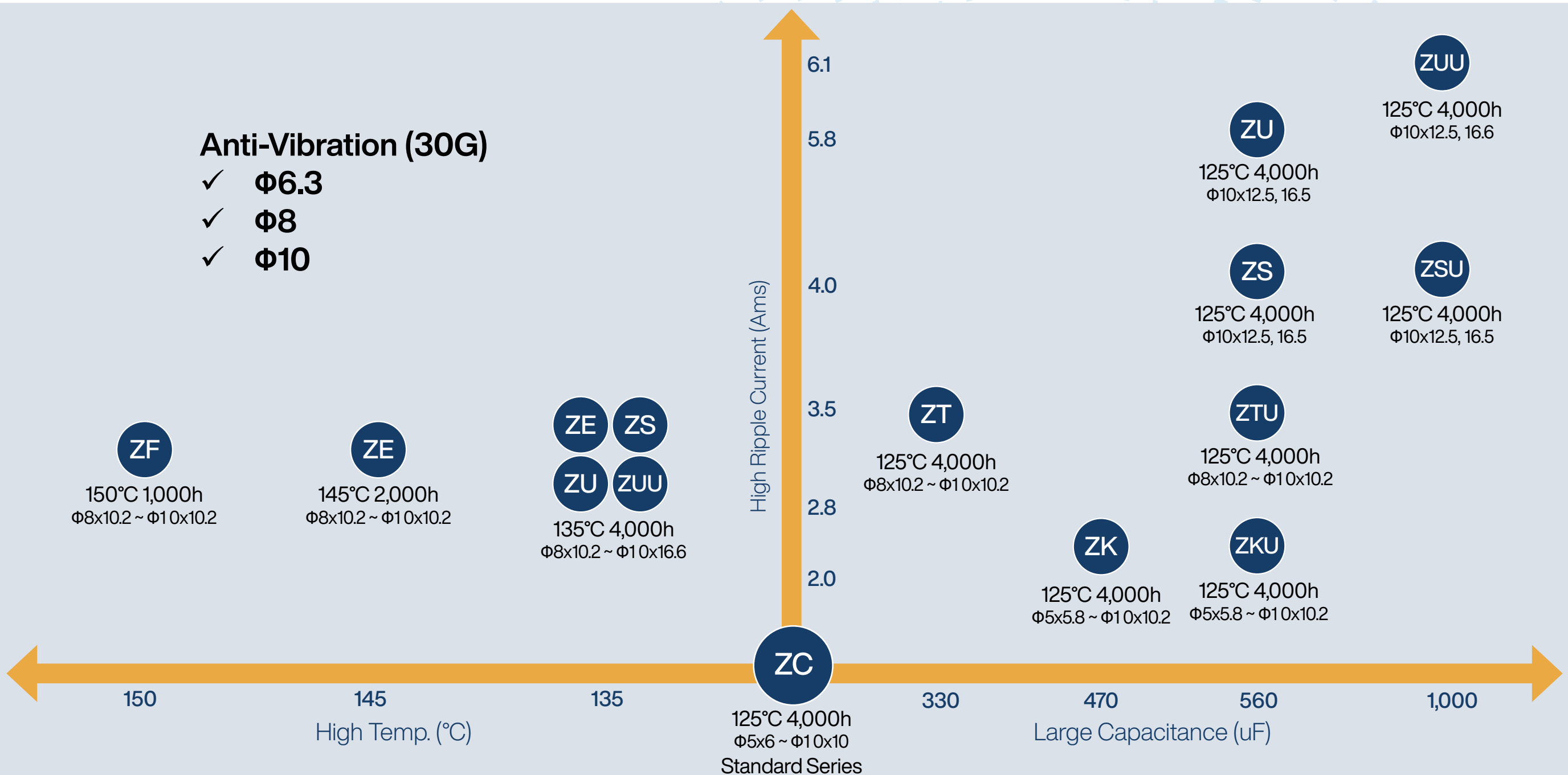


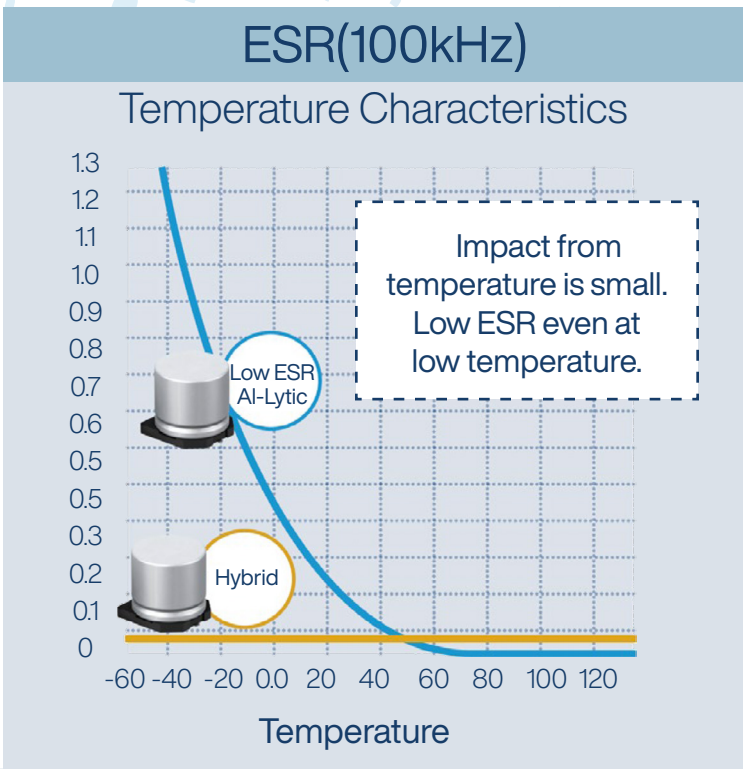
