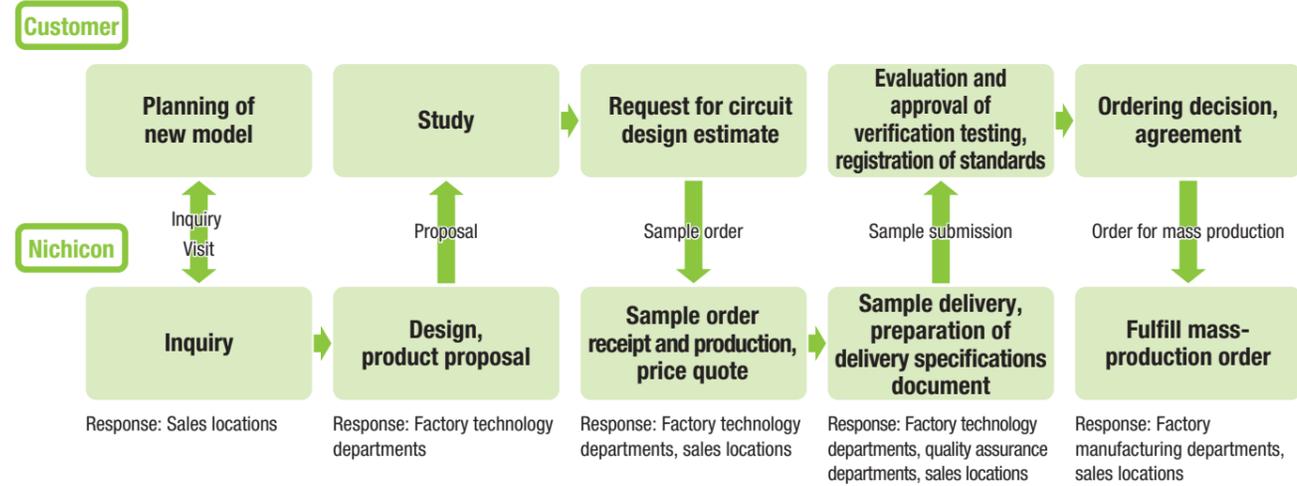


Standard Process for Developing Custom Products

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



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Note: Please confirm product development details with your dealer.

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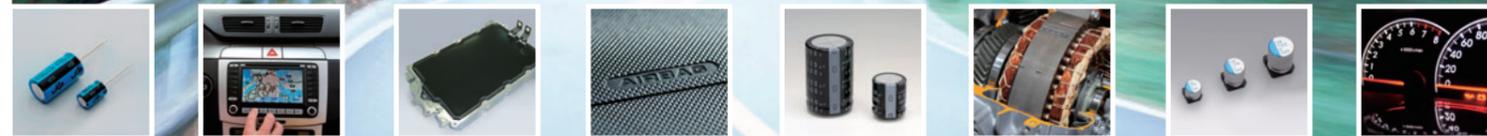
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nichicon

Automotive Application Catalog

2016.3

Automotive Application



Recommended Series for Automotive Applications

ECUs

- UBT** High reliability
- UBX** Ultra-high temperature (150°C)
- UBW** High reliability (135°C)
- UBY** High reliability (135°C)
- TBE** Axial lead type of high temperature(125°C)

Automotive Electric Pumps (EWP and EOPs)

- UBC** Vibration resistance, high temperature (150°C)
- UCX** Vibration resistance, high temperature (135°C)
- UCZ** Chip type, high reliability low temperature ESR specification
- UCH** Chip type, high reliability low temperature ESR specification

Airbag Controls

- UCV** Low impedance
- UCM** Low impedance
- UPW** Miniature sized, low impedance
- UCD** Low impedance
- UCL** Low impedance

Power Steering EPS

- UBY** High reliability (135°C)
- UBT** High reliability
- PCR** Conductive polymer with high capacitance and long life

Instruments, Lighting, Power Seats, Meters

- UCL** Low impedance
- UCM** Low impedance
- UCV** Low impedance

Navigation, Drive Recorders, e-Latches

- UCD** Low impedance
- JUM** Electrical double layer, high voltage
- JUK** Electrical double layer, low resistance
- UUD** Chip type, Low impedance

Door Locks Door Mirrors

- UST** 7mmL, wide temperature range
- ZPC** For overcurrent protection

Audio

- UKA** 105°C high grade
- UCD** Low impedance
- USP** 7mmL, bi-polarized
- UVP** Bi-polarized

Wipers

- UCD** Low impedance
- USP** 7mmL, bi-polarized
- UVP** Bi-polarized

HLB Primary and Secondary Lights, HID Lights

- ULT** High voltage, ballast response
- UUB** Chip type, high reliability
- UBT** High reliability
- UCZ** Chip type, high reliability, low temperature ESR specification
- PCV** Conductive polymer products with high voltage and long life
- PCX** High reliability conductive polymer products with high voltage
- PCR** Conductive polymer products with high capacitance and long life

EV/HV Batteries/ Battery Unit Controls/ Monitoring

- UUX** Larger case sizes with high voltage
- ULV** High voltage
- ULR** High voltage

