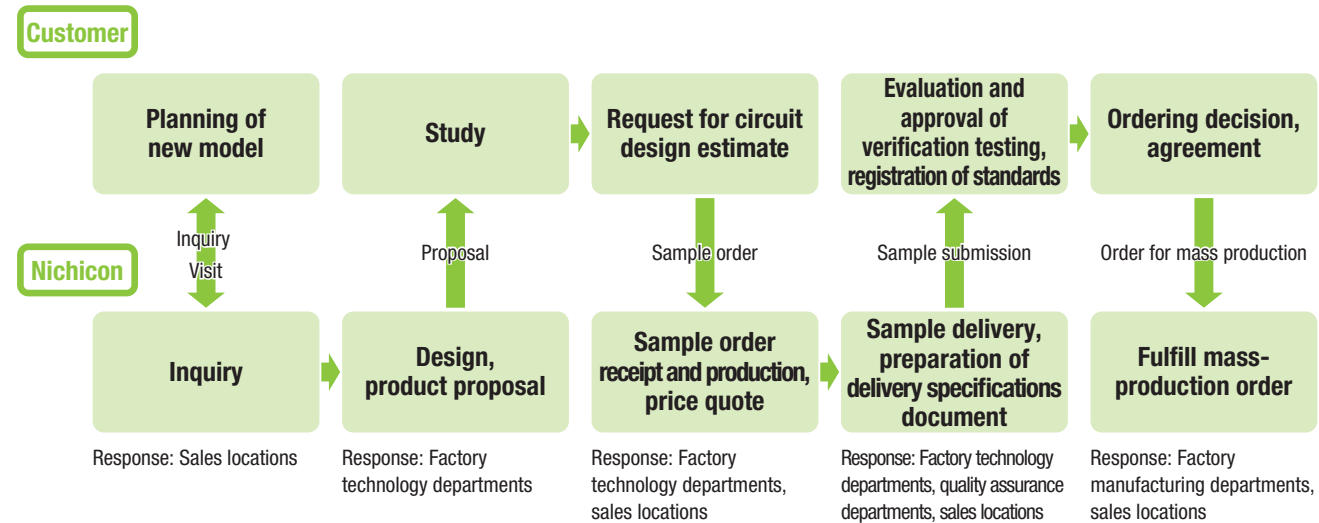


Standard Process for Developing Custom Products

We propose the best products for our customers, based on application, size and a variety of other design needs.



Note: Please confirm product development details with your dealer.

NICHICON CORPORATION

<http://www.nichicon.co.jp/> <http://www.nichicon.com>

HEAD OFFICE

Karasumadori Oike-agaru, Nakagyo-ku, Kyoto, 604-0845 Japan
TEL.81-75-231-8461 FAX.81-75-256-4158

TOKYO SALES OFFICE

5-5, 2-chome, Hamamatsu-cho, Minato-ku, Tokyo, 105-0013 Japan
TEL.81-3-5473-5611 FAX.81-3-5473-5651

NAGOYA SALES OFFICE

18F Nishiki-Park Bldg. 4-3, Nishiki 2-chome, Naka-ku, Nagoya, 460-0003 Japan
TEL.81-52-223-5581 FAX.81-52-220-1839

WEST JAPAN SALES OFFICE

Karasumadori Oike-agaru, Nakagyo-ku, Kyoto, 604-0845 Japan
TEL.81-75-241-5370 FAX.81-75-231-8467

NICHICON (AMERICA) CORP.

927 East State Parkway, Schaumburg, Illinois 60173, U.S.A.
TEL.1-847-843-7500 FAX.1-847-843-2798

NICHICON (AUSTRIA) GmbH

Businesspark Marximum, Modcenterstrasse 17, Unit 2-7-A, 1110 Vienna, Austria

TEL.43-1-706-7932 FAX.43-1-706-7933

• U.K.OFFICE

Coliseum Business Centre, Riverside Way, Camberley, Surrey GU15 3YL, United Kingdom
TEL.44-1276-685393 FAX.44-1276-686531

NICHICON (HONG KONG) LTD.

Unit 308, Harbour Centre Tower 1, 1 Hok Cheung Street, Hunghom, Kowloon, Hong Kong
TEL.852-2363-4331 FAX.852-2764-1867

NICHICON (SINGAPORE) PTE. LTD.

20 Jalan Afifi, #06-08, Certis CISCO Centre II, Singapore 409179
TEL.65-6481-5641 FAX.65-6481-6485

NICHICON (TAIWAN) CO., LTD.

16F-12, No.6, Sec.4, Hsin-Yi Rd., Taipei, Taiwan
TEL.886-2-2708-0200 FAX.886-2-2708-0959

NICHICON (THAILAND) CO., LTD.

Empire Tower 15th Floor, Unit 1506, Tower 3, 195 South Sathorn Road, Yannawa, Bangkok 10120, Thailand
TEL.66-2-670-0150 FAX.66-2-670-0153

NICHICON ELECTRONICS TRADING (SHANGHAI) CO., LTD.

Room 1206, Aetna Tower, 107 Zunyi Road, Shanghai, China 200051
TEL.86-21-6237-5538 FAX.86-21-6237-5537

• DALIAN REPRESENTATIVE OFFICE

12F Senmao Building, 147 Zhongshan Road, Xigang District, Dalian, China 116011
TEL.86-411-3989-3322 FAX.86-411-3989-3168

NICHICON ELECTRONICS TRADING (SHENZHEN) CO., LTD.

Room A, 16/F, KK100
No. 5016, Shen Nan Road East, Luo Hu District, Shenzhen, China 518001
TEL.86-755-2294-1800 FAX.86-755-8294-5716

• CHONGQING BRANCH

Room 2812, 28/F, International Trade Center (Part A), No.38, Qing Nian Road, Yuzhong District, Chongqing, China 400010
TEL.86-23-6310-8166 FAX.86-23-6310-8308

• CHENGDU BRANCH

Room 1408, 14/F, Hailun Complex (Part A), No.216, Xi Dong Da Street, Jinjiang District, Chengdu, Sichuan, China 610021
TEL.86-28-6212-9507 FAX.86-28-6212-9513

NICHICON ELECTRONICS (INDIA) PVT. LTD.

