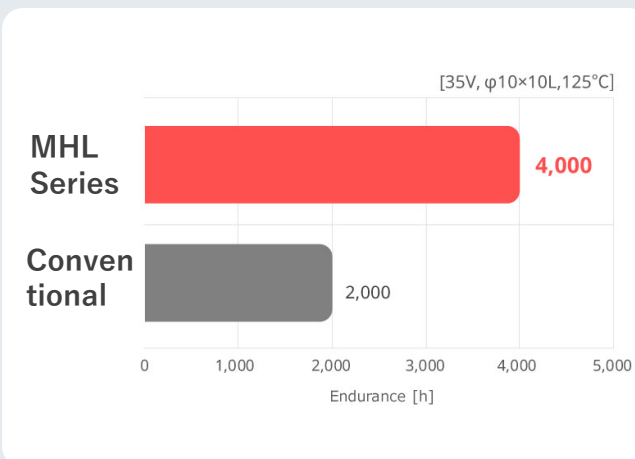
Similar item : [MHK series](#) [MZS series](#) [MZR series](#)

Point

Reached Industry Highest Level of Durability 4,000 Hours at 125°C

By precisely controlling the amount of electrolyte, the MHL series has achieved approximately twice the life of conventional products*¹ as well as reduced ESR and size. The combination of our original durable electrolyte and the precise production process can extend the life to 4,000 hours at 125°C, even with a rubber seal structure.

*¹ Our MVH Series



Difference in Endurance

Aluminum Electrolytic Capacitors PXD Series

《Function in Circuit》

The PXD series uses our original conductive polymer technology, which features state of the art super low ESR and long life. It is most suitable for rectifiers of DC/DC converters and decoupling of semiconductors like SoC. ECUs are becoming more complex every day as they become more sophisticated in functionality and information processing. The ultra-low ESR and long-life PXD series is an optimized solution to replace and reduce the number of MLCCs installed.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 2.5~10V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 2,000hrs

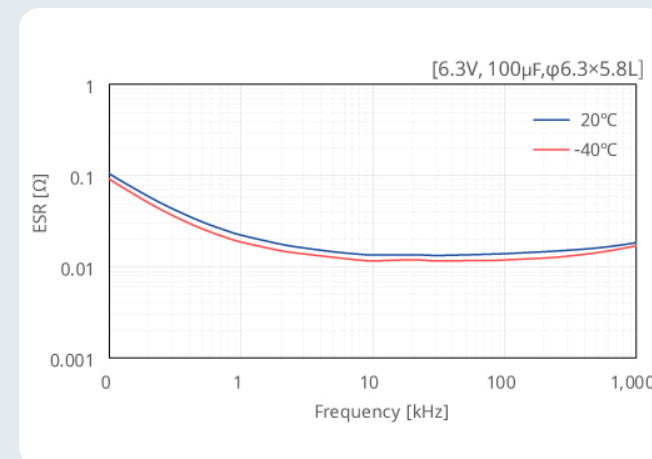
See More >

Similar item : [PXN series](#)

Point

Super Low ESR and Extend up to 125°C

The PXD series uses conductive polymer technology, which features the characteristics of super-low ESR and high capacitance. It is guaranteed to withstand temperatures up to 125°C and is compliant with AEC-Q200. In addition, our original polymer technology resolves the problem of open mode failure at the end of life. Our polymer technology does not use liquid electrolyte at all, allowing for high reliability.

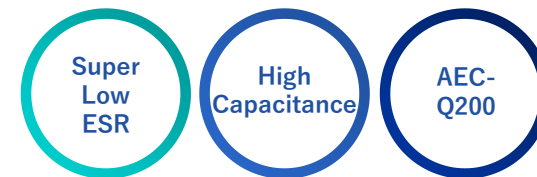


ESR vs Frequency

Aluminum Electrolytic Capacitors HXJ Series

《Function in Circuit》

The HXJ series is ideal for rectifier and noise reduction applications in various types of ECUs and DC/DC converters due to its super low ESR and high temperature characteristics. Moreover, the HXJ series has another feature, high capacitance technology, that contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 16~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 4,000hrs

See More >

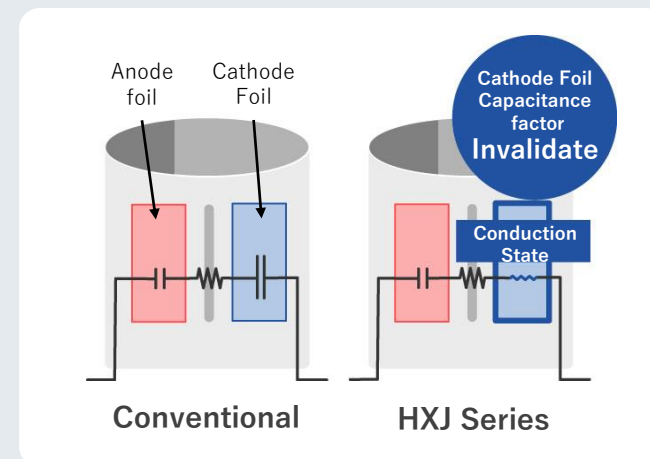
Similar item : [HXC series](#) [HXD series](#)

Point

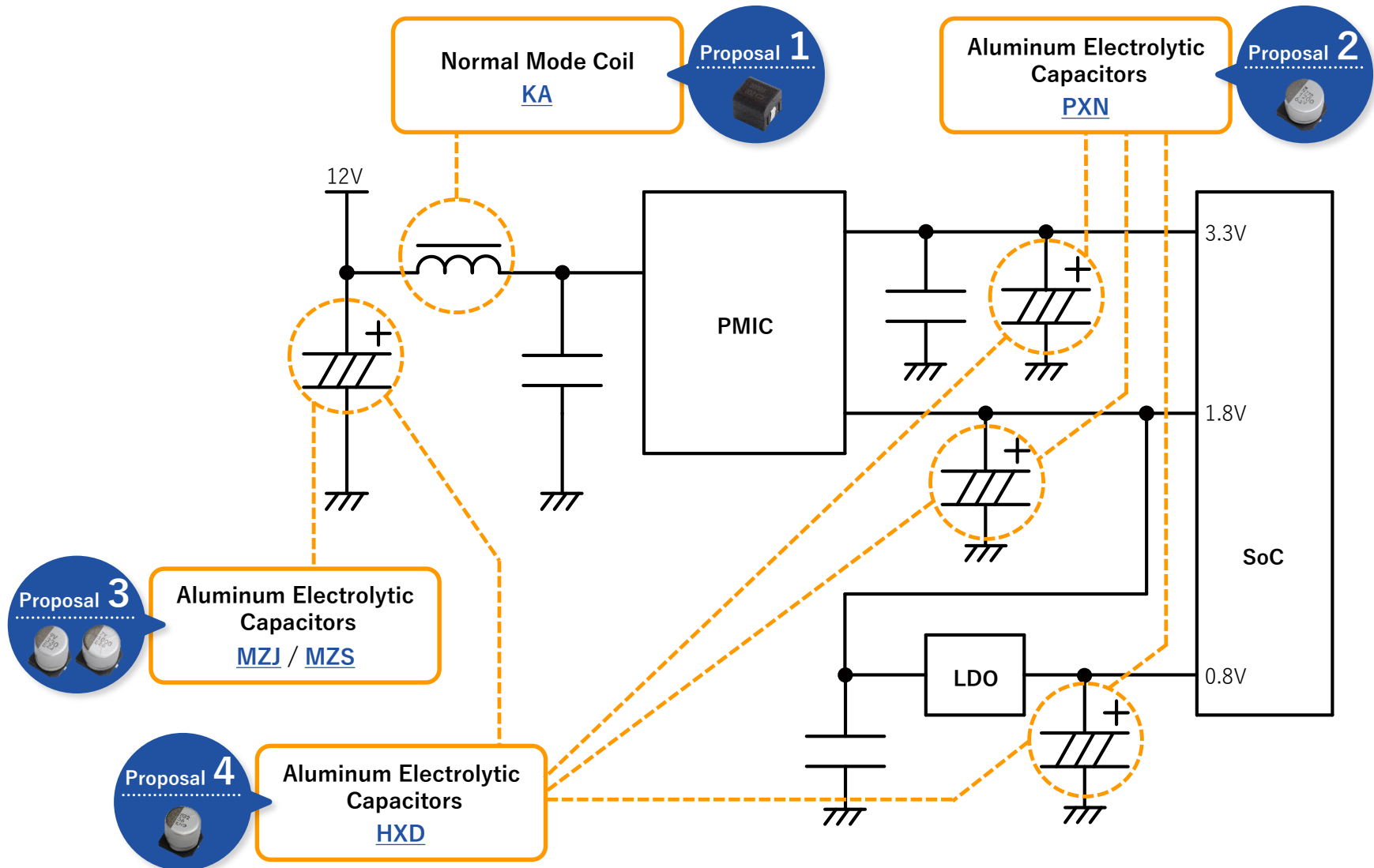
New Type of Cathode Foil Enhances Values of High Gain Anode Foil

Nippon Chemi-Con has utilized advanced and innovative technology to create the new HXJ series. The capacitance of an aluminum electrolytic capacitor depends upon the combined capacitance of the anode and cathode foils. It is difficult to induce more capacitance even when the cathode foil shows high capacitance. However, newly established advanced technology can make the cathode foil extremely close to zero resistivity. In other words, the capacitance no longer depends upon the capacitance of the cathode foil but only on the genuine capacitance of the anode foil. As a result, the HXJ series achieves 20% to 40% greater capacitance than conventional products*1. We will continue to promote innovative approaches to achieve further advances in the near future.

*1 Our HXC Series



Difference in cathode foil (inside capacitance)



Normal Mode Coil KA Series

《Function in Circuit》

The KA series is an SMD type of normal mode coil and can function as a noise filter in power supplies of instrument panels and LED displays. The non-wound type of iron-based amorphous core (one copper wire penetrates two cores) has the advantage of lower DCR and is very stable under high temperature conditions. KA products are not damaged by instantaneous high current from load dump surges, making them good for protecting the back end of circuits. In addition, it is robust against vibration and useable at 150°C. We offer three types of core permeability.



[Specifications]

- Style : SMD
- Category temp range : -40~+150°C
- Rated current : 10~50A
- Rated inductance : 0.3~0.53μH, 20kHz
*1 Custom,-made products are also available.
- DCR : 0.78 mΩmax

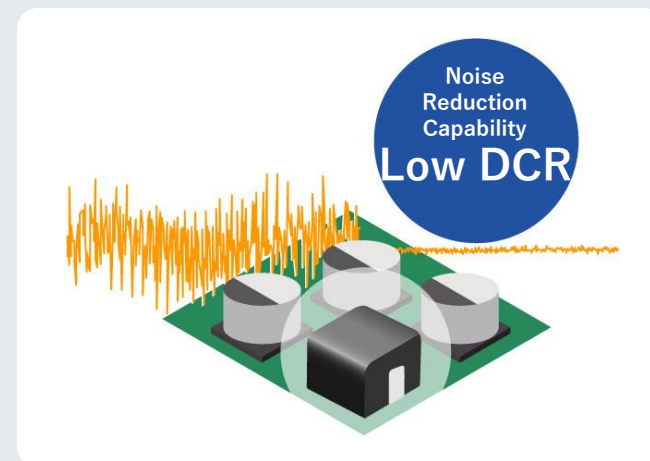
See More >

Similar item : [SM series](#)

Point

SMD Type Needs Less Area on PCB

The KA series is an SMD style of normal mode choke coil. Unlike other wound coil products, a thicker copper wire penetrates the iron-based (highly saturated magnetic flux density) amorphous cores to ensure coil performance. These cores are processed through heat treatment which, makes it possible for the KA series to maintain high inductance even at high currents. This amorphous material has a high Curie Temperature, which means it maintains stable characteristics even at high temperatures. We utilize high-heat compatible resin for the exterior to ensure the KA series is useable at 150°C. Inductance can be set by optimizing the permeability according to the current used, which makes it possible to customize KA products.



KA series is best for noise reduction

Aluminum Electrolytic Capacitors **PXN** Series

《Function in Circuit》

The PXN series uses our original conductive polymer technology, which features state of the art super low ESR and long life. It is most suitable for output filters of DC/DC converters and decoupling of power supplies for semiconductors. In addition, 16V products have been newly added for automotive grade, which increases robustness. ECUs are becoming more complex every day as they become more sophisticated in functionality and information processing. The low ESR and high capacitance of the PXN series make it an optimized solution to replace and reduce the number of MLCCs installed.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 2.5~16V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 5,000hrs

See More >

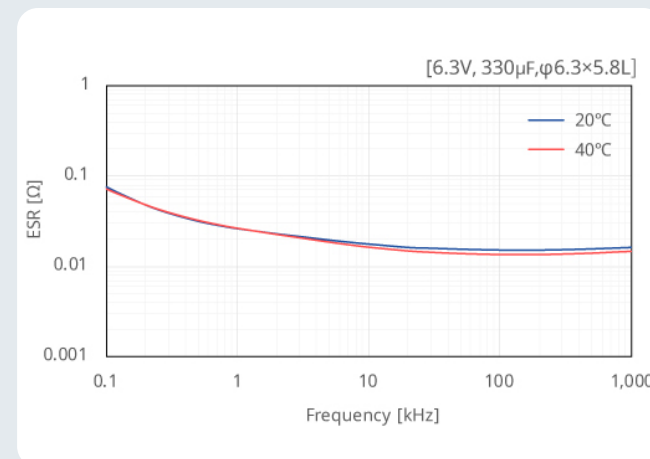
Similar item : [PXD series](#)

Point

Adopting High Gain Foil and Optimizing Element Structure Provides Ultra Low ESR

The PXN series uses high gain foil and optimizes element structure. In addition, the PXN series is compliant with AEC-Q200. Compared to conventional series*1, the PXN series offers 3.2 times more capacitance as well as achieves 1,000 hours of humidity resistance (85°C 85%RH). The PXN series maintains the same high reliability of open mode failure at the end of life as liquid electrolyte aluminum electrolytic capacitors and adds a rated voltage of 16V, one level up from conventional products.