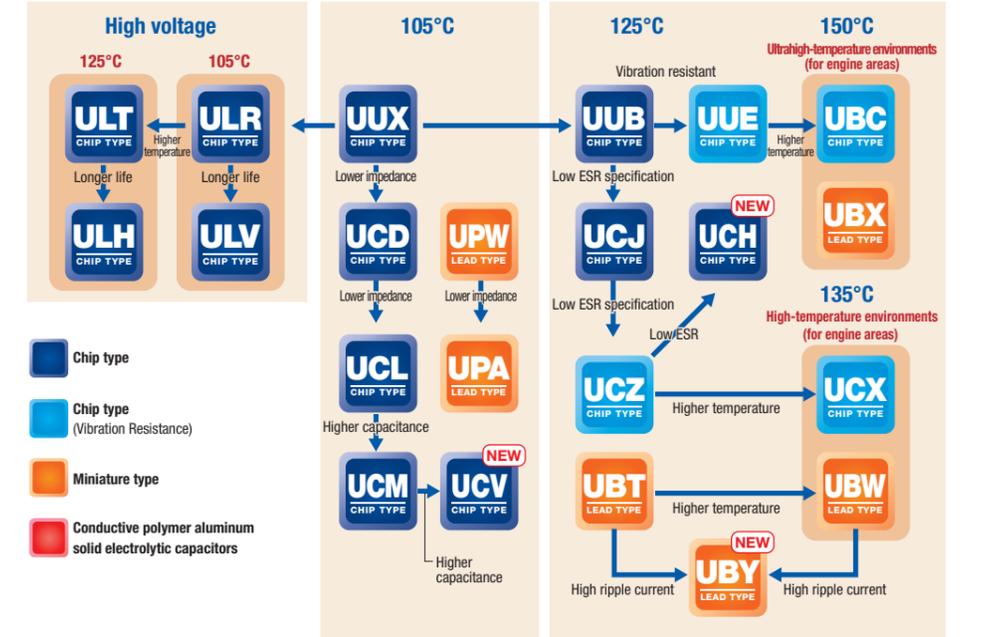
ECUs, DC-DC Converter/Inverter Controls Inverters for EV Motors

- PLV** Conductive polymer products with high voltage and long life
- PLX** Conductive polymers that have high reliability and high voltage

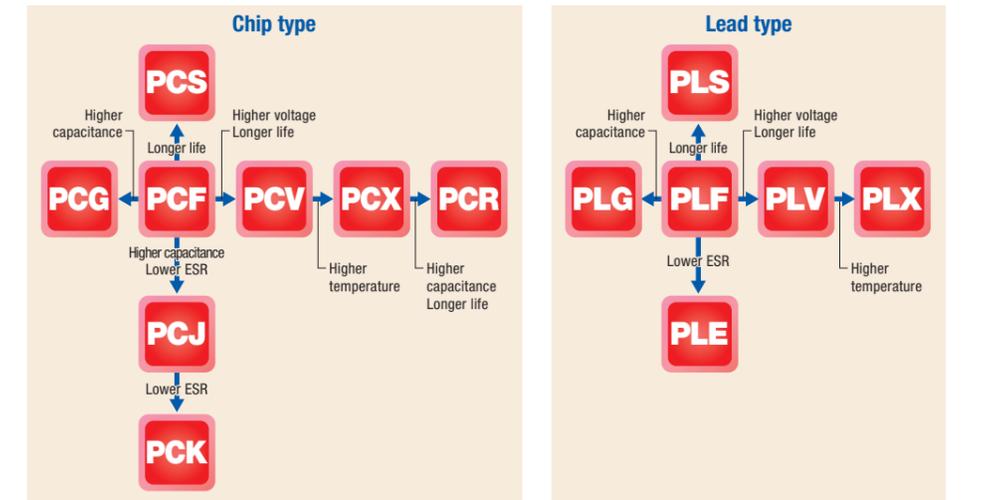
Heaters

- High reliability products for ZPDs and ZPS EVs/PHVs

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)	
	JQA-AU0013	January 2004	The design and manufacture of aluminum electrolytic capacitors (Site III)	
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

Capacitor module equivalence circuit

HV, PHV and EV Products

Powertrain Solution

- Chip type
- Chip type (Vibration Resistance)
- Lead type
- Conductive polymer aluminum solid electrolytic capacitors
- Large can type
- Film capacitors

Engine control unit

- UCV
- UCH
- UCZ
- UCX
- UBC
- UBT
- UBW
- UBX
- UBY
- PCV
- PLV
- PCX
- PLX

Engine cooling fan

- UUX
- UUB
- UBT

Hybrid electric vehicle

- UUX
- ULR
- ULV
- ULT
- ULH
- LEV
- EM

Pump control unit

- UUB
- UUE
- UCZ
- UCX
- UBC
- PCX

Transmission control unit

- UUX
- UUB
- UBT

DC/DC-converter

- UCZ
- UCX
- PCV
- PLV
- PCX
- PLX

Chassis & Safety Solution

- Chip type
- Chip type (Vibration Resistance)
- Lead type
- Electric double layer capacitors

