nichicon

Tech Topics

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Quick Facts

- High Ripple Current
- Low ESR
- Long Life
- Cost Effective
- Compact Size
- Open Circuit Failure Mode

Nichicon Hybrid Aluminum Polymer Capacitor Family

GYA, GYB, GYC and GYD

The GYA/GYB/GYC/GYD family of hybrid capacitors is the most recent development in electrolytic capacitor technology, combining the best attributes of aluminum electrolytic and conductive polymer into a single compact capacitor.

Advantage #1: High Ripple Current

The GYA/GYB/GYC/GYD family of parts have ripple currents that are three to twelve times higher than aluminum electrolytic capacitors at 100 kHz.

Advantage #2: Low ESR

The GYA/GYB/GYC/GYD have very low ESR values. Their ESR's are the same or similar to aluminum polymer capacitors.

Advantage #3: Long Life

The GYA/GYB/GYC/GYD family has an endurance life rating up to 10,000 hours at the rated temperature and voltage, assuring long life at lower temperatures.

Advantage #4: Cost Effective

A single hybrid capacitor can replace multiple electrolytic capacitors, not only saving on material costs, but board space as well.

Advantage #5: Compact Size

The GYA/GYB/GYC/GYD family is available in standard SMD electrolytic case sizes. Often, they are available in the same case size as an aluminum electrolytic and polymer capacitor of the same capacitance and voltage.

Advantage #6: Open Circuit Failure Mode

The GYA/GYB/GYC/GYD reliably fails as an open circuit. Making this a very safe product for all designs.

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Hybrid Part Offering

Series	Temp	Voltage	Capacitance	Life
GYB	-40~+105°C	25~63V DC	10 ~ 330µF	10000h
GYA	-40~+125°C	16~63V DC	10 ~ 470µF	4000h
GYC	-55~+135°C	25~63V DC	10 ~ 330µF	4000h
GYD	-55~+150°C	25~35V DC	100 ~ 270µF	1000h

Applications

- **Automotive and Related Fields**— High reliability is required in automotive and related applications, which necessitates the existence of the GYA/GYB/GYC/GYD series parts.
  - Engine control units, automotive electric pumps (EWPs and EOPs), airbag control, instruments, lighting, power seats, and meters.
- **Industrial Machinery**— This field also requires high reliability at high temperatures, making these parts especially valuable for their long life at high temperatures, high ripple current, and low equivalent series resistance (ESR).
  - DC converters, industrial control systems, AC electric motors, UPS (uninterruptible power supplies), and pumps.
- **Medical Equipment**— This is a market that requires high reliability as well as long life. The hybrid family of parts provides the right part for any application.
  - Ventilators, Oxygen generators, and respirators.

Focus Markets

- Automotive
- Industrial Machinery
- Medical

GYD Series of 150°C Conductive Polymer Hybrid Aluminum Electrolytic Capacitors