*1 Our PXD Series



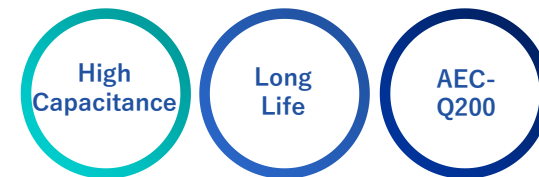
ESR vs Frequency

Aluminum Electrolytic Capacitors **MZJ** Series

《Function in Circuit》

The MZJ series is the ideal product to meet the need for large capacitance to respond to momentary power loss caused by higher energy consumption and higher functionality of semiconductors such as SoCs in ECUs. In addition, the MZJ series' low ESR characteristic improves the current capability compared to conventional products*1. An optional anti-vibration holder is available and can withstand 30G.

*1 Our MVY Series



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 6.3~50V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 2,000~5,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

Similar item : [MHS series](#)

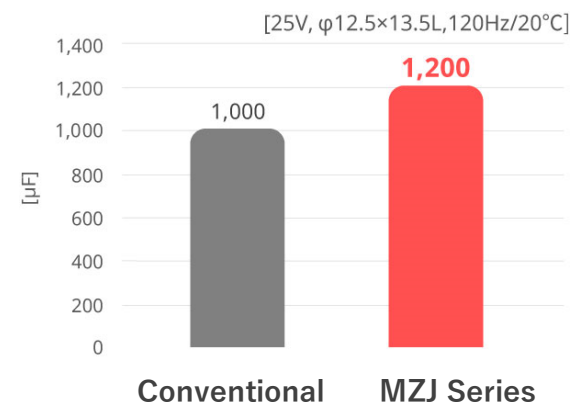
Point

Innovation in Electrolyte Leads to More Capacitance

The MZJ series adopts a low resistivity electrolyte and separator paper. These two materials have enabled 20% more capacitance compared to conventional products*1. In addition, the ESR at 100kHz has been reduced by up to 40% which increases the noise reduction capability compared to conventional products*2. The ripple current capability shows 50% improvement compared to conventional products*1. The MZJ series is a large capacitance SMD type with diameters of 12.5mm or larger. The large capacitance contributes to the reduction of the number used on a PCB.

*1 Our MZA Series

*2 Our MVY Series



Difference in capacitance

Aluminum Electrolytic Capacitors **MZS Series**

《Function in Circuit》

The MZS series uses superior raw materials to provide high capacitance and low ESR. The MZS series is designed to respond to higher capacitance needs created by increased functionality and higher current consumption of semiconductors, such as SoCs, installed in ECUs. High capacitance also has other advantages; it means less pieces on the PCB which saves space. An optional anti-vibration holder is available, which upgrades vibration resistance to 30G.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 25, 35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 2,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

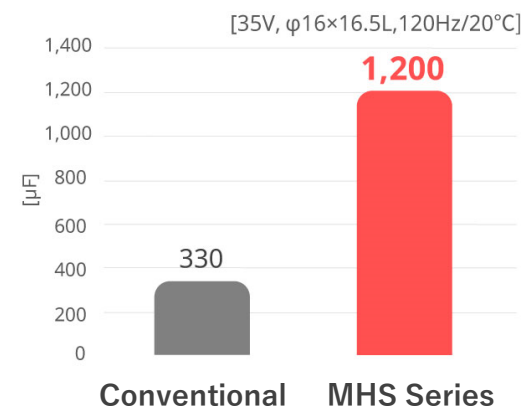
Similar item : [MZR series](#)

Point

Uses High Gain Foil, Up to 40% More Capacitance than Conventional Products*1

The MZS series uses high gain foil which makes the capacitance 40% more than conventional products*1. Innovative technology is required to maintain automotive standards. Nippon Chemi-Con is able to overcome this difficulty because it is a vertically integrated company; we develop and manufacture raw materials, especially foil and production machines, ourselves. This allows us to introduce new technologies and continuously develop new markets. The MZS series provides benefits to our customers such as a lower profile and highly efficient reflow soldering . The MZS series works in countermeasures against instantaneous power loss; graphic applications such as car navigations, car audio sets and instrument panels; and in supplemental power supplies.

*1 Our MZR Series

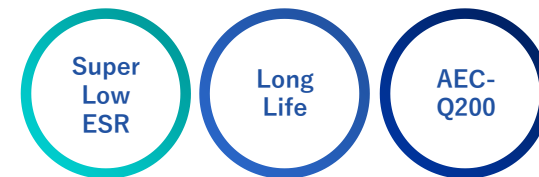


Difference in capacitance

Aluminum Electrolytic Capacitors **HXD Series**

《Function in Circuit》

The HXD series of hybrid capacitors has super-low ESR and long-life characteristics, making it ideal for noise reduction and rectifier applications in DC/DC converters and ECUs. The HXD series' 105°C long-life design is especially suited for ECUs installed in the cabin due to its high reliability even in harsh environments. An optional anti-vibration holder enables it to withstand 30G.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 16~80V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 5,000~10,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

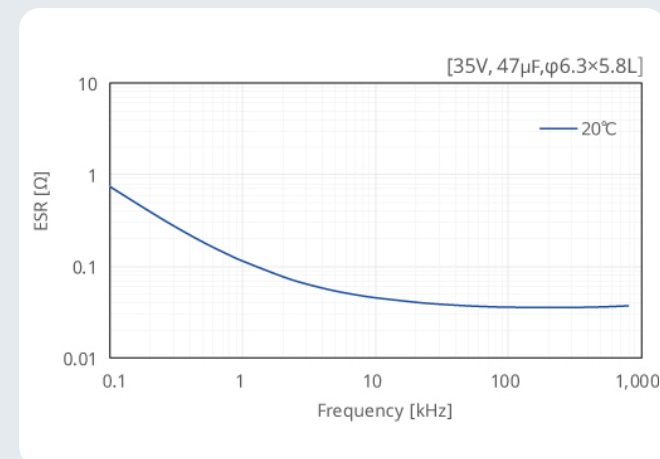
Similar item : [HXC series](#) [HXJ series](#)

Point

Hybrid Capacitor Technology Provides Lower ESR

The HXD series is a hybrid capacitor, which uses both conductive polymer and electrolyte. Hybrid capacitors combine the best characteristics of both: lower ESR and high heat resistance from conductive polymer and oxide layer self-healing ability from electrolyte. These two materials allow a rated voltage of 80V maximum and a lifetime of 5,000 to 10,000 hours at 105°C. In addition, the new electrolyte, which is good combination of conductive polymer materials and has high humidity resistance, makes it possible to extend the guaranteed life from 1,000*1 to 2,000 hours, even under conditions of 85°C and 85%RH.

*1 Our HXB Series



ESR vs Frequency

[D.R.A.S Approach to High Sound Quality]

We have developed new high-resolution sound aluminum electrolytic capacitors, which are specialized for the next generation of car audio.

These products enable expression of high-resolution audio and visual in multifunctional ways. Nippon Chemi-Con has named it DRASTIC Technology [D.R.A.S].

D Durable

Introduction of component mounting structure with excellent vibration resistance .

R Reflow Soldering

Supports industry-leading mounting technology (through-hole reflow)

A Accurate

Thoroughly suppresses cross-modulation distortion and optimizes high-resolution audio

S Sound (High Grade)

Achieve powerful transient response with ample capacitance

Through-hole Reflow
Aluminum Electrolytic
Capacitors

Proposal 1



Aluminum Electrolytic
Capacitors
MAK

Proposal 2



Aluminum Electrolytic
Capacitors
MAR

Proposal 3

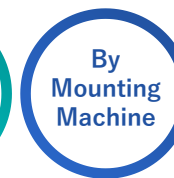


Through-hole reflow

Aluminum Electrolytic Capacitors

《Function in Circuit》

[Through-hole Reflow Products] target decoupling functions of power supply, which is a big factor in deciding the sound quality of the automotive audio system. This item reproduces reality in both image and sound for the next generation of high-resolution sound sources. In addition, the items are compatible with reflow which results in improving implementation efficiency and reducing total cost.



[Specifications]

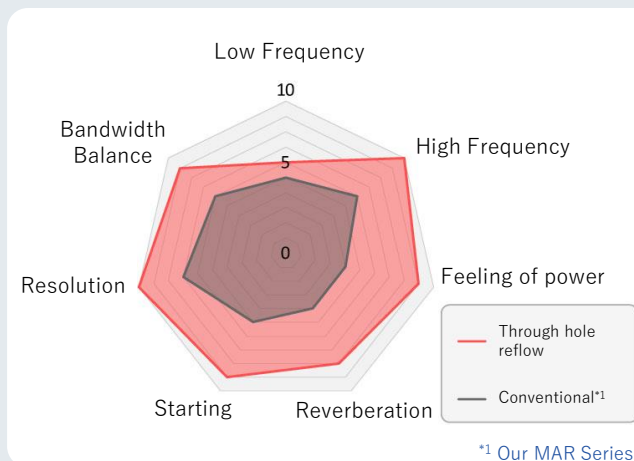
- Category temp range : -40~+105°C
- Rated voltage : 25V
- Capacitance : 2,200μF
- Rated ripple current : 2,000mA rms / 105°C, 100kHz
- Endurance : 105°C / 3,000hrs
- Dimension : φ 12.5 × 23L Max.

See More >

Point

High Quality Sound by 「D.R.A.S.」

We made full use of D.R.A.S technology, which uses high-resolution sound sources, to produce high sound quality. The acronym D.R.A.S stands for Durable, Reflow, Accurate, and Sound. Even during rapid load fluctuations that occur at high volume levels, a stable supply of charge is achieved (improved by more than 20%). The stable supply of electric charge and reduced ESL suppress sound shaking and harmonic noise. The mid to high frequency range has been greatly improved to realize a transparent and clear sound expression.



*1 Our MAR Series

Quality of Sound Radar Chart

Aluminum Electrolytic Capacitors **MAK Series**

《Function in Circuit》

[MELODIO] is an original product created from Nippon Chemi-Con's audio capacitor know-how, data, and experience. The MAK series is one of the 「MELODIO」 products, and fits the needs of developing infotainment systems and higher quality sounds in car audio entertainment by reproducing high-resolution sound sourced from digital data.






[Specifications]

- Style : SMD
- Category temp range : -40~+105°C
- Rated voltage : 6.3~50V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 1,000hrs
- Shelf life : 105°C / 1,000hrs

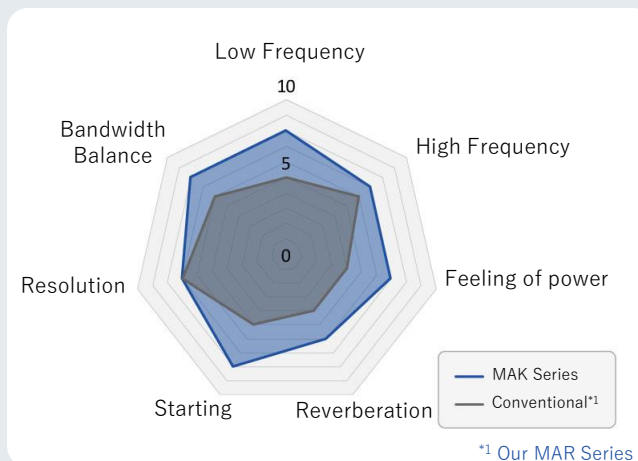
[See More >](#) 

Similar item : [MAR series](#) [AVH series](#) [AJ series](#)

Point

Good Bandwidth Balance and Rich and Pure Sound Reproduction

Aluminum Electrolytic Capacitors are a key component with significant impact on the quality of sound in car audio in the CASE era. Automotive-use aluminum electrolytic capacitors for sound are usually custom-made by evaluating and selecting individual raw materials. The MAK series is part of the 「MELODIO」 premium sound capacitor brand. It specializes in good performance in a wide frequency range and reproduces rich and pure sound.

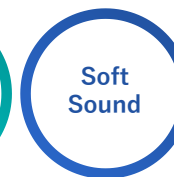


Quality of Sound Radar Chart

Aluminum Electrolytic Capacitors **MAR Series**

《Function in Circuit》

[MELODIO] is an original product created from Nippon Chemi-Con's audio capacitor know-how, data, and experience. The MAR series is one of the 「MELODIO」 products, and fits the needs of developing infotainment systems and higher quality sounds in car audio entertainment by reproducing high-resolution sound sourced from digital data.