Camera & radar systems

- UCD
- JUM
- JUK

Telematics

- UCD
- UPW
- UPA

Breaking unit

- UCD
- UCL
- UCM
- UUB

Airbag control

- UCD
- UCL
- UCM
- UCV
- UPW
- UPA

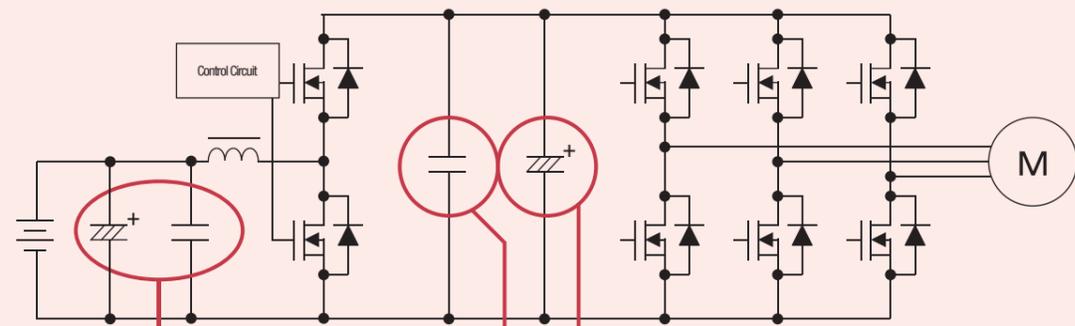
Power steering

- UCD
- UCL
- UCM
- UUE
- UPW
- UPA
- UBT
- UBY

ABS & traction control

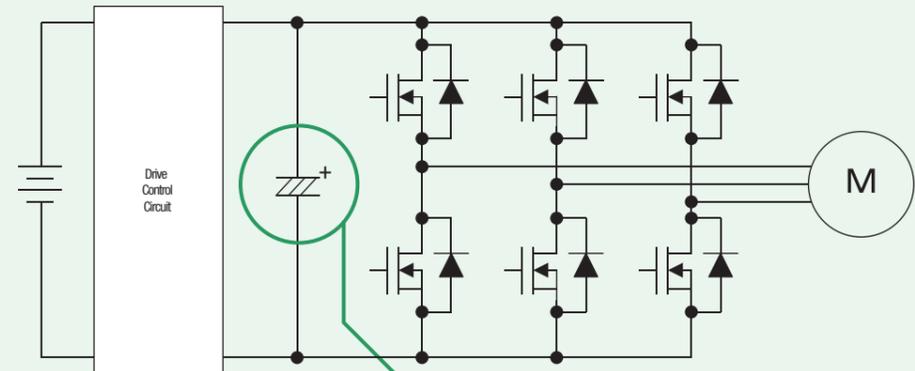
- UCD
- UCL
- UCM
- UPW
- UPA

Recommended series for motor drive inverter circuits.



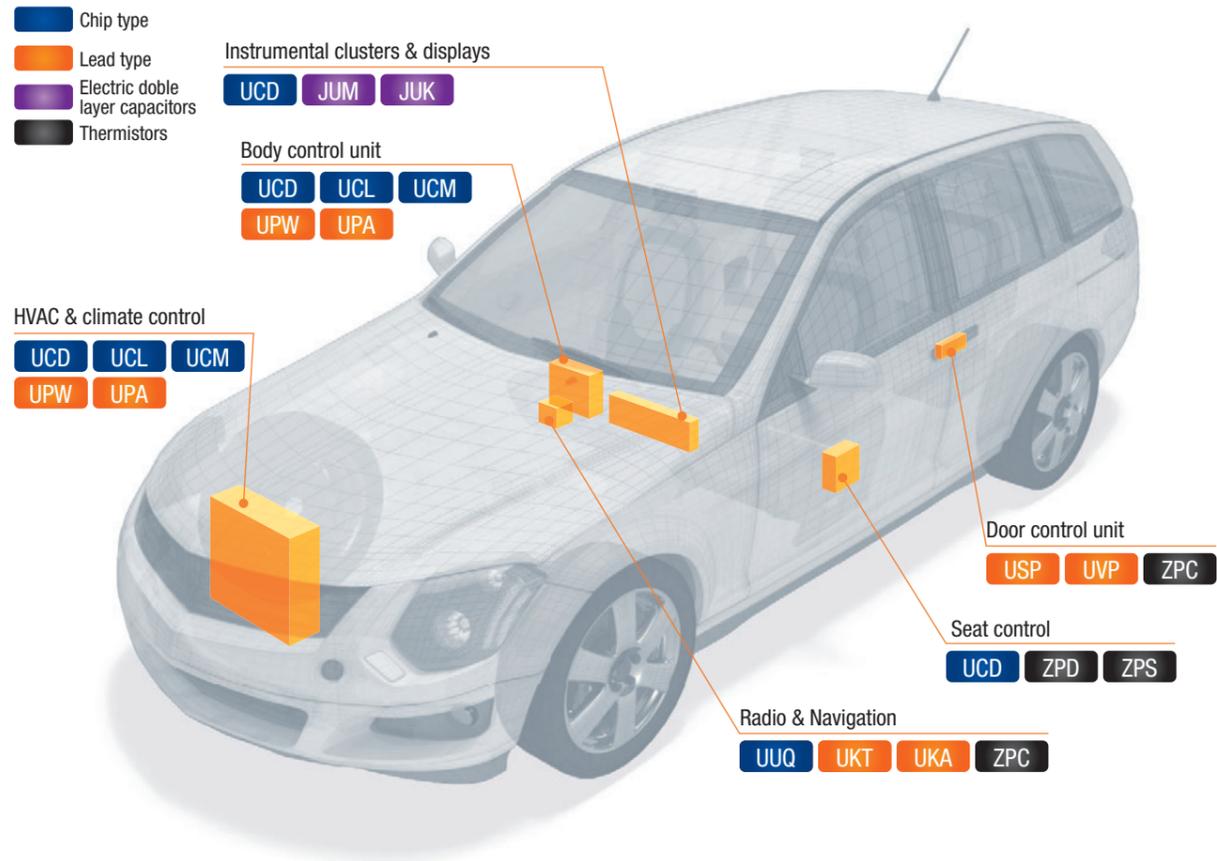
- | | | | |
|--|--|--|--|
| <p>Aluminum electrolytic capacitors</p> <p> LEV</p> | <p>Film capacitors</p> <p> EM</p> | <p>Snubber film Capacitors</p> <p> EM</p> | <p>Smoothing aluminum electrolytic capacitors</p> <p> LEV</p> |
| <p>Smoothing Film capacitors</p> <p> EM</p> | | | |

