

SM0500-016-ATH



APPLICATIONS

- Wind Turbine Pitch Control
- Engine Starting
- Bridge Power
- Peak Load Shaving
- UPS Systems



FEATURES & ADVANTAGES

- One Million Cycle Life
- 10-15 Year Calendar Life
- Wide Temperature Range: -40C to +65C
- High Power Charge & Discharge
- No Lead or Toxic Materials
- No Thermal Runaway Potential



Specifications

Capacitance	Rated ¹	500F
	Tolerance	-0/+20%
Voltage	Rated	16V DC
	Surge ²	17V DC
ESR	ESR (DC) - maximum initial	1.8mΩ
Current	Maximum leakage ³	170mA
	Maximum peak	1900A
	Maximum continuous (ΔT = 15°C)	100A RMS
	Maximum continuous (ΔT = 40°C)	160A RMS
Energy Storage	Maximum energy ⁴	17.8Wh
	Usable energy ⁵	13.3Wh
	Volumetric energy density ⁶	3.5Wh/L
	Gravametric energy density ⁷	3.2Wh/kg
Power	Power density ⁸	3103W/kg

Temperature

Temperature Characteristics	Operating temperature range	-40°C to +65°C
	Storage temperature range	-40°C to +70°C

Monitor and Control

Alarm Monitor	Over voltage	YES
	Temperature sensor	YES

Safety

Safety	Short circuit current	7600A
	500V DC Insulation resistance	≥100MΩ
	5600V DC Leakage current	≤10mA
	Environmental ingress protection	IP54

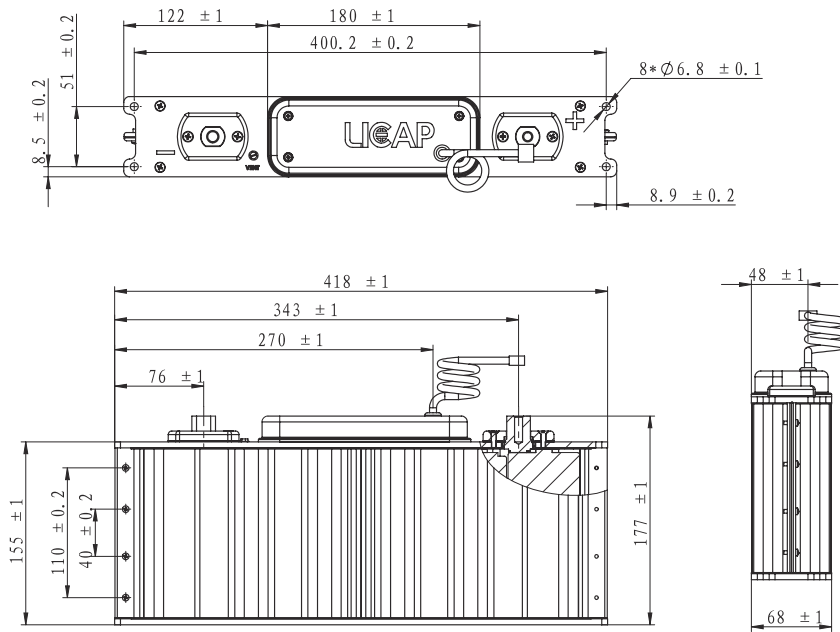
Service Lifetime

Endurance	Product held at rated voltage in 65°C environment for 1500 hours	
	Change in capacitance (% drop from rated)	≤20%
	Change in ESR (% increase from maximum initial)	≤100%
DC Life	Product held at rated voltage in 25°C environment	
	Life (projected)	10+ years
	Change in capacitance (% drop from rated)	≤20%
	Change in ESR (% increase from maximum initial)	≤100%
Cycle Life	Cycling from rated voltage to 50% voltage under constant current in 25°C environment	
	Life (projected)	1,000,000 cycles
	Change in capacitance (% drop from rated)	≤20%
	Change in ESR (% increase from maximum initial)	≤100%
Storage	Stored uncharged in original packaging in 25°C environment	
	Life	4 years

Physical Characteristics

Mechanical	Vibration	GB/T 11287-2000
	Transportation vibration	GB/T 4798.2-2008
	Shock	GB/T 14537-1993

Outline Drawings:



Weight and Size:

Weight: ≤5.5 kg | **Size: (Typical value):** 418*68*177 (L*W*H) mm

Naming Rules:

Type	Capacitance	Dash	Rated Voltage	Dash	CMS - Capacitor Management/Monitoring
SM Supercapacitor Module	0500 = 500F	-	016 = 16V	-	ATH = Active with temp and OV monitor

Notes:

1. Measure capacitance and DC internal resistance at 25°C under specified test current per Figure 1
2. Maximum voltage is non-repeatable and duration cannot exceed 1s
3. Corresponding current value after 72 hours of rated voltage at 25°C
4. $0.5C(V_{nom}^2)/3600$
5. $0.5C(V_{nom}^2 - 0.5V_{nom}^2)/3600$
6. Max energy (Wh) $\left(\frac{L \times W \times H \text{ (mm)}}{1 \times 10^6} \right)$
7. Max energy (Wh)/Weight (kg)
8. Per IEC62391-2, $P_d = \frac{0.12V^2}{ESR_{DC} \times \text{Weight(kg)}}$

CAP/ESR Measurement Waveform

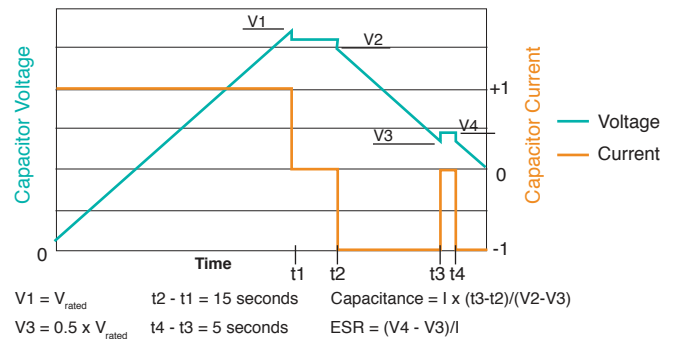


Figure 1

Precautions:

- This product may vent or rupture if overcharged, reverse charged, incinerated or heated above 100°C
- Do not crush, mutilate, or disassemble
- Do not dispose of unit in trash



Specifications are subject to change without notice.