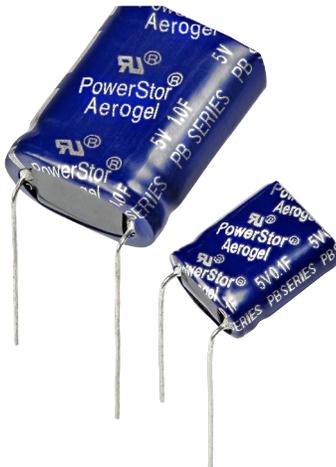


PB Supercapacitors

Cylindrical pack



Features

- 5.0 Volts
- Low Equivalent Series Resistance (ESR)
- High capacitance
- Long cycle life
- Low leakage currents
- UL recognized

Applications

- Bridge or hold-up power
- Memory backup
- Battery swap out

Description

Eaton PowerStor supercapacitors are unique, ultra-high capacitance devices utilizing electrochemical double layer capacitor (EDLC) construction combined with new, high performance materials. This combination of advanced technologies allows Eaton to offer a wide variety of capacitor solutions tailored to specific applications that range from a few micro-amps for several days to several amps for milliseconds.



Powering Business Worldwide

Ratings

| | |
|-----------------------------|---|
| Capacitance | 0.1 F to 1.0 F |
| Maximum working voltage | 5.0 V |
| Surge voltage | 6.0 V |
| Capacitance tolerance | -20% to +80% (+20 °C) |
| Operating temperature range | - 25 °C to +70 °C extended to +85 °C |

Specifications

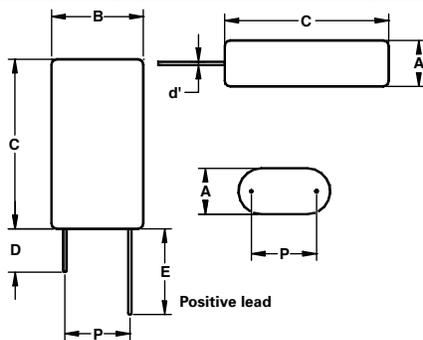
| Nominal Capacitance (F) | Vertical Part Number | Horizontal Part Number | Maximum Initial ESR (Ω) (Equivalent Series Resistance) Measured @ 100 Hz | Nominal leakage current (μA) after 72 hours @ +20 °C | Nominal dimensions (mm) | Typical mass (grams/piece) |
|-------------------------|----------------------|------------------------|--|--|-------------------------|----------------------------|
| 0.1 | PB-5ROV104-R | PB-5ROH104-R | 4.0 | 3 | 5.5 x 10.8 x 12.5 | 1.1 |
| 0.47 | PB-5ROV474-R | PB-5ROH474-R | 1.0 | 7 | 8.5 x 16.8 x 14.0 | 2.4 |
| 1.0 | PB-5ROV105-R | PB-5ROH105-R | 0.5 | 12 | 8.5 x 16.8 x 21.5 | 3.5 |

Performance

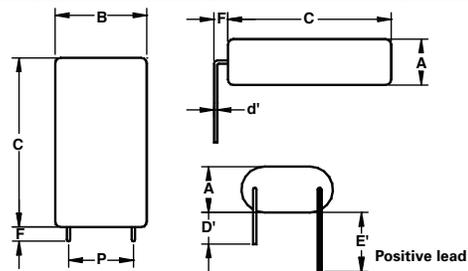
| Parameter | Capacitance change (% of initial value) | ESR (% of max. initial value) |
|--|---|-------------------------------|
| Life (1000 hours @ +70 °C, 5.0 Vdc or +85 °C, 4.2 Vdc) | ≤ 30% | ≤ 300% |
| Storage - Low and High Temperature (1000 hours @ -25 °C to +70 °C) | ≤ 30% | ≤ 300% |

Dimensions (mm)

| Vertical Part Number | Horizontal Part Number | A | B | C | d' | D | D' | E | E' | F | P |
|----------------------|------------------------|----------------|------|------|--------|----------------|----|----|----|-------|------|
| PB-5ROV104-R | PB-5ROH104-R | 6.0 | 11.3 | 13.0 | 0.5 | 20 | 15 | 25 | 20 | 2.0 | 7.3 |
| PB-5ROV474-R | PB-5ROH474-R | 9.0 | 17.3 | 14.5 | 0.5 | 20 | 15 | 25 | 20 | 2.0 | 11.8 |
| PB-5ROV105-R | PB-5ROH105-R | 9.0 | 17.3 | 22.0 | 0.5 | 20 | 15 | 25 | 20 | 2.0 | 11.8 |
| Tolerances | | Maximum | | | ± 0.02 | Minimum | | | | ± 0.5 | |



