



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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**FEATURES AND BENEFITS\***

- Up to 14 year DC life
- 56V DC working voltage
- Resistive cell balancing
- Overvoltage outputs
- High power density
- 4U, half-rack package
- UL registered

**TYPICAL APPLICATIONS**

- UPS systems

**PRODUCT SPECIFICATIONS****ELECTRICAL****BMOD0130 P056 B03**

|   |         |
|---|---------|
| Rated Capacitance <sup>1</sup>                                  | 130 F   |
| Minimum Capacitance, initial <sup>1</sup>                       | 130 F   |
| Maximum Capacitance, initial <sup>1</sup>                       | 156 F   |
| Maximum ESR <sub>DC</sub> , initial <sup>1</sup>                | 8.1 mΩ  |
| Test Current for Capacitance and ESR <sub>DC</sub> <sup>1</sup> | 100 A   |
| Rated Voltage   | 56 V    |
| Absolute Maximum Voltage <sup>2</sup>                           | 62 V    |
| Absolute Maximum Current  | 1,900 A |
| Leakage Current at 25°C, maximum <sup>3</sup>                   | 120 mA  |
| Maximum Series Voltage  | 750 V   |
| Capacitance of Individual Cells <sup>9</sup>                    | 3,000 F |
| Stored Energy, Individual Cell <sup>9</sup>                     | 3.0 Wh  |
| Number of Cells   | 23      |

**TEMPERATURE**

|   |       |
|---|-------|
| Operating Temperature (Cell case temperature) |       |
| Minimum                                       | -40°C |
| Maximum                                       | 40°C  |
| Storage Temperature (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

BMOD0130 P056 B03

|                               |                             |
|-------------------------------|-----------------------------|
| Mass, typical                 | 18 kg                       |
| Power Terminals               | M8/M10                      |
| Recommended Torque - Terminal | 20/30 Nm                    |
| Vibration Specification       | Telcordia GR-63-CORE Zone 4 |
| Shock Specification           | N/A                         |
| Environmental Protection      | IP30                        |
| Cooling                       | Natural Convection          |

## MONITORING / CELL VOLTAGE MANAGEMENT

|                             |                   |
|-----------------------------|-------------------|
| Internal Temperature Sensor | N/A               |
| Temperature Interface       | N/A               |
| Cell Voltage Monitoring     | Overvoltage Alarm |
| Connector                   | Deutsch DTM       |
| Cell Voltage Management     | Passive           |

## POWER &amp; ENERGY

|   |            |
|---|------------|
| Usable Specific Power, $P_d^4$              | 2,600 W/kg |
| Impedance Match Specific Power, $P_{max}^5$ | 5,400 W/kg |
| Specific Energy, $E_{max}^6$                | 3.1 Wh/kg  |
| Stored Energy <sup>7</sup>                  | 57 Wh      |

## SAFETY

|  |                      |
|--|----------------------|
| Short Circuit Current, typical<br>(Current possible with short circuit from rated voltage.<br>Do not use as an operating current.) | 6,900 A              |
| Certifications   | RoHS, UL810a (750 V) |
| High-Pot Capability <sup>10</sup>  | 4,000 V DC           |

## TYPICAL CHARACTERISTICS

## THERMAL CHARACTERISTICS

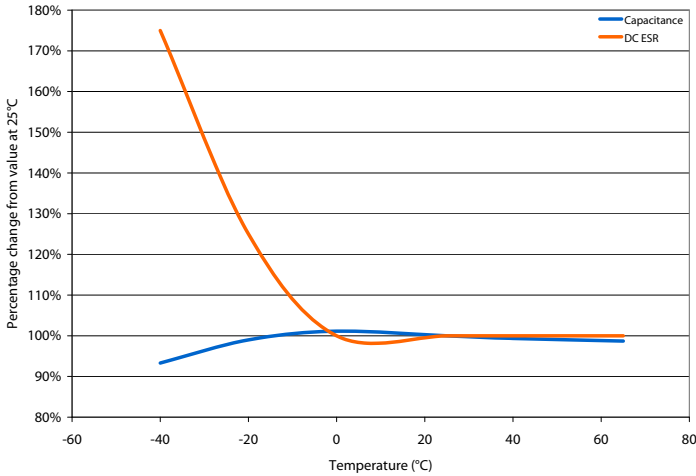
BMOD0130 P056 B03

|   |             |
|---|-------------|
| Thermal Resistance<br>( $R_{ca}$ , All Cell Cases to Ambient), typical <sup>8</sup> | 0.50°C/W    |
| Thermal Capacitance ( $C_{th}$ ), typical   | 16,000 J/°C |
| Maximum Continuous Current ( $\Delta T = 15^\circ\text{C}$ ) <sup>8</sup>           | 61 A, RMS   |
| Maximum Continuous Current ( $\Delta T = 40^\circ\text{C}$ ) <sup>8</sup>           | 99 A, RMS   |

