

**FEATURES AND BENEFITS\***

- Up to 1,000,000 duty cycles or 10 year DC life
- 125V DC working voltage
- Active cell balancing
- Temperature and voltage monitoring
- CAN bus digital monitoring and communications
- High power density

**TYPICAL APPLICATIONS**

- Buses
- Electric trains and trolleys
- Heavy duty transportation
- Cranes, RTGS
- Utility vehicles
- Mining equipment



**PRODUCT SPECIFICATIONS**

**ELECTRICAL**

**BMOD0063 P125 B08**

Rated Capacitance <sup>1</sup>	63 F
Minimum Capacitance, initial <sup>1</sup>	63 F
Maximum Capacitance, initial <sup>1</sup>	76 F
Maximum ESR <sub>DC</sub> , initial <sup>1</sup>	18 mΩ
Test Current for Capacitance and ESR <sub>DC</sub> <sup>1</sup>	100 A
Rated Voltage	125 V
Absolute Maximum Voltage <sup>2</sup>	136 V
Absolute Maximum Current	1900 A
Leakage Current at 25°C, maximum <sup>3</sup>	10 mA
Maximum Series Voltage	1500 V
Capacitance of Individual Cells <sup>11</sup>	3000 F
Maximum Stored Energy, Individual Cell <sup>11</sup>	3.0 Wh
Number of Cells	48

**TEMPERATURE**

Operating temperature range (Cell case temperature)	
Minimum	-40°C
Maximum	65°C
Storage temperature range (Stored uncharged)	
Minimum	-40°C
Maximum	70°C

\*Results may vary. Additional terms and conditions, including the limited warranty, apply at the time of purchase. See the warranty details and enclosed information for applicable operating and use requirements.

## PRODUCT SPECIFICATIONS (Cont'd)

## PHYSICAL

BMOD0063 P125 B08

Mass, typical <sup>13</sup>	61 kg
Power Terminals	Radsok®
Recommended Torque - Terminal	N/A
Vibration Specification	ISO16750-3 Table 14
Shock Specification	SAE J2464
Environmental Protection	IP65
Cooling	Forced Air

## MONITORING / CELL VOLTAGE MANAGEMENT

Temperature Interface	Serial Data (CAN)
Cell Voltage Monitoring	Group Voltage (CAN)
Connector	Deutsch DTM
Cell Voltage Management	VMS 2.0

## POWER &amp; ENERGY

Usable Specific Power, $P_d$ <sup>4</sup>	1,700 W/kg
Impedance Match Specific Power, $P_{max}$ <sup>5</sup>	3,600 W/kg
Specific Energy, $E_{max}$ <sup>6</sup>	2.3 Wh/kg
Stored Energy, $E_{stored}$ <sup>7</sup>	140 Wh

## SAFETY

Short Circuit Current, typical (Current possible with short circuit from rated voltage. Do not use as an operating current.)	6,900 A
Certifications	RoHS, eMark
High-Pot Capability <sup>12</sup>	4,000 VAC

## TYPICAL CHARACTERISTICS

## THERMAL CHARACTERISTICS

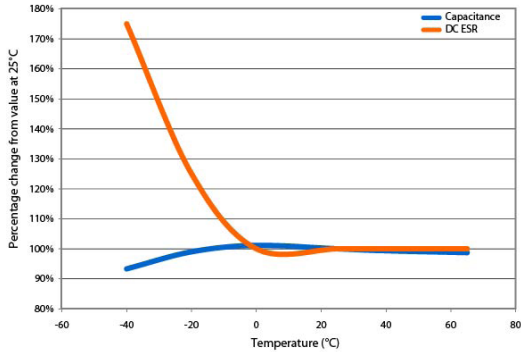
BMOD0063 P125 B08

Thermal Resistance ( $R_{ca}$ , Case to Ambient), typical <sup>8</sup>	0.04°C/W
Thermal Capacitance ( $C_{th}$ ), typical	33,000 J/°C
Maximum Continuous Current ( $\Delta T = 15^\circ\text{C}$ ) <sup>8</sup>	140 A <sub>RMS</sub>
Maximum Continuous Current ( $\Delta T = 40^\circ\text{C}$ ) <sup>8</sup>	240 A <sub>RMS</sub>

