

BMOD0083 P048
BMOD0110 P048
BMOD0165 P048



FEATURES AND BENEFITS

- Compact, rugged, fully enclosed splash-proof design
- Highest power performance available
- Individually balanced cells
- Lowest time constant
- Over 1,000,000 duty cycles
- Ultra-low internal resistance
- Voltage and temperature sensor output included

TYPICAL APPLICATIONS

- Automotive
- Industrial
- Telecommunications
- Bus, Train
- UPS

PRODUCT SPECIFICATIONS

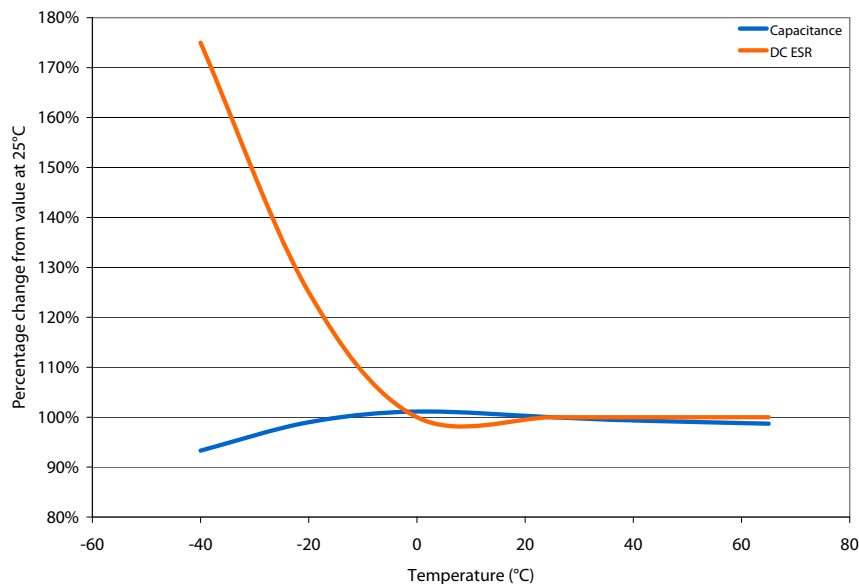
	BMOD0083	BMOD0110	BMOD0165
ELECTRICAL			
Capacitance			
Nominal capacitance	83 F	110 F	165 F
Tolerance capacitance	-5 % / +20%	-5 % / +20%	-5 % / +20%
Voltage			
Rated voltage	48.6 V DC	48.6 V DC	48.6 V DC
Resistance			
ESR, DC (max., room temperature)	10.3 mΩ	8.1 mΩ	6.3 mΩ
ESR, AC (max., room temperature, 1kHz)	9.8 mΩ	5.6 mΩ	5.2 mΩ
Current			
Maximum continuous current	61 A	79 A	98 A
Maximum peak current, 1 sec.	1,090 A	1,410 A	1,970 A
Leakage current (After 72 hours at 25°C. Initial leakage current can be higher.)	3 mA	4.2 mA	5.2 mA
TEMPERATURE			
Operating temperature range (Cell case temperature)	-40°C to +65°C	-40°C to +65°C	-40°C to +65°C
Storage temperature range (Stored uncharged)	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
POWER AND ENERGY			
Usable power density, Pd	2,700 W/kg	3,100 W/kg	3,300 W/kg
Usable power	27,500 W	35,000 W	45,000 W
Impedance match power density, Pmax	5,570 W/kg	6,450 W/kg	6,940 W/kg
Gravimetric energy density, Emax	2.65 Wh/kg	3.19 Wh/kg	4.01 Wh/kg
Energy available	27 Wh	36 Wh	54 Wh

PRODUCT SPECIFICATIONS (cont.)

	BMOD0083	BMOD0110	BMOD0165
DC LIFESPAN			
Endurance (at rated voltage and temperature)	2,000 hours	2,000 hours	2,000 hours
Capacitance change (% decrease from rated value)	≤20%	≤20%	≤20%
ESR change (% increase from rated value)	≤60%	≤60%	≤60%
Life Test (at rated voltage and 20°C)	10 years	10 years	10 years
Capacitance change (% decrease from rated value)	≤20%	≤20%	≤20%
ESR change (% increase from rated value)	≤100%	≤100%	≤100%
Cycle Test (Number of cycles)	1 million	1 million	1 million
Capacitance change (% decrease from rated value)	≤20%	≤20%	≤20%
ESR change (% increase from rated value)	≤100%	≤100%	≤100%
Shelf Life (Storage uncharged up to maximum storage temperature)	2 years	2 years	2 years
Capacitance change (% decrease from rated value)	10%	10%	10%
ESR change (% increase from rated value)	50%	50%	50%
CONNECTION			
Power output terminals	M8, M10 Screw	M8, M10 Screw	M8, M10 Screw
Monitoring and control	NTC	NTC	NTC
Cell management	VMS 2.0	VMS 2.0	VMS 2.0
Maximum series voltage	750 V DC	750 V DC	750 V DC
PHYSICAL			
Dimensions	See drawing	See drawing	See drawing
Weight	10.3 kg	11.3 kg	13.5 kg
SAFETY			
Short circuit current (Current possible with short circuit from rated voltage. Do not use as an operating current.)	4,700 A	6,000 A	7,700 A
Certifications	RoHS	RoHS	UL810a, RoHS
Surge voltage (Voltage above this level can cause catastrophic failure.)	50.4 V DC	50.4 V DC	50.4 V DC
Isolation voltage	2,500 V DC	2,500 V DC	2,500 V DC
ENVIRONMENTAL RATINGS			
Degrees of protection	IP65	IP65	IP65
Vibration resistance	SAE J2380	SAE J2380	SAE J2380
Shock resistance	SAE J2464	SAE J2464	SAE J2464

