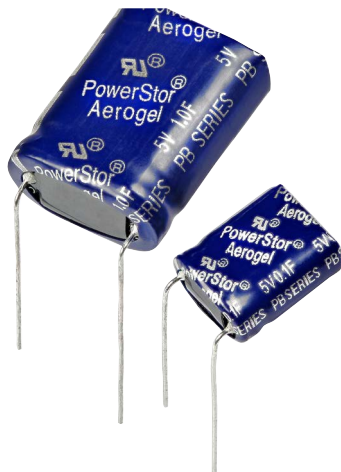


PB Supercapacitors

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.

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

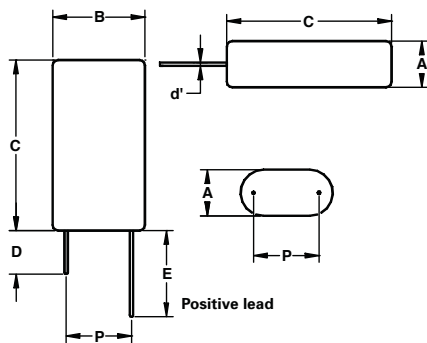
| Nominal Capacitance (F) | Vertical Part Number | Horizontal Part Number | Maximum Initial ESR (Ω) (Equivalent Series Resistance) Measured @ 100 Hz | Nominal leakage current (μA) after 72 hours @ +20 °C | Nominal dimensions (mm) | Typical mass (grams/piece) |
|-------------------------|----------------------|------------------------|--|--|-------------------------|----------------------------|
| 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

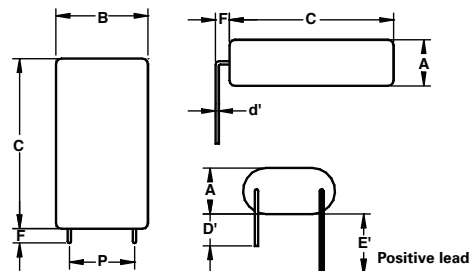
| Parameter | Capacitance change (% of initial value) | ESR (% of max. initial value) |
|--|---|-------------------------------|
| Life (1000 hours @ +70 °C, 5.0 Vdc or +85 °C, 4.2 Vdc) | ≤ 30% | ≤ 300% |
| Storage - Low and High Temperature (1000 hours @ -25 °C to +70 °C) | ≤ 30% | ≤ 300% |

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 | | |

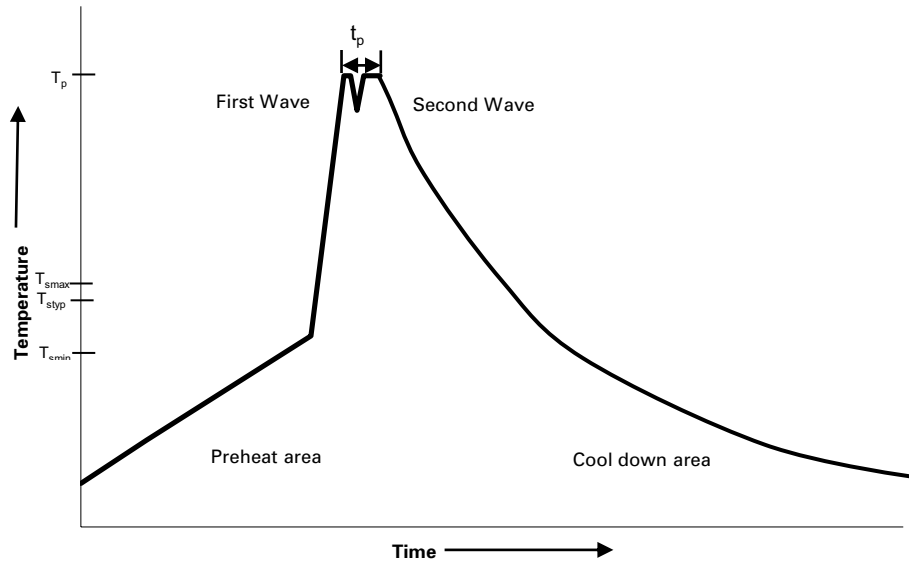
Packaging information

- 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"> 100 °C 60 seconds |
| 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.

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Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
www.eaton.com/electronics

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