SKELETON TECHNOLOGIES

PRELIMINARY DATA SHEET

SkelMod 17V 500F

+ 17 V DC nominal voltage
+ Ultra-low ESR
+ 750V series voltage
+ High power density
+ Passive balancing
+ High power output

TECHNICAL SPECIFICATIONS

Electrical

Rated voltage	17 V
Absolute maximum voltage [1]	18 V
Rated capacitance [2]	500 F
DC 5s ESR rated [2]	1.86 mΩ
Maximum peak current 1 sec [3]	2202 A
Short circuit current	9140 A
Maximum stored energy [4]	20 Wh
Maximum series voltage	750 V
Capacitance of individual cells	3000 F
Number of cells	6
High-pot capability [5]	2500 VDC

Life

Life at 17 V and maximum operating temperature	1500 hours
Shelf life @ RT, uncharged	10 years
Projected cycle life @ RT between 17 V and 8.5 V	1 000 000 cycles

Capacitance decrease 20% from rated value; resistance increase 100% from rated value

Enviromental conditions

Operating temperature range	-40 °C to +65 °C
Storage temperature range	-40 °C to +50 °C

Ultracapacitor management system

Passive balancing

Power & energy

Impedance Match Specific Power, $P_{specific}$ [6]	7063 W/kg
Specific Energy, $E_{specific}$ [7]	3.6 Wh/kg
Stored Energy, E_{stored} [4]	20.0 Wh

Thermal characteristics

Thermal resistance, $(R)_{ca}$, typical [8]	0.70 °C/W
Thermal capacitance (C_{th}), typical	4300 J/°C
Maximum continuous current (ΔT = 15 °C) [8]	108 A_{RMS}
Maximum Continuous Current (ΔT = 40 °C) [8]	175 A_{RMS}

Physical parameters

Mass, typical	5.5 kg
Dimensions, L (max), W (max), H (max)	418 x 68 x 179 mm
Power terminals	M8/M10
Recommended Torgue - terminal	20/30 Nm
Vibration specification	SAE J2380
Shock specification	SAE J2464
Environmental protection	IP65
Cooling	Natural convection

Notes

1. Absolute maximum voltage, non-repeated. Not to exceed 1 second.
2. Measurement current for capacitance and ESR_{DC} 100 A
3. Maximum peak current(1s)= $\frac{C \times {}^{1}/_{2} \times V}{C \times ESR + 1\,s}$
4. $E_{stored} = \frac{1/2\ CV^2}{3600}$
5. Duration = 60 seconds.
   Not intended as an operating paratemer.
6. $P_{specific} = \frac{V^2}{4 \times ESR_{DC} \times mass}$
7. $E_{specific} = \frac{1/2\ CV^2}{3600 \times mass}$
8. $\Delta T = I_{RMS}^{\ 2} \times ESR \times R_{ca}$
9. Cycle life varies depending upon applications-specific characteristics. Actual results will vary.
10. Per United Nations material classification UN3499, all Skeleton Technologies ultracapacitors have less than 10 Wh capacity to meet the requirements of Special Provisions 361. Both individual ultrapacitors and modules composed of those ultracapacitors shipped by Skeleton Technologies can be transported without being treated as dangerous goods (hazardous materials) under transportation regulations.

Markings

Products are marked with the following information: rated capacitance, rated voltage, product name, name of manufacturer, positive and negative terminal, serial number.