Level 9, Raheja Towers, 26-27 MG Road, Bangalore 560001, Karnataka, India
TEL.91-80-6792-0744 FAX.91-80-6792-0900

NICHICON (MALAYSIA) SDN. BHD.

No.4 Jalan P/10, Kawasan Perusahaan Bangi, 43650 Bandar Baru Bangi, Selangor Darul Ehsan, Malaysia
TEL.60-3-8925-0678 FAX.60-3-8925-0858

NICHICON ELECTRONICS (WUXI) CO., LTD.

Block 51-B, Wuxi National High & New Technology Industrial Development Zone, Wuxi, Jiangsu, China 214028
TEL.86-510-8521-8222 FAX.86-510-8522-1170

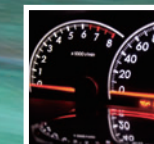
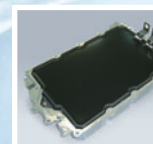
FPCAP ELECTRONICS (SUZHOU) CO., LTD.

112 Sutong Road, Suzhou Industrial Park, Jiangsu, China 215021
TEL.86-512-6761-2423 FAX.86-512-6761-7076

NICHICON ELECTRONICS (SUQIAN) CO., LTD.

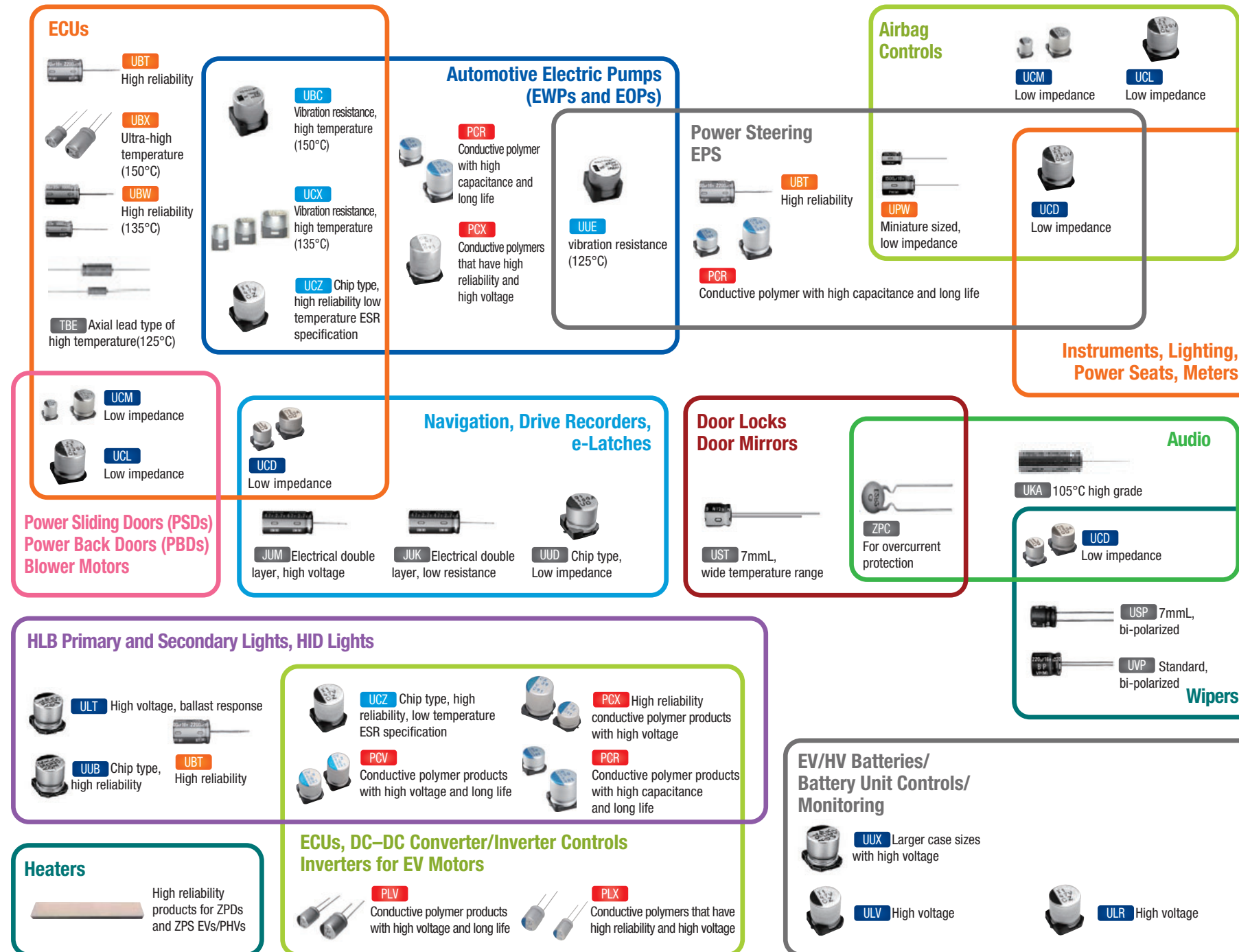
No.18, Yangmingshan Avenue, Suzhou Suqian Industrial Park, Suqian, China 223800
TEL.86-527-8286-8855 FAX.86-527-8286-8966

