

5.0V 1.5F

BMOD0001 P005 B02
EMHSR-0001C5-005R0

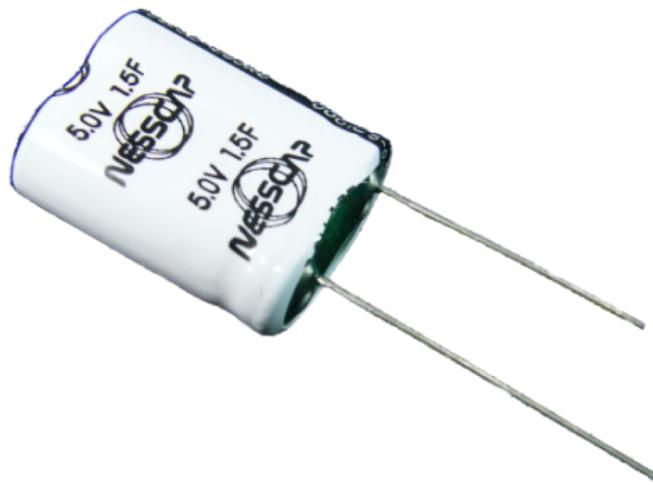
Datasheet

FEATURES

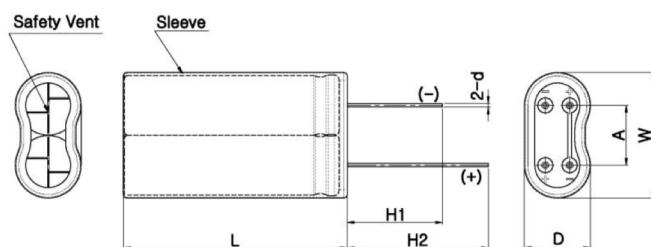
- High performance product with low ESR
- Exceptional shock and vibration resistance
- Long lifetimes with up to 500,000 duty cycles*
- Compliant with RoHS and REACH requirements
- Recommended Application:
Actuators, Emergency Lighting, Telematics, Automotive, Security Equipment, Backup System, Smoke Detectors, Advanced Metering, and Others

ELECTRICAL SPECIFICATIONS

Rated Voltage, V_R	5.0 VDC
Surge Voltage ¹	5.4 VDC
Rated Capacitance, C ²	1.5 F
Capacitance Tolerance	Min. / Max. -10% / +20% Average ⁴ +5% / +10%
Initial DC-ESR, R_{DC} ³	Max. 130 mΩ Average ⁴ 109 mΩ
Maximum Leakage Current ⁵	5 μA
Maximum Peak Current, Non-repetitive ⁶	3.1 A



See Note on Mounting Recommendations¹⁰



TYPICAL LIFETIME CHARACTERISTICS*

Projected DC Life at Room Temperature ⁸ (Continuous charging at V_R and $25 \pm 10^\circ C$)	10 years
DC Life at Standard High Temperature ⁸ (Continuous charging at V_R and $65^\circ C$)	1,500 hours
DC Life at De-Rated Voltage & Higher Temp. ⁸ (Continuous charging at 4.6V and $85^\circ C$)	1,500 hours
Projected Cycle Life at Room Temperature ⁸ (Constant current charge-discharge from V_R to $1/2V_R$ at $25 \pm 10^\circ C$)	500,000 cycles
Shelf Life (Stored without charge at $25 \pm 10^\circ C$)	4 years

TYPICAL THERMAL CHARACTERISTICS

Thermal Resistance, R_{th} (Housing)	77 °C/W
Thermal Capacitance, C_{th}	2.8 J/°C
Usable Continuous Current ($\Delta T = 15^\circ C$) ⁹	1.2 A
Usable Continuous Current ($\Delta T = 40^\circ C$) ⁹	2.0 A

DIMENSION & WEIGHT

D (Max)	9.5 mm	H1 (Min.)	15.0 mm
L (Max)	23 mm	H2 (Min.)	19.0 mm
W (Max)	17.5 mm	d (±0.05)	0.6 mm
A (±0.1)	8.6 mm	Nominal Weight	3.4 g

SAFETY & ENVIRONMENTAL

RoHS & REACH	Compliant
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OPERATING ENVIRONMENT / POWER & ENERGY