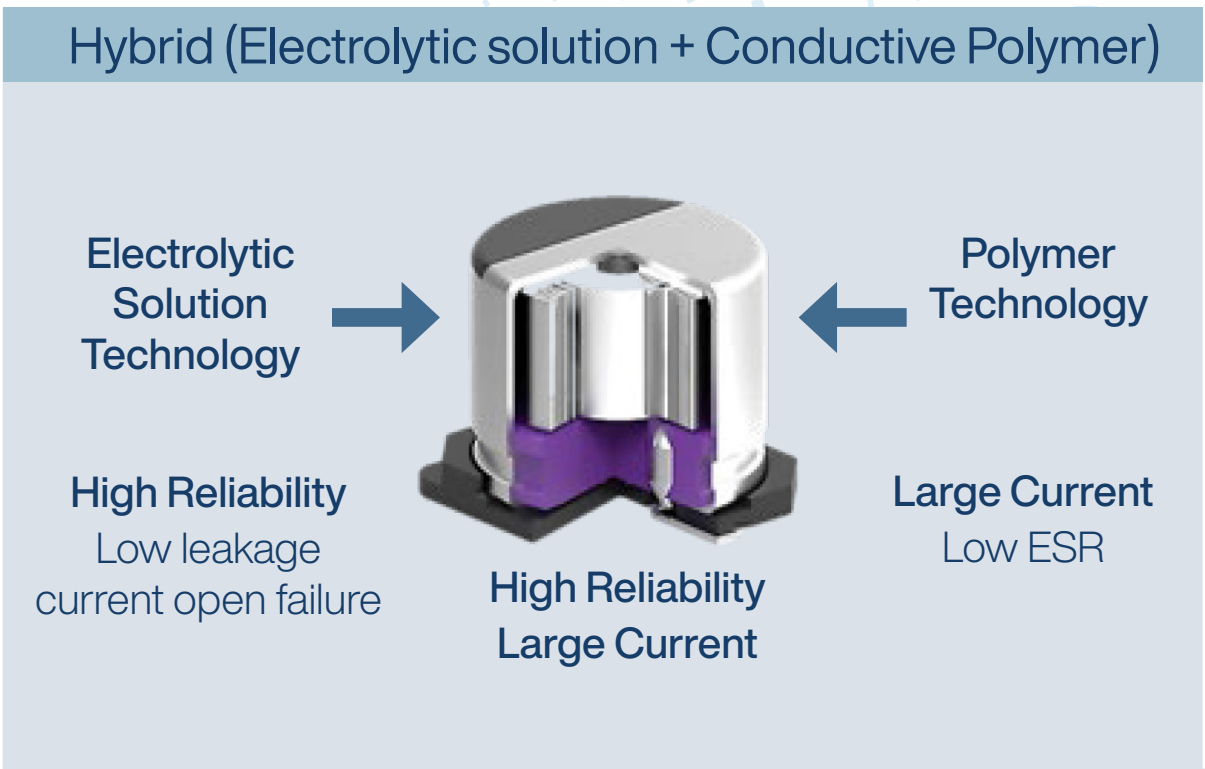
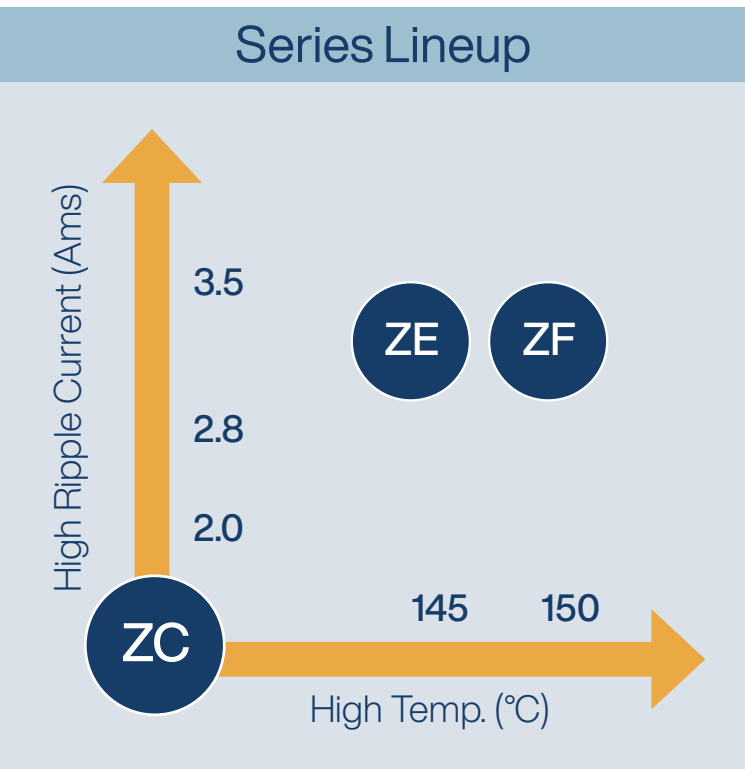
HYBRID CAPACITORS