Automotive Application

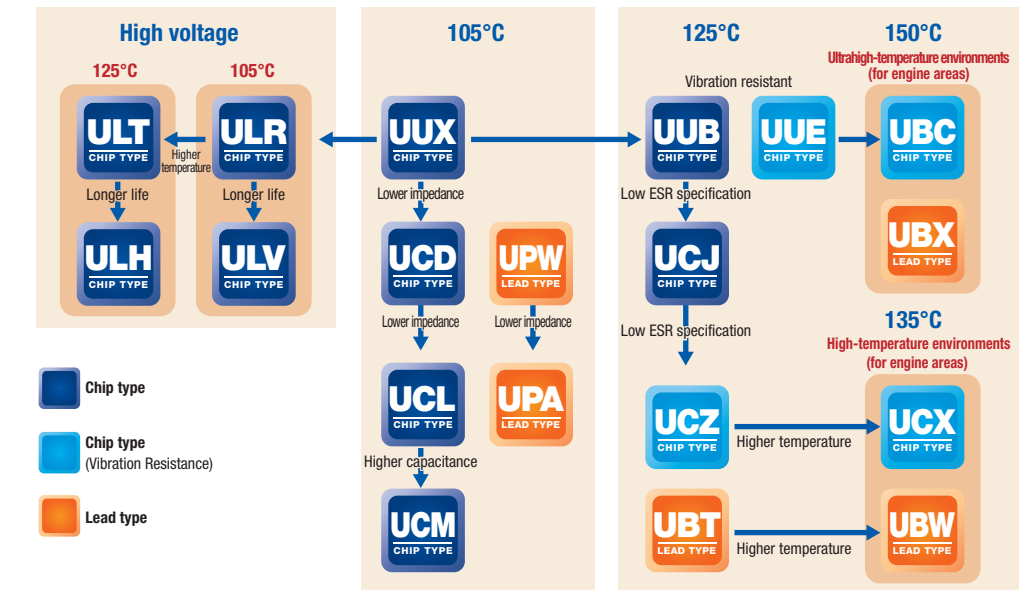


NICHICON CORPORATION

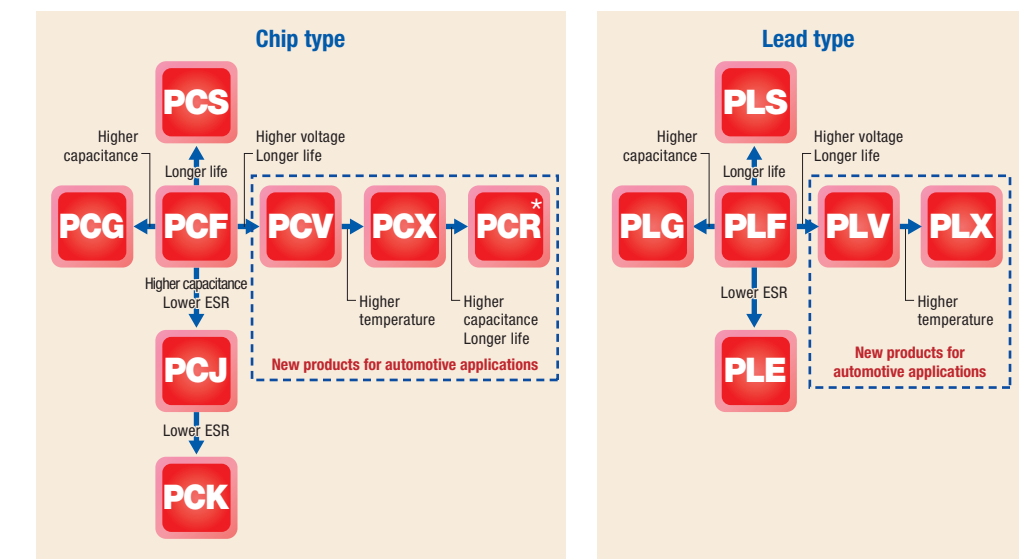
Recommended Series for Automotive Applications