MELODIO



[Specifications]

- Style : SMD
- Category temp range : -40~+85°C
- Rated voltage : 6.3~50V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 85°C / 2,000hrs
- Shelf life : 85°C / 500hrs

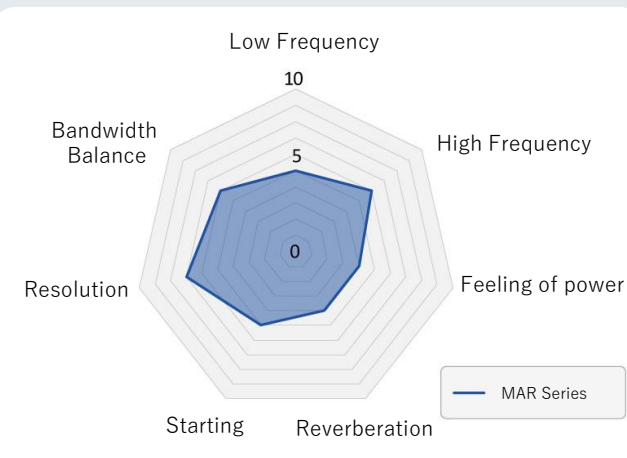
See More >

Similar item : [MAK series](#) [AVH series](#) [AJ series](#)

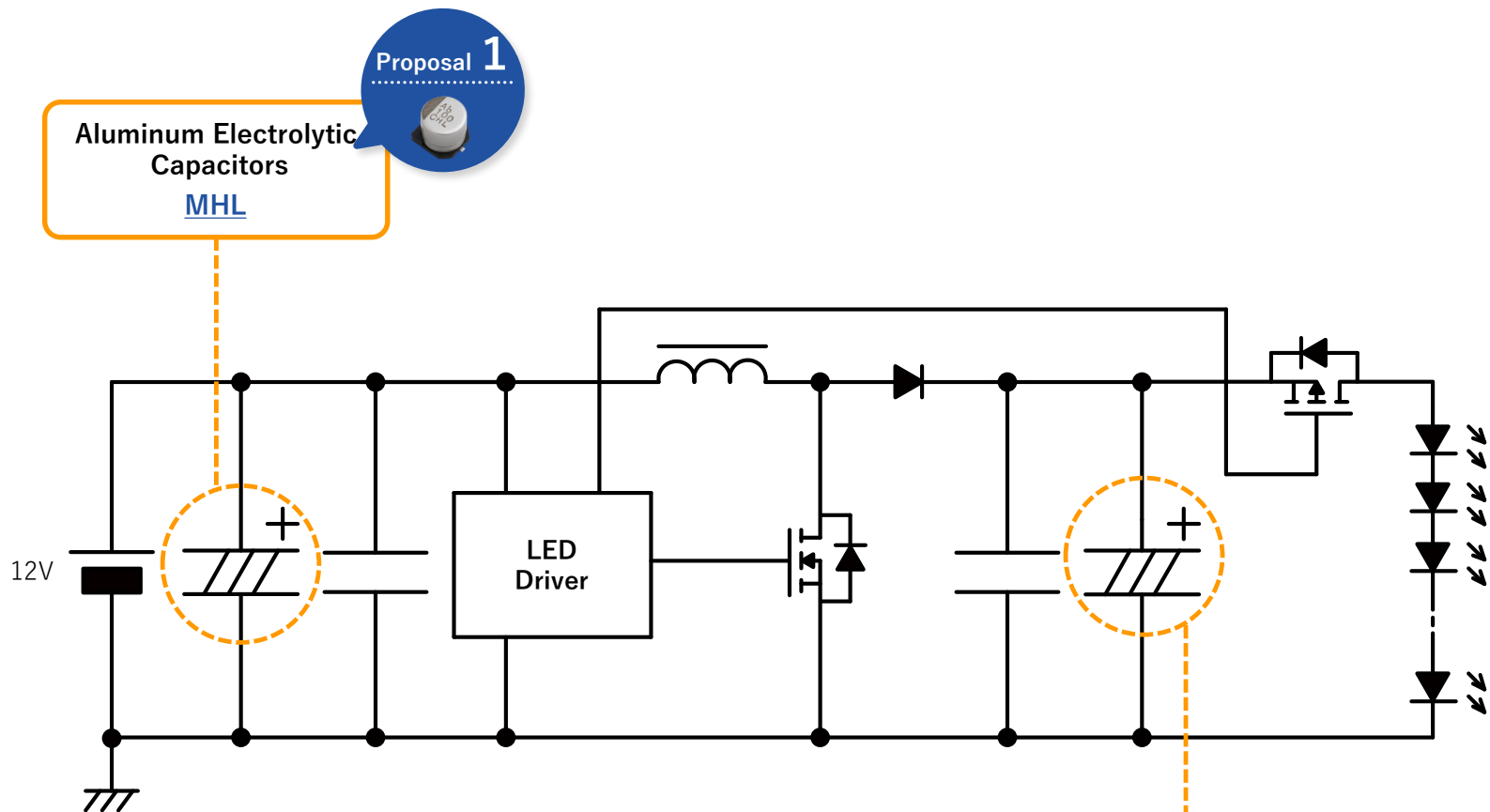
Point

Rich Middle Range and Soft/Comfortable Sound

Aluminum Electrolytic Capacitors are a key component with significant impact on the quality of sound in car audio in the CASE era. Automotive-use aluminum electrolytic capacitors for sound are usually custom-made by evaluating and selecting individual raw materials. The MAR series is part of the 「MELODIO」 premium sound capacitor brand. It specializes in reproducing rich middle range sound and soft and comfortable sound.



Quality of Sound Radar Chart



Proposal 1



Aluminum Electrolytic Capacitors

MHL

Aluminum Electrolytic Capacitors

HXJ

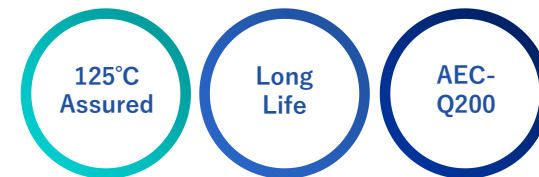
Proposal 2



Aluminum Electrolytic Capacitors **MHL** Series

《Function in Circuit》

The MHL series has realized high heat resistance and super-long life by using superior rubber seal materials. These two features make MHL suitable for power supplies of several types of ECUs. We have developed this highly durable material to address the issue of rising internal temperature due to extended life vehicle designs, deterioration of the installation environment, and increased heat generation in semiconductors. This approach of pursuing high durability through these material technologies will contribute to enhancing the functionality of automotive devices. An optional anti-vibration holder is available and reaches vibration resistance of 30G.



[Specifications]

- Style : SMD
- Category temp range : -40~+125°C
- Rated voltage : 10~35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 2,000~4,000hrs
- Shelf life : 125°C / 1,000hrs

See More >

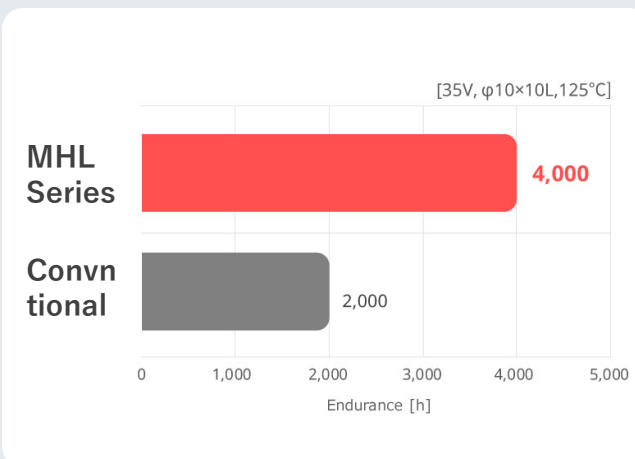
Similar item : [MHK series](#)

Point

Reached Industry Highest Level of Durability 4,000 Hours at 125°C

By precisely controlling the amount of electrolyte, the MHL series has achieved approximately twice the life of conventional products*¹ as well as reduced ESR and size. The combination of our original durable electrolyte and the precise production process can extend the life to 4,000 hours at 125°C, even with a rubber seal structure.

*¹ Our MVH Series

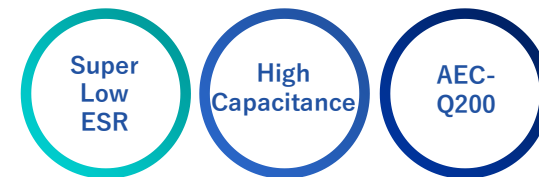


Difference in Endurance

Aluminum Electrolytic Capacitors HXJ Series

《Function in Circuit》

The HXJ series is ideal for rectifier and noise reduction applications in DC/DC converters for both exterior (head and rear lights) and interior (ambient lamp) lighting, due to its super-low ESR and high temperature characteristics. Moreover, the HXJ series has another feature, high capacitance technology, that contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.



[Specifications]

- Style : SMD
- Category temp range : -55~+125°C
- Rated voltage : 16~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 4,000hrs

See More >

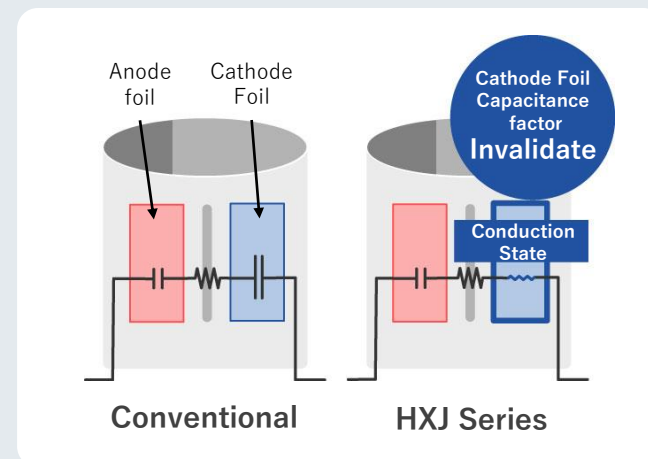
Similar item : [HXC series](#)

Point

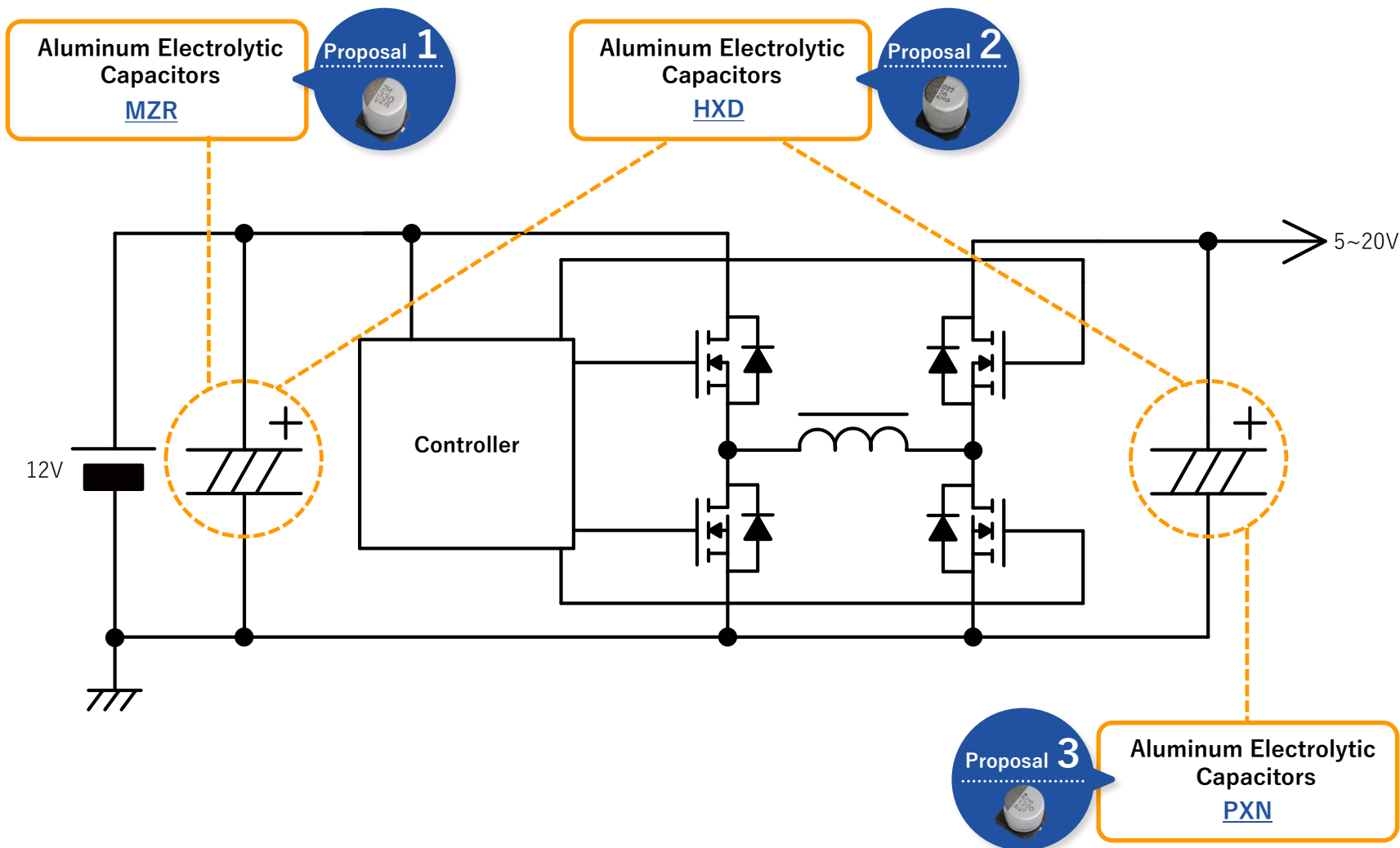
New Type of Cathode Foil Enhances Values of High Gain Anode Foil

Nippon Chemi-Con has utilized advanced and innovative technology to create the new HXJ series. The capacitance of an aluminum electrolytic capacitor depends upon the combined capacitance of the anode and cathode foils. It is difficult to induce more capacitance even when the cathode foil shows high capacitance. However, newly established advanced technology can make the cathode foil extremely close to zero resistivity. In other words, the capacitance no longer depends upon the capacitance of the cathode foil but only on the genuine capacitance of the anode foil. As a result, the HXJ series achieves 20% to 40% greater capacitance than conventional products*1. We will continue to promote innovative approaches to achieve further advances in the near future.

*1 Our HXC Series



Difference in cathode foil (inside capacitance)



Aluminum Electrolytic Capacitors MZR Series

《Function in Circuit》

The MZR series realizes downsizing and lower ESR through a combination of raw materials and production method, which make it ideal for USB output filter applications. Customers are able to select the most suitable item from diameters of 5 to 10mm to fit a wide variety of devices. In addition, an optional anti-vibration holder is available to withstand vibration of 30G.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 6.3~50V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 2,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

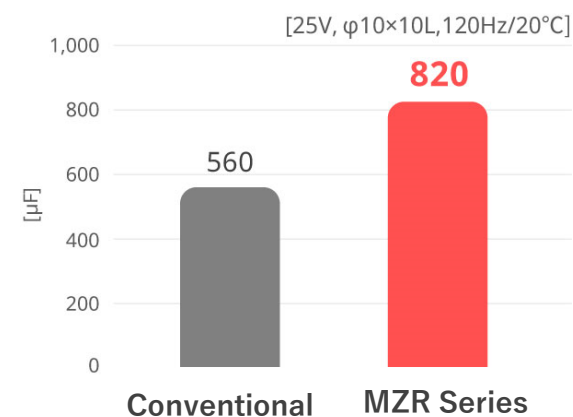
Similar item : [MZA series](#)

Point

Chemi-Con Designed Raw Materials and Production Equipment Help to Create Advanced Products

The MZR series utilizes high gain foil to achieve up to 50% higher capacitance than conventional products*1. Advanced raw materials and production technology are required to continue to innovate while meeting automotive quality standards. Nippon Chemi-Con is a vertically-integrated company, allowing us to develop our own raw materials, including foils, and production lines. In addition, the MZL series, which is being developed as a similar series, uses evaporation-suppressing rubber and an optimum amount of electrolyte to upgrade the guaranteed life from 2,000 hours to 5,000 hours at 105°C while keeping the lower ESR level.