## LIFE

|  |          |
|--|----------|
| DC Life at High Temperature <sup>1</sup><br>(held continuously at Rated Voltage & Maximum Operating Temperature) | 8 years  |
| Capacitance Change<br>(% decrease from minimum initial value)  | 20%      |
| ESR Change<br>(% increase from maximum initial value)  | 100%     |
| Projected DC Life at 25°C <sup>1</sup><br>(held continuously at Rated Voltage)                                   | 14 years |
| Capacitance Change<br>(% decrease from minimum initial value)  | 20%      |
| ESR Change<br>(% increase from maximum initial value)  | 100%     |
| Shelf Life<br>(Stored uncharged at 25°C)   | 4 years  |

ESR AND CAPACITANCE VS TEMPERATURE



NOTES

1. Capacitance and ESR<sub>DC</sub> 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.

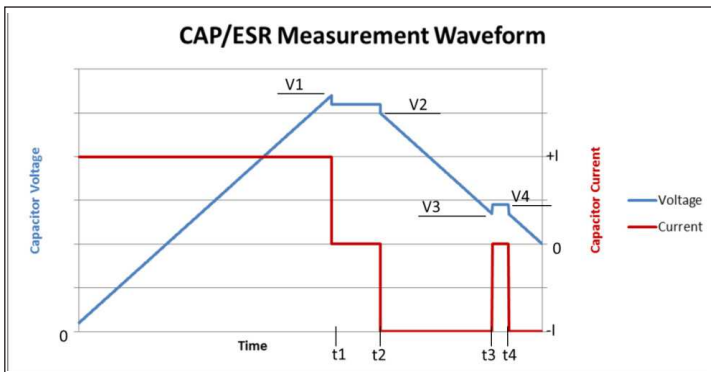
4. Per IEC 62391-2,  $P_d = \frac{0.12V^2}{ESR_{DC} \times mass}$

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

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

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

8.  $\Delta T = I_{RMS}^2 \times ESR \times R_{ca}$
9. 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.
10. Duration = 60 seconds. Not intended as an operating parameter.



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

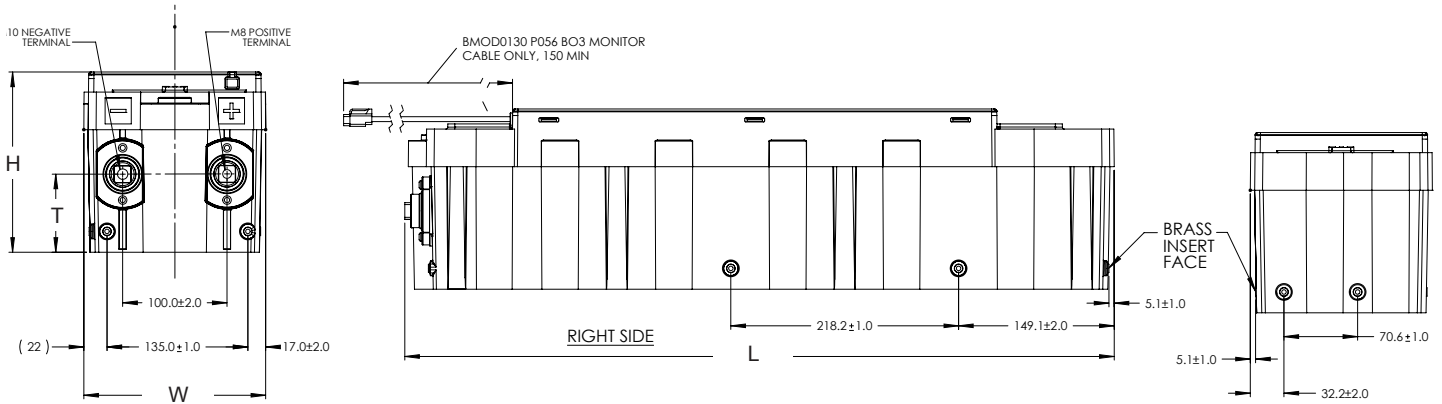
**MOUNTING RECOMMENDATIONS**

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.

**BMOD0130 P056 B03**



| Part Description  | Dimensions (mm) |         |         |          | Package Quantity |
|-------------------|-----------------|---------|---------|----------|------------------|
|                   | L (max)         | W (max) | H (max) | T (±2mm) |                  |
| BMOD0130 P056 B03 | 683             | 177     | 175     | 74.9     | 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. 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, 7859826, 7883553, 7935155, 8072734, 8098481, 8279580, and patents pending.



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