Series of Automotive Aluminum Electrolytic Capacitors

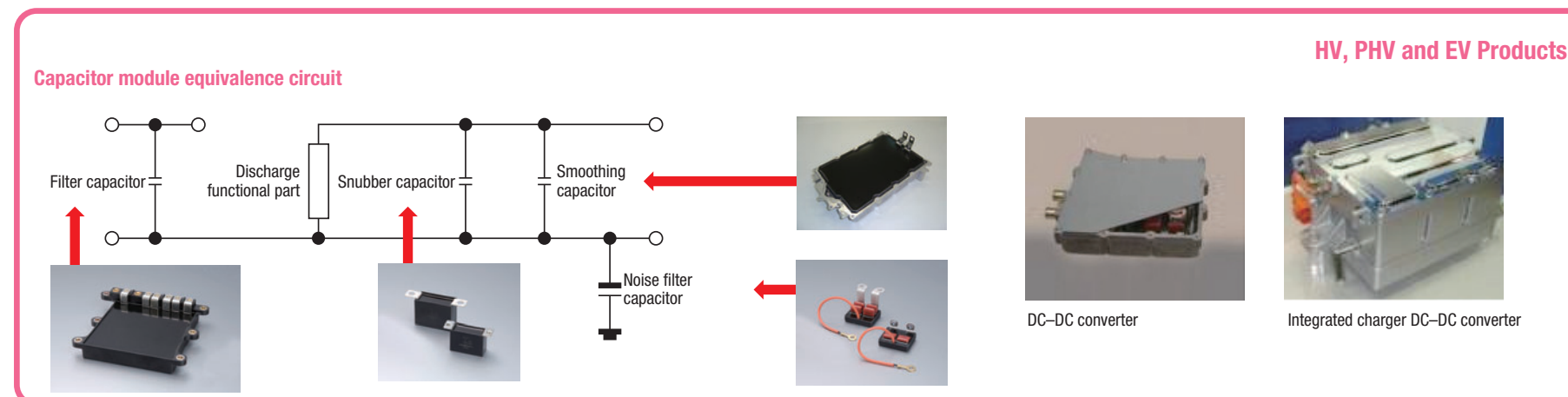


Series of Automotive Conductive Polymer Aluminum Solid Electrolytic Capacitors



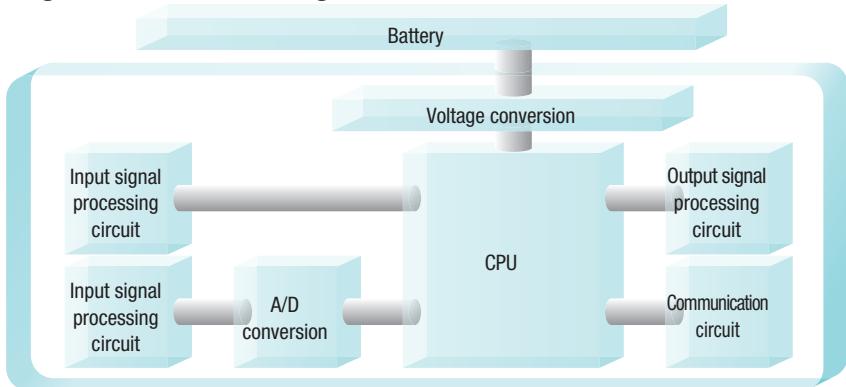
ISO/TS16949 Certification Numbers

Factory Name	Certification number	Date	Scope of Registration	Auditing Organization
NICHICON (OHNO) CORPORATION	JQA-AU0031	April 2004	The design, development and manufacture of aluminum electrolytic capacitors	JQA
	JQA-AU0031-2	February 2013	The design, development and manufacture of conductive polymer aluminum solid electrolytic capacitors (Site II)	
NICHICON (IWATE) CORPORATION	JQA-AU0037	May 2004	The design, development and manufacture of aluminum electrolytic capacitors	JQA
NICHICON (MALAYSIA) SDN. BHD.	AR3641	May 2005	The design and manufacture of aluminum electrolytic capacitors	SIRIM
NICHICON ELECTRONICS (WUXI)CO., LTD	No.161012148	October 2012	The design, development and manufacture of aluminum electrolytic capacitors	DEKRA



Electronic Control Solutions

Engine ECU Pattern Diagram

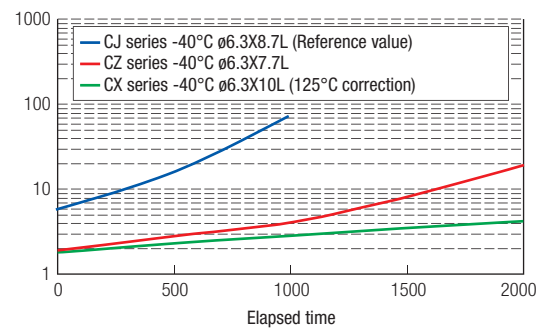


Low temperature ESR

Vibration resistance

High temperature

ESR Time Degradation Ratio (125°C Durability Test)



- Point 1 Use of a Thin, Low-ESR-Function Separator**
- Employs low-ESR-function electrolysis paper
 - Increases electrode foil capacitance area through the use of electrolysis paper
- Point 2 Use of Low-Transpiration Solvent (Optimized Solvent Composition)**
- Ensures stable performance in high-temperature environments
- Point 3 Optimization of Product Configuration**
- Addition of $\phi 6.3 \times 10L$ (new size)
 - ⇒ Use of a thicker sealing cuff to control degradation over time
 - Optimized element configuration
 - ⇒ Expands facing area and optimizes sealing cuff

UCZ

High reliability, low ESR specification
Compliant with products having vibration-resistant



- Low-temperature ESR/post-durability-test low-temperature products meeting ESR specifications
- 125°C
- Compliant to the RoHS directive (2011/65/EU)

Applications Engine-control ECUs, DC-DC converters, inverters, headlight ballast secondary, automotive water pumps, automotive oil pumps

Product size	$\phi 6.3 \times 5.8L$ to $\phi 10 \times 10L$
Endurance	3,000 hours at 125°C ($\phi 6.3 \times 7.7L$: 2,000 hours) ($\phi 6.3 \times 5.8L$: 1,000 hours) Guaranteed post-durability-test ESR (-40°C 100kHz) Note: Excluding $\phi 6.3 \times 5.8L$
Rated voltage	10 to 100V
Capacitance	47 to 470 μF
Category temperature	-40 to +125°C

Product size	ESR specification (-40°C x 100kHz)	
	Initial	After 2,000-hour durability test
$\phi 6.3 \times 5.8L$	24 Ω	—
$\phi 6.3 \times 7.7L$	5 Ω	40 Ω
$\phi 8 \times 10L$	3 Ω	4.5 Ω
$\phi 10 \times 10L$	2 Ω	3.5 Ω

UCX

135°C-guaranteed low-temperature ESR specification
Compatible with products with vibration-resistant structures



- Low-temperature ESR/post-durability-test low-temperature products meeting ESR specifications
- 135°C
- Compliant to the RoHS directive (2011/65/EU)

Applications Engine-control ECUs, DC-DC converters, inverters, headlight ballast secondary, automotive water pumps, automotive oil pumps

Product size	$\phi 6.3 \times 10L$ to $\phi 18 \times 21.5L$
Endurance	2,000 hours at 135°C Guaranteed post-durability-test ESR (-40°C 100kHz)
Rated voltage	10 to 50V
Capacitance	47 to 3300 μF
Category temperature	-40 to +135°C

Product size	ESR specification (-40°C x 100kHz)		Product size	ESR specification (-40°C x 100kHz)	
	Initial	After 1,000-hour durability test		Initial	After 1,000-hour durability test
$\phi 6.3 \times 10L$	4 Ω	15 Ω	$\phi 12.5 \times 13.5L$	1 Ω	5 Ω
$\phi 8 \times 10L$	3 Ω	12 Ω	$\phi 16 \times 16.5L$	0.5 Ω	2.5 Ω
$\phi 10 \times 10L$	2 Ω	10 Ω	$\phi 18 \times 21.5L$	0.28 Ω	1.4 Ω