Product Lineup



High Temperature Series (ZE, ZF Series)

- High Temperature
- Long Life
- Low ESR & High Ripple Current
- High Withstand Voltage



► Characteristics

Series	ZE	ZF
Size [øxL] (mm)	8x10.2, 10x10.2	8x10.2, 10x10.2
High Temperature Guarantee	145°C/2000h 135°C/4000h	150°C/1000h
Rated Voltage Range(V)	25 to 63	25 to 63
ESR	20 to 40	20 to 40
Capacitance Range	33 to 330	33 to 270
Rated Ripple Current	0.6 to 0.9 (at 145°C) 1.1 to 2 (at 135°C)	0.65 to 1 (at 150°C)

► Adopted Applications

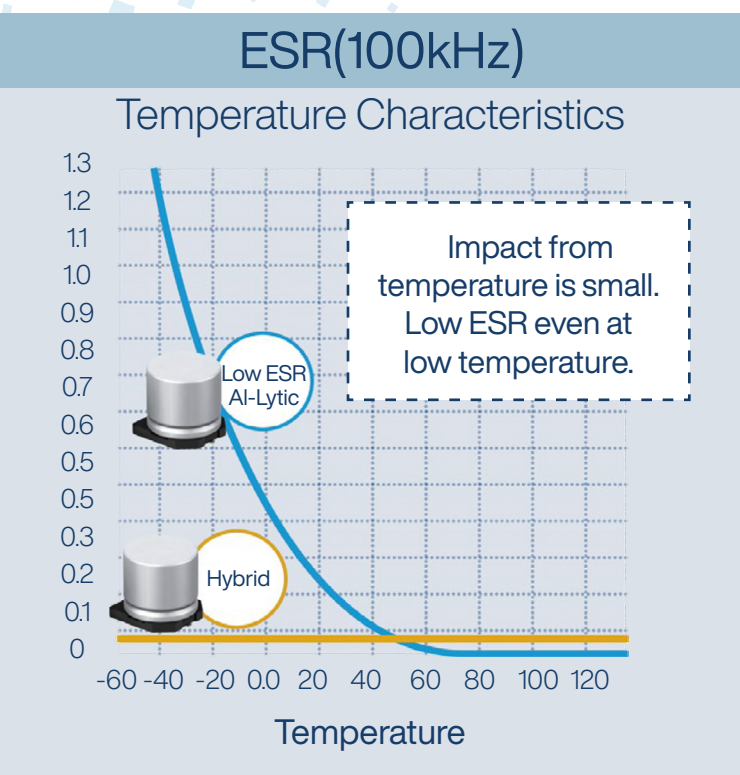
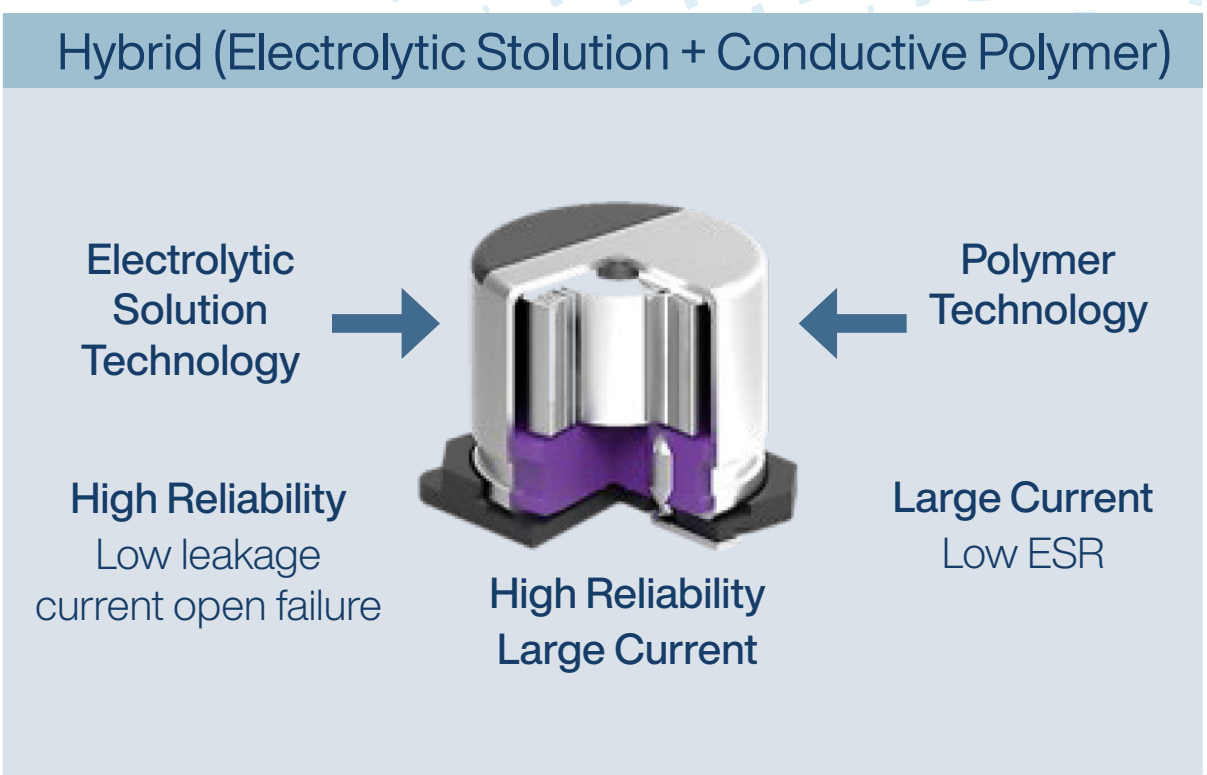
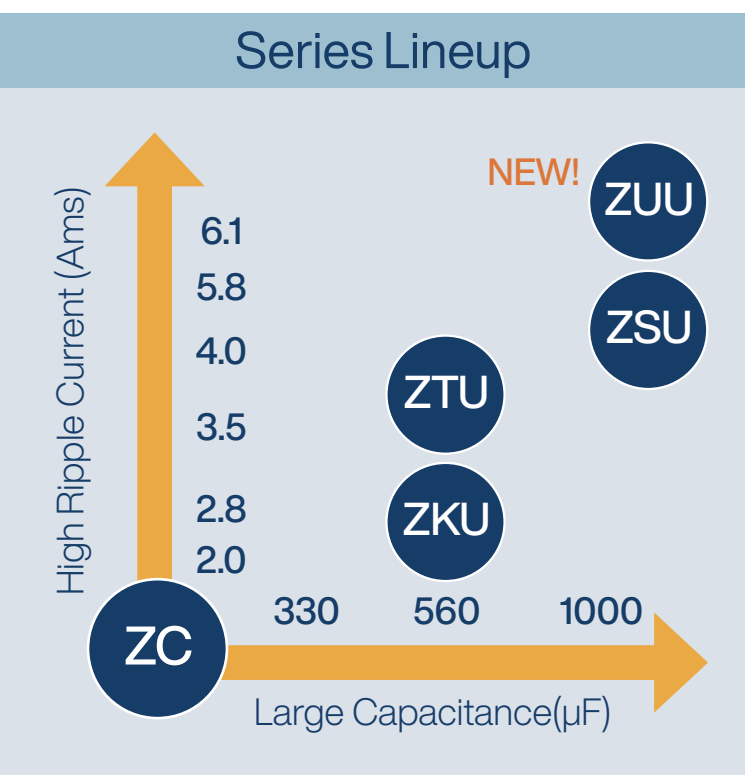
Automotive	Industrial
EPS	Robot
Pump	
Brake	