## LIFE

DC Life at High Temperature <sup>1</sup> (at Rated Voltage & Maximum Operating Temperature)	1,500 hours
Capacitance Change (% decrease from minimum initial value)	20%
ESR Change (% increase from maximum initial value)	100%
Projected DC Life at 25°C <sup>1</sup> (held continuously at Rated Voltage)	10 years
Capacitance Change (% decrease from minimum initial value)	20%
ESR Change (% increase from maximum initial value)	100%
Projected Cycle Life at 25°C <sup>1,9,10</sup>	1,000,000 cycles
Capacitance Change (% decrease from minimum initial value)	20%
ESR Change (% increase from maximum initial value)	100%
Test Current	100 A
Shelf Life (Stored uncharged at 25°C)	4 years

ESR AND CAPACITANCE VS TEMPERATURE



NOTES

1. Capacitance and  $ESR_{DC}$  measured at 25°C using specified test current per waveform below.
2. Absolute maximum voltage, non-repeated. Not to exceed 1 second.
3. After 72 hours at rated voltage. Initial leakage current can be higher.

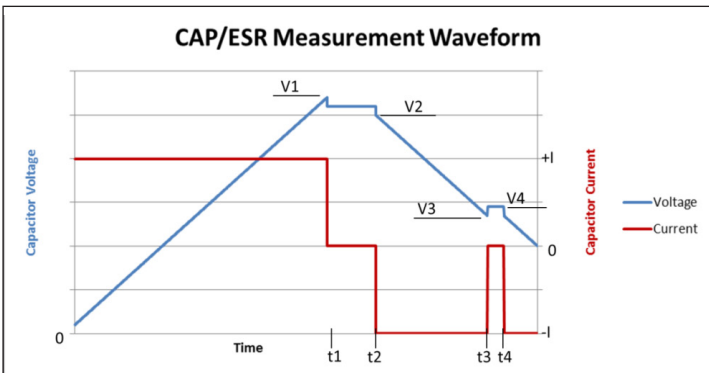
4. Per IEC 62391-2,  $P_d = \frac{0.12V^2}{ESR_{DC} \times \text{mass}}$

5.  $P_{max} = \frac{V^2}{4 \times ESR_{DC} \times \text{mass}}$

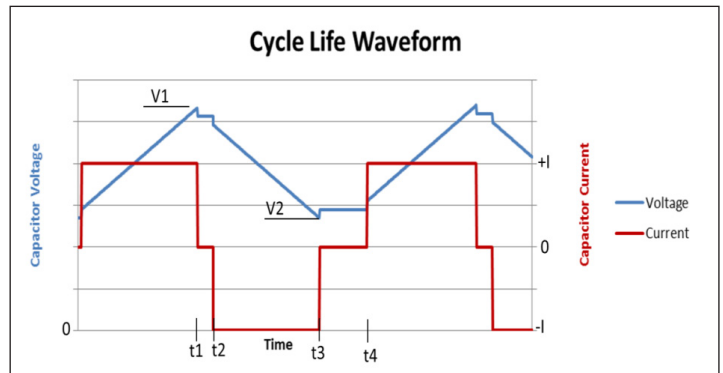
6.  $E_{max} = \frac{\frac{1}{2} CV^2}{3,600 \times \text{mass}}$

7.  $E_{stored} = \frac{\frac{1}{2} CV^2}{3,600}$

8.  $\Delta T = I_{RMS}^2 \times ESR \times R_{ca}$
9. Cycle using specified test current per waveform below.
10. Cycle life varies depending upon application-specific characteristics. Actual results will vary.
11. Per United Nations material classification UN3499, all Maxwell ultracapacitors have less than 10 Wh capacity to meet the requirements of Special Provisions 361. Both individual ultracapacitors and modules composed of those ultracapacitors shipped by Maxwell can be transported without being treated as dangerous goods (hazardous materials) under transportation regulations.
12. Duration = 60 seconds. Not intended as an operating parameter.
13. Without fan. With fan, mass is 63.4 kg.



$V1 = V_{rated}$        $t2 - t1 = 15 \text{ seconds}$        $\text{Capacitance} = I \times (t3 - t2) / (V2 - V3)$   
 $V3 = 0.5 \times V_{rated}$        $t4 - t3 = 5 \text{ seconds}$        $ESR = (V4 - V3) / I$



$V1 = V_{rated}$        $t2 - t1 = 5 \text{ seconds (I=0)}$   
 $V2 = 0.5 \times V_{rated}$        $t4 - t3 = 15 \text{ seconds (I=0)}$

