

## Coin Cell Supercapacitors

### KR 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.

RoHS  
2002/95/EC

The KR series offers a wide range of high capacitance coin cell style products for use in memory & RTC back-up applications. End products include computers, cameras, camcorders, telephones, printers, car stereos, CCTV, set top box and PDP.

#### Features & Benefits:

- High specific capacitance
- Low leakage current
- Long cycle life
- Eco-friendly

#### Typical Applications:

- Computer & peripherals
- Telephones
- DSL modems & routers
- Digital radios
- Set top boxes
- White goods & kitchen appliances
- Copiers
- Electric utility meters
- HVAC controls

#### Specifications

| Specifications                     |                     |
|------------------------------------|---------------------|
| <b>Working Voltage</b>             | 5.5V                |
| <b>Surge Voltage</b>               | 6.3V                |
| <b>Nominal Capacitance Range</b>   | 0.1 to 1.5F         |
| <b>Capacitance Tolerance</b>       | -20% to +80% (20°C) |
| <b>Operating Temperature Range</b> | -25°C to 70°C       |

| Standard Products       |              |                                                                               |                         |        |             |                              |
|-------------------------|--------------|-------------------------------------------------------------------------------|-------------------------|--------|-------------|------------------------------|
| Nominal Capacitance (F) | Part Number  | Nominal ESR ( $\Omega$ )<br>(Equivalent Series Resistance)<br>Measured @ 1kHz | Nominal Dimensions (mm) |        |             | Typical Mass (grams/1 piece) |
|                         |              |                                                                               | Diameter                | Height | Lead C to C |                              |
| 0.1                     | KR-5R5V104-R | 75                                                                            | 11.5                    | 12.5   | 5           | 1.4                          |
| 0.1                     | KR-5R5H104-R | 75                                                                            | 11.5                    | 5      | 10          | 1.4                          |
| 0.1                     | KR-5R5C104-R | 75                                                                            | 13.5                    | 7.5    | 5           | 3.3                          |
| 0.22                    | KR-5R5V224-R | 75                                                                            | 11.5                    | 12.5   | 5           | 1.4                          |
| 0.22                    | KR-5R5H224-R | 75                                                                            | 11.5                    | 5      | 10          | 1.4                          |
| 0.22                    | KR-5R5C224-R | 75                                                                            | 13.5                    | 7.5    | 5           | 3.3                          |
| 0.33                    | KR-5R5V334-R | 50                                                                            | 11.5                    | 12.5   | 5           | 1.4                          |
| 0.33                    | KR-5R5H334-R | 50                                                                            | 11.5                    | 5      | 10          | 1.4                          |
| 0.33                    | KR-5R5C334-R | 50                                                                            | 13.5                    | 7.5    | 5           | 3.3                          |
| 0.47                    | KR-5R5V474-R | 50                                                                            | 11.5                    | 12.5   | 5           | 1.4                          |
| 0.47                    | KR-5R5H474-R | 50                                                                            | 11.5                    | 5      | 10          | 1.4                          |
| 0.47                    | KR-5R5C474-R | 50                                                                            | 13.5                    | 7.5    | 5           | 3.3                          |
| 1.0                     | KR-5R5V105-R | 30                                                                            | 19                      | 19.5   | 5           | 4.2                          |
| 1.0                     | KR-5R5H105-R | 30                                                                            | 19                      | 6.5    | 20          | 4.2                          |
| 1.0                     | KR-5R5C105-R | 30                                                                            | 21.5                    | 7.5    | 5           | 9.1                          |
| 1.5                     | KR-5R5V155-R | 30                                                                            | 19                      | 19.5   | 5           | 4.2                          |
| 1.5                     | KR-5R5H155-R | 30                                                                            | 19                      | 6.5    | 20          | 4.2                          |
| 1.5                     | KR-5R5C155-R | 30                                                                            | 21.5                    | 7.5    | 5           | 9.1                          |

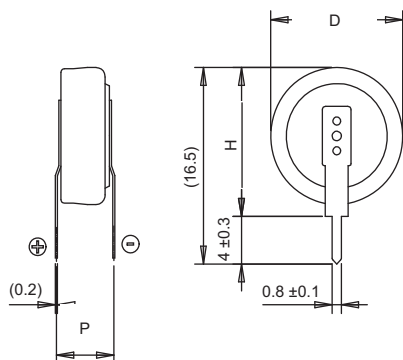
| Performance                                                       |                                                     |                                       |
|-------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------|
| Parameter                                                         | Capacitance Change<br>(% of initial measured value) | ESR<br>(% of initial specified value) |
| Life (1000 hrs @ 70°C @ 5.5Vdc)                                   | ≤ 30                                                | ≤ 400                                 |
| Storage - Low and High Temperature<br>(1000 hrs @ -25°C and 70°C) | ≤ 30                                                | ≤ 400                                 |