*1 Our MZJ Series

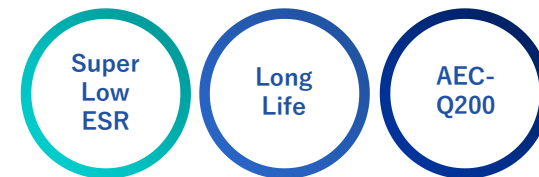


Difference in capacitance

Aluminum Electrolytic Capacitors **HXD Series**

《Function in Circuit》

The HXD series of hybrid capacitors has super-low ESR and long-life characteristics, making it ideal for noise reduction and rectifier applications in DC/DC converters and ECUs. The HXD series' 105°C long-life design is especially suited for ECUs installed in the cabin due to its high reliability even in harsh environments. An optional anti-vibration holder enables it to withstand 30G.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 16~80V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 5,000~10,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

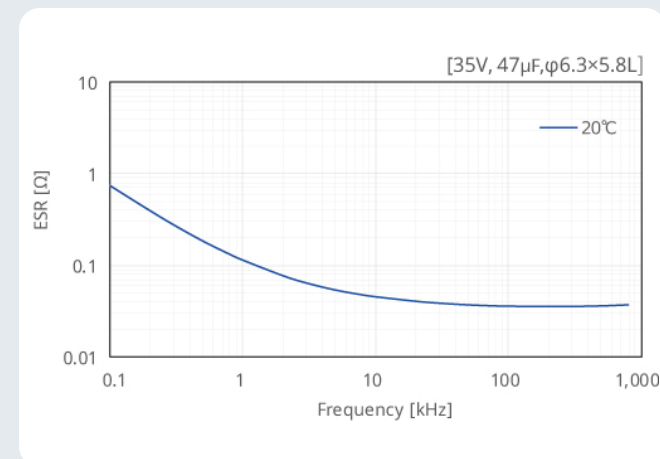
Similar item : [HXC series](#) [HXJ series](#)

Point

Hybrid Capacitor Technology Provides Lower ESR

The HXD series is a hybrid capacitor, which uses both the conductive polymer and electrolyte. Hybrid capacitors combine the best characteristics of both: lower ESR and high heat resistance from conductive polymer and oxide layer self-healing ability from electrolyte. These two materials allow a rated voltage of 80V maximum and a lifetime of 5,000 to 10,000 hours at 105°C. In addition, the new electrolyte, which is good combination of conductive polymer materials and has high humidity resistance, makes it possible to extend the guaranteed life from 1,000*¹ to 2,000 hours, even under conditions of 85°C and 85%RH.

*¹ Our HXB Series



ESR vs Frequency

Aluminum Electrolytic Capacitors PXN Series

《Function in Circuit》

The PXN series uses our original conductive polymer technology, which features state of the art super-low ESR and long life. It is most suitable for output filters of DC/DC converters and decoupling of power supplies for semiconductors. In addition, 16V products have been newly added for automotive grade, which increases robustness. ECUs are becoming more complex every day as they become more sophisticated in functionality and information processing. The low ESR and high capacitance of the PXN series make it an optimized solution to replace and reduce the number of MLCCs installed.



[Specifications]

- Style : SMD
- Category temp range : -55~+105°C
- Rated voltage : 2.5~16V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 5,000hrs

See More >

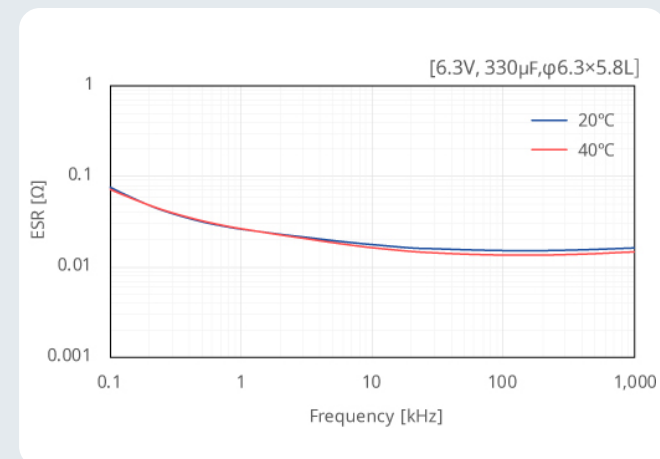
Similar item : [PXD series](#)

Point

Adopting High Gain Foil and Optimizing Element Structure Provides Ultra Low ESR

The PXN series uses high gain foil and optimizes element structure. In addition, PXN is compliant with AEC-Q200. Compared to conventional series*¹, the PXN series offers 3.2 times more capacitance as well as achieves 1,000 hours of humidity resistance (85°C 85%RH). The PXN series maintains the same high reliability of open mode failure at the end of life as liquid electrolyte aluminum electrolytic capacitors and adds a rated voltage of 16V, one level up from conventional products.

*¹ Our PXD Series



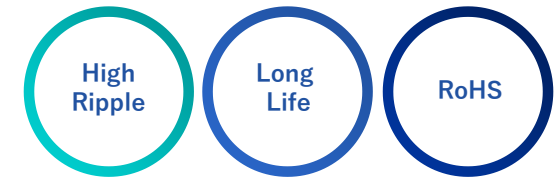
ESR vs Frequency



Aluminum Electrolytic Capacitors **RWK Series**

《Function in Circuit》

The RWK series adopts a unique high ripple current structure and is ideal for power supply and rectifiers for quick AC/DC chargers and ordinary chargers. This series is best suited to applications that require higher capacitance and higher ripple current capability. Usually, higher ripple current applications automatically need higher capacitance products; customers can consider using the RWK series to avoid using larger case size products for higher capacitance products.



[Specifications]

- Style : Screw terminal
- Category temp range : -40~+85°C
- Rated voltage : 350~450V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 85°C / 5,000hrs
- Shelf life : 85°C / 500hrs

See More >

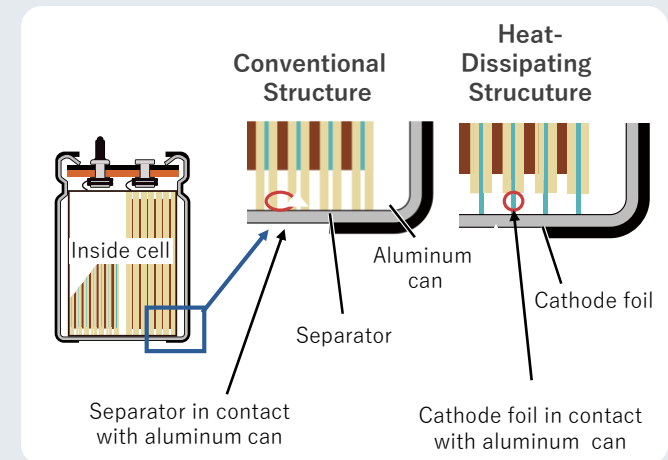
Similar item : [RWJ series](#)

Point

Unique Heat-Dissipating Structure for High Ripple Current Capability

Products specialized for high ripple current always face the problem of high heat generation. The RWK series, which introduces Nippon Chemi-Con's new, original heat dissipation structure, improves heat dissipation by increasing the contact between the cathode foil and aluminum can. This allows high ripple current to be achieved while still dissipating heat, allowing the RWK series to be used in charging pile applications. Regarding ripple current, compared with conventional products^{*1}, the ripple current tolerance is increased by up to 10% and the ripple current tolerance per unit capacitance is increased by up to 30%.

^{*1} Our RWH Series



Heat-dissipating structure with contact between cathode foil and aluminum can

Aluminum Electrolytic Capacitors **LHJ Series**

《Function in Circuit》

The LHJ series adopts a unique structure that enhances ripple current capability by improving the anode foil and electrolyte system. It is suitable for quick charging and ordinary charging systems. Compared to conventional products*¹ with the same ripple current, the LXJ series is smaller in size, and the number of pieces can be reduced. As a result, the LXJ series contributes to the miniaturization, longer life, and higher reliability of charging piles.

*¹ Our LXS Series

High
Ripple
Current

5,000H
Assured

RoHS



[Specifications]

- Style : Snap-in
- Category temp range : -40~+105°C
- Rated voltage : 400~450V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 5,000hrs
- Shelf life : 105°C / 1,000hrs

See More >

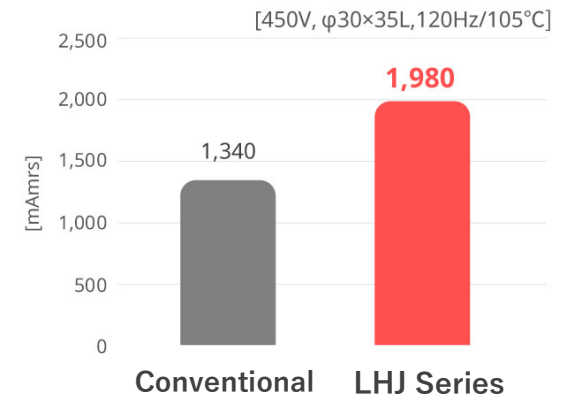
Similar item : [LHS series](#) [KHE series](#)

Point

Operates at Low Temperatures and Improves Ripple Current up to 60%

The LHJ series adopts Nippon Chemi-Con-designed low dielectric loss aluminum foil, a new electrolyte, and a new structure. These technologies allow the LHJ series to achieve 60% higher ripple current than conventional products*¹ and a long life of 5,000 hours at 105°C. The category temperature range extends from -25°C to -40°C, to guarantee a wider range of electrical characteristics at low temperatures. We recommend the LHJ series for a wide variety of applications, including equipment for cold climates.

*¹ Our LXS Series

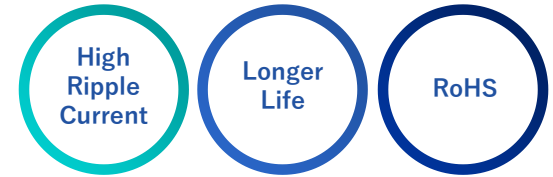


Difference in rated ripple current

Aluminum Electrolytic Capacitors **KXN Series**

《Function in Circuit》

The KXN series adopts top notch raw materials and is the industry's leading compact and long-life product. The KXN series is suitable for rectifiers for power supply in quick charging piles and ordinary charging piles.





[Specifications]

- Style : Radial
- Category temp range : -40~+105°C
- Rated voltage : 350~450V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 105°C / 10,000~12,000hrs
- Shelf life : 105°C / 1,000hrs

See More > 

Similar item : [KXQ series](#) [GXM series](#)

Point

Specialized in Miniaturization, 17% Less Volume Compared to Conventional Products*1

The KXN series adopts Nippon Chemi-Con-made high gain foil, which has succeeded in improving capacitance by 20% to 46% compared with conventional items*1. In addition, the height is reduced by up to 5mm and the volume by 17%; this leads to the miniaturization of your products. The demand for more compact (unit) power supplies with higher capacitance to save space continues to be high. Therefore, Nippon Chemi-Con will continue to develop downsized products.

*1 Our KXL Series



Difference in Capacitance

Ceramic Varistor **SV** Series

《Function in Circuit》

It is important to protect circuits from surges and noise voltage induced by lightning surges and equipment failures from outside the circuits, which cause failures and malfunctions. Our varistors are non-linear elements whose main component is Zinc Oxide(ZnO) and have the characteristic that the resistance drops sharply when a certain voltage is exceeded and a large current flows. This can absorb surges and reduce abnormal voltage, which is very effective in protecting circuits.



[Specifications]

- Style : Radial
- Category temp range : -40~+125°C
- Varistor voltage : 220~1,000V
- Temp cycles : -40~+125°C / 1,000 cycles

See More >

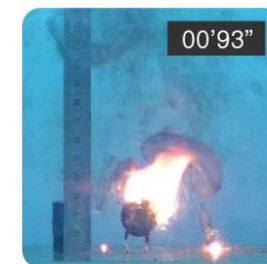
Similar item : [V series](#)

Point

Flame Resistant Silicone Resin Reduces the Risk of Vehicle Fires

Recently, lighting surges due to climate change have been increasing. In addition, in many regions where the power supply environment is still poor, the voltage fluctuations are large. In some cases, large voltage fluctuations have caused varistors to burn out, resulting in fires and accidents. With the spread of xEV worldwide, there is an urgent need to improve charging infrastructure in all regions of the world. We apply highly flame-resistant silicon resin with high density filler to our varistors using a proprietary process while maintaining flexibility. Compared to conventional products*1, the SV series has significantly improved weather resistance, flame resistance, and the shatter proofing of exterior resin when the varistor is destroyed. The SV Series contributes to the reduction of fire risk in equipment exposed to harsh conditions.

*1 Our V Series



Conventional



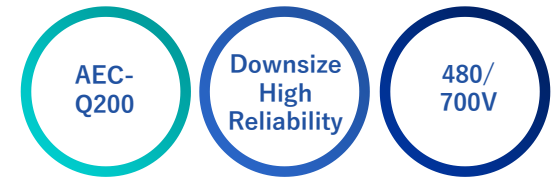
SV Series

Combustion Test

Common Mode Coil **FW** Series

《Function in Circuit》

The FW series is the most suitable common mode coil product for AC noise filters and DC noise filters of quick charging piles and quick charging stations. An iron-based nanocrystalline alloy is used for the core material, achieving a high magnetic permeability core (31,000 μ). As a result, high inductance can be obtained even with a small number of turns, so it is possible to suppress stray capacitance and obtain a high noise suppression effect over a wide frequency range. For AC applications there are three categories: 1) single-phase, 2) three-phase, and three phase/four wires. For DC applications of 700Vdc or more, custom designs are available.





