

SM0500-016-PT



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 | N/A |
| | Temperature sensor | YES |

Safety

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

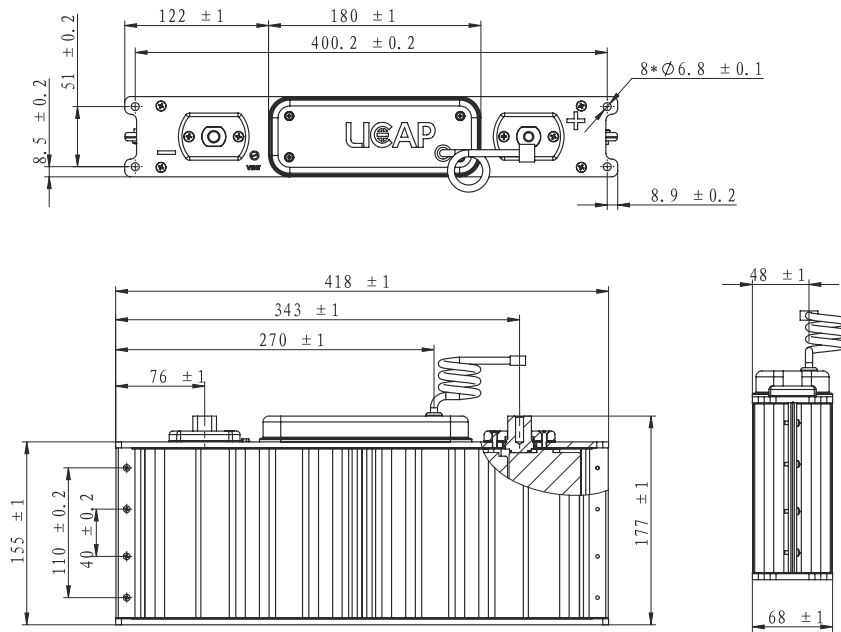
Service Lifetime

| | | |
|------------|---|------------------|
| 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 | - | PT = Passive with temperature monitoring |

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

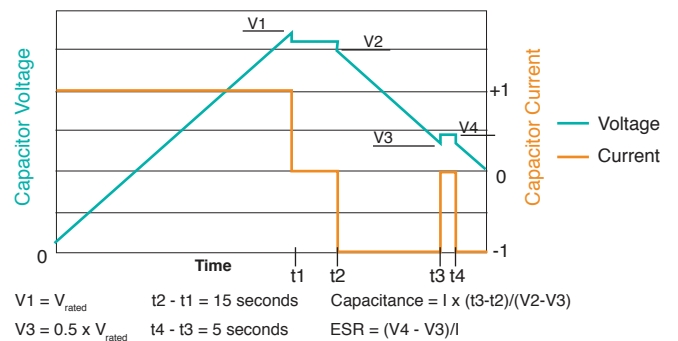


Figure 1

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.