

B Supercapacitors

Cylindrical cells



Features

- High specific capacitance
- Very low ESR
- Low leakage currents
- Long cycle life
- UL Recognized

Applications

- Main power
- Hybrid battery packs
- Hold-up power
- Pulse power

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.

Ratings

Capacitance	0.22 F to 2.2 F
Maximum working voltage	2.5 V
Surge voltage	3.0 V
Capacitance tolerance	-20% to +80% (+20 °C)
Operating temperature range	-25 °C to +70 °C

Specifications

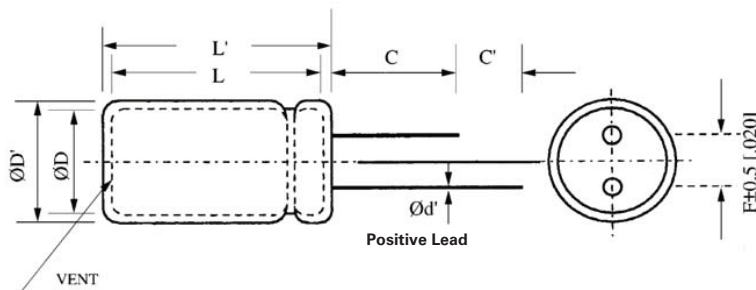
Capacitance (F)	Part Number	Maximum ESR (Ω) (Equivalent Series Resistance) Measured @ 100 Hz	Nominal leakage current (μ A) after 72 hours @ +20 °C	Nominal dimensions (mm) (diameter x length)		Typical Mass (grams/piece)
0.22	B0510-2R5224-R	2.0	2.0	5	11	0.54
1.0	B0810-2R5105-R	0.50	4.0	8	13	1.2
1.5	B1010-2R5155-R	0.30	7.0	10	14	1.9
2.2	B0820-2R5225-R	0.20	9.0	8	20	1.5

Performance

Parameter	Capacitance change (% of initial value)	ESR (% of max. initial value)
Life (1000 hours @ +70 °C @ 2.5 Vdc)	$\leq 30\%$	$\leq 300\%$
Storage - Low and High Temperature (1000 hours @ -25 °C and +70 °C)	$\leq 30\%$	$\leq 300\%$

Dimensions (mm)

Part Number	D	D'	L	L'	F	d'	C	C'
B0510-2R5224-R	5.0	5.5	11.5	12.0	2.0	0.50	20.0	5.0
B0810-2R5105-R	8.0	8.5	13.0	13.5	3.5	0.50	20.0	5.0
B1010-2R5155-R	10.0	10.5	14.3	14.8	5.0	0.60	20.0	5.0
B0820-2R5225-R	8.0	8.5	20.5	21.0	3.5	0.50	20.0	5.0
Tolerances	Maximum				± 0.5	± 0.02	Minimum	



Part marking

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

Part numbering system

B	1010	—	2R5	15	5	-R
Family Code	Size reference (mm)		Voltage (V) R = Decimal	Capacitance (μ F)		
				Value	Multiplier	Standard product
B Family	Diameter = 10	Length = 10	2R5 = 2.5 V	Example: 155 = 15 x 10 ⁵ μ F or 1.5 F		

Packaging information

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

Wave solder profile



Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and soak	• Temperature max. (T_{smax}) • Time max.	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.

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

© 2017 Eaton
All Rights Reserved
Printed in USA
Publication No. 4390 BU-SB101087
June 2017

Eaton is a registered trademark.

All other trademarks are property of their respective owners.