[Specifications]

- Style : Toroidal
- Category temp range : -40~+130°C
- Rated voltage : 250~700V
- Rated current : 7~39A
- Rated inductance : 1.0~11.5mH, 100kHz
- *1 Custom design is also available.
- Max DCR : 1.8~26 m Ω max

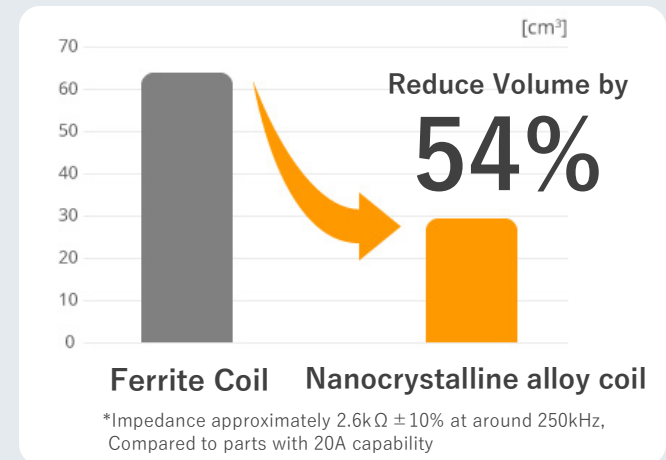
See More > 

Similar item : [FL-V series](#) [FL series](#)

Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of 100,000 μ H at 10kHz and 31,000 μ H at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.



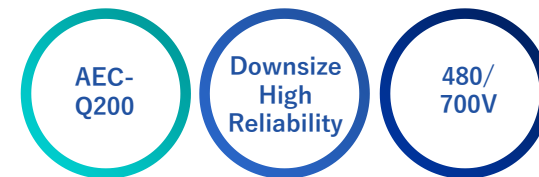
*Impedance approximately 2.6k Ω \pm 10% at around 250kHz, Compared to parts with 20A capability

Volume of coil

Common Mode Coil FW (3 phase) Series

《Function in Circuit》

The FW series is the most suitable common mode coil for noise filters of 3-phase 3-wire (delta connection) and 3-phase 4-wire (star connection) quick charging piles and quick charging stations. It can also be used as a noise suppression core by winding one or several turns of the power cable around the core to suppress line noise. An iron-based nanocrystalline alloy is used for the core material, achieving a high magnetic permeability core ($31,000\mu$). This allows high inductance even with a small number of turns, thus reducing stray capacitance and enabling a high noise suppression effect over a wide frequency band.



Similar item : [FL-V series](#) [FL series](#)

Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of $100,000\mu\text{H}$ at 10kHz and $31,000\mu\text{H}$ at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.



Product lineup with horizontal pedestal base

Ring Core FW Series

《Function in Circuit》

The FW series is the most suitable common mode coil for noise filters for ordinary and quick chargers. It can also be used as a noise suppression core by winding one or several turns of the power cable around the core to suppress line noise. An iron-based nanocrystalline alloy is used for the core material, achieving a high magnetic permeability core (31,000 μ). This allows high inductance even with a small number of turns, which enables noise suppression with fewer turns and fewer cores than ferrite cores.





[Specifications]

- Style : Core
- Category temp range : -40~+130°C
- Inductance coefficient : 25.9~64.6 @100kHz
- Rated dimensions : ϕ D=28.3~66.0
 ϕ d=12.7~41.0
 W=12.3~28.0
- Cross sectional area : 0.41~1.9 cm²
- Magnetic path length : 6.38~16.81cm

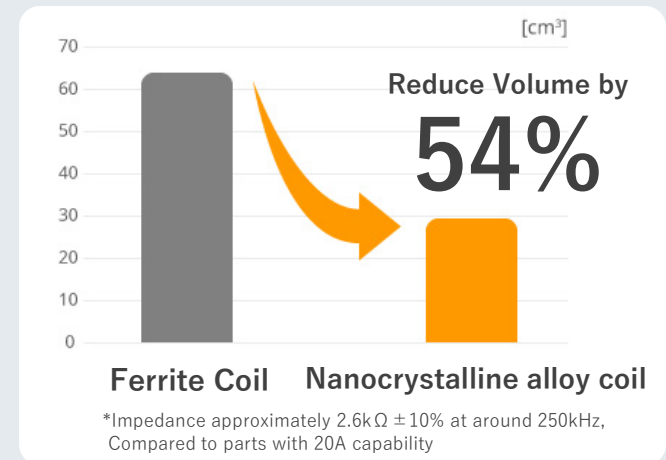
See More >

Similar item : [FL-V series](#) [FL series](#)

Point

World's Highest Magnetic Permeability, Achieve Smaller Size and Lighter Weight

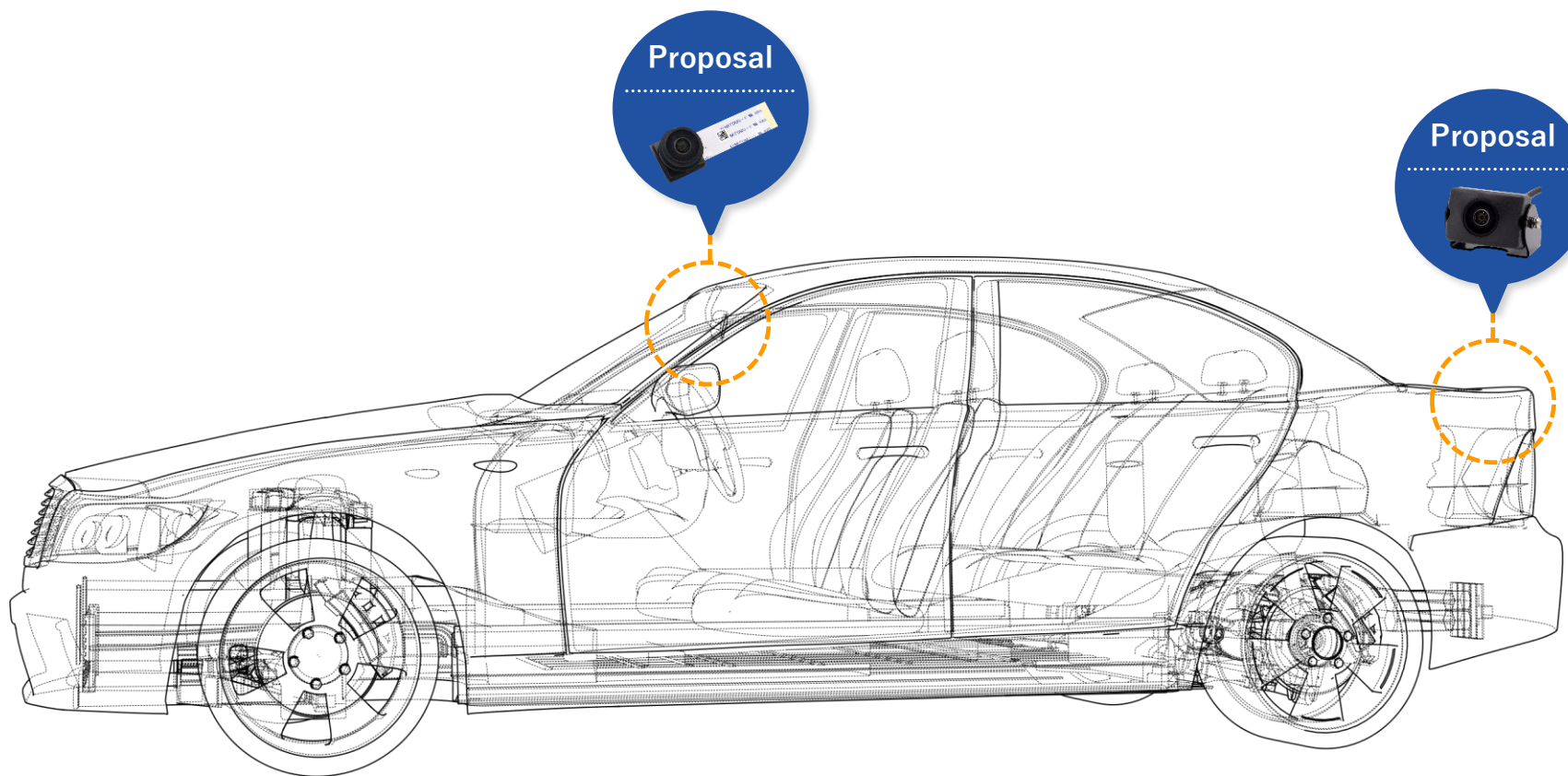
The FW series is a common mode choke coil made of an iron-based nanocrystalline alloy as the core material. Nanocrystalline alloys have significantly higher inductance and magnetic permeability than general ferrite materials. The FW series reaches values of 100,000 μ H at 10kHz and 31,000 μ H at 100kHz, which are the latest and best in our lineup. High magnetic permeability provides better inductance and impedance. Furthermore, by modifying the manufacturing process and material structure, the impedance range from 150kHz to 10MHz has been improved compared to the previous series, FL-V. With its excellent impedance performance in a wide frequency range, we expect it can be used in single-stage filter circuit configuration to reduce noise.



*Impedance approximately 2.6k Ω \pm 10% at around 250kHz, Compared to parts with 20A capability

Volume of coils

Our original optical and signal processing technologies have created camera modules with high image quality, low electrical power consumption, and a smaller size. These modules are ideal for embedded automotive applications that require high reliability



Camera Module NCM12-FC Series

《Function in Circuit》

Nippon Chemi-Con creates high-end camera modules by utilizing the technology we have cultivated for in-vehicle applications, such as drive recorders. Our made-in-Japan camera modules (manufacturing site: Chemi-Con Nagaoka in Niigata Prefecture, a wholly-owned Nippon Chemi-Con subsidiary) maintain a high quality level and are highly evaluated by our automotive customers.

High
Resolution

Less
Noise

AEC-
Q100



[Specifications]

- Interface : Parallel / YUV
- Sensor type : Quad VGA
- Dimensions : 16 × 16 × 16 *1
*1 FPC / FFC part is not included
- Angle(H / V) : 187° / 149° , 127° / 104°
- Optical size : 1/4"

See More >

Point

1.2 Megapixel HDR Camera Module

NCM12-FC is equipped with a 1.23-megapixel CMOS image sensor and image processing engine that complies with AEC-Q100 Grade 2 for automotive use. The camera can be set to suit a wide range of possible conditions such as glaring sunlight during the day, noise reduction in low-light conditions, and natural and realistic rendering in light and dark environments. Our NCM-12-FC is ideal for drive recorders and other in-vehicle cameras.



Conventional



NCM12-FC

(image) Comparison of white-out images with and without HDR

Camera Module NCM12-FE Series

《Function in Circuit》

Nippon Chemi-Con creates high-end camera modules by utilizing the technology we have cultivated for in-vehicle applications, such as drive recorders. Our made-in-Japan camera modules (manufacturing site: Chemi-Con Nagaoka in Niigata Prefecture, a wholly owned Nippon Chemi-Con subsidiary) maintain a high quality level and are highly evaluated by our automotive customers.



Point

1.2 Megapixel LVDS Output HDR Camera Module

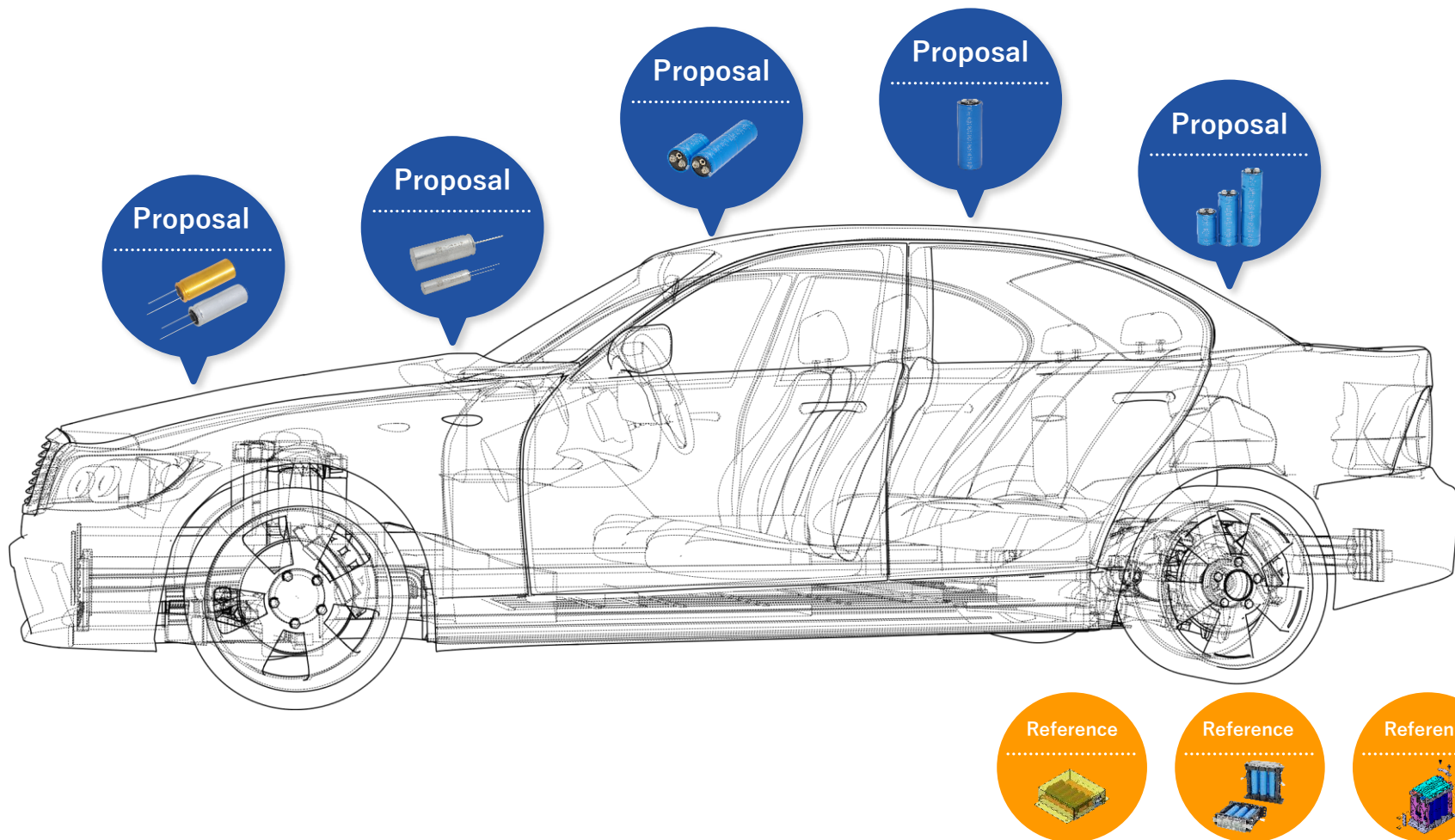
NCM12-FE, which is covered with a water and dust proof (IP67/IP69K) housing, complies with AEC-Q200 Grade 2 and communication standard LVDS(GVIF21). It is also equipped with a 1.23-megapixel CMOS image sensor and image processing engine. It has a high dynamic range and compact size. NCM12-FE is suitable for installation outside the vehicle, such as in a rear-view camera.



