

Unlike conventional crystalline silicon solar cells applied to glass substrate, Fuji's superior FWAVE solar module employs amorphous silicon applied in a tandem-structured layer to thin-film plastic. This module is remarkably light and flexible. Each panel weighs a tenth of typical glass-based cells and conforms to virtually any installation surface. To achieve high-voltage generation, Fuji Electric developed SCAF: Series Connected through Aperture Formed on Film Substrate. Neighboring cells are connected in series, enabling FWAVE modules to directly connect to inverters for high system reliability. FWAVE represents an innovation in thin-film solar manufacture. Our dedicated roll-to-roll process ensures quality, reliability and cost-effective production.

FWAVE Image



Key Features

- World's most lightweight flexible PV module: 1.88kg/m² (0.39 lbs/ft²)
- "Flexible" "Thin" "Not fragile" "High reliability"
- 10% Higher annual power generation
- Suitable for areas with high temperature
- Applicable for room conditions with low illumination
- Environmental friendly: 1/200 silicon consumption, 50% lower CO₂ emission
- Suitable for high voltage applications with unique Integrated Series Connection Structure (SCAF)

FWAVE is a "solar sheet" rather than a solar panel. It is 1.8 mm thick, light and flexible enough to be rolled for shipping and transport. Fuji's plastic thin-film substrate permits installation on any structure or shape and maximizes surface coverage. Handling and installation are virtually trouble-free as plastic is highly damage resistant.

Each module is provided with one positive- and one negative-side cable junction box on the top-most ETFE layer. A butyl double-sided adhesive tape is fitted on the reverse side of the module for immediate bonding onto substrate. Fuji's solar sheets are the ideal alternative to bulky, rigid glass modules.

Amorphous silicon (a-Si) offers a lower temperature coefficient than crystalline silicon, permitting stable power generation at high temperatures and increasing the overall efficiency of the cell. Fuji's solar sheets output 10% more power annually than comparable crystalline solar modules. A-Si manufacture requires only 1/200 the amount of silicon and emits 50% less carbon dioxide. Thus, amorphous silicon is a sustainable choice for solar cell production and largely immune to material supply volatility.

Fuji's solar sheets are appropriate for numerous applications, from residences with metal or membrane roofs to public structures, office buildings and flexible surfaces such as tents, blinds or curtains where conventional solar panels cannot be installed. Commercial and industrial rooftops, waterproof membranes, and other places where flexibility of the modules have advantages over the conventional crystalline type.

FWAVE 92W Module

Electrical Characteristics

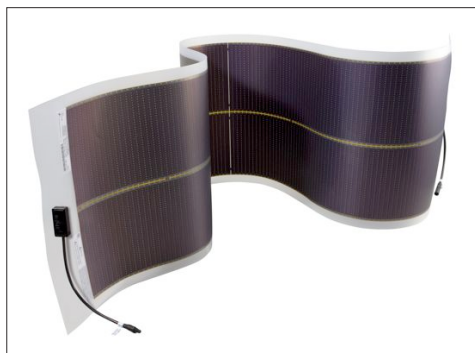
STC: 1000W/m ² , AM1.5, 25°C Cell Temperature		
Peak Output Power (Pmax)	W	92
Peak Operating Voltage (Vmp)	V	319
Peak Operating Current (Imp)	A	0.288
Open-Circuit Voltage (Voc)	V	435
Short-Circuit Current	A	0.379
NOCT: 800W/m ² , AM1.5, 1m/sec wind		
Peak Output Power (Pmax)	W	70.1
Peak Operating Voltage (Vmp)	V	298
Peak Operating Current (Imp)	A	0.235
Open-Circuit Voltage (Voc)	V	398
Short-Circuit Current	A	0.308
Temperature Coefficient of ISC	%/°C	0.08
Temperature Coefficient of VOC	%/°C	0.35
NOCT	°C	45

Physical Characteristics

Length	3511 mm	138.00 in
Width	484 mm	19.06 in
Thickness*	1.8 mm	0.07 in
Weight*	3.2 kg	7.06 lbs
Roof Load*	1.88 kg/m ²	0.39 lbs/ft ²

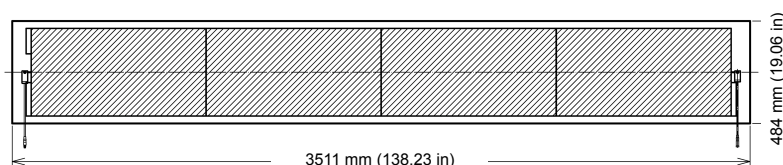
*With back-side adhesive tape

FWAVE Illustration

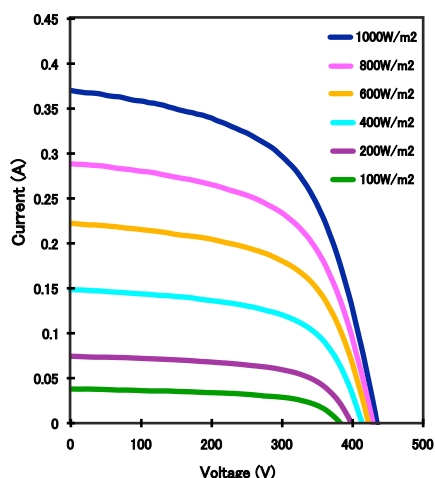


FWAVE 92W Module with top-mounted cable junction boxes

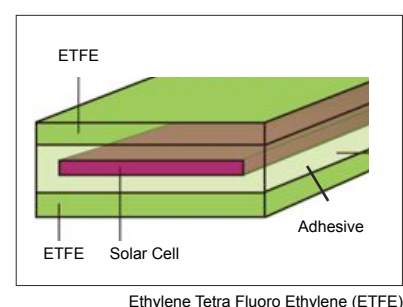
Mechanical Drawing



IV Curves



Module Structure



Qualifications

Materials and Workmanship: 2 years
 Power Output: 80% of minimum power
 after 20 years of use

Certifications

To be UL certified in January 2011. IEC
 certified compliant with IEC 61646 and
 EC 61730 by VDE in November 2008.

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