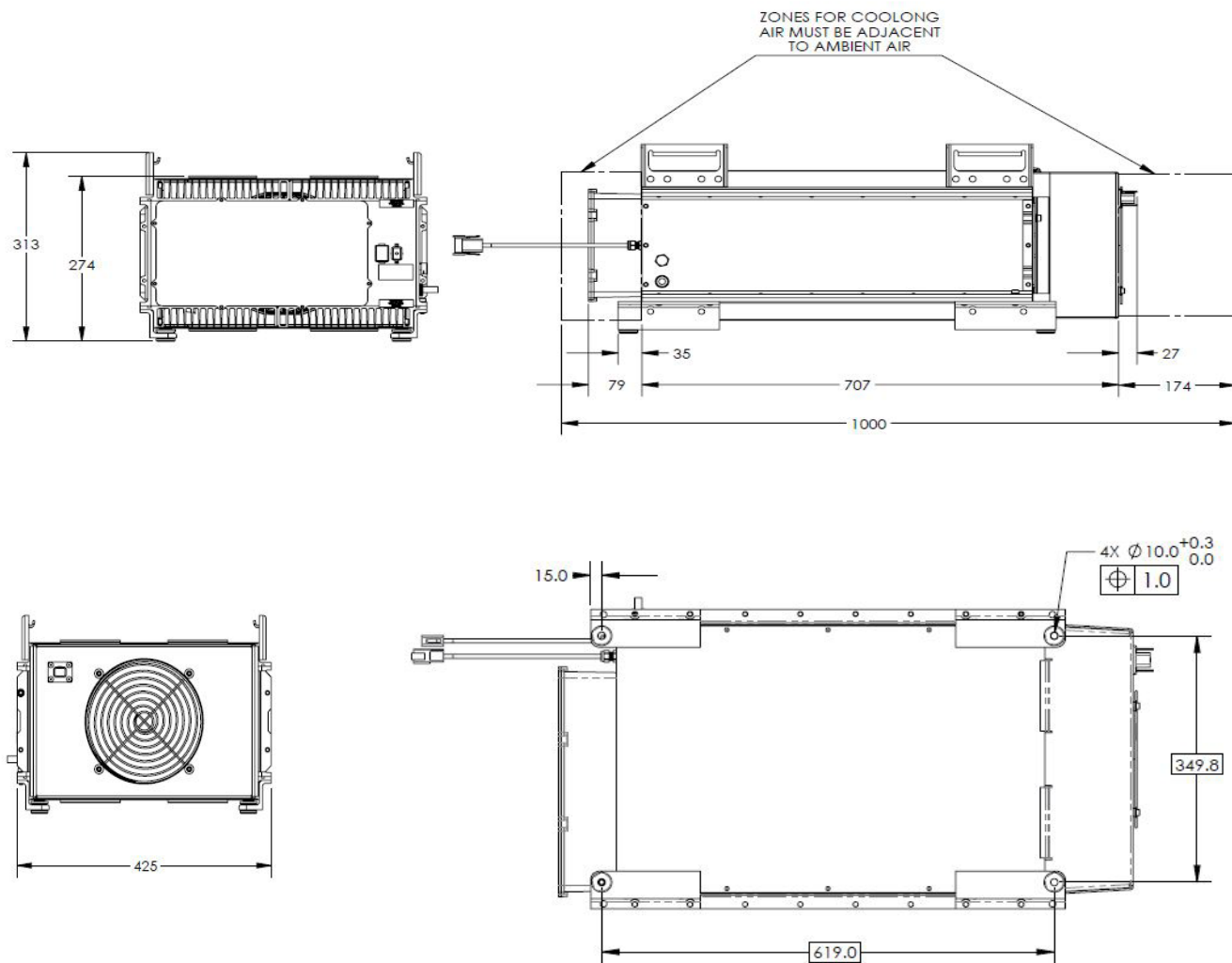
**MOUNTING RECOMMENDATIONS**

Please refer to the user manual for installation recommendations.

**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.

**BCAP0063 P125 B08**



Part Description	Dimensions (mm)			Package Quantity
	L (± 0.5mm)	D (± 0.2mm)	H(±0.7mm)	
BCAP0063 P125 B08*	619	33.3	265	1

\*Refer to user manual for product variant details

## ORDERING INFORMATION

**Base Module**

109024B BMOD0063 P125 B08 63F/125V eMark Module with CAN Communication

**Power Connection Kit**

109131 Power Connection Kit, 90 DEG

109132 Power Connection Kit, STRAIGHT

**Communication Kit**

109133 CAN SIGNAL, Deutsch

**Fan Kit**

129036 FAN KIT, 24V, eMark

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. All products featured on this datasheet are covered by the following U.S. patents and their respective foreign counterparts: 6643119, 7295423, 7342770, 7352558, 7384433, 7440258, 7492571, 7508651, 7791860, 7791861, 7816891, 7859826, 7883553, 7935155, 8072734, 8098481, 8279580, and patents pending.

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