

SM0165-054-ATH



APPLICATIONS

- Wind Turbine Pitch Control System
- UPS System
- Peak Load Shaving
- Small Engine Start
- AGV



FEATURES & ADVANTAGES

- One Million Cycle Life
- Wide Operating Temperature
Range: -40°C to +65°C
- High Power Density
- Compact Size, Light Weight

Specifications

Capacitance	Nominal Capacitance ¹	165F
	Tolerance	0%~+20%
Voltage	Nominal Voltage	54V DC
	Recommended Maximum Operating Voltage	51V DC
	Maximum Voltage ²	55.8V DC
ESR	ESR(DC)-Maximum Initial	6mΩ
Individual Cells	Nominal Capacitance ¹	3000F
	Nominal Voltage	3.0V DC
	Number of Cells	18
Current	Maximum Leakage ³	6mA
	Maximum Peak	2500A
	Maximum Continuous Current (ΔT=15°C) ⁴	80A
	Maximum Continuous Current (ΔT=40°C) ⁴	131A
Energy Storage	Maximum Stored Energy ⁵	66.8Wh
	Gravimetric Specific Energy ⁶	4.3Wh/kg
Power Density	Impedance Match Specific Power ⁷	7839W/kg
	Usable Specific Power ⁸	3763W/kg

Temperature

Temperature Characteristics	Operating Temperature Range ⁹	-40°C to +65°C
	Storage Temperature Range	-40°C to +70°C

Monitoring and Control

Monitoring and Control	Internal Temperature Sensor	NTC
	Temperature Interface	Analog
	Capacitor Voltage Monitoring	Over Voltage Alarm
	Monitoring Mode	Open Collector
	Mating Connector	Deutsch DTM (DTM04-4P)
	Capacitor Voltage Management	Active

Safety

Safety	Short Circuit Current	9000A
	1000V DC Insulation Resistance	≥200MΩ
	2500V DC Leakage Current	≤10mA
	Environmental Ingress Protection	IP65

Service Lifetime

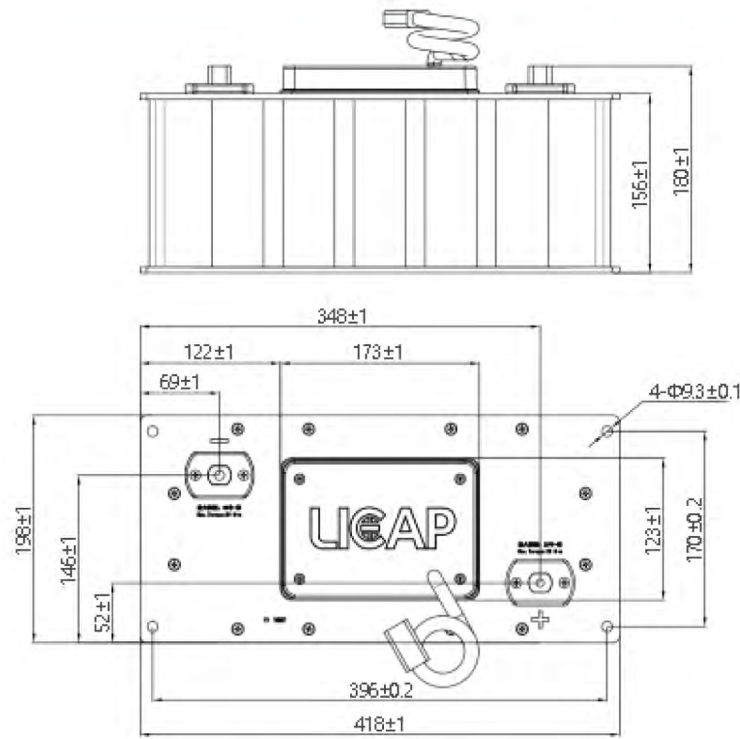
Endurance	Product held at rated voltage in 65°C environment for 1500 hours	
	Change in capacitance (% drop from nominal)	≤20%
	Change in ESR (% increase from maximum initial)	≤100%
DC Life	Product held at rated voltage in 25°C environment	
	Life (projected)	10 Years
	Change in capacitance (% drop from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

Physical Characteristics

Mechanical Characteristics	Operation Vibration	QCT 741
	Shock	IEC 60068-2-27



Outline Drawing:



Pin Definitions:
1. Ground
2. OV alarm
3. Temperature
4. Temperature

Weight and Size

Weight: 15.5kg | Size : 418±1mm*198±1mm*180±1mm (L*D*H)

Naming Rules:

Type	Capacitance	Rated Voltage	CMS-Capacitor Management/Monitoring
SM Supercapacitor Module	0165=165F	054=54V	ATH=Active with temp. & OV monitoring

Notes:

1. Measure capacitance and DC internal resistance at 25°C under specified test current per Figure 1.

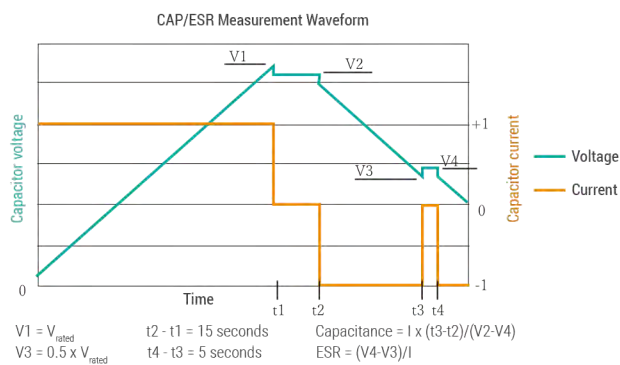


Figure 1

2. Surge voltage is non-repeatable and duration cannot exceed 1s.

3. Corresponding current value after 72 hours of rated voltage at 25°C.

$$4. \Delta T = I_{rms}^2 \times \text{ESR} \times R_{ca}$$

$$5. E_{stored} = 0.5 C V_{nom}^2 / 3600$$

$$6. E_{max} = E_{stored} / \text{weight(kg)}$$

$$7. P_{max} = \frac{0.25 V^2}{\text{ESR}_{DC} \times \text{weight(kg)}}$$

$$8. P_d = \frac{0.12 V^2}{\text{ESR}_{DC} \times \text{weight(kg)}}$$

9. Hold at -40°C for 16 hours, then measure capacitance and ESR. Increase temperature by 10°C, hold for hours, then measure capacitance and ESR. Continue the same process at 10°C intervals until temperature reaches 65°C.

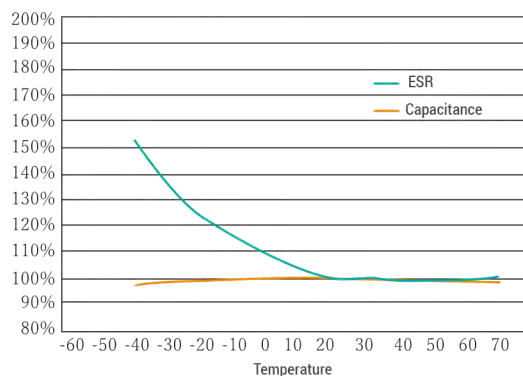


Figure 2

Specifications are subject to change without notice.