Recommended series for electric power steering circuits.

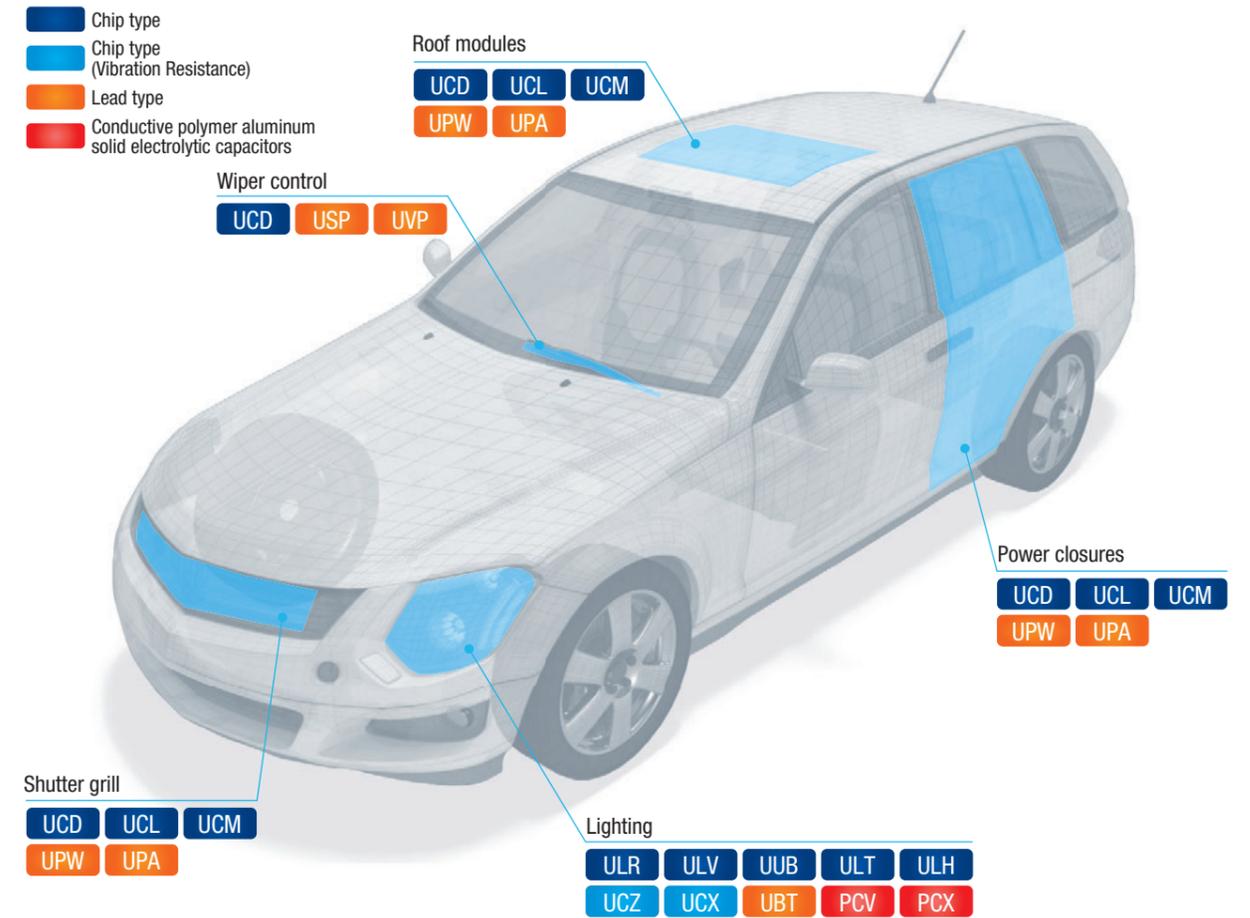


- | | | | |
|--|--|--|--|
| <p> UCD</p> | <p> UCL</p> | <p> UCM</p> | <p> UPA</p> |
| <p> UCV</p> | <p> UUE</p> | <p> UPW</p> | <p> UBT</p> |

