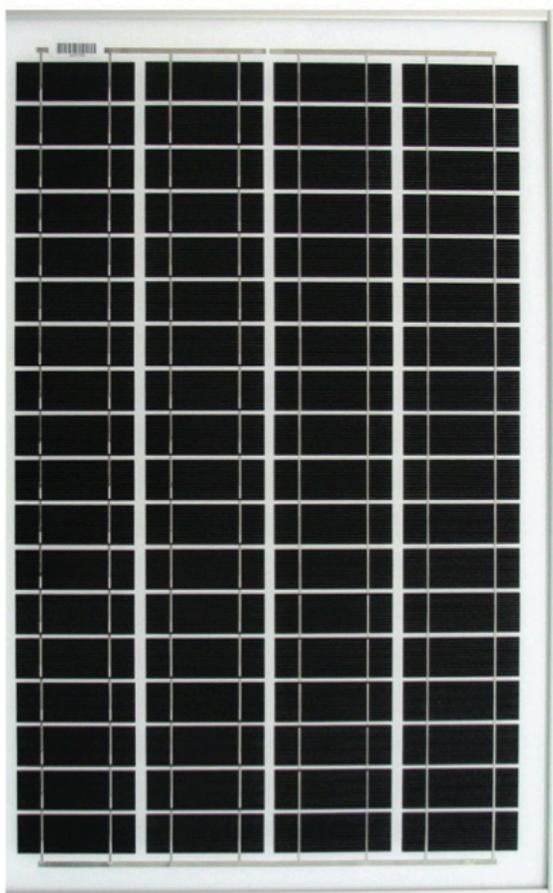




**SOLAR
ELECTRIC
SUPPLY, INC.**



Module appearance may vary.
Cells have rounded corners with
either 165 or 150mm diameter.

50W Photovoltaic module **450J**

Our latest generation of small area modules offers the following benefits:

Built to last

From mountaintops to off-shore platforms, on weather stations in the bitter cold of Antarctica and on telephone signal repeaters in the hot Australian outback, the technology has been proven in the harshest environments.

Accessible junction box for off grid connections

J-type junction box has accessible terminals for easier module interconnections in off grid applications, and it allows fitting cable glands for various cable sections.



Improved reliability with effective cooling

Cell interconnections and diode placement use well-established industry practice and are field-proven to provide excellent reliability.



Thick, durable, scratch resistant back sheet

The thick back sheet provides extra insulation and increased resistance to protect your module against rough handling. The white polyester material lasts longer and increases energy production.



50W Photovoltaic module – 450J

Electrical characteristics

	(1) STC 1000W/m ²	(2) NOCT 800W/m ²
Maximum power (P _{max})	50W	36W
Voltage at P _{max} (V _{mpp})	17.5V	15.6V
Current at P _{max} (I _{mpp})	2.90A	2.32A
Short circuit current (I _{sc})	3.20A	2.59A
Open circuit voltage (V _{oc})	21.8V	19.8V
Module efficiency	11.1%	
Tolerance P _{max}	± 10%	
Nominal voltage	12V	
Efficiency reduction at 200W/m ²	<5% reduction (efficiency 10.5%)	
Limiting reverse current	3.20A	
Temperature coefficient of I _{sc}	0.105%/ °C	
Temperature coefficient of V _{oc}	-0.360%/ °C	
Temperature coefficient of P _{max}	-0.45%/ °C	
(3) NOCT	47 ± 2 °C	
Maximum series fuse rating	8A	
Application class	Class C (according to IEC 61730-2007)	
Maximum system voltage	50V	

1: Values at Standard Test Conditions (STC): 1000W/m² irradiance, AM1.5 solar spectrum and 25°C module temperature
 2: Values at 800W/m² irradiance, Nominal Operation Cell Temperature (NOCT) and AM1.5 solar spectrum
 3: Nominal Operation Cell Temperature: Module operation temperature at 800W/m² irradiance, 20°C air temperature, 1m/s wind speed

All solar modules are individually tested prior to shipment; an allowance is made within our factory measurement to account for the typical power degradation (LLD effect) which occurs during the first few days of deployment.

SES MAPPS Solar Module Mechanical characteristics

Solar cells	72 monocrystalline silicon cut cells	
Front cover	High transmission 3.2mm (1/8") glass	
Encapsulant	EVA	
Back cover	White polyester	
Frame	Silver anodized aluminum	
Diodes	One Schottky bypass diode included	
Junction box	IP65 with 4 terminal screw connection block; accepts PG 13.5, M20 13mm box (1/2") conduit, or cable fittings accepting 6-12mm diameter cable.	
Terminals	accept 2.5-10mm ² (8-14 AWG) wire	
Dimensions	839 x 537 x 50mm / 33.0 x 21.1 x 2in	Weight 6kg / 13.2lbs

All dimensional tolerances within ±1% unless otherwise stated.

