

EESstor, Inc.

Specifications on the EESU-52 Ceramic Battery

1.0 Output voltage (Customer Established)	*5V to 1500V
2.0 Internal dc resistance (ESR)	21.2 $\mu\Omega$
3.0 Stored energy (maximum)	52,220 W•h
4.0 Capacitance (maximum)	31 F
5.0 Inductance	0.142 μ H
6.0 Leakage current @ 85° C	4.3 μ A
7.0 Operating temperature range	-20° C to 65° C
8.0 Nonoperating temperature	200° C
9.0 Stored energy reduction over temperature range	< 1%
10.0 Weight (energy storage unit only)	113.5 kg
11.0 Volume (energy storage unit only)	74.4 L
12.0 Corrosive, harmful, or explosive materials	None
13.0 Electrode material	Nickel/Aluminum
14.0 Dielectric material	Ceramic basis
15.0 Solder material	Tin (Sn)
16.0 Hook-up material	Copper (Cu)
17.0 Cycle life, 100% cycles	> 1 x 10 ⁶
18.0 Type of cooling	Not required
19.0 Type of internal connections	Copper
20.0 Shock	**TBD by customers
21.0 Efficiency at end of life	> 94%
22.0 Charge rate (charging time will be established by the converter circuit capabilities)	TBD by customers
23.0 Price \$/kW•h (depends of battery input and output converter circuit power requirements)	100 – 250
24.0 Power density, W/L –determined by converter circuits	***
25.0 Energy density, W•h/L	702
26.0 Specific power, W/kg –determined by converter circuits	***
27.0 Specific energy, W•h/kg	460
28.0 Packaging types	
• Highly corrosion resistant (EPC)	Stainless
• Noncorrosive	Titanium
• Light weight	Aluminum

* The buck-boost convert circuit can be configured to meet a wide range of output voltages, power delivery, or charging requirements.

** The EESU design can be tailored to meet a wide variety of impact profiles.

*** The peak power will be established by the converter circuit. These parameters can be significantly increased with high power converter circuits. **The energy storage unit will not be the limiting factor in determining these parameters due to the fact that a full charge of energy can be delivered to or removed from the energy storage unit at electronic speeds if required. This capability of delivering high amounts of energy at electronic speeds is excellent for some mission critical military applications.**

NOTE:

1. All of the packaging types are sealed in a metal box with dry air internal to the unit.
2. The dc resistance can be lowered by 1000 or greater by increasing the amount of copper in the input and output hook-up wires and providing multiple input and output nodes.