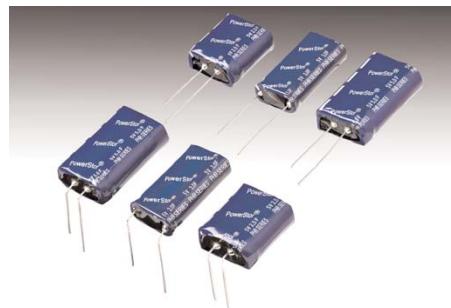


# PHB Supercapacitors

## Cylindrical pack



### Features

- Large capacitance for high energy density
- Low ESR for high power density

### Applications

- Bridging or hold-up power
- Memory back-up
- Battery Swap out

### Description

Eaton 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	1.5 F to 5.0 F
Maximum working voltage	5.0 V
Surge voltage	5.5 V
Capacitance tolerance	-10% to +30% (+20 °C)
Operating temperature range	-25 °C to +70 °C
Extended operating temperature range	-25 °C to +85 °C (with linear derating to 4.0 V @ +85 °C)

## Specifications

Nominal Capacitance (F)	Vertical Part Number	Horizontal Part Number	Maximum ESR (Ω) (Equivalent Series Resistance) Measured @ 1 kHz	Nominal leakage current (µA) after 100 hours @ 5 V,+20 °C	Nominal dimensions (mm)	Typical mass (grams/piece)
1.5	PHB-5R0V155-R	PHB-5R0H155-R	0.31	0.33	10	8.5 x 16.8 x 21.5
2.5	PHB-5R0V255-R	PHB-5R0H255-R	0.19	0.20	14	10.5 x 20.8 x 22.5
3.0	PHB-5R0V305-R	PHB-5R0H305-R	0.19	0.20	16	8.5 x 16.8 x 31.5
5.0	PHB-5R0V505-R	PHB-5R0H505-R	0.12	0.13	25	10.5 x 20.8 x 32

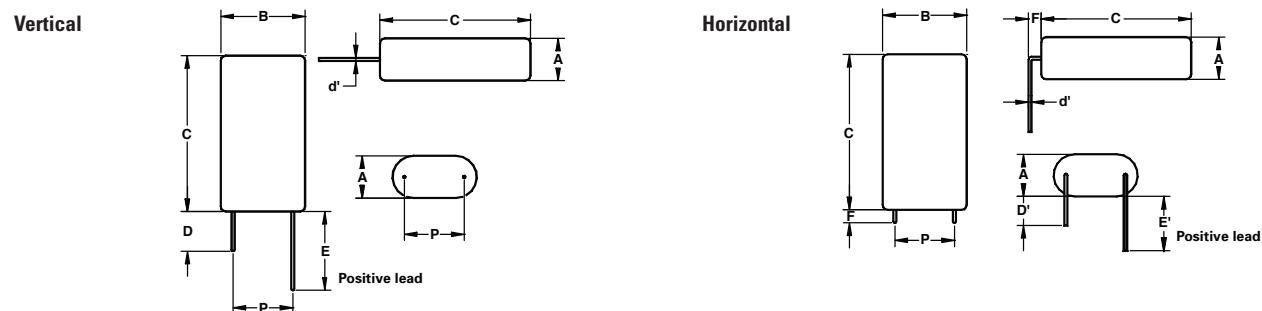
## Performance

Parameter	Capacitance change (% of initial value)	ESR (% of max. initial value)
Life (1000 hours @ +70 °C @ 5.0 Vdc)	≤ 30%	≤ 200%
Storage - Low and High Temperature (1000 hours @ -25 °C and +85 °C)	≤ 30%	≤ 200%

## Dimensions (mm)

Vertical Part Number	Horizontal Part Number	A	B	C	d'	D	D'	E	E'	F	P
PHB-5R0V155-R	PHB-5R0H155-R	9.0	17.3	22.0	0.5	20	15	25	20	2.0	11.8
PHB-5R0V255-R	PHB-5R0H255-R	11.0	21.3	23.0	0.6	20	15	25	20	2.0	5.3
PHB-5R0V305-R	PHB-5R0H305-R	9.0	17.3	32.5	0.5	20	15	25	20	2.0	11.8
PHB-5R0V505-R	PHB-5R0H505-R	11.0	21.3	32.5	0.6	20	15	25	20	2.0	5.3
<b>Tolerances</b>		<b>Maximum</b>			± 0.02	<b>Minimum</b>			± 0.5		

Note: Longer lead is positive.



## Part numbering system

P	HB	-	5R0	V	15	5	-R
Family Code	Version		Voltage (V) R = Decimal	Configuration	Capacitance (µF)		
P= Pack			5R0 = 5.0 V	V = Vertical H = Horizontal	Value	Multiplier	Standard product

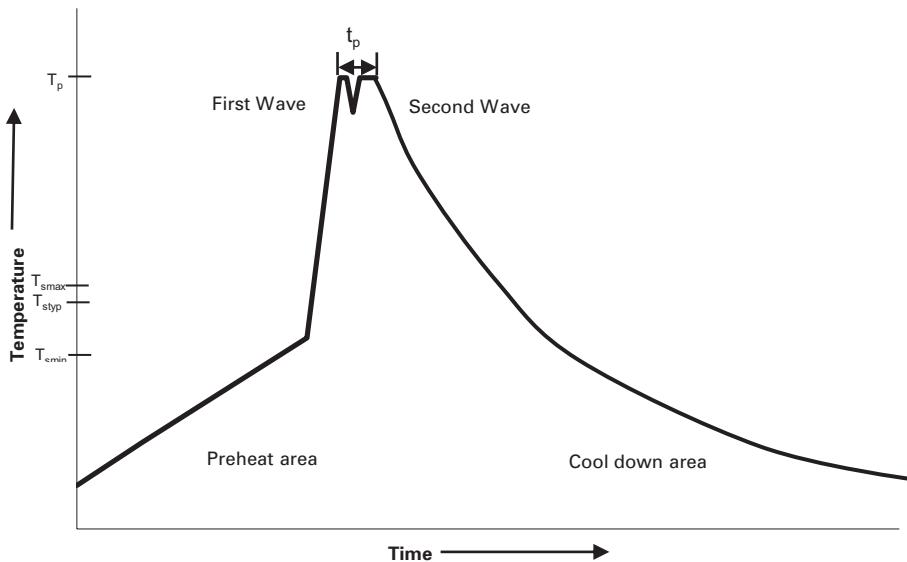
## Packaging information

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

## Part marking

- Manufacturer
- Capacitance (F)
- Maximum operating voltage (V)
- Family code (or part number)
- Polarity marking

### Wave solder profile



Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and soak	<ul style="list-style-type: none"> <li>• Temperature max. (<math>T_{smax}</math>)</li> <li>• Time max.</li> </ul>	100 °C 60 seconds
$\Delta$ 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.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

**Eaton**  
**Electronics Division**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
[www.eaton.com/electronics](http://www.eaton.com/electronics)

© 2017 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. 4402 BU-SB11021  
June 2017

Eaton is a registered trademark.

All other trademarks are property  
of their respective owners.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

#### Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помошь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помошь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: [org@eplast1.ru](mailto:org@eplast1.ru)

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.