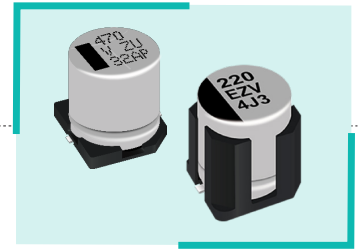


Panasonic Hybrid Capacitors

Unlock the Solution to Elevate Your Designs!

Higher Reliability, Higher Performance, Miniaturization

Key features:

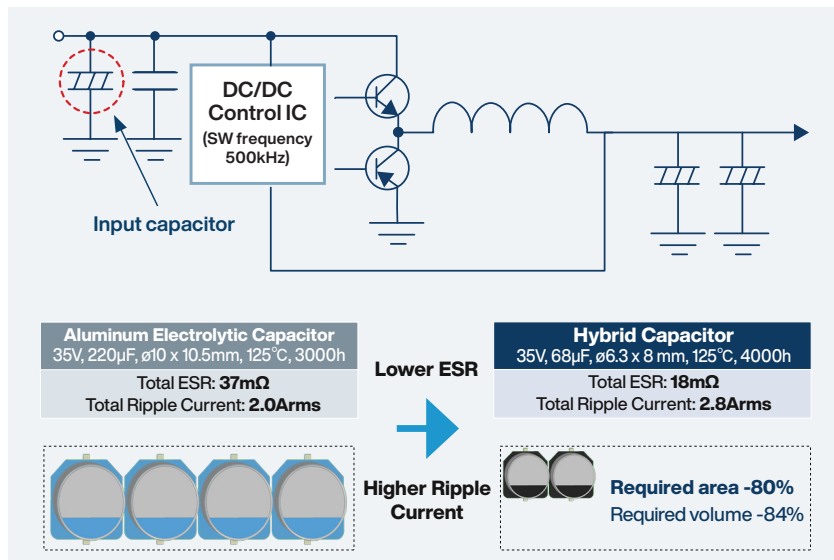


How Can Panasonic's Hybrid Capacitors Bring Your Design to the Next Level?

Hybrid capacitors can:

- Ensure **capacitance stability** throughout the lifetime
- Provide low **ESR performance** even at low temperature
- Offer **larger capacitance at the switching frequency**
- Achieve **noise reduction** due to low ESR

A Successful Case Study: Improvements in Low ESR, High Ripple Current, and Miniaturization.



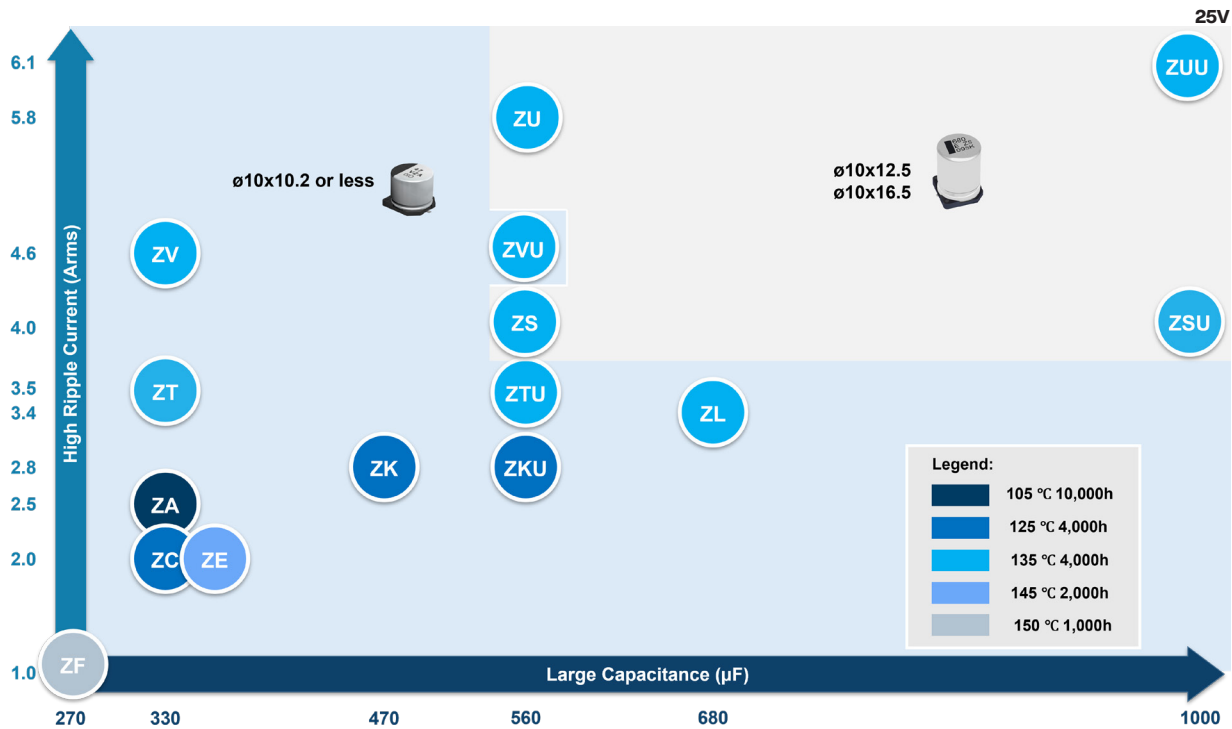
Comparison of Aluminum Electrolytic and Hybrid Capacitors