Image from rear-view camera *Image

Battery Back-up Diagram

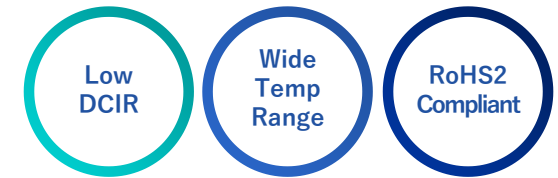
Here we introduce our lineup of double layer capacitors, DLCAP™, which are used in many applications for saving space, engine room mounting, and cold start. In addition, higher voltage resistance and wider temperature range products are newly lined up.



EDLC DKA Series

《Function in Circuit》

Nippon Chemi-Con's radial type of double layer capacitor is called DLCAP™, which is designed as an energy storage device corresponding to needs such as dual electric power supply and redundancy. The DKA series achieves the industry's lowest DCIR, highest power density, super heavy duty charging and discharging cycles, and longest duration at high temperature. The DKA series supports the long-term reliability and safety of automotive power supplies. It is ideal for applications such as high current by-wire systems and back-up power supplies for any electric device.



See More >

Similar item : [DKG series](#)

Point

Safe and Environmentally-friendly Design Contributes to SDGs

DKA series products are safe double layer capacitors; they use a non-acetonitrile-based electrolyte, so no cyanide gas is generated even during combustion. In addition, the DKA series does not contain any heavy metals, which contributes to its environmental friendliness and the development of SDG concepts. In terms of electrical characteristics, the DKA series maintains low DCIR no matter what the ambient temperature is. Its level of performance is the highest in the industry. Horizontal holders and custom-made modules are also available for secure mounting.



Environmentally-friendly DKA Series

EDLC DKG Series

《Function in Circuit》

The DKG series has achieved high energy density by increasing the rated voltage to 2.7V. Furthermore, the DKG series has the characteristics of low DCIR, better charging and discharging cycles, and better performance at high temperature. The durability of the DKG series contributes to the safety and security of automotive power supplies and requires less maintenance compared to rechargeable batteries. The DKG series is optimized for use in supplemental power supplies for applications such as electric door lock cancellation systems, x-by-wire systems, and electric brake systems.




[Specifications]

- Style : Radial
- Category temp range : -40~+65°C
- Rated voltage : 2.7V
- Cap tolerance : -10~+10%(K) / 25°C
- Endurance : 65°C / 2,000hrs
- Shelf life : 70°C / 2,000hrs

See More > 

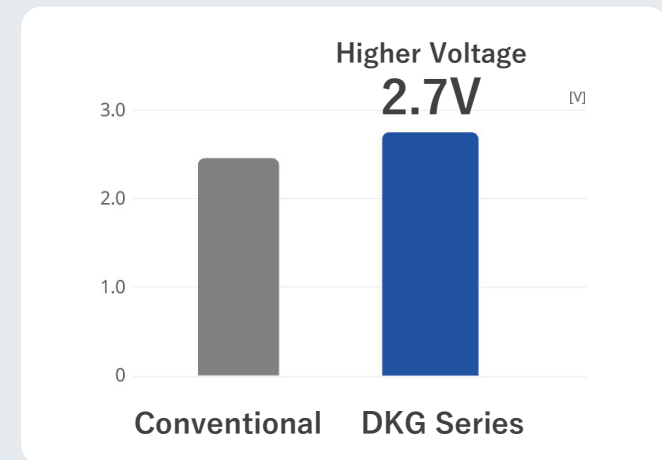
Similar item : [DKA series](#)

Point

Upgrading to 2.7V Creates Higher Energy Density

The DKG series has improved the rated voltage to 2.7V from the 2.5V of conventional products*1 thanks to its superior sealing technology and raw materials. In addition, the improved capacitance per volume has resulted in higher energy density. This leads to an increase in backup time and reliability. Horizontal holders and custom-made modules are also available for secure mounting.

*1 Our DKA Series



Difference in rated voltage

EDLC DXE Series

《Function in Circuit》

Nippon Chemi-Con developed a screw terminal electric double layer capacitor, DLCAP™, for energy storage devices for regenerative braking systems in automobiles and for engine restarts after idling has been stopped. The DXE is best suited for newly-developed energy storage applications, 12V battery replacement systems, and wireless charging systems. The DXE module, which Chemi-Con provides to several customers, will assist in saving development time.

Enable to lay down

Low DCIR

RoHS2 Compliant



[Specifications]

- Style : Screw terminal
- Category temp range : -40~+70°C
- Rated voltage : 2.5V
- Cap tolerance : -10~+10%(K) / 20°C
- Endurance : 70°C / 2,000hrs

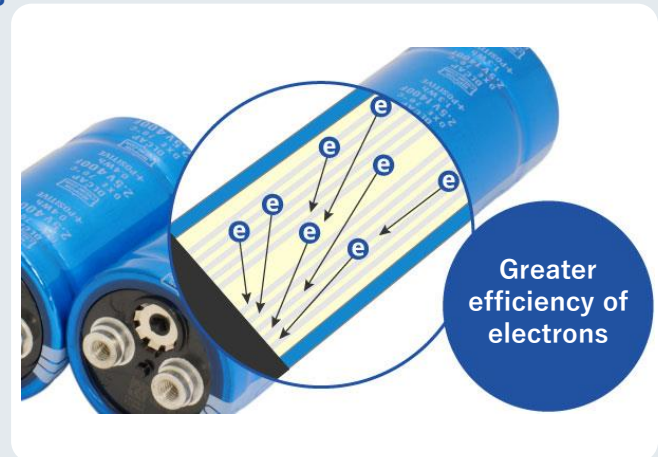
See More >

Similar item : [DXF series](#)

Point

Enhanced Current Collection Technology Reduces Internal Resistance to less than 1.0mΩ

A lot of automotive customers select the DXE series for their automotive products. The main raw material is carbon derived from plants. We changed the structure to reduce internal resistance to 1.0mΩ and collect more electrons inside the cell to realize higher power density and higher charging and discharging capabilities. Partially pressing the aluminum can inside the cell to fix the element and case secure the cell and enable it to withstand 20G. This structure enables mounting inside the engine compartment and horizontal mounting. Furthermore, 7.5V modules (3 pieces of DXE in series) for functional tests and exclusive designed/custom-made modules are also available.



Low DCIR Structure

EDLC DXF Series

《Function in Circuit》

The DXF series features long-standing “safe and secure” technology and a higher rated voltage of 2.8V. This change reduces the number of pieces required and contributes to the downsizing and weight reduction of modules. We recommend that customers use the DXE series for newly-developed energy storage applications, rapid regeneration systems for social infrastructure such as trains, and wireless charging and discharging systems. Our DXF module, which has a proven track record in social infrastructure, saves research and development time.





[Specifications]

- Style : Screw terminal
- Category temp range : -40~+60°C
- Rated voltage : 2.8V
- Cap tolerance : 0~+20%(E) / 20°C
- Endurance : 60°C / 2,000hrs

[See More >](#)

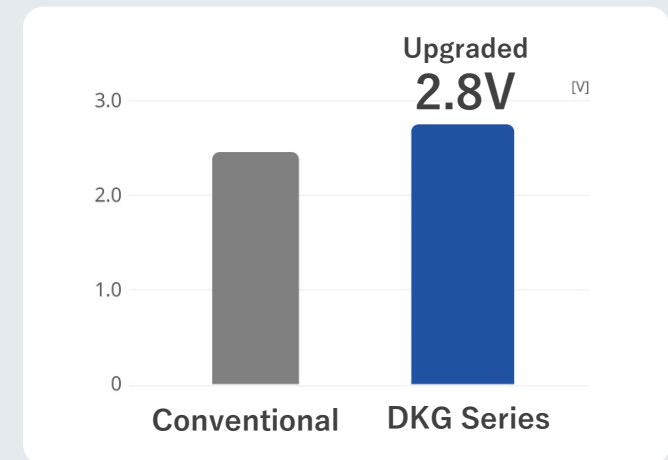
Similar item : [DXG series](#)

Point

Achieve Higher Voltage of 2.8V

The DXF series is a 2.8V and low resistance product, which comes from reviewing the raw materials*¹. Moreover, a temperature derating to 50°C allows use at 3.0V (-40°C to +50°C). The power and energy densities at room temperature have been further improved, making it an ideal specification for battery back-up. In terms of placing on the board, the DXF series makes it possible to reduce the number of pieces and save space. We can also offer exclusive designed/custom-made modules.

*¹ Our DXE Series



Difference in rated voltage

EDLC DXG Series

《Function in Circuit》

The DXG series is an advanced series designed to maintain the concept of “safe and secure” by improving raw materials. The DXG series achieves a higher category temperature of 85°C, lower DCR with high power density, and the low-temperature characteristics required for automotive applications. The DXE series is best suited for newly-developed energy storage applications, 12V battery replacement systems, and wireless charging systems. The DXG Module, which Chemi-Con provides to several customers, will assist in saving development time.

85°C
UseableLow
DCIRRoHS2
Compliant

[Specifications]

- Style : Screw terminal
- Category temp range : -40~+85°C
- Rated voltage : 2.5V
- Cap tolerance : 0~+20%(E) / 20°C
- Endurance : 85°C / 1,500hrs
- Shelf life : 70°C / 3,000hrs

See More >

Similar item : [DXE series](#)

Point

Specialized in Low Temperature Characteristics

The DXG series displays remarkably better low temperature behavior. It is especially designed for supplemental use with lithium-ion batteries to improve the charging and discharging characteristics of lithium-ion batteries. This enables battery assistance and energy management for various electronic components to meet the electrical load in low-temperature environments. On the higher temperature side, the category temperature has been upgraded from 70°C to 85°C, enabling the DXG series to be placed in the engine compartment, which is in high demand in the automotive market. These improvements comes from a new electrolyte, which also has another benefit, low DCIR*1. In terms of mounting and placing on board, the number of units can be reduced to save space. Exclusive designed/custom-made modules are also available.

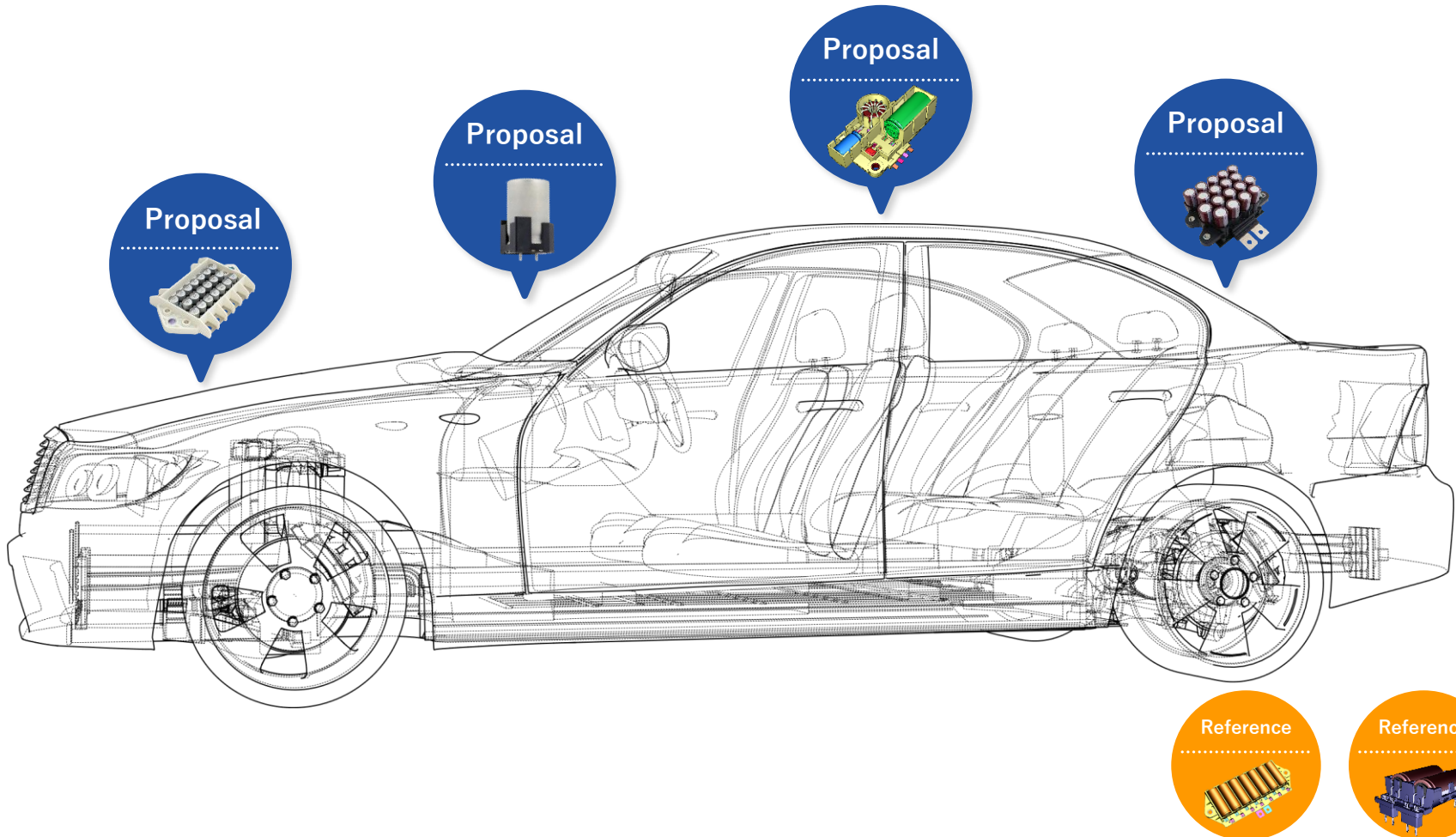
*1 Our DXE Series



Running in cold environments *Image

We offer an extensive lineup of components, consistent quality assurance, and other advantages that only a capacitor manufacturer can provide.