Learn More



Large Capacitance Series (ZKU, ZTU, ZSU, ZUU)

- Large Capacitance
- High Ripple Current
- High Reliability
- Low ESR

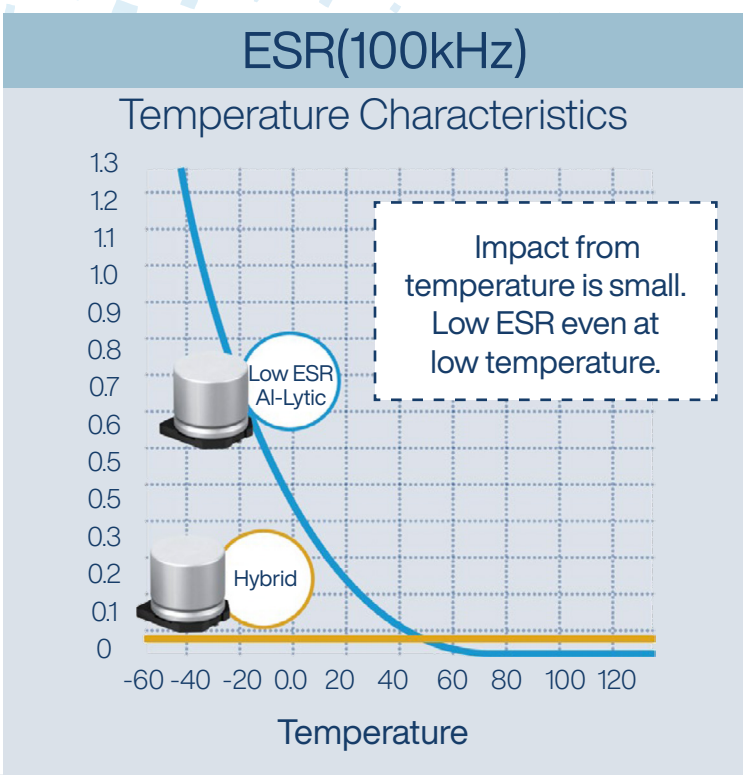
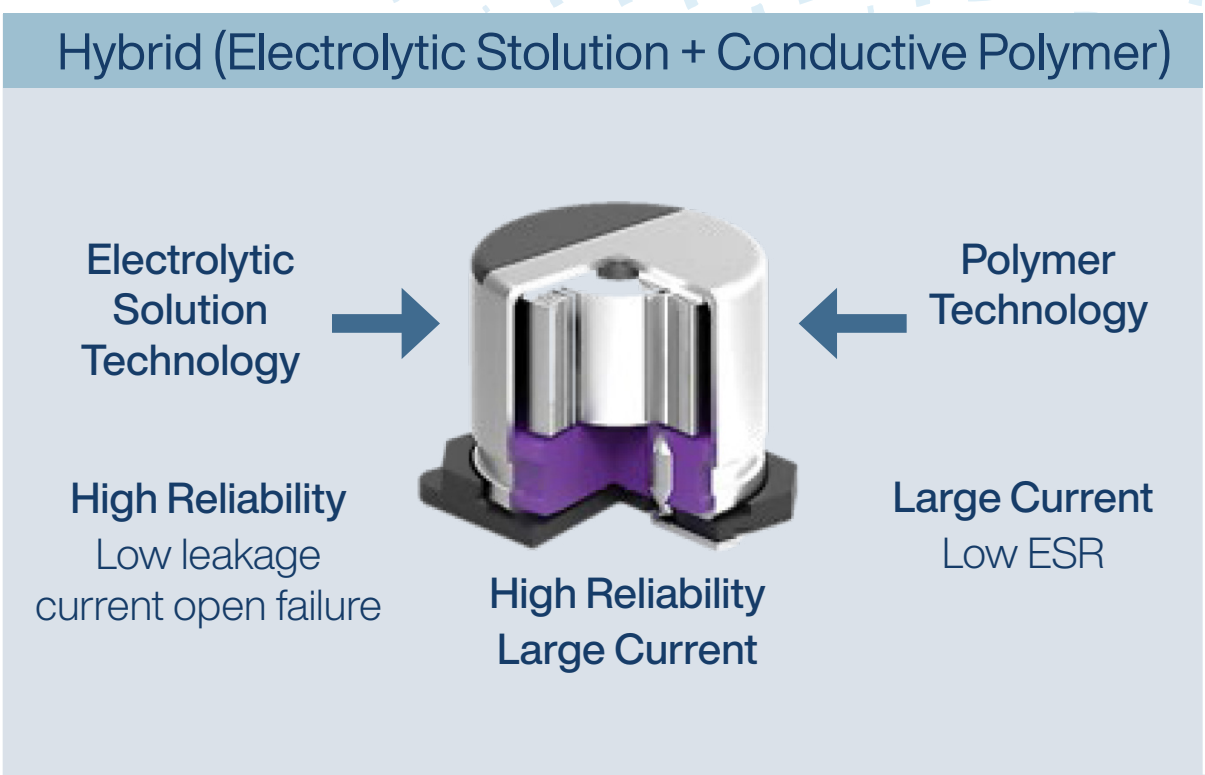
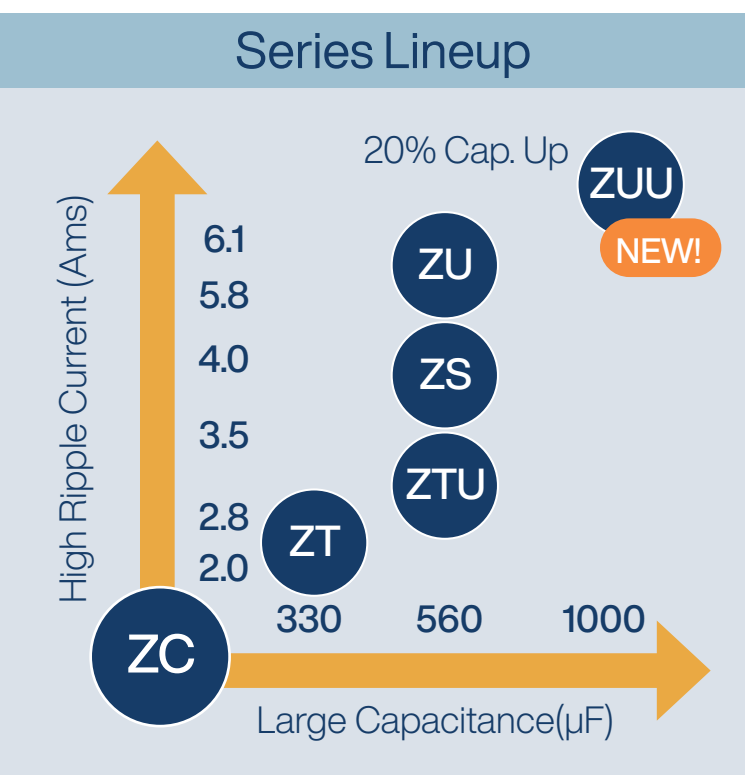


