

# Supercapacitors

## PA Series



### Description

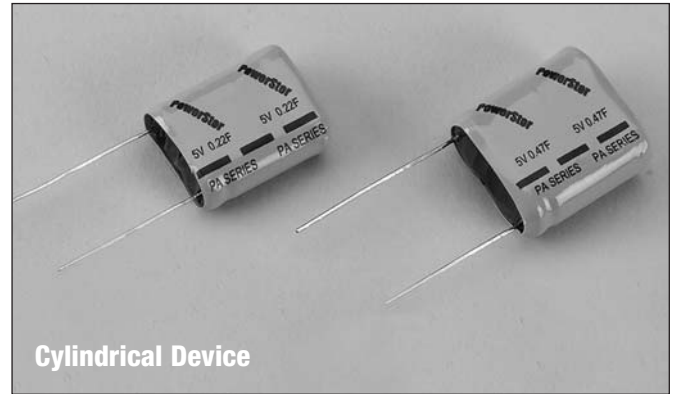
Cooper Bussmann PowerStor® supercapacitors are unique, ultra-high capacitance devices utilizing electrochemical double layer capacitor (EDLC) construction combined with new, high performance materials. This combination of advanced technologies allows Cooper Bussmann to offer a wide variety of capacitor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

### Features & Benefits

- 5.0 Volts
- Ultra-low ESR
- High capacitance
- Long cycle life
- Low leakage currents

### Applications

- Pulse power
- Bridge or hold-up power



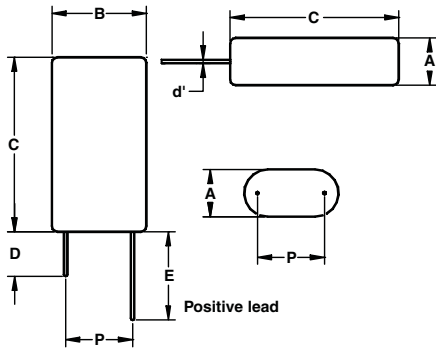
Specifications	
Working Voltage	5.0V
Surge Voltage	6.0V
Capacitance	0.22F to 0.47F
Capacitance Tolerance	-20% to +80% (20°C)
Operating Temperature Range	-25°C to 70°C

Standard Product					
Nominal Capacitance (F)	Part Numbers		Nominal ESR ( $\Omega$ ) (Equivalent Series Resistance) Measured @ 1kHz	Nominal Dimensions (mm)	Typical Mass (grams/piece)
	Vertical	Horizontal			
0.22	PA-5R0V224-R	PA-5R0H224-R	0.30	8.5 x 16.8 x 21.5	3.5
0.47	PA-5R0V474-R	PA-5R0H474-R	0.20	10.5 x 20.8 x 22.5	5.4

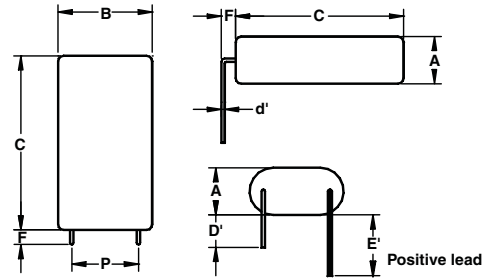
Performance		
Parameter	Capacitance Change (% of initial measured value)	ESR (% of initial specified value)
Life (1000 hrs @ 70°C @ 5.0Vdc)	≤ 30 %	≤ 300 %
Storage - Low and High Temperature (1000 hrs @ -25°C and 70°C)	≤ 30 %	≤ 300 %

Dimensions (mm)											
Vertical Part #	Horizontal Part #	A	B	C	d'	D	D'	E	E'	F	P
PA-5ROV224-R	PA-5ROH224-R	9.0	17.3	22.0	0.5	20	15	25	20	2.0	11.8
PA-5ROV474-R	PA-5ROH474-R	11.0	21.3	23.0	0.6	20	15	25	20	2.0	5.3
<b>Tolerances</b>		<b>Maximum</b>			$\pm 0.02$	<b>Minimum</b>			$\pm 0.5$		

Note: Longer lead is positive.



**Vertical**



**Horizontal**

Part Numbering System							
P	A	-	5	R	0	□	□ □ □ □
Series Code	Version		Voltage (V)		Configuration	Capacitance (μF)	
P Series	Ultra-Low ESR		R = Decimal 5R0 = 5.0V		V = Vertical H = Horizontal	Value	Multiplier
						Example: 474 = 47 x 10 <sup>4</sup> μF or 0.47F	

### Packaging Information

**Packaging:**

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

### Part Marking

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

**North America**  
Cooper Bussmann  
1225 Broken Sound Parkway NW  
Suite F  
Boca Raton, FL 33487-3533  
Tel: 1-561-998-4100  
Fax: 1-561-241-6640  
Toll Free: 1-888-414-2645

Cooper Bussmann  
P.O. Box 14460  
St. Louis, MO 63178-4460  
Tel: 1-636-394-2877  
Fax: 1-636-527-1607

**Europe**  
Cooper Bussmann  
Cooper (UK) Limited  
Burton-on-the-Wolds  
Leicestershire • LE12 5TH UK  
Tel: +44 (0) 1509 882 737  
Fax: +44 (0) 1509 882 786

Cooper Bussmann  
Avda. Santa Eulalia, 290  
08223  
Terrassa, (Barcelona), Spain  
Tel: +34 937 362 812  
+34 937 362 813  
Fax: +34 937 362 719

**Asia Pacific**  
Cooper Bussmann  
1 Jalan Kilang Timor  
#06-01 Pacific Tech Centre  
Singapore 159303  
Tel: +65 278 6151  
Fax: +65 270 4160

The only controlled copy of this Data Sheet is the electronic read-only version located on the Cooper Bussmann Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Cooper Bussmann reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Cooper Bussmann also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

Life Support Policy: Cooper Bussmann 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.