# B Supercapacitors Cylindrical cells



### **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.

#### **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



# **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**

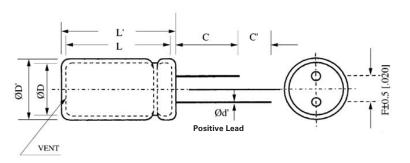
Capacitance (F)	Part Number	Maximum ESR $(\Omega)$ (Equivalent Series Resistance) Measured @ 100 Hz	Nominal leakage current (uA) after 72 hours @ +20°C	Nominal (diamete	dimensions (mm) r x length)	Typical Mass (grams/piece)
0.22	B0510-2R5224-R	2.0	2.0	5	11	0.54
1.0	B0810-2R5105-R	0.50	4.0	8	13	1.2
1.5	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)	≤ 30%	≤ 300%
Storage - Low and High Temperature (1000 hours @ -25 °C and +70 °C)	≤ 30%	≤ 300%

# Dimensions (mm)

Part Number	D	D'	L	Ľ	F	d'	С	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

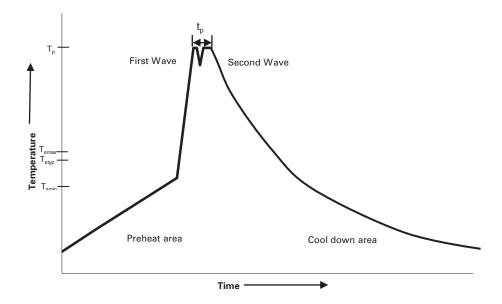
# Part numbering system

В	1010		 2R5	15	5	-R
	Size reference			Capacitance (µF)		
Family Code	(mm)		Voltage (V) R = Decimal	Value	Multiplier	Standard product
B Family	Diameter = 10	Length = 10	2R5 = 2.5 V	Example: 155 = 15 x 10 <sup>5</sup> μF 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 <sub>smax</sub> )	100 °C	100 °C	
• Time max.	60 seconds	60 seconds	
$\Delta$ preheat to max Temperature	160 °C max.	160 °C max.	
Peak temperature (Tp)*	220 °C − 260 °C	250 °C – 260 °C	
Time at peak temperature (t <sub>p</sub> )	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:

<u>B1010-2R5155-R</u> <u>B0820-2R5225-R</u> <u>B0810-2R5105-R</u> <u>B0510-2R5224-R</u> <u>B0510-5R0104-4</u> <u>B0810-2R5105-AP</u> B1020-2R5335-1 B1325-2R5106-CC