Classification	Aluminum Electrolytic Capacitor	Hybrid Capacitor
Initial LC Leakage Current	Low	Low
Life End Mode	Open	Open
Humidity Resistance	85°C 85%CRH	85°C 85%CRH
Estimated Lifetime	Limited	Long
Ripple Current	Low	High
ESR	High	Low
Capacitance in High-Frequency	Less Stable	Stable
Capacitance in Low Temperature	Unstable	Stable

Scan to know more!



Panasonic Hybrid Capacitors Series Overview



Panasonic Hybrid Capacitors Lineups

Series	Endurance	Rated voltage range (V)	Capacitance range (µF)	ESR (mΩ)	Ripple current (mA rms) ^{*1}	Sizes (mm)
ZA ^{*2}	105 °C 10000 h	25 - 80	10 - 330	20 - 120	750 - 2500	ø5x5.8 - ø10x10.2
ZC ^{*2}	125 °C 4000 h	25 - 80	10 - 330	20 - 120	500 - 2000	ø5x5.8 - ø10x10.2
ZK ^{*2}	125 °C 4000 h	25 - 35	33 - 470	20 - 100	750 - 2800	ø5x5.8 - ø10x10.2
ZKU ^{*2}	125 °C 4000 h	25 - 35	39 - 560	20 - 100	750 - 2800	ø5x5.8 - ø10x10.2
ZL	125 °C 4000 h 135 °C 4000 h	25 - 35	47 - 680	14 - 60	900 - 3400 (at 125 °C) 550 - 2300 (at 135 °C)	ø5x5.8 - ø10x10.2
ZT ^{*2}	135 °C 4000 h	25 - 63	33 - 330	16 - 32	2400 - 3500	ø8x10.2 and ø10x10.2
ZTU	125 °C 4000 h 135 °C 4000 h	25 - 35	220 - 560	16 - 22	2900 - 3500 (at 125 °C) 1800 - 2200 (at 135 °C)	ø8x10.2 and ø10x10.2
ZV	125 °C 4000 h 135 °C 4000 h	25 - 63	33 - 330	12 - 22	3300 - 4600 (at 125 °C) 2300 - 3400 (at 135 °C)	ø8x10.2 and ø10x10.2
ZVU	125 °C 4000 h 135 °C 4000 h	25 - 63	56 - 560	12 - 22	3300 - 4600 (at 125 °C) 2300 - 3400 (at 135 °C)	ø8x10.2 and ø10x10.2
ZS ^{*2}	125 °C 4000 h 135 °C 4000 h	25 - 63	100 - 560	11 - 19	3000 - 4000 (at 125 °C) 2100 - 2900 (at 135 °C)	ø10x12.5 and ø10x16.5
ZSU ^{*2}	135 °C 4000 h	25 - 63	120 - 1000	11 - 19	3500 - 4000	ø10x12.5 and ø10x16.5
ZU	125 °C 4000 h 135 °C 4000 h	25 - 63	100 - 560	8 - 12	4600 - 5800 (at 125 °C) 3200 - 4000 (at 135 °C)	ø10x12.5 and ø10x16.5
ZUU	125 °C 4000 h 135 °C 4000 h	25 - 63	120 - 1000	8 - 12	4800 - 6100 (at 125 °C) 3400 - 4300 (at 135 °C)	ø10x12.5 and ø10x16.5
ZE ^{*2}	135 °C 4000 h 145 °C 2000 h	25 - 63	33 - 330	20 - 40	1100 - 2000 (at 135 °C) 600 - 900 (at 145 °C)	ø8x10.2 and ø10x10.2
ZF ^{*2}	150 °C 1000 h	25 - 63	33 - 270	20 - 40	650 - 1000	ø8x10.2 and ø10x10.2

*1: Ripple Current (100 kHz) is based on the temperature used for the endurance test, unless stated otherwise.

*2: Also available as radial lead type

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capacitor@eu.panasonic.com

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