Aluminum Electrolytic Capacitors with Optimal Lead Shapes for Engine Areas (High-Temperature Environments)

UBW

High temperature, High reliability
(135°C)



- Products with high-temperature stability, guaranteed for 1,000 to 3,000 hours at 135°C
- Suited for automobile electronics where heavy duty services are indispensable
- Compliant to the RoHS directive (2011/65/EU)

High temperature

Applications Engine controls

UBX

Ultra-high temperature suited for automotive electronics



- Laminated case series
- Products suited for ultra-high temperatures (150°C)
- Suited for automobile electronics where heavy duty services are indispensable
- Compliant to the RoHS directive (2011/65/EU)

Ultra-high temperature

Applications Engine controls

Rated voltage	10 to 100V
Capacitance	1 to 4,700 μF
Endurance	1,000 to 3,000 hours at 135°C
Product size	$\phi 8 \times 11.5L$ to $\phi 16 \times 31.5L$

Rated voltage	10 to 400V
Capacitance	1 to 4,700 μF
Endurance	1,000 to 2,000 hours at 150°C
Product size	$\phi 10 \times 12.5L$ to $\phi 18 \times 40L$

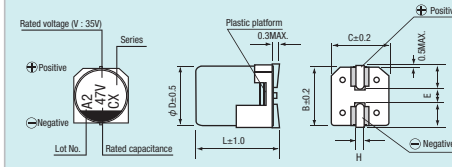
Improved Anti-Vibration Surface-Mounted Products Optimized for Engine Areas (High-Temperature Environments, Vibrations)

Smaller, high reliability : Surface mounting technology, anti-vibration capabilities: 30G (10 to 2,000Hz)

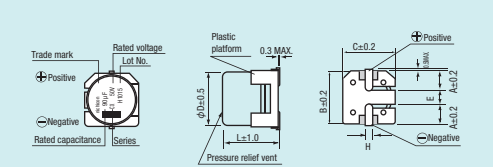
Anti-Vibration Points

- Adjust height of resin seating plate collar, control vibration of capacitor itself
- Improved adhesion of auxiliary electrode to resin seating plate

($\phi 6.3$) [vibration resistant]



($\phi 12.5$ to $\phi 18$) [vibration resistant]



Note: $\phi 6.3 \times 10L$: vibration resistant type only Aid electrode

UBC

Vibration resistance, high temperature



- Highly dependable reliability withstanding load life of 1,000 hours at +150°C
- Suited for automobile electronics where heavy duty services are indispensable
- Compliant to the RoHS directive (2011/65/EU)

Durability

Applications Engine control, automotive water pumps, automotive oil pumps

Product size	$\phi 8 \times 10L$ to $\phi 18 \times 21.5L$
Endurance	1,000 hours at 150°C
Rated voltage	10 to 50V
Capacitance	33 to 3,300 μF
Category temperature	-55 (-40) to +150°C

UUE

Vibration Resistance



- SMD type guaranteed for 2,000 to 5,000 hours at 125°C
- Ideal for automotive electrical components
- Compliant to the RoHS directive (2011/65/EU)

Applications Power steering, automotive water pumps, automotive oil pumps

Product size	$\phi 8 \times 10L$ to $\phi 18 \times 21.5L$
Endurance	5,000 hours at 125°C ($\phi 8$, $\phi 10$: 2,000 hours)
Rated voltage	10 to 50V
Capacitance	33 to 4,700 μF
Category temperature	-55 to +125°C ($\phi 12.5$ to 20), -40 to +125°C ($\phi 8$, $\phi 10$)

Note: UUE also applies to control solution specifications.

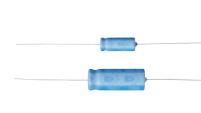
Mounting Examples

Engine ECUs, hybrid vehicle ECUs, "idling stop," automotive water pumps, electric oil pumps

Note: For detailed specifications, please refer to Nichicon's general catalog of electronics.

TBE

High temperature range(02 type)



- High reliability withstanding load life of 2,000 hours at 125°C
- Optimal for automotive electrical components
- Compliant to the RoHS directive (2011/65/EU)

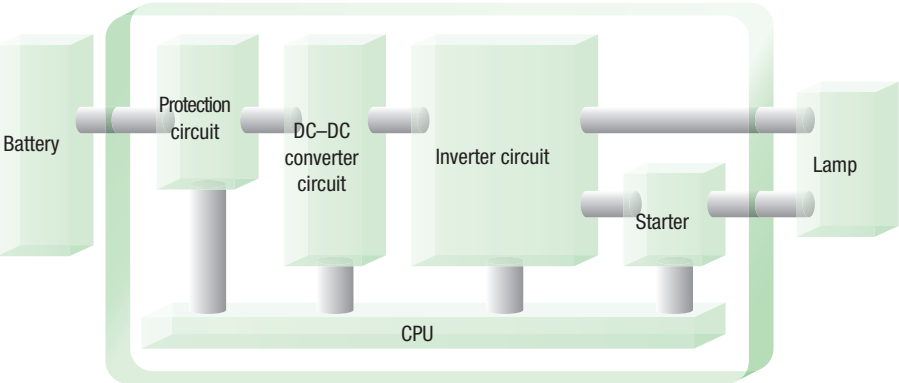
Applications Engine-control ECUs

Product size	$\phi 6.3 \times 16L$ to $\phi 16 \times 31.5L$
Endurance	2,000 hours at 125°C
Rated voltage	10 to 50V
Capacitance	0.47 to 470 μF
Category temperature	-40 to +125°C ($\phi 8$, $\phi 10$)



