Application notes for Panel

Market changes	Performance	Roles of the capacitors
Slimmer Higher definition Higher refresh rate	Low profile Larger currents	Lower ripple noise Stabilize voltage Improve reliability

1. What Is a Polymer Aluminum Electrolytic Capacitor?

Murata's conductive polymer capacitors (ECAS series) have low-ESR, low-impedance, and high-capacitance features. Additionally, they are superior for their ripple absorption, smoothing, and transient response performances since there is no DC bias characteristic for capacitance and the temperature characteristic is stable. This contributes to reducing the number of parts as well as the size of the circuit board area.

2. What is required of Panel?

With the normalization of working from home and remote work since the COVID pandemic, markets for display panels used in devices such as computer monitors are expected to remain in steady demand.

For high-spec displays for applications such as gaming, higher definition images and high-speed image display features are in demand.

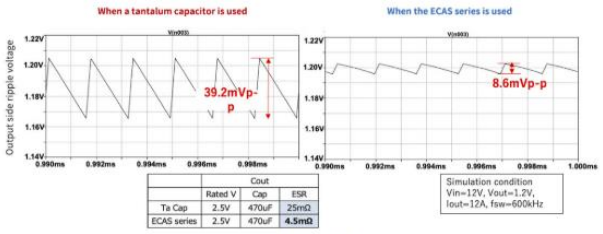
3. Panel issues

In order to achieve higher resolutions and refresh rates, signal processing circuit technology needs to be developed even further. With power supply circuits that support larger currents being the market trend in recent years, the pursuit of even greater power supply noise reductions, improvements to voltage stabilization designs, and reliability has proven to be the task at hand.

4. Benefits of using Murata's ECAS series products

① Low ripple noise

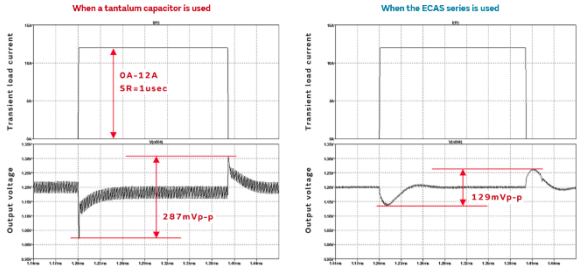
The ECAS series with its low ESR characteristics has excellent ripple noise suppression performance.



[Results of a simulation]

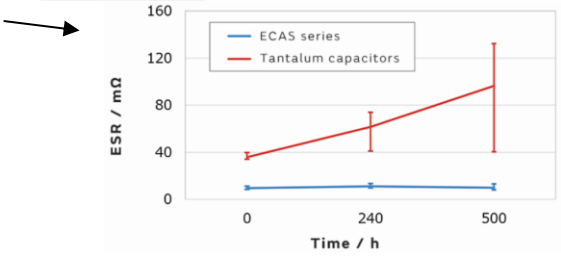
② Voltage fluctuation stability with respect to load fluctuations

The ECAS series with its large capacitance characteristics features excellent stability with respect to load-side fluctuations in large-current applications



③ Reliability

The ECAS has more stable reliability compared to tantalum capacitors, which contributes to stable set operation.



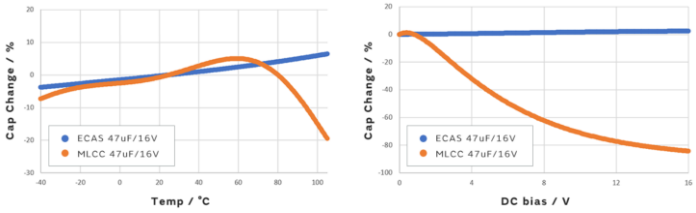
④Reduction in quantity due to large capacitance

The ECAS series has larger capacitance and no voltage dependence compared to MLCC, so the number of components can be reduced to achieve a smaller set in applications currently using large numbers of MLCC.

⑤Stable capacitance with respect to temperature and voltage changes

The effective capacitance of MLCC varies with changes in DC voltage and temperature.

By contrast, the ECAS series has almost no capacitance change with respect to DC voltage or temperature, enabling use for stable power supply design.



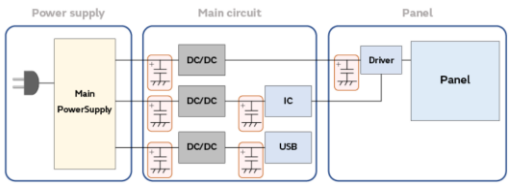
⑥Low noise

Because the ECAS series has no mechanical vibrations due to the piezoelectric effect, the acoustic noise is extremely low compared to MLCCs, and the problem of harsh noise can be solved.

Conventional MLCC　　ECAS Series

5. Example of applied circuit

The ECAS series can be used in circuits such as shown in the figure below.



【Technical Support】

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