TYPICAL CHARACTERISTICS

	BMOD0083	BMOD0110	BMOD0165
THERMAL CHARACTERISTICS			
Thermal resistance (Rth, case to ambient)	0.39°C/W	0.30°C/W	0.25°C/W



ADDITIONAL TECHNICAL INFORMATION

Capacitance and ESR, DC measured per document no. 1007239 available at www.maxwell.com. Unless specified, all specifications are at 25°C.

$$\text{Short circuit current (Isc)} = \frac{V_{\text{RATED}}}{\text{ESR(DC)}}$$

$$\text{Emax} = \frac{\frac{1}{2} CV^2}{3,600 \times \text{mass}}$$

$$\text{Pmax} = \frac{V^2}{4 \times \text{ESR(DC)} \times \text{mass}}$$

$$\text{Pd} = \frac{0.12V^2}{\text{ESR(DC)} \times \text{mass}}$$

$$\text{Maximum peak current (1 sec)} = \frac{\frac{1}{2} CV}{C \times \text{ESR(DC)} + 1}$$

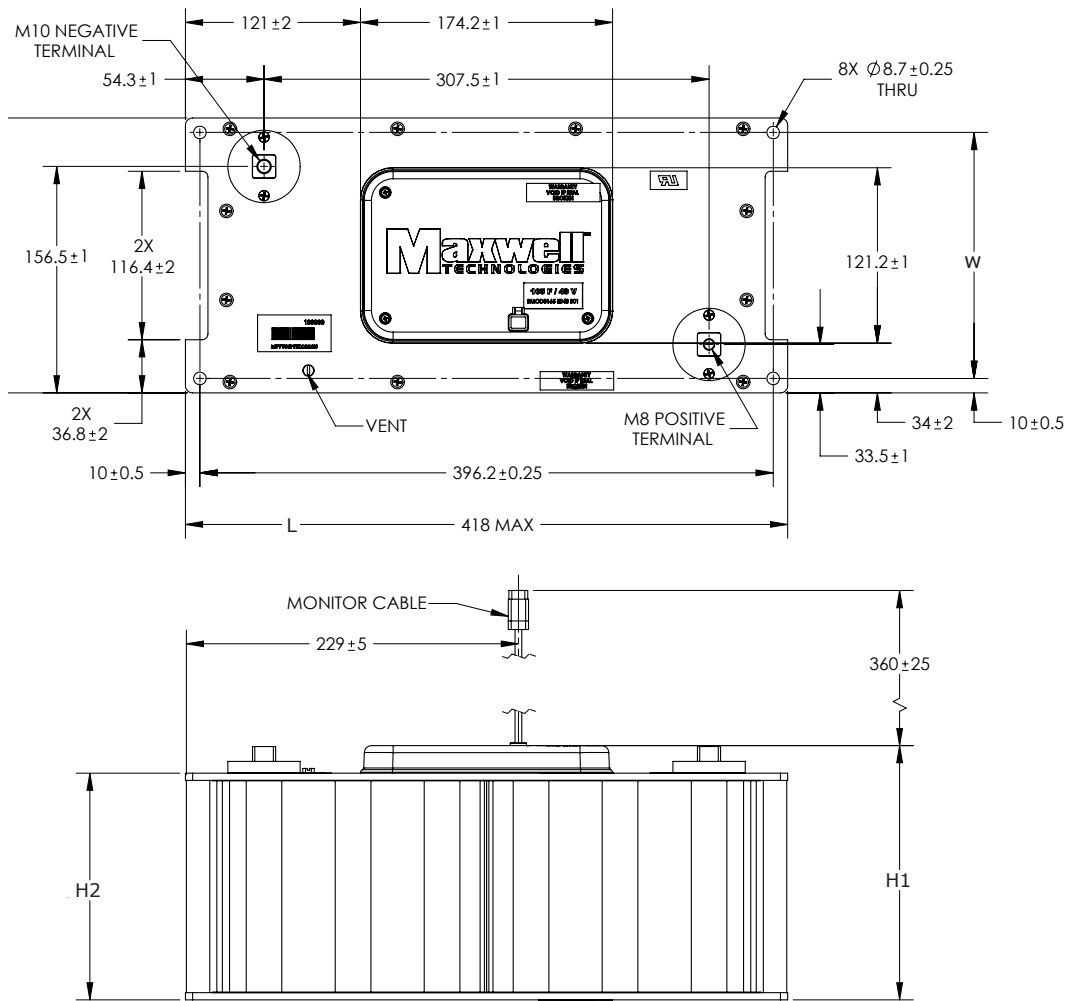
MOUNTING RECOMMENDATIONS

Do not reverse polarity. Modules are designed to be connected into series or parallel strings. Clean terminals before mounting.

MARKINGS

Products are marked with the following information: Rated capacitance, rated voltage, product number, name of manufacturer, positive and negative terminal, warning marking, serial number.

DIMENSIONS



Part Description	Dimensions (mm)				Package Quantity
	L (max)	W (max)	H1 (max)	H2 (max)	
BMOD0083 P048	418	191	126	104	1
BMOD0110 P048	418	191	143	121	1
BMOD0165 P048	418	191	179	157	1

Product dimensions are for reference only unless otherwise identified. Product dimensions and specifications may change without notice. Please contact Maxwell Technologies directly for any technical specifications critical to application.

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