

January 2010

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Nichicon's New FPCAP Polymer Capacitors



Advances in the performance of electronic equipment over recent years have also resulted in demand for higher performance and greater reliability in capacitors. As the MPUs used in PCs become ever faster, the trend towards heavier power supply currents has lead to a requirement for capacitors with characteristics that include both large capacitance and high response (low resistance). Similarly, the trend to digital operation, smaller size and slimmer profile in equipment such as LCD TVs and DVD recorders has made capacitors with small size and high performance (low resistance) characteristics essential as a means to eliminate the generation of high frequency noise. By adopting aluminum foil anodes and high-conductivity functional polymer electrolytes, Nichicon offers aluminum electrolytic polymer capacitors which offer small-size with low ESR and high reliability.

Available in a wide range to suite the diverse requirements of customers, the FPCAP capacitors can help improve the efficiency of various different types of power supplies and contribute to designing equipment with higher performance, smaller size and reduced noise.

There are key advantages to aluminum polymer capacitors:

Advantage #1: Low ESR

Polymer aluminum electrolytic capacitors offer very low ESR ratings versus standard aluminum electrolytic capacitors. ESR ratings down to 5 milli-Ohms.

Advantage #2: Excellent Frequency Characteristic

Using the high conductivity of a functional polymer with an electrolyte, the ESR is greatly improved, obtaining the frequency characteristic nearly equal to a film capacitor.

Advantage #3: Usage with High Ripple Currents

Polymers have higher ripple current capability.

Advantage #4: Steady ESR and Capacitance

ESR and capacitance have steady characteristics over temperature change and a wide frequency range.

Advantage # 5: Cost Savings

One polymer capacitor has the same ripple current and ESR capabilities as 7 to 9 standard aluminum capacitors in parallel. This creates a great advantage in reducing cost and pc boards real estate!

Polymer Quick Facts

- Cost Effective
- Excellent Frequency Characteristics
- High Ripple Current Usage
- Excellent Ripple Voltage Smoothing
- Excellent Noise Absorption
- Reduces Board Placements
- Saves PC Real Estate
- Excellent Transient Response Capability
- Steady ESR and Capacitance
- Low ESR

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Product Offering

Nichicon's FPCAP family of polymer capacitors offers:

- Smaller overall case sizes and higher capacitance values than standard aluminum electrolytics
- ESR ratings down to 5 milli-Ohms
- Radial-lead and surface-mount version with many size options
- 3.5 or 5.0mm lead spacings
- 2.5V to 25V maximum Vdc ratings
- 10uF to 2700uF capacitances
- Radial-lead series: NS, R7, R5, NU, L8, S8, E5, HT, F8, NE
- Surface-mount series: PS, PA, FS, SS, SA, SB, HS, HA, SL, SH
- Online catalog at www.nichicon.com

Markets

* High Performance CPU/GPU Makers * Graphic Card Manufacturers * Motherboard Producers * DVR/Set Top Box * Embedded Control Boards * Sound Card * Wherever a CPU is Located * Digital AV * Power Supplies *

Applications



There is a wide variety of applications for conductive polymer aluminum solid electrolytic capacitors and in this Tech Topic we have merely scratched the surface. We encourage you to contact your Nichicon Account Representative to assist you if you have any additional questions.

Filtering

Primary and secondary filtering for DC-DC converter and secondary filtering for switching power supply.

Back-up Circuits

Back-up circuits for high-speed LSI (e.g. MPU, CPU) for large current transition with fast charge and discharge response.

CPU Backup

Optimizing transient response.

Noise Absorption

Noise absorption in the DC/DC Converter and Power Supply Line.

Smoothing

Smoothing of ripple voltage.