Control Solutions

Headlight Ballast Pattern Diagram



- Suited for high temperature
- Large-surface mounting
- Suited for high voltage

Automotive Aluminum Electrolytic Capacitors

UUX

SMD type, larger size

- SMD type, larger size
- Compliant to the RoHS directive (2011/65/EU)

Applications

[High voltage] Batteries in EVs and HVs/battery unit control/monitoring
[Low voltage] Electrical systems, measurement systems

Product size	φ8×6.2L to φ10×10L
Endurance	2,000 hours at 105°C (160 to 400V, 3,000 hours)
Rated voltage	6.3 to 400V
Capacitance	1 to 1,000 μF
Category temperature	-55 to +105°C (6.3 to 100V), -40 to +105°C (160 to 400V)

UUB

High reliability

- 125°C
- Compliant to the RoHS directive (2011/65/EU)

Applications

[High voltage] HLB primary
[Low voltage] Engine control, automotive electric water pumps (EWPs), electric oil pumps (EOP)

Product size	φ8×6.2L to φ10×10L
Endurance	2,000 hours at 125°C (φ8×6.2L: 1,000 hours)
Rated voltage	10 to 400V
Capacitance	1 to 330 μF
Category temperature	-40 to +125°C

UBT

High reliability (125°C)

- Stable high-temperature products guaranteed for 2,000 to 10,000 hours at 125°C
- Suited for automobile electronics where heavy duty services are indispensable
- Compliant to the RoHS directive (2011/65/EU)

Applications

Automotive compressors, HID lights, power steering, EPSs, ECUs

Product size	φ8×11.5L to φ18×35.5L
Endurance	2,000 to 10,000 hours at 125°C (50V or less, φ8: 3,000 hours, φ10: 5,000 hours, φ12.5 above: 10,000 hours), (63 to 100V, φ8: 2,000 hours, φ10: 3,000 hours, φ12.5: 5,000 hours), (160V or more: 2,000 hours)
Rated voltage	10 to 450V
Capacitance	1 to 4,700 μF
Category temperature	-40 to +125°C (10 to 250V), -25 to +125°C (350 to 450V)

UKA

Wide temperature range, for audio equipment
High-grade type

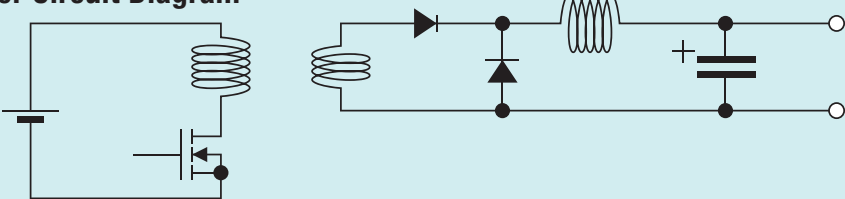
- 105°C high quality capacitors for audio equipment
- Selected materials to create superior acoustic sound
- Compliant to the RoHS directive (2011/65/EU)

Applications

For automotive audio

Product size	φ5×11L to φ18×40L
Endurance	2,000 hours at 105°C
Rated voltage	6.3 to 50V
Capacitance	22 to 22,000 μF
Category temperature	-40 to +105°C

DC-DC Converter Circuit Diagram



Automotive Conductive Polymer Aluminum Solid Electrolytic Capacitors

Chip type, standard
PCF
φ4×5.5L to φ10×12.7L
2.5 to 25V, 3.3 to 1500μF

Suited for high voltage
(125V)
PCV
φ6.3×6L to φ10×12.7L
16 to 125V, 5.6 to 680μF

Suited for high voltage
(100V)
PLV
φ8×9L to φ10×13L
16 to 100V, 6.8 to 470μF

Lead type, standard
PLF
φ6.3×9L to φ10×13L
2.5 to 25V, 6.8 to 1500μF

Higher voltage
Higher temperature
Higher capacitance
125°C, high temperature
PCR
φ5×6L to φ10×12.7L
6.3 to 100V, 5.6 to 2700μF

Higher voltage
Higher temperature
Higher capacitance
125°C, high temperature
PCX
φ6.3×6L to φ10×12.7L
16 to 50V, 5.6 to 390μF

Higher voltage
Higher temperature
Higher capacitance
125°C, high temperature
PLX
φ8×9L to φ10×13L
16 to 50V, 22 to 390μF

PCV

High voltage, long life

- High voltage (to 125V), low ESR, high ripple current
- Long life of 3,000 hours at 105°C
- SMD type : Lead free reflow soldering condition at 260°C peak correspondence
- Compliant to the RoHS directive (2011/65/EU)

Product size	φ6.3×6L to φ10×12.7L
Endurance	3,000 hours at 105°C
Rated voltage	16 to 125V
Capacitance	5.6 to 680 μF
Category temperature	-55 to +105°C

Applications

ECUs, DC-DC converters, lights

PCX

High reliability

- High reliability, low ESR, high ripple current
- Long life of 1,500 to 3,000 hours at 125°C
- SMD type : Lead free reflow soldering condition at 260°C peak correspondence
- Compliant to the RoHS directive (2011/65/EU)

Product size	φ6.3×6L to φ10×12.7L
Endurance	3,000 hours at 125°C (φ6.3: 1,500 hours)
Rated voltage	16 to 50V
Capacitance	5.6 to 390 μF
Category temperature	-55 to +125°C

Applications

DC-DC converters, lights, electric water pumps (EWPs), electric oil pumps (EOPs), inverters for EV motors, ECUs

PLV

High voltage, long life

- High voltage (to 100V), low ESR, high ripple current
- Long life of 3,000 hours at 105°C
- Radial lead type : Lead free flow soldering condition correspondence
- Compliant to the RoHS directive (2011/65/EU)

Product size	φ8×9L to φ10×13L
Endurance	3,000 hours at 105°C
Rated voltage	16 to 100V
Capacitance	6.8 to 470 μF
Category temperature	-55 to +105°C