Operating Temperature Range	Standard (-40°C to 65°C)		Extended (-40°C to 85°C)	
Maximum Stored Energy, E_{max} ⁷	at 5.0V	5.2 mWh	at 4.6V	4.4 mWh
Gravimetric Specific Energy ⁷	at 5.0V	1.5 Wh/kg	at 4.6V	1.3 Wh/kg
Usable Specific Power ⁷	at 5.0V	6.7 kW/kg	at 4.6V	5.7 kW/kg
Impedance Match Specific Power ⁷	at 5.0V	14.1 kW/kg	at 4.6V	11.9 kW/kg

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

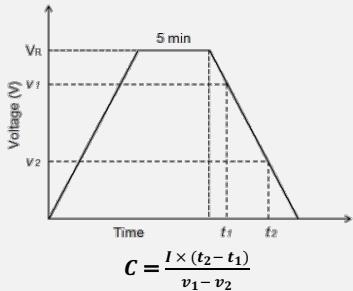
NOTE

1. Surge Voltage

- > Absolute maximum voltage, non-repetitive. The duration must not exceed 1 second.

2. Rated Capacitance (Measurement Method)

- > Constant current charge with $4 * C * V_R$ [mA] to V_R .
e.g. In case of 5.0V 1.5F module, $4 * 1.5 * 5 = 30$ mA
- > Constant voltage charge at V_R for 5 min.
- > Constant current discharge with $4 * C * V_R$ [mA] to 0.1V.

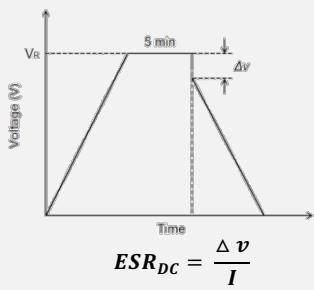


where C is the capacitance (F);

I is the absolute value of the discharge current (A);
 v_1 is the measurement starting voltage, $0.8 \times V_R$ (V);
 v_2 is the measurement end voltage, $0.4 \times V_R$ (V);
 t_1 is the time from discharge start to reach v_1 (s);
 t_2 is the time from discharge start to reach v_2 (s)

3. Initial DC-ESR (Measurement Method)

- > Constant current charge with $4 * C * V_R$ [mA] to V_R .
- > Constant voltage charge at V_R for 5 min.
- > Constant current discharge with $40 * C * V_R$ [mA] to 0.1V.
e.g. In case of 5.0V 1.5F module, $40 * 1.5 * 5.0 = 300$ mA



where ESR_{DC} is the DC-ESR (Ω);

ΔV is the voltage drop during first 10ms of discharge (V);
 I is the absolute value of the discharge current (A)

4. Average

- > Typical percentage spread that may be present in one shipment.

5. Maximum Leakage Current (Measurement Method)

- > The capacitor is charged to its rated voltage V_R at 25°C.
- > Leakage current is the amount of current measured after 72 hours of continuous holding of the capacitor at V_R .

When ordering, please reference the Maxwell Model Number below.

Maxwell Model Number:	Maxwell Part Number:	Nesscap Model Number:
BMOD0001 P005 B02	133730	EMHRSR-0001C5-005R0

Maxwell Technologies, Inc.
Global Headquarters
3888 Calle Fortunada
San Diego, CA 92123
USA
Tel: +1 (858) 503-3300
Fax: +1 (858) 503-3301

Maxwell Technologies SA
Route de Montena 65
CH-1728 Rossens
Switzerland
Tel: +41 (0)26 411 85 00
Fax: +41 (0)26 411 85 05

Maxwell Technologies, GmbH
Leopoldstrasse 244
80807 Munich
Germany
Tel: +49 (0)89 4161403 0
Fax: +49 (0)89 4161403 99

Maxwell Technologies
Shanghai Trading Co., Ltd
Room 1005, 1006, 1007
No. 1898, Gonghexin Road,
Jing An District, Shanghai 200072
P.R. China
Tel: +86 21 3680 4600
Fax: +86 21 3680 4699

Nesscap Co., Ltd.
17, Dongtangheung-ro 681beon-gil,
Giheung-gu, Yongin-si,
Gyeonggi-do
17102
Republic of Korea
Tel: +82 31 289 0721
Fax: +82 31 286 6767

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