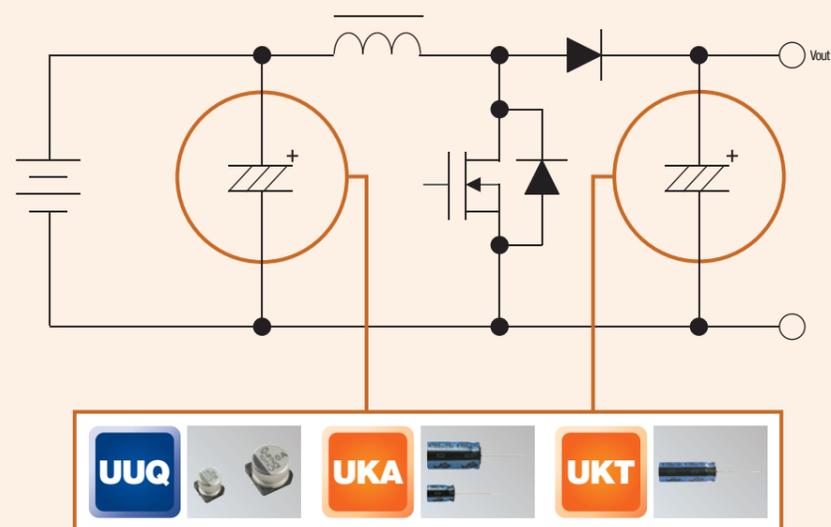
Interior Solution



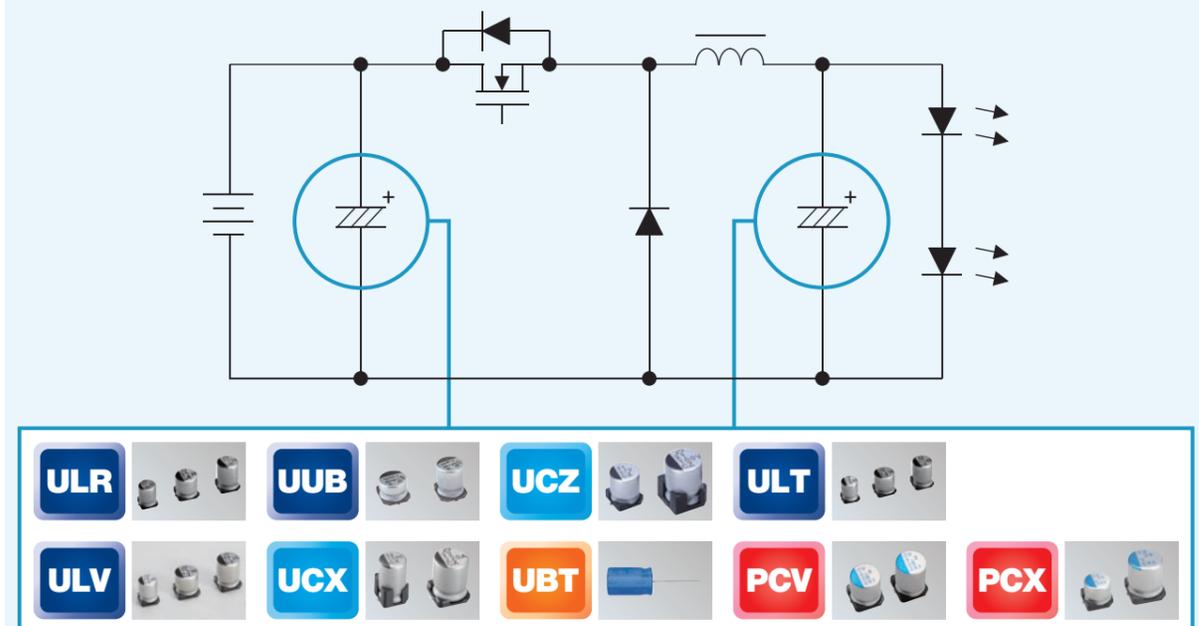
Exterior Solution



Recommended series for audio DC-DC converters circuits.