| Dimensions (mm) |      |      |    |
|-----------------|------|------|----|
| Part Number     | D    | H    | P  |
| KR-5R5V104-R    | 11.5 | 12.5 | 5  |
| KR-5R5H104-R    | 11.5 | 5    | 10 |
| KR-5R5C104-R    | 13.5 | 7.5  | 5  |
| KR-5R5V224-R    | 11.5 | 12.5 | 5  |
| KR-5R5H224-R    | 11.5 | 5    | 10 |
| KR-5R5C224-R    | 13.5 | 7.5  | 5  |
| KR-5R5V334-R    | 11.5 | 12.5 | 5  |
| KR-5R5H334-R    | 11.5 | 5    | 10 |
| KR-5R5C334-R    | 13.5 | 7.5  | 5  |
| KR-5R5V474-R    | 11.5 | 12.5 | 5  |
| KR-5R5H474-R    | 11.5 | 5    | 10 |
| KR-5R5C474-R    | 13.5 | 7.5  | 5  |
| KR-5R5V105-R    | 19   | 19.5 | 5  |
| KR-5R5H105-R    | 19   | 6.5  | 20 |
| KR-5R5C105-R    | 21.5 | 7.5  | 5  |
| KR-5R5V155-R    | 19   | 19.5 | 5  |
| KR-5R5H155-R    | 19   | 6.5  | 20 |
| KR-5R5C155-R    | 21.5 | 7.5  | 5  |

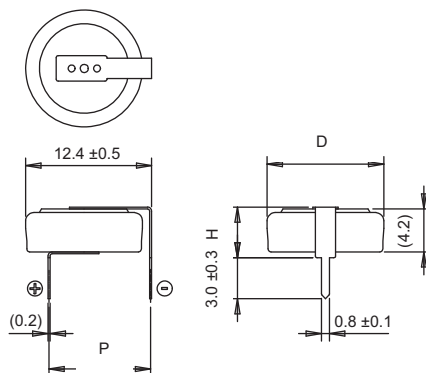
#### Dimensions - mm

For parts 0.1F to 0.47F

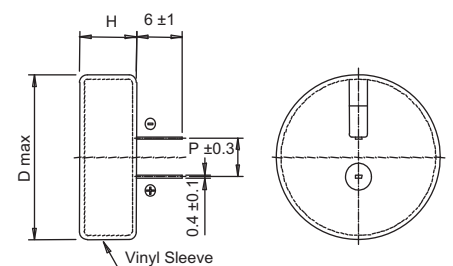
#### V Type



#### H Type

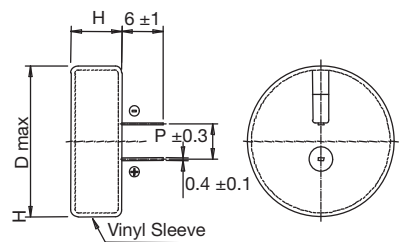
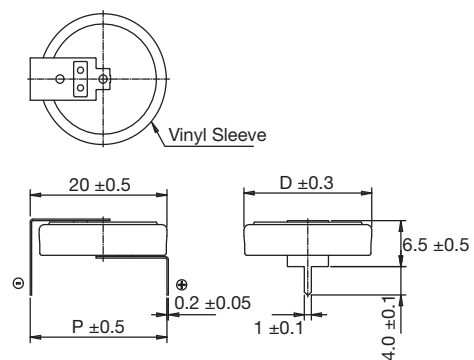
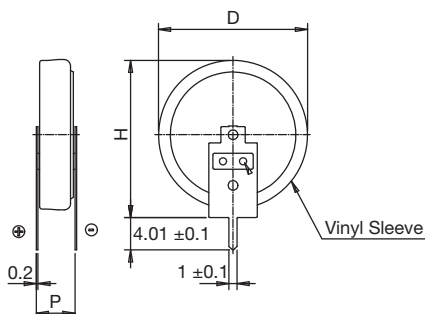


#### C Type



#### Dimensions - mm

For parts 1.0F to 1.5F



| Part Numbering System |            |   |                             |   |   |                                                   |  |                                                    |            |                |
|-----------------------|------------|---|-----------------------------|---|---|---------------------------------------------------|--|----------------------------------------------------|------------|----------------|
| K                     | R          | – | 5                           | R | 5 |                                                   |  |                                                    | –          | R              |
| Series Code           | Version    |   | Voltage (V)<br>R is decimal |   |   | Configuration                                     |  | Capacitance (μF)                                   |            | RoHS Compliant |
| K = Coin Cell         | R = Leaded |   | 5R5 = 5.5V                  |   |   | V = Vertical<br>H = Horizontal<br>C = Cylindrical |  | Value                                              | Multiplier |                |
|                       |            |   |                             |   |   |                                                   |  | Example:<br>474 = 47 x 10 <sup>4</sup> μF or 0.47F |            |                |

### Packaging Information

Standard packaging: Bulk, 500 units per package.

For 0.1F to 0.47F 500 units per bag.

For 1.0F to 1.5F 100 units per tray, 5 trays per box

### Part Marking

Manufacturer  
Capacitance (F)  
Max. Operating Voltage (V)  
Polarity Marking

#### 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

This bulletin is intended to present product design solutions and 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.

© 2008 Cooper Bussmann  
St. Louis, MO 63178  
www.cooperbussmann.com

