Series: BMOD Energy
48 Volt Module

Features:
- »48.6V Operating Voltage
- » Over 1M duty cycles
- » Low internal resistance
- » High energy density
- » Individually balanced cells
- » Mountable option included
- » Module-to-module balancing
- » Voltage and temperature sensor output included

Applications:
- » Industrial
- » UPS
- » Power Quality
- » Telecommunication
- » Renewable energy

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 modules 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 on which BOOSTCAP® products are based enable continued leadership in controlling costs, flexibility in product offerings and allow application specific performance tailoring.

The cells used in the modules operate at 2.7 volts, enabling them to store more energy and deliver more power per unit volume than any other commercially available ultracapacitor.

› Series Specifications:

Item	Performance	
Operating Temperature Range	-40 °C to +65 °C	
Storage Temperature Range	-40 °C to +70 °C	
Rated Voltage	48.6 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

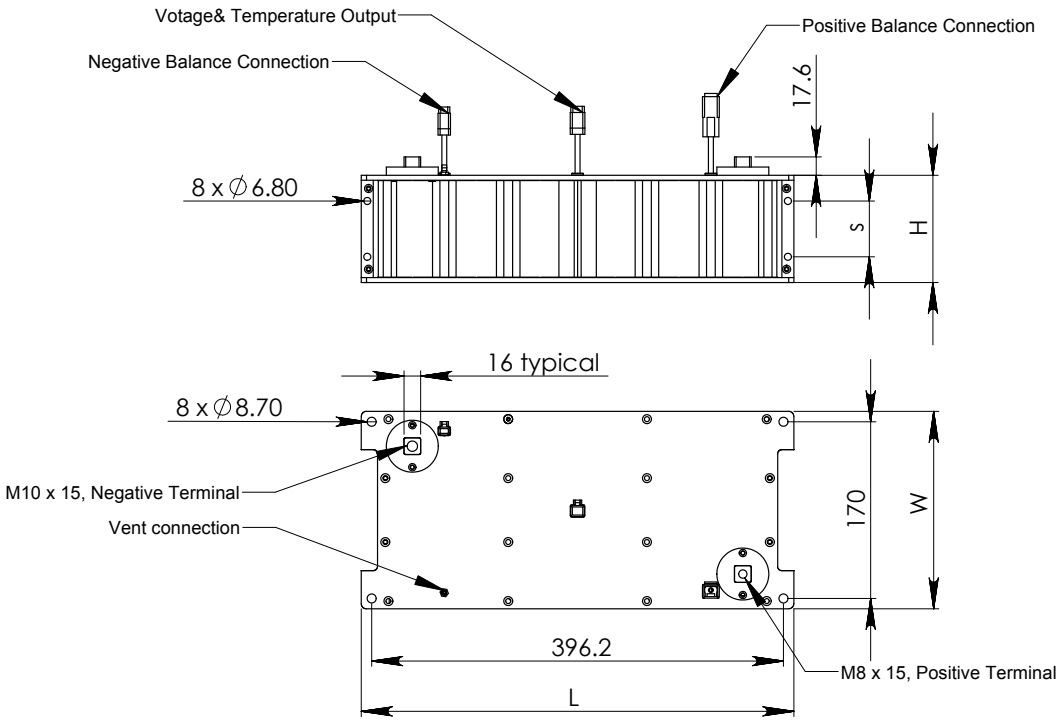
› Product Specifications:

Maxwell Part No.	Capacitance (F)	ESR, DC (mohm)	ESR, 1khz (mohm)	Ic (mA)
BMOD0083 E048	80	16.0	12.8	3.0
BMOD0110 E048	110	12.0	9.6	4.2
BMOD0145 E048	140	11.0	9.0	5.2

› Product Properties:

Maxwell Part No.	Rth (C/W)	Isc (A)	Emax (Wh/kg)	Pmax (W/kg)	Pd (W/kg)
BMOD0083 E048	0.39	3,900	2.48	4,100	1,600
BMOD0110 E048	0.33	4,300	2.91	4,900	1,900
BMOD0145 E048	0.27	4,800	3.52	4,800	1,900

› Dimensions:



Part Number	Vol (l)	Mass (kg)	Size (mm)			
			L (+/- 0.5)	W (+/- 0.5)	H (+/- 0.5)	s (+/- 0.5)
BMOD0083 E048	8.5	11.0	416	190	108	53.7
BMOD0110 E048	9.8	12.4	416	190	124	70.7
BMOD0145 E048	12.6	13.5	416	190	160	89.4

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

› Markings: Modules are marked with the following information

Rated capacitance, rated voltage, product number, name of manufacturer, positive and negative terminal, warning marking, serial #

› Mounting Recommendations:

Modules can be secured at 8 locations, 4 front face and/or 4 bottom face, at provided M8 through holes. Follow user manual instructions for terminal, balance and output connections.

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› Additional Technical Information:

Capacitance and ESR, DC measured per document 1007239

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

R_{th} = Thermal resistance

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

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