Warranty*

- Free from defects in materials and workmanship for 2 years
- 90% Min power output for 12 years
- Optional 25 years available *Refer to limited warranty certificate for terms and conditions

SES MAPPS Solar Module Certification

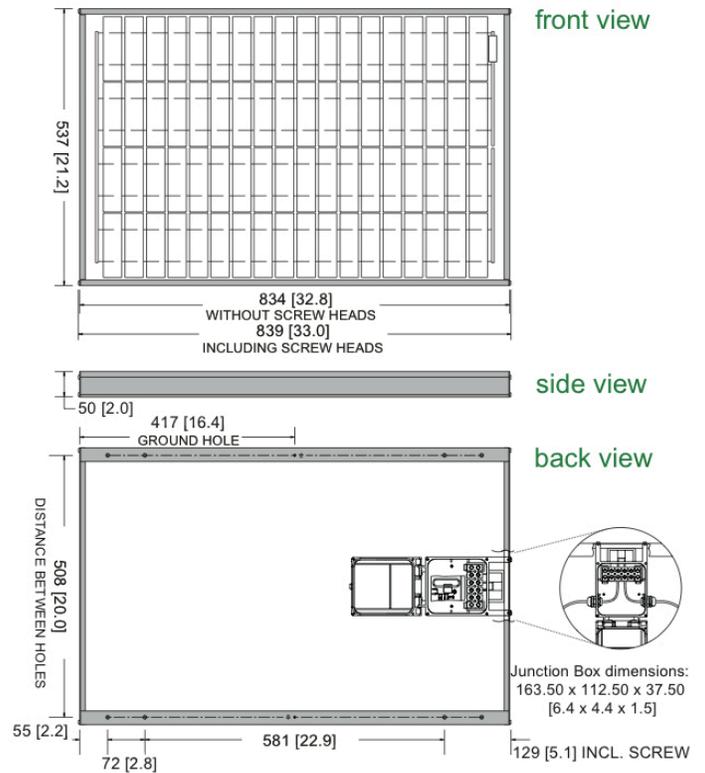
Certified according to the extended version of the IEC 61215 (ed. 2), EC 61215:2005-08 (Crystalline silicon terrestrial photovoltaic modules - Design qualification and type approval)

Certified according to IEC 61730-1 and IEC 61730-2 (ed. 1), EN 61730-1:2007-05 and EN 61730-2:2007-05. (photovoltaic module safety qualification, requirements for construction and testing).

Listed to UL 1703 & ULC ORD-C1703 Standard for Safety by Intertek ETL. Class C Fire Rating.

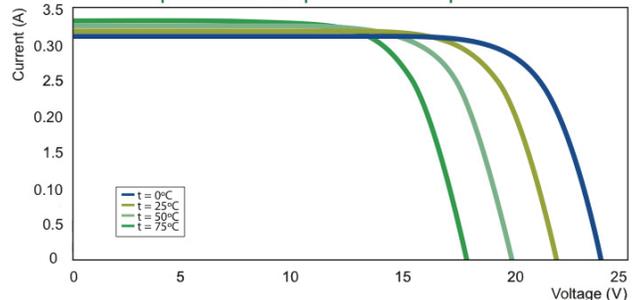
Approved by Intertek ETL according to FM 3611, Dec 2004, and according to CAN/CSA C22.2 No. 213-M1987, 1st Edition, Reaffirmed 2004, for use in a Class I Division 2, Group A, B, C, D Hazardous (Classified) Location.

ISO 9001 factory certification ensures that our manufacturing facilities use proven manufacturing and control processes.

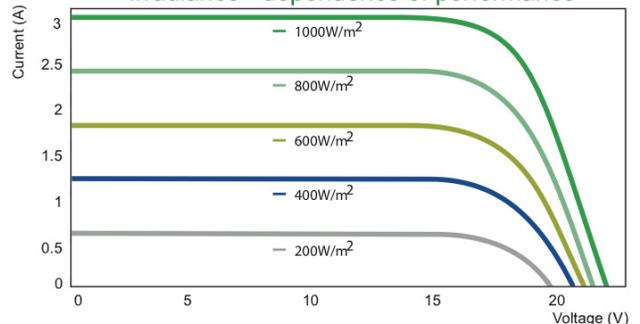


Dimensions in mm [in].

Temperature - dependence of performance



Irradiance - dependence of performance



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