Characteristics					Adopted Applications		
Series	ZKU	ZF	ZSU	ZUU	Automotive	Communication Infrastructutre	Industrial
Size [øxL] (mm)	5x5.8 to 10x10.2	8x10.2, 10x10.2	10x12.5, 10x16.5	10x12.5, 10x16.6	EPS	Base Station	Robot
High Temperature Guarantee	125°C/4000h	135°C/4000h 125°C/4000h	125°C/4000h	135°C/4000h 125°C/4000h	Cooling Fan		
Rated Voltage Range(V)	25 to 35	25 to 35	25 to 63	25 to 63	High-current DCDC Power Supply		
ESR	20 to 100	16 to 22	11 to 19	8 to 12			
Capacitance Range	39 to 560	220 to 560	120 to 1000	120 to 1000			
Rated Ripple Current	0.75 to 2.8 (at 125°C)	2.9 to 3.5 (at 125°C)	3 to 4 (at 125°C)	4.8 to 6.1 (at 125°C) 3.4 to 4.3 (at 135°C)			

Learn More

High Ripple Current Series (ZT, ZS, ZU, ZUU, ZTU)

- High Ripple Current
- Large Capacitance
- Small Size
- High Reliability



Characteristics

Series	ZT	ZS	ZU	ZUU	ZTU
Size [øxL] (mm)	8x10.2, 10x10.2	10x12.5, 10x16.5	10x12.5, 10x16.5	10x12.5, 10x16.6	8x10.2, 10x10.2
High Temperature Guarantee	125°C/4000h	135°C/4000h 125°C/4000h	135°C/4000h 125°C/4000h	135°C/4000h 125°C/4000h	135°C/4000h 125°C/4000h
Rated Voltage Range(V)	25 to 63	25 to 63	25 to 63	25 to 63	25 to 35
ESR	16 to 32	11 to 19	8 to 12	8 to 12	16 to 22
Capacitance Range	33 to 330	100 to 560	100 to 560	120 to 1000	220 to 560
Rated Ripple Current	2.4 to 3.5 (at 125°C)	2.1 to 2.9 (at 135°C) 3 to 4 (at 125°C)	4.6 to 5.8 (at 125°C)	4.8 to 6.1 (at 125°C) 3.4 to 4.3 (at 135°C)	1.8 to 2.2 (at 135°C) 2.9 to 3.5 (at 125°C)t

Adopted Applications

Automotive	Communication Infrastructutre	Inwdustrial
EPS	Base Station	Robot (Inverter Power Supply)
Pump	AI Server	Cooling Fan
Break	Router	Solar Power

Learn More

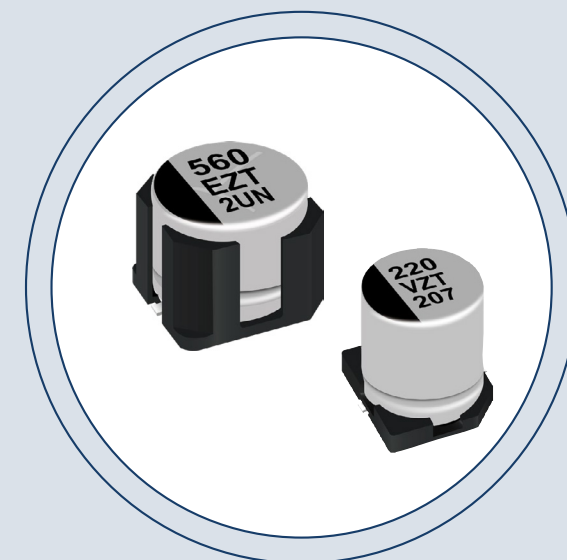


HYBRID CAPACITORS

ZTU Series

Unrivalled Capacitance And Ripple Current Performance In The Market

Panasonic's ZTU Series Hybrid capacitors represent a significant advancement in component miniaturization, offering improved ripple current performance of up to 80% compared to the ZC series. The ZTU Series boasts a high endurance rating of 125°C 4000h and 135°C 4000h, along with enhanced ESR performance, enabling ripple currents of up to 3.5A@125°C. With impressive ripple current capabilities in a compact package, they optimize your PCB design, reducing the need for multiple capacitors. The ZTU Series is AEC-Q200 compliant, ensuring optimal quality and reliability for any demanding application.



Key Features

- Rated Voltage of 25 ~ 35VDC
- Endurance Rating With Double Spec Of:
125°C 4000h And 135°C 4000h
- AEC-Q200 Compliant
- Higher Ripple Current Up To 3,5A
- Capacitance 220μF ~ 560μF
- ESR Best In Class
- Super Low Leakage Current
- 30G Vibration Proof Parts Available



Industrial/ Communication

DC/DC Converter
AC/DC Converter
Motor Inverter (Robotics etc.)