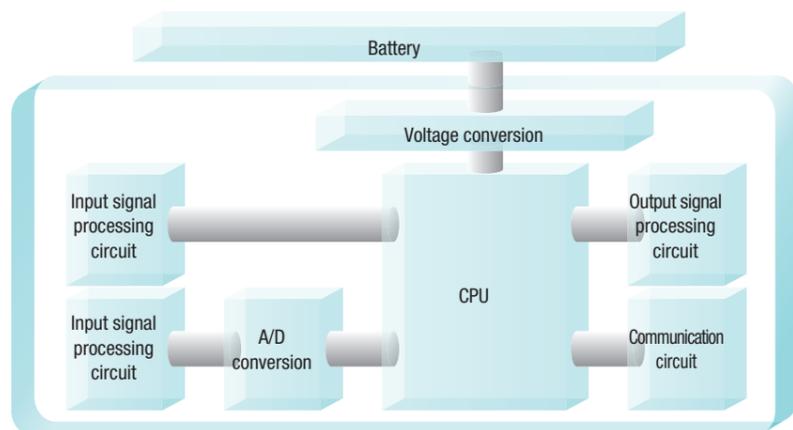


Recommended series for LED headlight circuits.



Electronic Control Solutions

Engine ECU Pattern Diagram

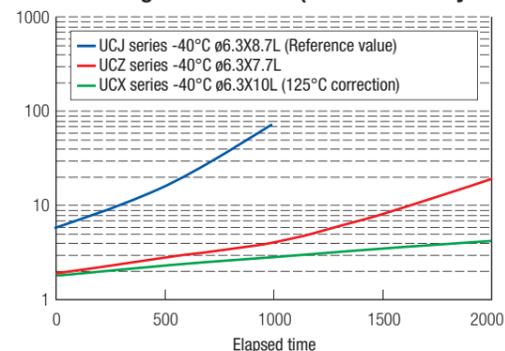


Low temperature ESR

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**
 - Optimized element configuration
 - ⇒ Expands facing area and optimizes sealing cuff
 - Addition of ø6.3×10L (new size)(UCX series only)
 - ⇒ Use of a thicker sealing cuff to control degradation over time

UCZ

High reliability, low ESR specification
Vibration-resistant



- Added ESR specification after the test at -40°C
- Endurance 125°C 1,000 to 4,000 hours
- Capacitance 10 to 3,300µF
- Category temperature -40 to 125°C
- Compliant to the RoHS directive(2011/65/EU)

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

ESR (Ω) MAX.at-40°C, 100kHz

Product size φ×L	Rated voltage 10 to 35V			Rated voltage 50V			Rated voltage 63V			Rated voltage 80V			Rated voltage 100V		
	Initial	Guaranteed time		Initial	Guaranteed time		Initial	Guaranteed time		Initial	Guaranteed time		Initial	Guaranteed time	
		2000h	3000h		2000h	3000h		2000h	3000h		2000h	3000h		2000h	3000h
6.3×5.8	24	—	—	42	—	—	—	—	—	—	—	—	—	—	—
6.3×7.7	5	40	—	5	40	—	100	—	—	—	—	—	—	—	—
8×10	3	4.5	—	3.5	6	—	35	—	—	50	—	—	50	—	—
10×10	2	3.5	—	2.5	4.5	—	25	—	—	35	—	—	35	—	—
12.5×13.5	0.40	3.0	—	0.44	4.0	—	1.3	14	—	1.9	14	—	1.9	22	—
16×16.5	0.28	1.4	—	0.34	2.6	—	0.9	4.8	—	1.4	4.8	—	1.4	4.8	—
18×16.5	0.23 (35V:0.28)	1.3 (35V:1.4)	—	0.32	2.6	—	0.82	3.9	—	1.1	3.9	—	1.1	3.9	—
16×21.5	0.20	—	0.60	0.22	—	1.5	0.46	—	2.0	0.8	—	2.6	0.8	—	2.6
18×21.5	0.16	—	0.50	0.20	—	1.5	0.44	—	1.8	0.7	—	2.4	0.7	—	2.4

UCX

135°C-guaranteed low ESR specification
Vibration-resistant



- Added ESR specification after the test at -40°C
- Endurance 135°C 2,000 hours
- Capacitance 47 to 3,300µF
- Category temperature -40 to 135°C
- Compliant to the RoHS directive(2011/65/EU)

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

ESR (Ω) MAX.at-40°C, 100kHz

Product size φ×L	Rated voltage 10 to 35V		Rated voltage 50V	
	Initial	Guaranteed time 1000h	Initial	Guaranteed time 1000h
6.3×10	4	15	—	—
8×10	3	12	3.5	15
10×10	2	10	2.5	12
12.5×13.5	1.0	5.0	1.3	6.5
16×16.5	0.50	2.5	0.70	3.5
18×16.5	0.50	2.5	0.70	3.5
16×21.5	0.32	1.6	0.40	2.0
18×21.5	0.28	1.4	0.32	1.6

UCH

High reliability, low ESR specification

NEW



- Added ESR specification after the test at -40°C 400kHz
- Compliant to the RoHS directive(2011/65/EU)

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

Product size	φ6.3×7.7L
Endurance	2,000hours at 125°C
Rated voltage	35V
Capacitance	47 to 100µF
Category temperature	-40 to +125°C
ESR	Initial:3 Guaranteed time 2,000h:6

Miniature Type Aluminum Electrolytic Capacitors Suited for Engine Areas (High-Temperature Environments)

UBY

High reliability

NEW



- Application suggestion high temperature, electric power steering.
- Compliant to the RoHS directive(2011/65/EU)