Vertical



Horizontal

Part numbering system

| P | B | — | 5 | R | 0 | V | 47 | 4 | -R |
|-------------|--------------------|---|-------------------------|--------------------------------|-----------------------------------|---|------------|---|------------------|
| Family Code | Version | | Voltage (V) R = Decimal | Configuration | Capacitance (μF) | | | | |
| | | | | | Value | | Multiplier | | Standard product |
| P Family | B-High capacitance | | 5R0 = 5.0 V | V = Vertical H = Horizontal | Example: 474 = 47 x 474 or 0.47 F | | | | |

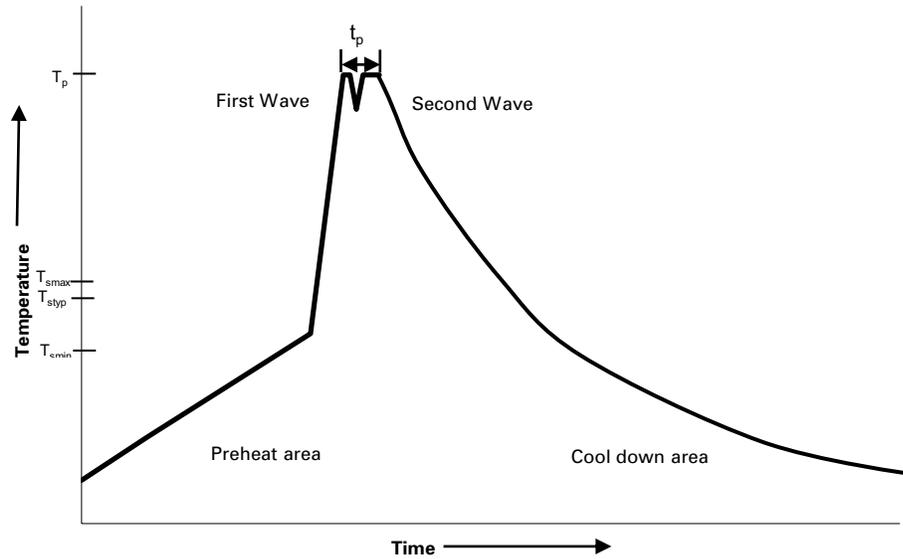
Packaging information

- Standard packaging: Bulk, 100 units per bag
- Larger bulk packages available on request

Part marking

- Manufacturer
- Capacitance (F)
- Max Operating Voltage (V)
- Family Code (or part number)
- Polarity

Wave solder profile



| Profile Feature | Standard SnPb Solder | Lead (Pb) Free Solder |
|-------------------------------------|---|---|
| Preheat and soak | <ul style="list-style-type: none"> • Temperature max. (T_{smax}) • Time max. | <ul style="list-style-type: none"> • Temperature max. (T_{smax}) • Time max. |
| Δ preheat to max Temperature | 160 °C max. | 160 °C max. |
| Peak temperature (T_p)* | 220 °C – 260 °C | 250 °C – 260 °C |
| Time at peak temperature (t_p) | 10 seconds max 5 seconds max each wave | 10 seconds max 5 seconds max each wave |
| Ramp-down rate | ~ 2 K/s min ~3.5 K/s typ ~5 K/s max | ~ 2 K/s min ~3.5 K/s typ ~5 K/s max |
| Time 25 °C to 25 °C | 4 minutes | 4 minutes |

Manual solder

+350 °C, 4-5 seconds. (by soldering iron), generally manual, hand soldering is not recommended.

Reflow soldering

Do not use reflow soldering using infrared or convection oven heating methods.

Cleaning/Washing

Avoid cleaning of circuit boards, however if the circuit board must be cleaned use static or ultrasonic immersion in a standard circuit board cleaning fluid for no more than 5 minutes and a maximum temperature of +60 °C. Afterwards thoroughly rinse and dry the circuit boards. In general, treat supercapacitors in the same manner you would an aluminum electrolytic capacitor.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

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