Series: MC Energy

Round, Terminal Type

- » Low Internal Resistance
- » High Energy Availability
- » Low Time Constant

> Features:

- » 2.7 Volt Operating Voltage
- » Over 1 million duty cycles
- » Lowest cost available
- » Low internal resistance
- » High energy density
- » Threaded terminal or weldable post versions

> Applications:

- » Renewable energy
- » Industrial
- » UPS
- » Power quality
- » Telecommunications
- » Consumer electronics

> Overview:

The Energy-type ultracapacitor product line gives industrial customers a much wider range of choices to meet their energy storage and power delivery requirements. The cells are specifically engineered to provide cost-effective solutions for UPS, telecommunications and other lighter duty industrial electronics applications.

In addition to meeting or exceeding demanding industrial application requirements for both watt-hours of energy storage and watts of power delivery per kilogram, all of these products will perform reliably for more than one million discharge-recharge cycles.

The proprietary architecture and material science of the BOOSTCAP® products enable continued leadership in controlling costs, flexibility in product offerings and allow application specific performance tailoring. The cells operate at 2.7 volts, enabling them to store more energy and deliver more power per unit volume than any other commercially available ultracapacitor products.

> MC Energy Series Specifications:

Item	Performance	
Operating Temperature Range	-40 °C to +65 °C	
Storage Temperature Range	-40 °C to +70 °C	
Rated Voltage	2.7 V DC	
Capacitance Tolerance	+20%	
Resistance Tolerance	Max.	
Temperature Characteristics	Capacitance Change	Within ± 5% of initial measured value at 25 °C (at -40 °C)
	Internal Resistance	Within 150% of initial measured value at 25 °C (at -40 °C)
Endurance	After 1500 hours application of rated voltage at 65 °C	
	Capacitance Change	Within 20% of initial specified value
	Internal Resistance	Within 60% of initial specified value
Shelf Life	After 1500 hours storage at 65 °C without load shall meet specification for endurance	
Life Test	After 10 years at rated voltage and 25 °C	
	Capacitance Change	Within 30% of initial specified value
	Internal Resistance	Within 150% of initial specified value
Cycle Test	Capacitors cycled between specified voltage and half rated voltage under constant current at 25 °C (1 million)	
	Capacitance Change	Within 30% of initial specified value
	Internal Resistance	Within 150% of initial specified value
Vibration Standard	SAEJ2380	

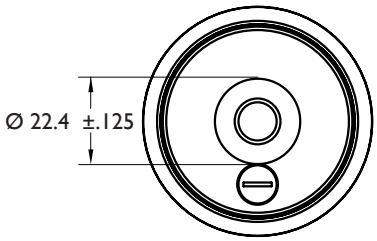
> MC Energy Product Specifications:

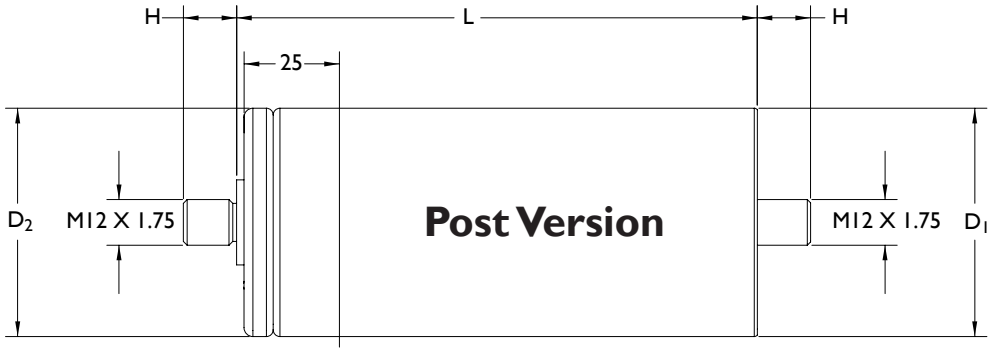
Part Number	Capacitance (F)	ESR, DC (mohm)	ESR, 1khz (mohm)	Ic (mA)
BCAP0650 E270	650	1.15	0.80	1.5
BCAP1200 E270	1200	0.79	0.56	2.7
BCAP1500 E270	1500	0.63	0.43	3.0
BCAP2000 E270	2000	0.46	0.35	4.2
BCAP3000 E270	3000	0.37	0.30	5.2

> MC Energy Product Properties:

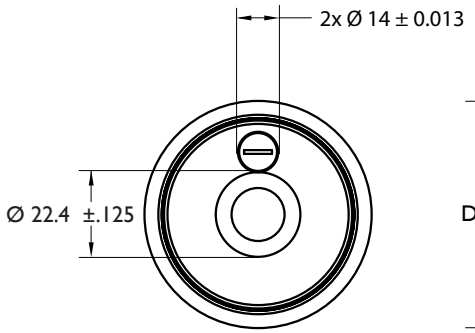
Maxwell Part No.	Rth (C/W)	Isc (A)	Emax (Wh/kg)	Pmax (W/kg)	Pd (W/kg)
BCAP0650 E270	6.5	3500	3.29	11,300	3,800
BCAP1200 E270	5.3	3750	4.05	10,800	3,600
BCAP1500 E270	4.5	3900	4.75	13,200	4,300
BCAP2000 E270	3.8	4300	5.06	13,000	4,700
BCAP3000 E270	3.2	4800	5.52	11,000	4,200

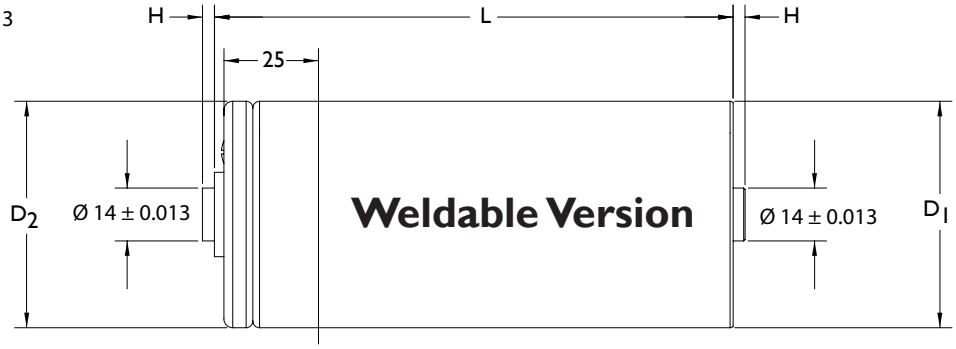
> Dimensions:





Part Number	Vol (l)	Mass (kg)	Size (mm)			
			L	H (±0.5mm)	D_1 (±0.2mm)	D_2 (±0.7mm)
BCAP0650 E270 T04	0.211	0.20	51.5 ±0.5	14.0	60.4	60.7
BCAP1200 E270 T04	0.294	0.30	74.0 ±0.3	14.0	60.4	60.7
BCAP1500 E270 T04	0.325	0.32	85.0 ±0.3	14.0	60.4	60.7
BCAP2000 E270 T04	0.373	0.40	102.0 ±0.3	14.0	60.4	60.7
BCAP3000 E270 T04	0.475	0.55	138.0 ±0.3	14.0	60.4	60.7





Part Number	Vol (l)	Mass (kg)	Size (mm)			
			L	H (±0.125mm)	D_1 (±0.2mm)	D_2 (±0.7mm)
BCAP0650 E270 T05	0.150	0.20	51.5 ±0.5	3.18	60.4	60.7
BCAP1200 E270 T05	0.233	0.30	74.0 ±0.3	3.18	60.4	60.7
BCAP1500 E270 T05	0.264	0.32	85.0 ±0.3	3.18	60.4	60.7
BCAP2000 E270 T05	0.312	0.40	102.0 ±0.3	3.18	60.4	60.7
BCAP3000 E270 T05	0.414	0.55	138.0 ±0.3	3.18	60.4	60.7

Product dimensions and specifications may change without notice. Please contact Maxwell Technologies directly for any technical specifications critical to application.

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> Mounting Requirements:

Do not reverse polarity.
Maximum torque for M12 screw terminals is 10Nm.
Cells are designed to be connected into series or parallel strings.
Clean terminals so each are free of external contaminants and oxidation before mounting.
Do not mount cells in excessive axial tension or compression.
Do not apply bending torque to terminals of cells or on cell body during module assembly.
Avoid module configurations that apply static or dynamic bending forces on the terminals or body of the cell.
When mounting cells horizontally support the cell body along its length in multiple locations.

> Markings:

Capacitors are marked with the following information - Rated capacitance and rated voltage as well as energy/power type indication in the product naming. Serial number, name of manufacturer, positive and negative terminal, warning marking.

> Additional Technical Information:

Capacitance and ESR, DC measured per document 1007239

I_c= Leakage current after 72 hours, 25˚C Isc = short circuit current (maximum peak current)

R_{th} = Thermal resistance

$$E_{max} = \frac{\frac{1}{2} CV^2}{3600 \times mass} \qquad P_{max} = \frac{\frac{V^2}{4R\,(1khz)}}{mass} \qquad P_d = \frac{\frac{0.12V^2}{R\,(DC)}}{mass}$$

U.S. PATENT NOs. 6,631,074, 6,643,119, 6,804,108, 6,813,139, 6,842,330, 7,090,946, 7,295,423,
OTHER PATENTS PENDING

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