



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!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



N₆₀TM 3.0V 3400F Cell

NE03V03400ST001

Datasheet



See Note on Assembly Recommendations¹⁰

DIMENSION & WEIGHT

D1 (±0.5)	60.3 mm
D2 (±0.2)	60.3 mm
L (±0.3)	138.0 mm
H (±0.3)	13.0 mm
Nominal Weight	505 g

TYPICAL THERMAL CHARACTERISTICS

Thermal Resistance, R_{th} (Housing)	3.2 °C/W
Thermal Capacitance, C_{th}	580 J/°C
Usable Continuous Current ($\Delta T = 15^\circ\text{C}$) ⁹	140 A
Usable Continuous Current ($\Delta T = 40^\circ\text{C}$) ⁹	225 A

ELECTRICAL SPECIFICATIONS

Rated Voltage, V_R	3.0 VDC	
Surge Voltage ¹	3.15 VDC	
Rated Capacitance, C^2	3400 F	
Capacitance Tolerance	Min. / Max.	3400F / 4080F
	Average ⁴	3560F
Initial DC-ESR, R_{DC} ³	Max.	0.24 mΩ
	Average ⁴	0.15 mΩ
Maximum Leakage Current ⁵	12 mA	
Maximum Peak Current, Non-repetitive ⁶	2,800 A	
Maximum Stored Energy, E_{max} ⁷	4.2 Wh	
Gravimetric Specific Energy ⁷	8.4 Wh/kg	
Usable Specific Power ⁷	8.9 kW/kg	
Impedance Match Specific Power ⁷	18.5 kW/kg	

TYPICAL LIFETIME CHARACTERISTICS

DC Life at High Temperature ⁸ (Continuous charging at V_R and 65°C)	1,500 hours
Projected DC Life at Room Temperature ⁸ (Continuous charging at V_R and 25 ± 10 °C)	10 years
Projected Cycle Life at Room Temperature ⁸ (Cycled from V_R to 1/2 V_R using constant current of 100A at 25 ± 10 °C)	1,000,000 cycles
Shelf Life (Stored without charge at 25 ± 10 °C)	4 years

TEMPERATURE SPECIFICATIONS

Operating Temperature Range	-40 ~ 65°C
Storage Temperature Range (Stored without charge)	-40 ~ 70°C

SAFETY & ENVIRONMENTAL SPECIFICATIONS

Vibration	ISO 16750-3 Table 12 & 14
Shock	SAE J2464, IEC 60068-2-27
RoHS	Compliant
REACH	Compliant
UL	Compliant (UL 810A)

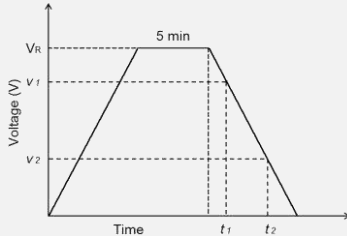
NOTE

1. Surge Voltage

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

2. Rated Capacitance (Measurement Method)

- > Constant current charge with 5A to V_R .
- > Constant voltage charge at V_R for 5 min.
- > Constant current discharge with 5A to 0.1V.



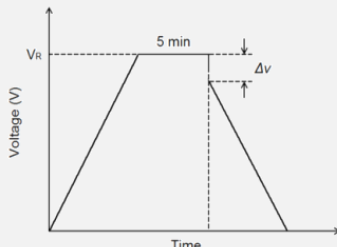
$$C = \frac{I \times (t_2 - t_1)}{v_1 - v_2}$$

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 $4 \times C \times V_R$ [mA] to V_R .
e.g. In case of 3V 3400F cell, $4 \times 3400 \times 3 = 40,800 \text{ mA} = 40.8 \text{ A}$
- > Constant voltage charge at V_R for 5 min.
- > Constant current discharge with 150A to 0.1V.



$$ESR_{DC} = \frac{\Delta v}{I}$$

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 value or 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 .

6. Maximum Peak Current

- > Current that can be used for 1-second discharging from the rated voltage to the half rated voltage under the constant current discharging mode

$$I = \frac{\frac{1}{2}V_R}{\Delta t / C + ESR_{DC}}$$

where I is the maximum peak current (A);
 V_R is the rated voltage (V);
 Δt is the discharge time (sec); $\Delta t = 1$ sec in this case;
 C is the rated capacitance (F);
 ESR_{DC} is the maximum DC-ESR (Ω)

- > The stated maximum peak current should **not** be used in normal operation and is only provided as a reference value.

7. Energy & Power (Based on IEC 62391-2)

- > Maximum Stored Energy, E_{max} (Wh) = $\frac{\frac{1}{2}CV_R^2}{3600}$
- > Gravimetric Specific Energy (Wh/kg) = $\frac{E_{Max}}{Weight}$
- > Usable Specific Power (W/kg) = $\frac{0.12V_R^2}{ESR_{DC} \times Weight}$
- > Impedance Match Specific Power (W/kg) = $\frac{0.25V_R^2}{ESR_{DC} \times Weight}$

8. DC Life and Cycle Life Test

- > End-of-Life (EOL) Conditions:
 - Capacitance: -20% from the rated minimum value
 - DC-ESR: +100% from the specified maximum initial value
- > Capacitance and ESR measurements are taken at 25°C.

9. Usable Continuous Current

- > Maximum current which can be used within the allowed temperature range under the constant current discharging mode

$$I = \sqrt{\frac{\Delta T}{R_{th} \times ESR_{DC}}}$$

where I is the maximum continuous current (A);
 ΔT is the change in temperature (°C);
 R_{th} is the thermal resistance (°C/W);
 ESR_{DC} is the maximum DC-ESR (Ω)

10. Assembly Recommendations

- > Assembly should be done in such way as not to place undue mechanical stress on the terminals of the cell.
- > Do not exceed the maximum torque value of 14 N-m when assembling threaded type cells.
- > Provide adequate spacing in between cells to secure required insulation strength for the application.
- > Provide sufficient clearance above the safety vent and do not position anything near the safety vent that may be damaged in an event of vent rupture.

The contents of this document are subject to change without notice. The values presented are thought to be accurate at the time of writing. Nesscap does not guarantee that the values are always error-free, nor does Nesscap make any other representation or warranty regarding the accuracy or credibility of the information contained in this document. For more information, please reach us at one of following contacts.



Nesscap Energy Inc.
 Scotia Plaza
 40 King Street West, Suite 5800
 Toronto, Ontario, M5H 3S1
 CANADA
marketing@nesscap.com



Nesscap Energy Inc.
 24040 Camino Del Avion #A118,
 Monarch Beach,
 California, 92629
 USA
marketing@nesscap.com



Nesscap Co., Ltd.
 17, Dongtangiheung-ro 681beon-gil,
 Giheung-gu, Yongin-si, Gyeonggi-do
 (17102)
 REPUBLIC OF KOREA
marketing@nesscap.com



Nesscap China
 Room 1608-09, Anhui Building
 Chuangzhan Center, No.6007 Shennan
 Road, Futian District, Shenzhen City
 CHINA
marketing@nesscap.com



Nesscap Energy GmbH
 Beerengarten 4
 D-86938 Schondorf
 GERMANY
info@nesscap-energy.de