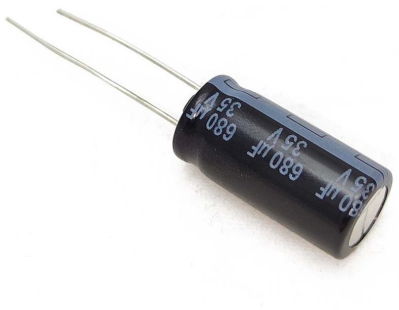
ROTORAMA

Capacitor 680 µF 35 V

Low-impedance electrolytic capacitor
Panasonic EEU-FR1V681B · Ø10 × 20 mm



Observe the polarity! A reverse-connected or overloaded capacitor may overheat and burst.

User manual · www.rotorama.com

Contents

1. Product description

1.1 Purpose

1.2 Specifications and package contents

2. Use

2.1 Where to connect the capacitor

2.2 Polarity

2.3 Mounting and soldering

2.4 Checks after mounting and during operation

3. Safety and storage

4. Information for the EU and Czech Market

4.1 Importer and responsible person in the EU

4.2 Disposal

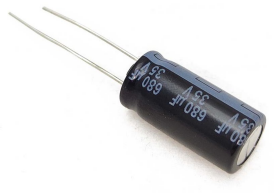
5. Warranty and rights arising from defective performance

1. Product description

1.1 Purpose

The low-impedance **680 µF / 35 V** aluminium electrolytic capacitor is used to filter the supply voltage of an FPV drone. It is soldered to the power input of the electronic speed controllers (ESC) or the power distribution board (PDB) and suppresses the voltage spikes and ripple created by the fast switching of the motors. A cleaner power supply protects the electronics and reduces interference in the video and other circuits.

We recommend adding the capacitor especially on high-power quads. Thanks to its rated voltage of 35 V, the capacitor can also be used with a 6S battery – a fully charged 6S Li-Po battery has 25.2 V (4.20 V/cell), a 6S LiHV battery 26.1 V (4.35 V/cell).



680 µF / 35 V capacitor with radial leads (illustrative photo)

1.2 Specifications and package contents

Manufacturer and part number	Panasonic EEU-FR1V681B (FR series)
Type	aluminium electrolytic capacitor, polarised, radial leads
Capacitance	680 µF, tolerance ±20 % (120 Hz, 20 °C)
Rated voltage	35 V DC
Impedance	max. 20 mΩ (100 kHz)
Rated ripple current	2,180 mA rms (100 kHz)
Dissipation factor tan δ	max. 0.12 (120 Hz, 20 °C)
Leakage current	max. 238 µA (after 2 minutes)
Operating temperature range	−40 °C to +105 °C
Endurance	10,000 h at 105 °C
Dimensions	Ø10 × 20 mm, lead spacing 5.0 mm

Package contents: 1× capacitor. **Not included:** wires, heat-shrink tubing, solder and mounting material.

2. Use

2.1 Where to connect the capacitor

The capacitor is connected in parallel to the power supply – between the positive and negative battery terminals. It is most effective as close as possible to the point where the power is distributed to the switched load:

- on the power input pads (+BAT / −) of a 4-in-1 electronic speed controller (ESC) or power distribution board (PDB),
- or on the pads to which the power lead with the battery connector is soldered.
- Keep the leads as short as possible – long leads reduce the filtering effect of the capacitor.

2.2 Polarity

An electrolytic capacitor is **polarised**. The negative lead is marked by a stripe with "−" signs on the capacitor sleeve.

① Connect the lead next to the stripe with "−" signs to the **negative terminal (−, GND)**.

② Connect the other lead to the **positive terminal (+BAT)**.

A reverse-connected capacitor heats up quickly when the battery is connected and may burst or release hot electrolyte. Therefore, check the polarity before connecting the battery.

2.3 Mounting and soldering

① Pre-tin the solder pads on the board and the ends of the leads.

② Cut the leads to the required length. When bending the leads, do not press on the capacitor body and do not bend the leads at a sharp angle directly at the body.

③ Solder the leads quickly and do not touch the capacitor body with the soldering iron tip. For hand soldering, the capacitor manufacturer specifies a tip temperature of no more than 350 °C for no longer than 3 s.

④ Insulate the bare parts of the leads with heat-shrink tubing so that they cannot touch each other or other parts of the drone.

⑤ Secure the capacitor body (e.g. with a cable tie or double-sided tape) so that it does not move in flight – vibration can break the leads over time.

Leave a clearance of at least 2 mm above the top of the capacitor, where the safety vent is located, and do not cover or pot the capacitor. Do not place it near heat sources (e.g. directly against the speed controllers or motors).

2.4 Checks after mounting and during operation

- Before connecting the battery for the first time, check the polarity again and make sure there is no short circuit between the positive and negative terminals (e.g. with a multimeter). For the first connection we recommend using a short-circuit protector (smoke stopper).
- The capacitor is intended for batteries up to 6S. The voltage across the capacitor, including spikes, must not exceed the rated voltage of 35 V.
- Inspect the capacitor after every crash and during routine maintenance. Replace it if it is swollen, cracked, deformed, leaking electrolyte or if its leads are damaged.
- During operation the capacitor may only become slightly warm. If it is noticeably hot after a flight, it is probably overloaded or faulty – find the cause and replace the capacitor.

3. Safety and storage

- Never exceed the rated voltage of 35 V and never connect the capacitor with reversed polarity.
- The capacitor sleeve **is not insulation**. Do not rely on it when in contact with conductive parts.
- Do not use a capacitor that has been dropped onto a hard surface, mechanically damaged or previously soldered into another device.
- A short-circuited or overloaded capacitor can violently release hot gas and electrolyte through the safety vent at the top. When working on a powered drone, keep your face away from the capacitor.
- If you notice a smell, escaping gas or smoke, disconnect the battery immediately and do not lean over the drone. Do not inhale the fumes.
- If electrolyte gets on your skin, wash the affected area with soap and water; if it gets into your eyes, rinse them immediately with water and seek medical attention.
- Keep out of the reach of children.

▶ Storage

Store an unused capacitor in a dry place at a temperature of 5–35 °C and a relative humidity of 45–85 %, out of direct sunlight and protected from water, oils, condensation and corrosive gases.

4. Information for the EU and Czech Market

4.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.com

4.2 Disposal



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

5. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 4.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.