Automotive

EPS
Pump
ADAS



Power Supply

DC Side of Inverter Circuit
DC Side of Rectifier Circuit



HYBRID CAPACITORS

ZUU Series

Unrivalled Capacitance And Ripple Current Performance In The Market

Panasonic's ZUU Series Hybrid capacitors represent a significant advancement in ripple current performance, offering improved capacitance of up to 20% compared to the ZU Series. The ZUU Series boasts a high endurance rating of 125°C 4000h and 135°C 4000h, along with enhanced ESR performance, enabling ripple currents of up to 6.1A@125°C. With impressive ripple current and capacitance capabilities, they optimize your PCB design, reducing the need for multiple capacitors. The ZUU Series is AEC-Q200 compliant, ensuring optimal quality and reliability for any demanding application.



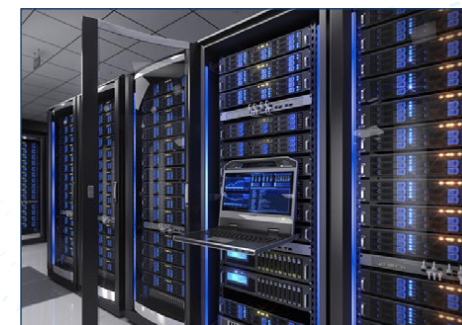
Key Features

- Rated Voltage of 25 ~ 63VDC
- Endurance Rating With Double Spec Of:
125°C 4000h And 135°C 4000h
- AEC-Q200 Compliant
- Higher Ripple Current Up To 6.1A
- Capacitance 120μF ~ 1000μF
- ESR Best In Class
- RoHS compliant
- Super Low Leakage Current



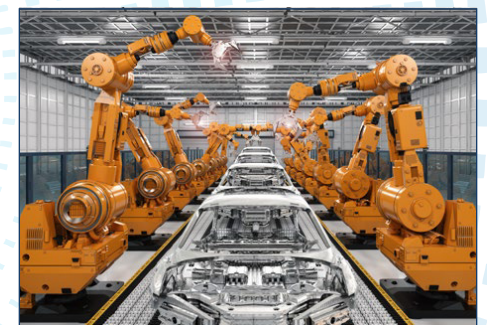
Automotive

EPS
Pump
ADAS



Comm Infrastructure

Base Station
AI Server
Router



Industrial Equipment

Robot (Inverter Power Supply)
Cooling Fan
Solar Power



HYBRID CAPACITORS

ZKU Series

Setting Industry Standards With Large Capacitance Range

Panasonic's ZKU Series Hybrid capacitors represent a significant advancement in component miniaturization, offering the same capacitance level. The ZKU Series boasts a high endurance rating of 125°C 4000h and large capacitance values of 39 μ F to 560 μ F. The high capacitance characteristics in miniaturized body can reduce the number of required capacitors on the PCB. Adoption of ZKU Series in EPS application decreases the PCB area by 25% when compared to other Hybrid Capacitors on the market. Being AEC-Q200 compliant ensures optimal quality and reliability.



Key Features

- Large Capacitance, 39 μ F Up To 560 μ F
- Endurance Rating: 4000 Hours @ 125°C
- Operating Temperature -55 to + 125°C
- Rated Voltage 25VDC / 35VDC
- Low ESR, Down To 20m Ω
- High Ripple Current, Up To 2.8Arms
- AEC-Q200 Compliant
- 30g Vibration Proof Types Available (ϕ 6.3 And Larger)



Automotive

Electrical Control Unit(ECU)
EPS
Pump



Infrastructure & Energy

Base Station
Server



Industrial

Robot
E-bike
AC/DC, DC/DC Power Supply

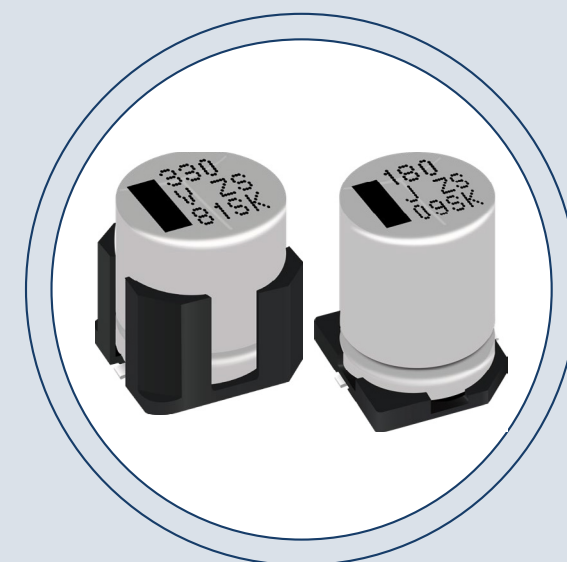


HYBRID CAPACITORS

ZSU Series

Setting Industry Standards With Large Capacitance Range

Panasonic's ZSU Series Hybrid capacitors represent a significant advancement in components with high ripple current, providing a high capacitance level. The ZSU series boasts a high endurance rating of 125°C 4000h and large capacitance values of 120 μ F to 1,000 μ F. The ZSU series from Panasonic contributes to reducing current noise in motor applications operating at low frequencies and stabilizing the output voltage of switching power supplies. Being AEC-Q200 compliant ensures optimal quality and reliability.