We provide total solutions to reduce electrical, thermal, and mechanical stress!



C Module for 48V DC Link

《Function in Circuit》

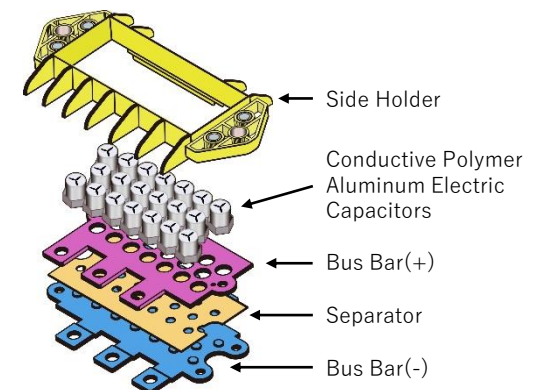
Nippon Chemi-Con offers C modules for 48V DC Link, which are installed in ISG and BSG of mild HV 4-wheel vehicles, miniaturized electric mobility vehicles, and EV scooters and motorcycles. We are ready to submit evaluation boards for quick initial evaluation.



Point

Bus Bar Provides Huge Current Capability and Heat Dissipation

Recently the market, especially the European Market, has started to study 48V systems, which require capacitors to withstand more current than previously, especially in rectifiers of motor drivers. It is costly to place several pieces of aluminum electrolytic capacitors on board to meet high current needs. Nippon Chemi-Con proposes that 20 pieces of hybrid capacitors are directly mounted on a bus bar structure which maximizes the effective cross-sectional area. In addition, placing a heat conductive sheet directly on the bottom of the bus bar assists heat dissipation more effectively. Consequently, customers have benefits like maximizing permissible current and minimizing the pieces (miniaturization).



Configuration of DC module for 48V DC link

Through-hole reflow Aluminum Electrolytic Capacitors

《Function in Circuit》

[Through-hole Reflow Products] target decoupling functions of power supply, which is a big factor in deciding the sound quality of the automotive audio system. This item reproduces reality in both image and sound for the next generation of high-resolution sound sources. In addition, the items are compatible with reflow which results in improving implementation efficiency and reducing total cost.





[Specifications]

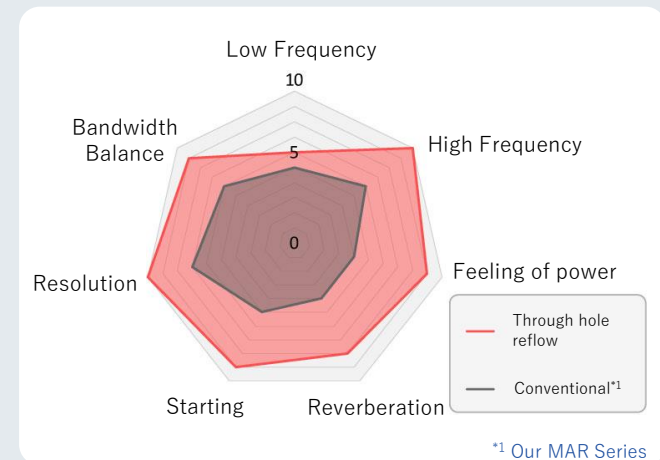
- Category temp range : -40~+105°C
- Rated voltage : 25V
- Capacitance : 2,200μF
- Rated ripple current : 2,000mArms / 105°C, 100kHz
- Endurance : 105°C / 3,000hrs
- Dimension : φ 12.5 × 23L Max.

[See More >](#)

Point

High Quality Sound by 「D.R.A.S.」

We made full use of D.R.A.S technology, which uses high resolution sound sources, to produce high sound quality. The acronym D.R.A.S stands for Durable, Reflow, Accurate, and Sound. Even during rapid load fluctuations that occur at high volume levels, a stable supply of charge is achieved (improved by more than 20%). The stable supply of electric charge and reduced ESL suppress sound shaking and harmonic noise. The mid to high frequency range has been greatly improved to realize a transparent and clear sound expression.

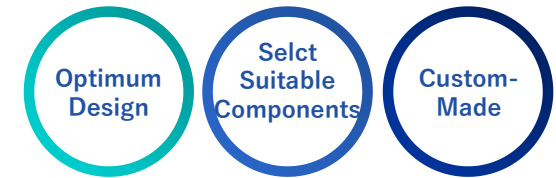


Quality of Sound Radar Chart

LC Module for Noise Reduction

《Function in Circuit》

It is necessary to put capacitors and coils together, and to constitute a filter to absorb noise generated during motor drive. Nippon Chemi-Con manufactures several kinds of electronic components, so we are able to provide one-stop-solutions by proposing each component and integrating them into modules.




[Specifications]

- CAE : Thermal analysis, Structural analysis
- Connection : Welding(Resistance, TIG), Soldering
- Components : Aluminum Electrolytic Capacitor, MLCC, Coil

See More > 

Point

One-stop Solutions as Only a Consolidated Electronics Component Manufacturer Can

Requirements for electronics components are changing with recent accelerations in electrification and computerization of automobile technology. In addition, the use of multiple capacitors for higher currents and LC modules that combine a coil and capacitor for noise reduction are being considered. As a result, the time needed to select components and create practical designs has increased. Under these circumstances, Chemi-Con lines up a wide variety of products: aluminum electrolytic capacitors, coils, MLCCs, varistors and double layer capacitors. We can combine these components to meet the diverse needs of applications and we also offer advanced welding technology and CAE analysis.

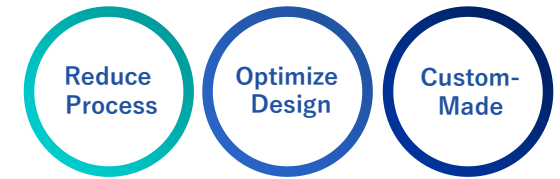


Nippon Chemi-Con Product Lineup

C Module for OBC

《Function in Circuit》

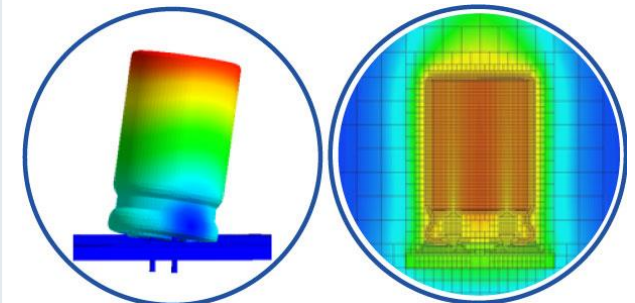
Modularizing several aluminum capacitors used for input rectifiers for OBC can greatly reduce design and manufacturing time. Nippon Chemi-Con offers modules to meet several kinds of customers' requirements. For instance, we can consider the lifetime of aluminum capacitors impacted by high current going through a quick charger to provide an optimized solution.



Point

Optimum Design Using CAE Analysis

One of the biggest targets for OBC of xEVs is to reduce the charging time. Larger charging current needs a bank of aluminum capacitors. The module is a key product; however, their use induces several kinds of new problems such as vibration and heat generation. Nippon Chemi-Con is able to overcome these issues through a wealth of experience and data and also state of art CAE analysis. We can respond to diverse needs by selecting suitable components, analyzing the structure, and analyzing generated heat and vibration.



Structural Analysis

Thermal Analysis

Example of Structural and Thermal Analysis

Power supplies for microcontrollers and other control circuits that manage power circuits require robust inductors and capacitors that can withstand the harsh environments unique to automobiles.

Nippon Chemi-Con offers several SMD aluminum electrolytic capacitors with enhanced heat and vibration resistance.

Aluminum Electrolytic Capacitors MHU series



《Function in circuit》

MHU series is designed with an original sealing structure that achieves a dramatically longer life, an outstanding vibration resistance of 40G, and higher temperature reflow soldering resistance. The rubber seal, which it considered a weak point of aluminum electrolytic capacitors, has been modified and enhanced to achieve automotive grade quality. The original anti-vibration holder is can be changed to a standard cover.

See More

Similar item : [MHL series](#)

Aluminum Electrolytic Capacitors HXJ series



《Function in circuit》

The HXJ series is ideal for rectifier and noise reduction applications in various types of ECUs and DC/DC converters due to its super low ESR and high temperature characteristics. Moreover, the HXJ series has another feature, high capacitance technology, that contributes to a smaller mounting area. The optional anti-vibration holder enables it to withstand 30G vibration.

See More

Similar item : [HXC series](#)

Aluminum Electrolytic Capacitors HXF series



《Function in circuit》

HXF series is ideal for output filters of power supplies, which require higher current and longer life under harsh high temperature conditions as well as low ESR over a wide range of temperatures for stabilizing the output voltage. The better ripple current capability enables the HXF series to replace film capacitors. It has higher temperature resistance as well as a smaller size and lighter weight. The HXF series can also be mounted with reflow soldering.

See More

Similar item : [HXE series](#)

Aluminum Electrolytic Capacitors MHL series



《Function in circuit》

MHL series has realized high heat resistance and super-long life by using superior rubber seal materials. These two features make MHL suitable for power supplies of several types of ECUs. We have developed this highly durable material to address the issue of rising internal temperature due to extended life vehicle designs, deterioration of the installation environment, and increased heat generation in semiconductors. An optional anti-vibration holder is available and reaches vibration resistance of 30G

See More

Similar item : [MHK series](#)

Aluminum Electrolytic Capacitors HXU series



《Function in circuit》

The HXU series is based on the HXF series, which features lower ESR and high heat resistance using hybrid technology and its newly developed original sealing structure. This integration makes it possible to achieve dramatically longer life, 40G vibration resistance(anti-vibration cover is also needed), and high heat reflow soldering resistance. The HXU series is guaranteed for short-time use under 150°C conditions.

See More

Similar item : [HXF series](#)

Inductor Normal Mode KA series



《Function in circuit》

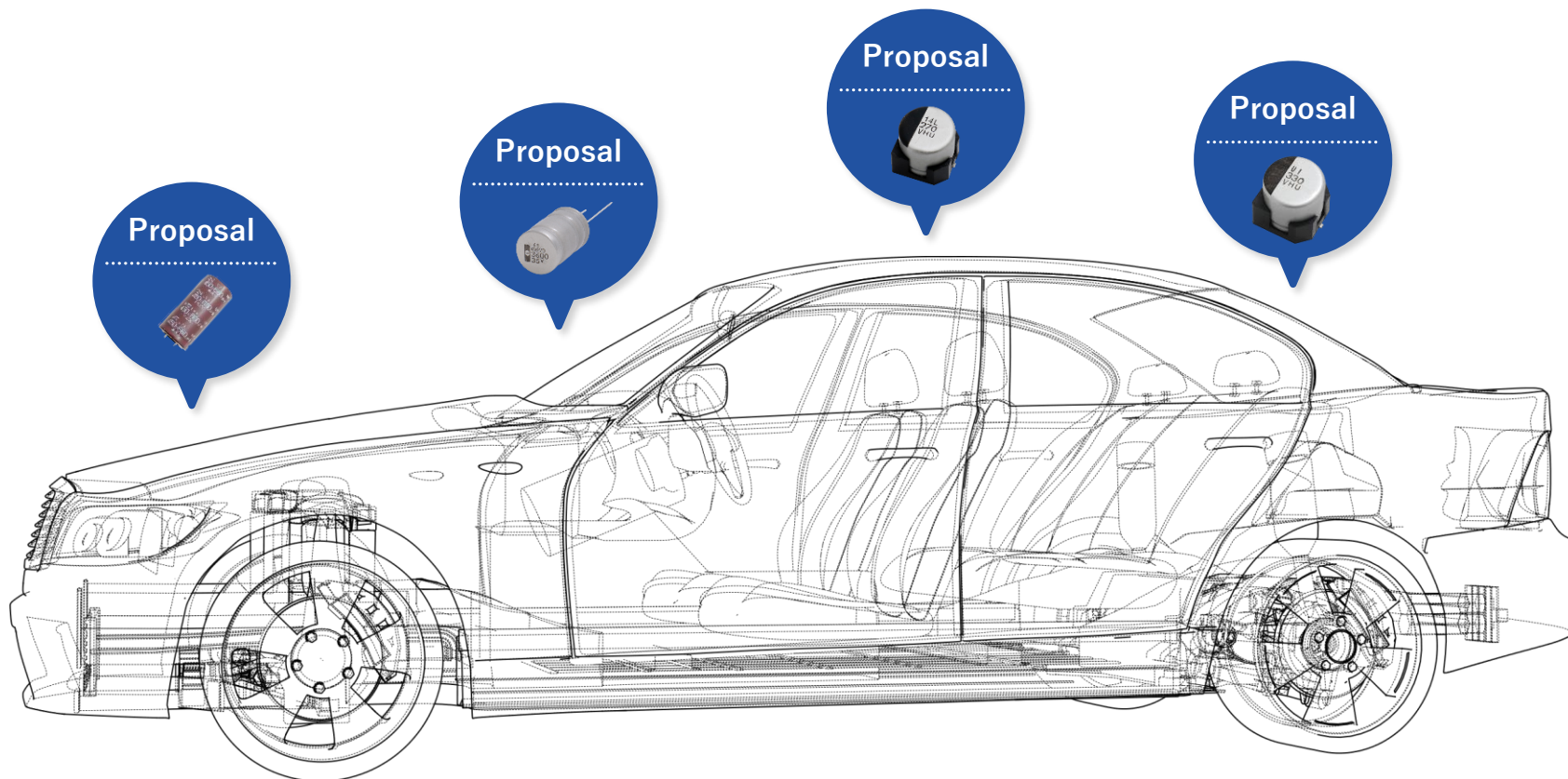
The KA series is an SMD type of normal mode coil and is ideal for power supplies for ECUs. The non-wound type of iron-based amorphous core (one copper wire penetrates two cores) has the advantage of lower DCR and is very stable under high temperature conditions. In addition, it is robust against vibration and useable at 150°C. We offer three types of core permeability.