High temperature

Applications ECUs, power steering

Product size	φ12.5×20L to φ18×40L
Endurance	3,000hours at 125°C or 135°C
Rated voltage	25 to 50V
Capacitance	620 to 12,000µF
Category temperature	-40 to +135°C

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 ECUs

Product size	φ8×11.5L to φ16×31.5L
Endurance	1,000 to 3,000 hours at 135°C
Rated voltage	10 to 100V
Capacitance	1 to 4,700 µF

UBX

Ultra-high temperature suited for automotive electronics (150°C)



- 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 ECUs

Product size	φ10×12.5L to φ18×40L
Endurance	1,000 to 2,000 hours at 150°C
Rated voltage	10 to 400V
Capacitance	1 to 4,700 µF



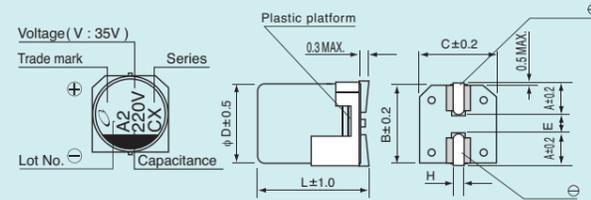
Control Solutions

Chip Type, Vibration Resistance, Suited for Engine Areas (High-Temperature Environments, Vibrations)

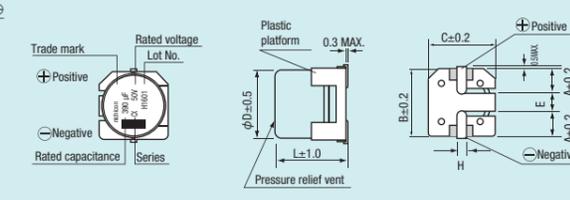
Smaller, high reliability : Surface mounting technology, anti-vibration capabilities: 30G (10 to 2,000Hz)

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

($\phi 8 \times 10L$, $\phi 10 \times 10L$) [vibration resistant]



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

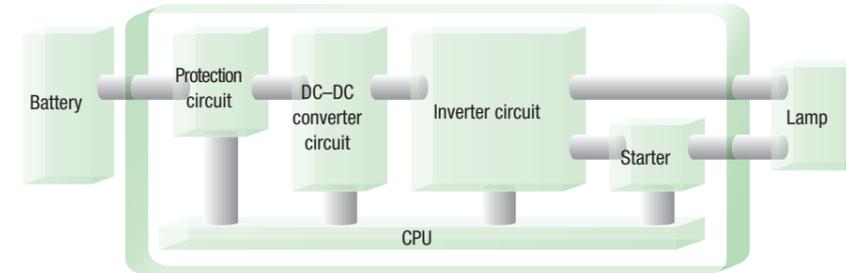


Dimensions

	ϕD	8	10	12.5	16	18
A		2.9	3.2	4.8	5.4	6.4
B		8.3	10.3	13.6	17.1	19.1
C		8.3	10.3	13.6	17.1	19.1
E		3.1	4.5	4.0	6.3	6.3
L		10	10	13.5	16.5, 21.5	21.5
H		1.1 to 1.5	1.1 to 1.5	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4

■ Aid electrode

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	$\phi 8 \times 6.2L$ to $\phi 10 \times 10L$
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	$\phi 8 \times 6.2L$ to $\phi 10 \times 10L$
Endurance	2,000 hours at 125°C ($\phi 8 \times 6.2L$: 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	$\phi 8 \times 11.5L$ to $\phi 18 \times 35.5L$
Endurance	2,000 to 10,000 hours at 125°C (50V or less, $\phi 8$: 2,000 hours, $\phi 10$: 5,000 hours, $\phi 12.5$ above: 10,000 hours), (63 to 100V, $\phi 8$: 2,000 hours, $\phi 10$: 3,000 hours, $\phi 12.5$: 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	$\phi 5 \times 11L$ to $\phi 18 \times 40L$
Endurance	2,000 hours at 105°C
Rated voltage	6.3 to 50V
Capacitance	22 to 22,000 μF
Category temperature	-55 to +105°C

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	$\phi 6.3 \times 6L$ to $\phi 10 \times 12.7L$
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	$\phi 6.3 \times 6L$ to $\phi 10 \times 12.7L$
Endurance	3,000 hours at 125°C ($\phi 6.3$: 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

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 ECUs, 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 $\phi 20 \times 21.5L$
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 series also applies to control solution specifications.

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 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 ($\phi 8$, $\phi 10$)

Mounting Examples

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.