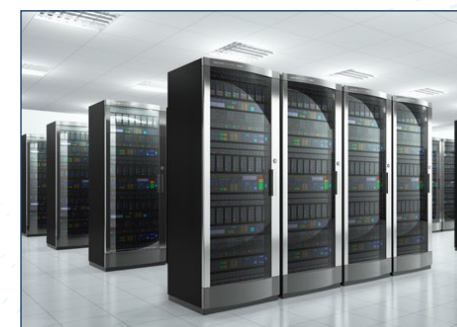
Key Features

- Rated Voltage of 25 ~ 63VDC
- Endurance rating 4000 Hours @ 125°C
- AEC-Q200 Compliant
- Low ESR, Down To 11m Ω
- Higher Ripple Current Up To 4A
- Capacitance 120 μ F ~ 1,000 μ F
- RoHS Compliant
- Super Low Leakage Current



Automotive

EPS
Cooling Fan
DC/DC Power Supply



Infrastructure & Energy

Base Station
AI Server



Industrial

Robot

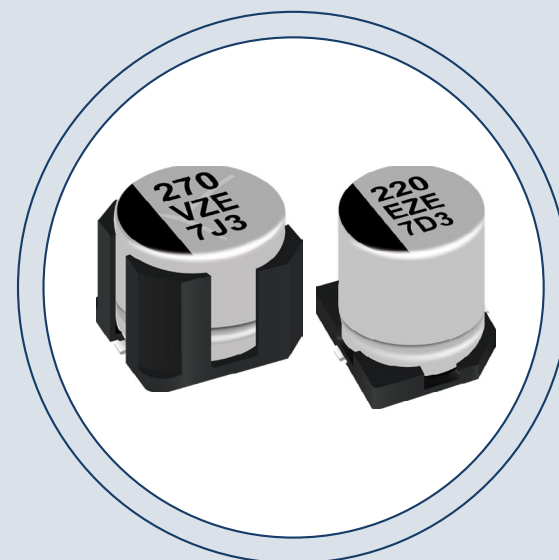


HYBRID CAPACITORS

ZE Series

Setting Industry Standards With Large Capacitance Range

Panasonic's ZE Series Hybrid capacitors represent a significant advancement in components with high temperature resistance, providing a high ripple current level. The ZE series boasts a high endurance rating of 135°C 4000h and 145°C 2000h, along with enhanced ESR performance, enabling ripple currents of up to 2A@135°C. ZE series offers excellent heat resistance, high current capacity, and long lifespan, making it ideal for miniaturized designs that require the ability to withstand high temperatures. Being AEC-Q200 compliant ensures optimal quality and reliability.



Key Features

- Rated Voltage of 25 ~ 63VDC
- Endurance Rating With Double Spec :
135°C 4000h and 145°C 2000h
- AEC-Q200 Compliant
- Low ESR, Down To 20mΩ
- Higher Ripple Current Up To 2A
- Capacitance 33μF ~ 330μF
- RoHS Compliant
- Super Low Leakage Current



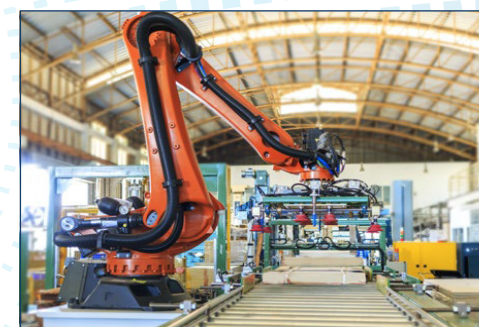
Automotive

Electrical Control unit (ECU)
EPS
Pump



Infrastructure & Energy

Base Station
Server
Inverter Power Generation Control



Industrial

Robot
E-Bike
AC/DC, DC/DC Power Supply

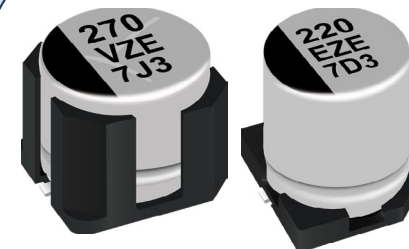


HYBRID CAPACITORS

ZT Series

Setting Industry Standards With Large Capacitance Range

Panasonic's ZT Series Hybrid capacitors represent a significant advancement in component miniaturization, offering improved ripple current performance of up to 75% to 100% compared to ZC series. The ZT series boasts a high endurance rating of 125°C 4000h, along with enhanced ESR performance, enabling ripple current of up to 2.4A to 3.5A. Adoption of ZT series in DC/DC converter applications decreases the PCB area up to 50% when compared to ZC series. The ZT series is AEC-Q200 compliant, ensuring optimal quality and reliability for any demanding application.



Key Features

- Rated Voltage Of 25 ~ 63VDC
- Endurance Rating 4000 Hours @ 125°C
- 30G Vibration Proof Parts Available
- Higher Ripple Current Up To 3,5A
- AEC-Q200 Compliant
- Capacitance 33μF ~ 330μF
- ESR Best In Class



Industrial / Communication

DC/DC Converter
AC/DC Converter



Automotive

EPS
Pump
ADAS



Power Supply

DC Side Of Inverter Circuit
DC Side of Rectifier Circuit

