

**PRELIMINARY
DATA SHEET**

SkelMod 51V
166F



- + 51 V DC nominal voltage
- + 166 F capacitance
- + IP65 Protection

TECHNICAL SPECIFICATIONS	VALUE	UNIT
Electrical		
Rated voltage	51	V
Absolute maximum voltage ¹	54	V
Rated capacitance ²	166	F
DC 5s ESR rated ²	5.3	mΩ
Maximum peak current 1 sec ³	2252	A
Short circuit current	9623	A
Maximum stored energy ⁴	5v9.9	Wh
Maximum series voltage	750	V
Capacitance of individual cells	3000	F
Number of cells	18	
High-pot capability ⁵	2500	VDC
Life		
Life at 51 V and maximum operating temperature	1500 hours	
Life at 48 Volt and Maximum Operating Temperature	2500 hours	
Shelf life @ RT, uncharged	10 years	
Projected cycle life @ RT between 51 V and 25.5 V	1 000 000 cycles	
Projected cycle life @ RT between 48 V and 24 V	2 000 000 cycles	
<i>Capacitance decrease 20% from rated value; resistance increase 100% from rated value</i>		
Enviromental conditions		
Operating temperature range	-40 °C to +65 °C	
Storage temperature range	-40 °C to +50 °C	
Ultracapacitor Management System		
Internal temp sensor	NTC thermistor	
Temperature interface	analogue	
Cell voltage monitoring	Overvolatge alarm	
Connector (mating)	Deutsch DTM04-4P	
Power & energy		
Impedance Match Specific Power, $P_{specific}^6$	8520	W/kg
Specific Energy, $E_{specific}^7$	4.1	Wh/kg
Stored Energy, E_{stored}^4	59,9	Wh
Thermal characteristics		
Thermal resistance, $(R)_{ca}^8$, typical	0.40	°C/W
Thermal capacitance $(C_{th})^8$, typical	13000	J/°C
Maximum continuous current $(\Delta T = 15 °C)^8$	85	A_{RMS}
Maximum Continuous Current $(\Delta T = 40 °C)^8$	137	A_{RMS}

Physical parameters

Weight
 Dimensions (L x W x H)
 Recommended torque on power terminals
 Environmental protection for enclosure
 Vibration
 Shock

14.4 kg
 418 x 194 x 179 mm
 20Nm (M8) / 30Nm (M10) Nm
 IP65
 IISO 16750-3, Table 12
 IEC 60068-2-27, -29

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(I_s) = $\frac{C \times 1/2 \times V}{C \times ESR + 1 s}$

4. $E_{stored} = \frac{1/2 CV^2}{3600}$

5. Duration = 60 seconds.
 Not intended as an operating parameter.

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 ultracapacitors 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.