Safety Solutions

Automotive Aluminum Electrolytic Capacitors

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 80V), low ESR, high 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	φ8×7L to φ10×12.7L
Endurance	4,000 hours at 125°C
Rated voltage	16 to 80V
Capacitance	22 to 1,000 μF
Category temperature	-55 to +125°C

“EverCAP®” 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	φ8×11.5L to φ18×40L
Endurance	1,000 hours at 70°C
Rated voltage	2.7V
Capacitance	1 to 47F
Category temperature	-25 to +70°C

Applications Navigation systems, Drive Recorders, e-latches

JUK

Lower resistance

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

Product size	φ12.5×31.5L to φ18×40L
Endurance	1,000 hours at 70°C
Rated voltage	2.5V
Capacitance	6.8 to 27F
Category temperature	-40 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

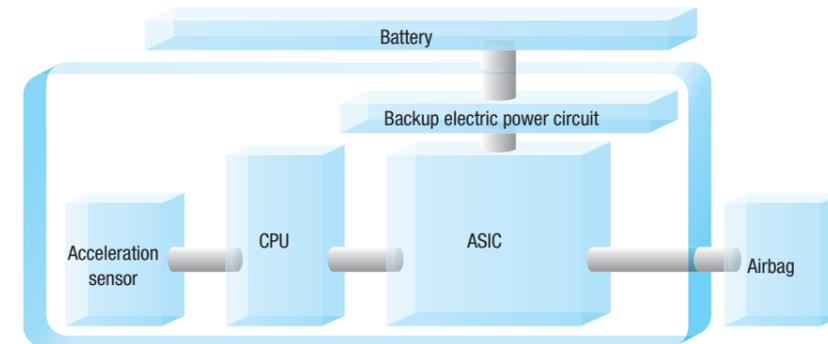
Applications Door locks, door mirrors, optical leveling, car audio

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 ECUs, PSDs, PBDs, collating ECUs, blower motors, gateway ECUs, DCMs, airbag controls

Product size	φ4×5.8L to φ10×13.5L
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

UCV

Low impedance **NEW**

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

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

Product size	φ6.3×7.7L to φ10×10L
Endurance	2,000 hours at 105°C
Rated voltage	25 to 35V
Capacitance	220 to 1,000 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, airbag controls, 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.

Product size	φ4×5.8L to φ18×16.5L
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	1 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, airbag controls

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

Product size	φ4×7L to φ25×50L
Endurance	2,000 to 8,000 hours at 105°C (φ4, 5, 6.3: 2,000 hours, φ8: 3,000 hours, φ10: 5,000 hours, φ12.5: 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

- SMD type, high voltage
- Load life of 3,000 hours at 105°C
- Compliant to the RoHS directive (2011/65/EU)

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

ULV High voltage, long life

- 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

- 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

- 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

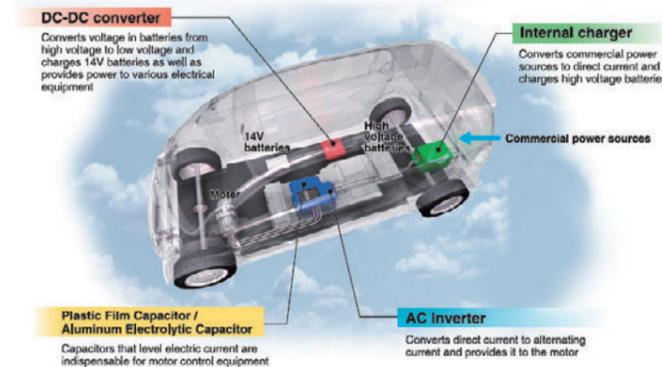
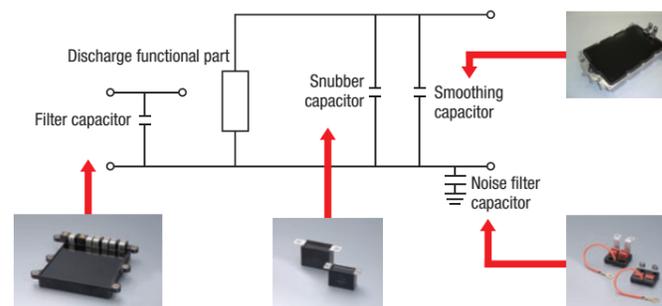
(μ F)

		Lineup											
		ULR			ULV			ULT			ULH		
Size (mm)	Diameter	8	10	13.5	8	10	13.5	8	10	13.5	8	10	13.5
	Rated voltage	160V	15	27	39	15	22	33	15	22	33	12	18
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	6.8	10	3.3	5.6	7.5
450V		3.9	6.8	10	3.3	5.6	7.5	3.3	5.6	7.5	2.2	3.9	5.6
	500V	2.7	3.9	5.6	1.8	3.3	4.7	1.8	3.3	4.7	—	—	—

Film Capacitors for EVs/HVs/PHVs

Sample Uses for Inverter with Booster Function

Capacitor Module Equivalence Circuit

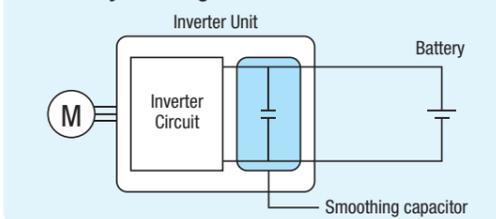


Film Capacitors

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

Inverter System Diagram



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. 3.3kW
- Output voltage: 200 to 410V
- Efficiency: MAX. 90%
- Cooling system: Water cooled

Charging DC-DC converter

- Input voltage: 200 to 410V
- Output voltage: 14V
- Output current: 80 to 120A
- Cooling system: water cooled

More Compact and Lightweight While Meeting Standard Specifications

