Surge Supercapacitors
Switching on the future of Power

SUPERCAPACITOR-BASED ENGINE START MODULE DATA SHEET

High-performance supercapacitor-based engine start modules provide reliable cranking power for various applications requiring 24V, 48V, or 72V systems. Designed for extreme temperature operation and rapid charge/discharge cycles, these modules offer a superior alternative to traditional batteries for engine starting applications.

- Discharge Temperature Range: -20°C to +40°C
- Can go up to a CCA of 3000 A
- Self-discharge Rate: <5% per month at 25°C
- Maintenance-free
- High-vibration environment
- Heavy-duty diesel engines / Marine Engines
- Construction equipment
- Mining machinery
- Cold weather starting applications
- Instant high-current delivery for reliable starting

Module No. / Parameter	SSCESM12V680F (5S1P)	SSCESM24V378F (9S1P)	SSCESM24V756F (9S2P)	SSCESM48V188F (18S1P)	SSCESM72V136F (25S1P)
Surge Voltage	15 V	27 V	27 V	54 V	75 V
Nominal Voltage	12 V	24 V	24 V	48 V	72 V
Total Capacitance	680 F	378 F	756 F	188 F	126 F
End-to-End ESR	<1.2 mΩ	<3 mΩ	<1 mΩ	<5 mΩ	<7 mΩ
Max. Stored Energy	21.25 Wh	38.2 Wh	76.5 Wh	76.1 Wh	114.8 Wh
Max. Power	46.8 KW	60.7 kW	182.2 kW	145.8 kW	234.3 kW
Charging Time (0-100% @ 55A)	186 s	186 s	372 s	186 s	186 s
Discharge time (@1000A)	5 s	6.8 s	13.6 s	6.8 s	6.8 s
Starts Per Charge	1-2	2-3	4-5	2-3	2-3
Cells Configuration	5 cells in series	9 cells in series	9 cells in series, 2 parallel	18 cells in series	27 cells in series
Weight	3-4 kg	6-8kg	12-14kg	12-14kg	18-20kg
Dimensions (L×W×H) mm	320×70×180	240×210×180	420×210×180	420×210×180	380×350×180
Communication	CAN Bus				
Balancing	Active and Passive				
Operating Temp. Range	– 40°C to +65°C				
Cycle Life	>1,000,000 cycles				

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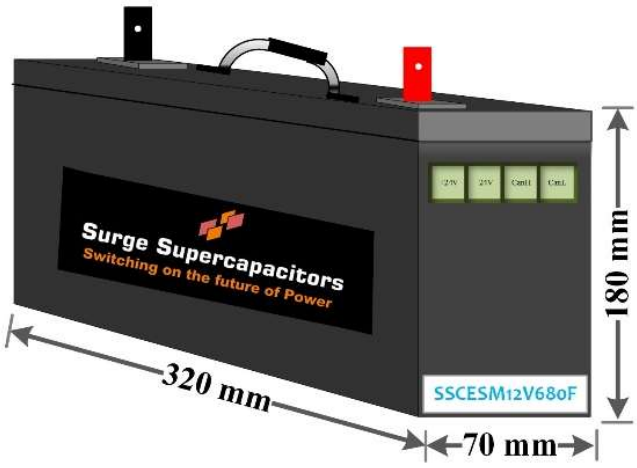


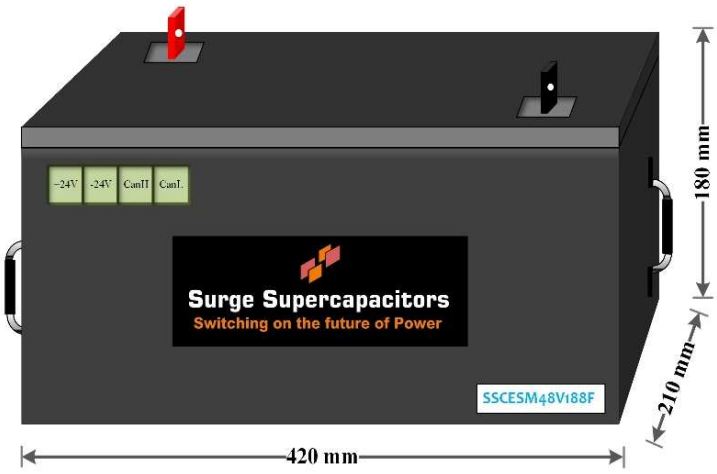
Customization Options: Tailored capacitance and configurations available to meet specific customer requirements. Our expert team provides complete technical guidance and support for seamless integration into your systems.

Notes:

These current values represent the beginning-of-life conditions of the product; for system design, an ESR margin of 200% should be considered.

All information provided in this datasheet and all subsequent sales and testing of supercapacitors are subject to our Standard Terms of Service (ToS).

For details, Please refer to the document *General Terms of Sale* available at www.surgesupercap.com.



Features & Benefits

- Instant high-current delivery for reliable starting
- Rapid recharge capability
- Extended cycle life compared to batteries
- Excellent performance in extreme temperatures
- Low maintenance requirements
- Environmentally friendly (no toxic materials)
- Compact design for flexible installation
- Vibration and shock resistant

Installation Guidelines

- Mount in well-ventilated area
- Use appropriate cable gauge for high-current applications
- Ensure proper terminal connections with specified torque
- Protect from direct exposure to heat sources