Applications

ECUs, DC-DC converters

PLX

High reliability

- High reliability low ESR, high ripple current
- Long life of 3,000 hours at 125°C
- Radial lead type : Lead free flow soldering condition correspondence
- Compliant to the RoHS directive (2011/65/EU)

Product size	φ8×9L to φ10×13L
Endurance	3,000 hours at 125°C
Rated voltage	16 to 50V
Capacitance	22 to 390 μF
Category temperature	-55 to +125°C

Applications

ECUs, DC-DC converters, motor inverters

PCR

High reliability

- High reliability with high voltage (to 100V), low ESR, high allowable ripple current
- Long life of 4,000 hours at 125°C
- SMD type: Lead free reflow soldering condition at 260°C peak correspondence
- ESR after endurance at -40°C
- Compliant to the RoHS directive (2011/65/EU)

Product size	φ5×6L to φ10×13L
Endurance	4,000 hours at 125°C
Rated voltage	6.3 to 100V
Capacitance	5.6 to 2,700 μF
Category temperature	-55 to +125°C



Safety Solutions

“Ever CAP” Automotive Electric Double-Layer Capacitors

JUM

High voltage



- High voltage (2.7V)
Suitable for quick charge and discharge
- Wide temperature range(−25 to +70°C)
- Compliant to the RoHS directive (2011/65/EU)

Product size	φ 6.3×9L to φ 18×40L
Endurance	1,000 hours at 70°C
Rated voltage	2.7V
Capacitance	0.47 to 47F
Category temperature	−25 to +70°C

Applications
Navigation systems, Drive Recorders, e-latches

JUK

Lower resistance



- Lower resistance type of UM series
- Lower temperature range(−40 to +70°C)
- Compliant to the RoHS directive (2011/65/EU)

Product size	φ 6.3×9L
Endurance	1,000 hours at 70°C
Rated voltage	2.7V
Capacitance	1 to 82F
Category temperature	−25 to +70°C

Applications
Navigation systems, Drive Recorders, e-latches

“Posi-R” Automotive Positive Thermistors

ZPD/ZPS

High reliability



Applications
HV/EV/PHV heaters

ZPC

High reliability



Applications
Door locks, door mirrors, optical leveling, car audio

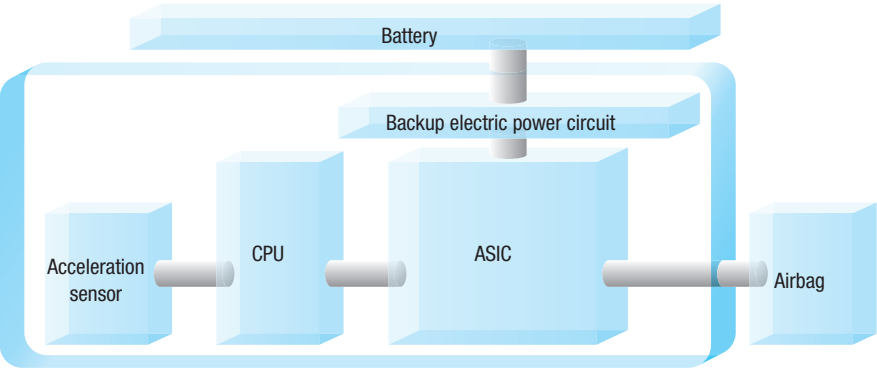
Mounting Examples

Motor inverters, hybrid automotive DC–DC converters, power steering, navigation systems

Note: For detailed specifications on the product numbers above, please refer to Nichicon’s general catalog of electronics.



Airbag ECU Pattern Diagram



High voltage

High reliability

Long life

UCL

Low impedance



- SMD type, low impedance
- Compliant to the RoHS directive (2011/65/EU)

Applications
Engine controls, PSDs, PBDs, collating ECUs, blower motors, gateway ECUs, DCMs, airbag control

Category	
Product size	φ 4×5.8L to φ 10×13.5L
Endurance	2,000 hours at 105°C
Rated voltage	6.3 to 50V
Capacitance	10 to 2,200 μF
Category temperature	−55 to +105°C

UCD

Low impedance



- SMD type, low impedance
- Compliant to the RoHS directive (2011/65/EU)

Applications
Navigation, car audio, wipers, airbags, electrical leak detection, collating ECUs, gateway ECUs, instruments, EPSs, DCMs, lighting, compact drive trains, power seat meters

Note: The same product number also meets ECU solution specifications.

Category	
Product size	φ 4×5.8L to φ 18×16.5L
Endurance	2,000 to 5,000 hours at 105°C (50V or less and less than 10L: 2,000 hours, 63V or more and 10L or less: 2,000 hours)
Rated voltage	6.3 to 100V
Capacitance	10 to 3,300 μF
Category temperature	−55 to +105°C

UPW

Miniature sized, low impedance for switching power supplies



- Miniature sized, low impedance
- Capacitance ranges available based on the numerical values in E-12
- High reliability withstanding 2,000 to 8,000 hours at 105°C
- Compliant to the RoHS directive (2011/65/EU)

Applications
Power steering, turn signals, airbags

Note: The same product numbers also apply to control solution specifications.

Category	
Product size	φ 4×7L to φ 18×40L
Endurance	2,000 to 8,000 hours at 105°C (φ 4, 5, 6.3: 2,000 hours, φ 8: 3,000 hours, φ 10: 5,000 hours, φ 12.5: 7,000 hours)
Rated voltage	6.3 to 450V
Capacitance	0.47 to 15,000 μF
Category temperature	−55 to +105°C (6.3 to 100V), −40 to +105°C (160 to 400V), −25 to +105°C (450V)

Mounting Examples

Airbags, automotive cameras, Drive Recorders, ABS systems

Note: For detailed specifications, please refer to Nichicon’s general catalog of electronics.