See More

Similar item : [SM series](#)

One of the most important specifications for electrolytic components in automotive applications is vibration resistance.

Nippon Chemi-Con offers a lineup of products with orthodox anti-vibration measures as well as enhanced measures for harsher conditions.



Aluminum Electrolytic Capacitors LVA Series

《Function in Circuit》

The LVA series introduces Nippon Chemi-Con's leading-edge vibration-resistant structure to avoid a disconnect inside the structure at the end-of-life of snap-in aluminum capacitors. The LVA series is ideal for rectifiers in OBC. LVA products enable customers to save space on PCBs because of the higher capacitance per piece. Customers can select from several capacitance values and also three endurance categories: 2,000, 3,000, and 5,000 hours at 105°C.



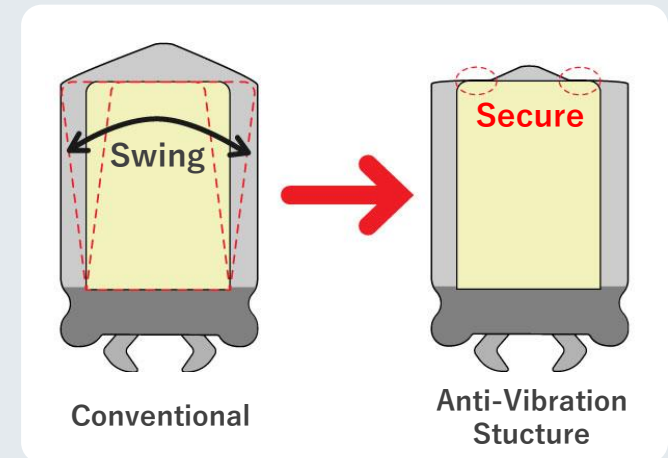
Similar item : [KVA series](#) [KVB series](#)

Point

Secure Element to the Aluminum Can! Vibration Resistant Structure for High Reliability

The LVA series meets AEC-Q200 standards while maintaining basic performance equivalent to or better than that of conventional products*1. The keys are the raw materials and original anti-vibration design. Usually snap-in capacitors have a good airtight structure. However, internal pressure increases at the end of life which causes the element to move around inside as shown at right. We designed a new case structure to overcome this phenomenon at the end of life. The LVA series is guaranteed for 5,000 hours at 105°C. Customers can also select from the 2,000-hour KVA series and 3,000-hour KVB series.

*1 Our LXS Series

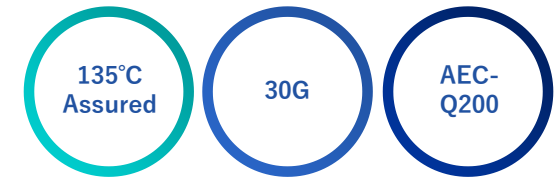


Anti-Vibration System

Aluminum Electrolytic Capacitors **GVD Series**

《Function in Circuit》

The GVD series adds 30G vibration resistance to the high heat resistance and high ripple current of the GPD series. The GVD series can be placed directly on engines and motors, making it suitable for higher endurance applications such as mechanical and electrical integrated inverters and fuel injection power supplies.



[Specifications]

- Style : Radial
- Category temp range : -40~+135°C
- Rated voltage : 25~100V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 2,000~3,000hrs
125°C / 3,000hrs
- Shelf life : 125°C / 1,000hrs

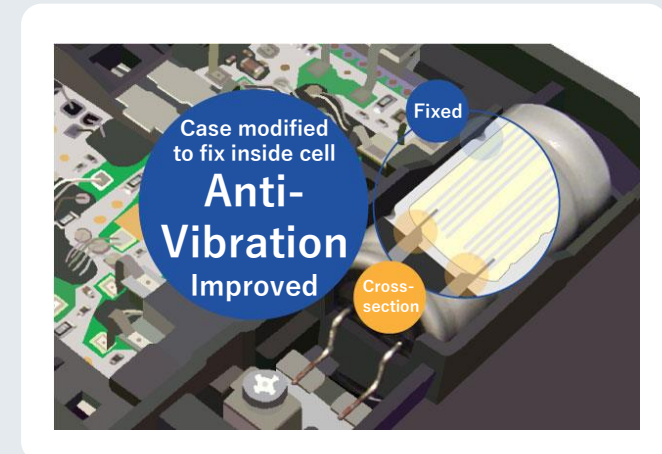
See More >

Similar item : [GVA series](#) [Module](#)

Point

Achievement of 30G Vibration Resistance and Downsizing

Recently ECUs have been integrated functionally and mounted directly on engines and transmissions. Consequently, aluminum electrolytic capacitors have come to require high vibration resistance. Generally, the larger the size, the lower the vibration resistance. Therefore, in applications that require high vibration resistance, it has been necessary to install multiple smaller products in parallel. The GVD series is a large radial lead type product. However, its unique technology overcomes vibration degradation. The large size reduces the number of components in parallel on the board, contributing to greater cost reduction, downsizing, and higher reliability.

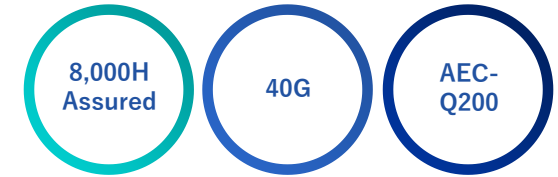


Internal structure of GVD Series

Aluminum Electrolytic Capacitors HXU Series

《Function in Circuit》

The HXU series is based on the HXF series, which features lower ESR and high heat resistance using hybrid technology and a newly developed original sealing structure. This integration makes it possible to achieve dramatically longer life, 40G vibration resistance(anti-vibration cover is also needed), and high heat reflow soldering resistance. The HXU series is guaranteed for short-time use under 150°C conditions. The HXU series enables a reduction in the occupied area of the PCB and the number of pieces installed. Please note that the anti-vibration cover is optional.



[Specifications]

- Style : SMD
- Category temp range : -55~+135°C
- Rated voltage : 25~63V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 135°C / 8,000hrs
125°C / 8,000hrs
- Shelf life : 135°C / 1,000hrs

See More >

Similar item : [MHU series](#)

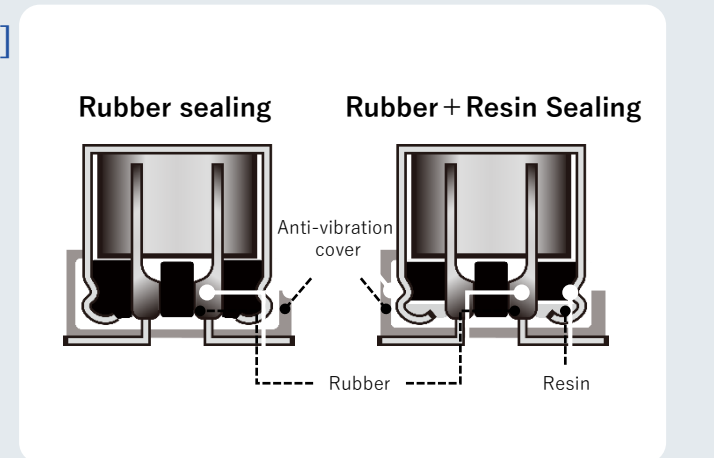
Point

Chemi-Con's Original

[Two-Way Sealing Structure(Ultimate Structure™)]

The HXU series is based on the HXF series and features the industry's first 「Two-Way Sealing Structure (Ultimate Structure™)」 technology. Two-way sealing structure consists of the normal method, rubber sealing, combined with resin sealing . This method dramatically improves airtightness and reduces electrolyte evaporation by about 50% compared to conventional rubber-only products*1. As a result, the two-way sealing structure extends the lifetime. The two-way sealing structure also provides high vibration resistance. The HXU series also features low ESR due to optimized conductive polymer materials and high-temperature resistant electrolyte, allowing up to 2 times more ripple current compared to conventional products*2.

*1 Our HXF Series *2 Our HXC Series



Sealing method (Cross-section)

Aluminum Electrolytic Capacitors **MHU Series**

《Function in Circuit》

The MHU series is designed with an original sealing structure that achieves dramatically longer life, outstanding vibration resistance of 40G, and higher temperature reflow soldering resistance. The rubber seal, which is considered a weak point of aluminum electrolytic capacitors, has been modified and enhanced to achieve automotive grade quality. The MHU series' outstanding endurance characteristics make integrated ECUs and ADAS function smoothly. The original anti-vibration holder is can be changed to a standard cover.

5,000H Assured

40G

AEC-Q200



[Specifications]

- Style : SMD
- Category temp range : -40~+125°C
- Rated voltage : 35V
- Cap tolerance : -20~+20%(M) / 20°C, 120Hz
- Endurance : 125°C / 5,000hrs
- Shelf life : 125°C / 1,000hrs

See More >

Similar item : [HXU series](#)

Point

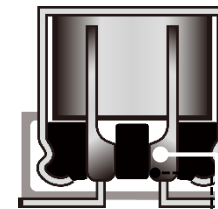
Chemi-Con's Original

[Two-Way Sealing Structure(Ultimate Structure™)]

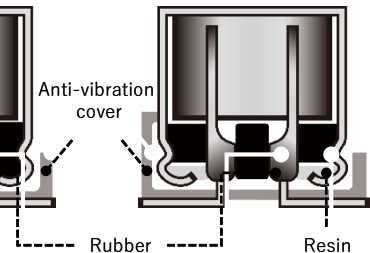
The MHU series features the industry's first "Two-Way Sealing Structure (Ultimate Structure™)", which combines two sealing methods, rubber and resin, to dramatically improve airtightness. **Ultimate Structure™** makes it possible to suppress 40% of the evaporation of electrolyte compared to conventional products*1. As a result, the MHU series achieves an extended life of 2.5 times longer than conventional products*1, and is guaranteed for 5,000 hours at 125°C. In addition, the combination of the anti-vibration cover and **Ultimate Structure™** gives it 40G vibration resistance. In summary, **Ultimate Structure™** is Nippon Chemi-Con's proposed new SMD platform for the automotive market. The first generation has two models: MHU aluminum electrolytic capacitors and HXU hybrid capacitors.

*1 Our MVH Series

Rubber sealing



Rubber + Resin Sealing



Sealing method (Cross-section)

Notes on Safety

- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any failures and accidents from occurring.
- Request the product specification of the product from NIPPON CHEMI-CON CORPORATION and refer to it as well as this brochure prior to ordering. Each product may have its own "Precautions for Use."
- The products listed in this catalog are designed and manufactured for general electronics equipment use and are not intended for use in applications that can adversely affect human life, if the malfunction of equipment may cause damage to life or property, or in specific applications that may cause a major social impact. Please consult with us in advance of usage of our products in the following listed applications. ① Aerospace equipment ② Power generation equipment such as thermal power, nuclear power etc. ③ Medical equipment ④ Transport equipment (automobiles, trains, ships, etc.) ⑤ Transportation control equipment ⑥ Disaster prevention / crime prevention equipment ⑦ Highly publicized information processing equipment ⑧ Submarine equipment ⑨ Other applications that are not considered general-purpose applications.
- The circuits described as examples in this catalog and the "product specifications" are featured in order to show the operations and usage of our products, however, this fact does not guarantee that the circuits are available to function in your equipment systems. We are not in any case responsible for any failures or damage caused by the use of information contained herein. You should examine our products, of which the characteristics are described in the "product specifications" and other documents, to determine whether or not our products suit your requirements according to the specifications of your equipment systems. Therefore, you bear final responsibility regarding the use of our products. Please make sure that you take appropriate safety measures such as use of redundant design and malfunction prevention measures in order to prevent fatal accidents and/or fires in the event any of our products malfunction.

Note

- We strongly recommend our customers purchase Nippon Chemi-Con products only through our official sales channels. We assume no responsibility for any defects or damages caused by using products purchased from outside our official sales channel or of counterfeit goods. In addition, we will ask the customer to pay the investigation cost for products purchased outside our official sales channel.
- We reserve the right to discontinue production and delivery of products. We do not guarantee that all the products included in this catalog will be available in the future. The aforementioned does not apply in the case of individual agreements deviating from the aforementioned for customer-specific products.
- We continually strive to improve the quality and reliability of our products, but in any case that our product does not meet our published specifications, please stop using it promptly and contact us immediately. As for compensation for non-conforming goods delivered by Chemi-Con, we will limit it only to goods found in noncompliance of our published specifications. This may be accomplished by a no cost replacement of non-conforming individual products, a credit of the piece price paid per each individual non-conforming product, or in other ways deemed necessary. In addition, we have an established system with enhanced traceability, therefore we will limit the applicable lot items for any potential compensation.
- The content of this catalog is as of July 2022.

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URL

<https://www.chemi-con.co.jp/en/>