Eco-Car Solutions

Aluminum Electrolytic Capacitors for Battery Management

ULR

High Voltage

NEW



- SMD type, high voltage
- Compliant to the RoHS directive (2011/65/EU)

Applications EV/HV batteries, battery unit control, and monitoring

ULV

High voltage, long life

NEW



- SMD type, high voltage and long life
- Load life of 10,000 hours at 105°C
- Compliant to the RoHS directive (2011/65/EU)

Applications EV/HV batteries, battery unit control, monitoring

ULT

SMD type, high voltage, high temperature

NEW



- SMD type, high voltage and high temperature
- Load life of 2,000 hours at 125°C
- Compliant to the RoHS directive (2011/65/EU)

Applications Headlight ballast primary

ULH

SMD type, high voltage and high reliability

NEW



- SMD type, high voltage and high reliability
- Load life of 4,000 hours at 125°C
- Compliant to the RoHS directive (2011/65/EU)

Applications Headlight ballast primary

- ULR
- Surface-mount standard, mid- to high voltage guaranteed for 3,000 hours at 105°C
- ULV
- Long life surface-mount mid- to high voltage guaranteed for 10,000 hours at 105°C
- ULT
- High-temperature surface-mount mid- to high voltage guaranteed for 2,000 hours at 125°C
- ULH
- Highly reliable surface-mount mid- to high voltage guaranteed for 4,000 hours at 125°C

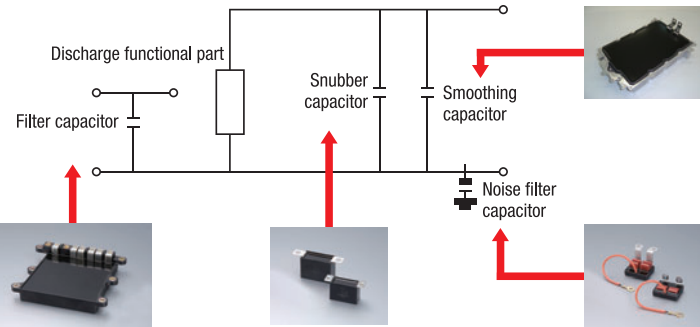
		Lineup											
		ULR			ULV			ULT			ULH		
Size (mm)	Diameter	8	10		8	10		8	10		8	10	
	Height	10	10	13.5	10	10	13.5	10	10	13.5	10	10	13.5
Rated voltage	100V	15	27	39	15	22	33	15	22	33	12	12	27
	200V	12	22	33	12	18	27	12	18	27	10	15	22
	250V	10	15	22	8.2	15	18	8.2	15	18	7.5	12	15
	400V	4.7	8.2	12	3.9	6.8	10	3.9	5.8	10	3.3	5.5	7.5
	450V	3.9	6.8	10	3.3	5.6	7.5	2.3	5.6	7.5	2.2	3.9	5.5
	500V	2.7	3.9	5.6	—	—	—	—	—	—	—	—	—

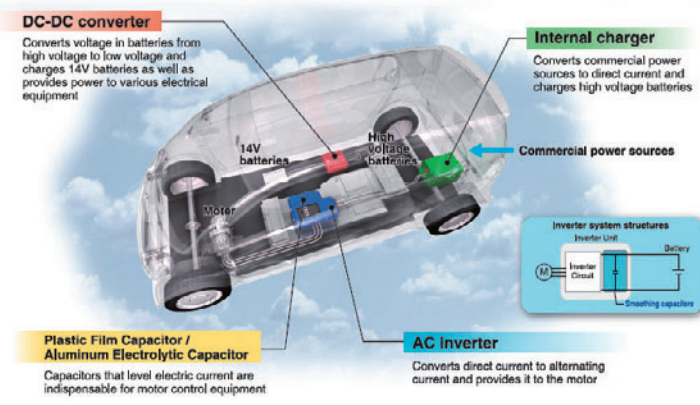
(μF)

Film Capacitors for EVs/HVs/PHVs

Sample Uses for Inverter with Booster Function

Capacitor Module Equivalence Circuit





Film Capacitors

Providing Film Capacitors with Superior Electrical Characteristics and Flexible Exterior and Electrode Configurations for Use in Automobiles, trains and other vehicles

High-Frequency Characteristics

- Sharp high-frequency characteristics (excellent filtering effects)
- Lower loss, energy-saving

Stable Characteristics

- Steady changes in capacitance in response to temperature variations

Withstand Current Characteristics

- High ripple current withstand volume (high current density per unit volume)

High Reliability, Safety Performance

- Self-healing type
- With automatic shutoff security mechanism

Long Life

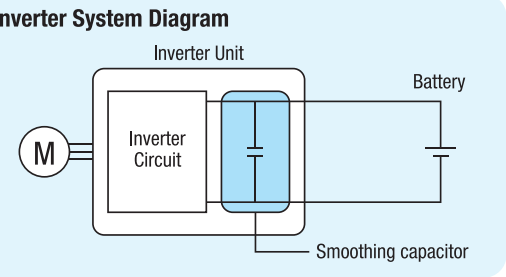
- Maintenance-free for 10 years or more even in challenging temperature conditions

Shape Freedom

- Flexible exterior shapes (square, cylindrical)
- Flexible terminal shapes

Integrated Design

- Integrated design enables use for smoothing and filtering



DC-DC Converter with integrated charger for EVs



Features

- Compatible with power sources worldwide
- Operates using CAN communications, transmits various types of information
- Compatible with IEC61851-1 mode 2, mode 3
- CE mark compliant

Specifications

Charger

- Input voltage: AC100 to 264V
- Output power: Max. 2.8kW
- Output voltage: 180 to 370V
- Efficiency: MAX. 91%
- Cooling system: Water cooled

Charging DC-DC converter

- Input voltage: 180 to 370V
- Output voltage: 14V
- Output current: 80A
- Efficiency: 92%
- Cooling system: water cooled

More Compact and Lightweight While Meeting Standard Specifications

