



1,000-VOLT SYSTEMS

solar electricity

# 121 WATT

## THIN FILM MODULE

Amorphous Silicon/Microcrystalline Silicon  
IEC-Certified for 1,000-volt systems  
For Behind-the-Fence Applications



NA-V121HR

### THIN FILM PHOTOVOLTAICS: THE NEXT EVOLUTION OF SOLAR TECHNOLOGY

Sharp's thin film product pairs amorphous silicon with a layer of microcrystalline silicon to achieve high stability and performance. Produced with less than one percent of the silicon used in crystalline solar cells, thin film products offer high performance with less semiconductor material. With a low temperature coefficient for output power, thin film generates greater energy than its crystalline silicon counterpart in geographic regions where temperatures are high. In warm climates, this translates into more kilowatt-hours per kilowatt. Certified to IEC 61646, these modules are not UL-listed and are exclusively for behind-the-fence applications.

**Sharp: The first name in solar power.  
The last word in solar innovation.**

Offering one of the most efficient thin film photovoltaic products ever manufactured, Sharp becomes the provider of choice for multi-megawatt-scale power production.

#### ENGINEERING EXCELLENCE

Tandem-junction structure (amorphous silicon/microcrystalline silicon) captures a wider part of the solar spectrum, converting more sunlight into electricity.

#### HIGH VOLTAGE ADVANTAGE

Proprietary design increases reliability by minimizing losses caused by module output variation.

#### RELIABILITY

Microcrystalline layer provides superior long-term stability and higher module efficiency.

#### DURABLE

Four bypass diodes ensure maximum output under non-uniform operating conditions.

#### INNOVATIVE

Single-layer glass with polymeric backskin lowers pounds per watt and transportation costs. Modules are sized to optimize the greatest amount of power, easily handled by one person.



The Dayton Power & Light Company, 1.1 MWdc Thin Film

#### LEADING THE FUTURE OF SOLAR

Since 1959, Sharp has led the solar electric industry with efficient, affordable systems and powers more homes and businesses than any other solar manufacturer in the world. From research and development, to system design, delivery, deployment and a more diverse product portfolio, Sharp is ready to create your customized solar solution, with an unyielding commitment to quality control and customer service.

**BECOME POWERFUL**

# 121 WATT

## NA-V121HR

Amorphous Silicon/Microcrystalline Silicon  
IEC-Certified for 1,000-volt systems (IEC 61646)

### ELECTRICAL DATA

Maximum power	P <sub>max</sub>
Open-circuit voltage	V <sub>oc</sub>
Short-circuit current	I <sub>sc</sub>
Voltage at maximum power	V <sub>pmax</sub>
Current at maximum power	I <sub>pmax</sub>
Module efficiency	η
Temperature coefficient – open circuit voltage	β
Temperature coefficient – short circuit current	α
Temperature coefficient – power	γ

MADE IN JAPAN

### NAMEPLATE VALUES

NA-V121HR	
	121 W
	238 V
	0.830 A
	180 V
	0.673 A
	8.5%
	-0.3%/°C
	+0.07%/°C
	-0.24%/°C

The electrical data applies under standard test conditions (STC): Irradiance of 1,000 W/m<sup>2</sup> with an AM 1.5 spectrum at a cell temperature of 25° C. The power output is subject to a manufacturing tolerance of + 10% / - 5%. Output values are post initial Stabler-Wronski decay; actual measured initial values will be greater (approximately 15% for power). Illumination of 1 kW/m<sup>2</sup> (1 sun) at spectral distribution of AM 1.5 (ASTM E892 global spectral irradiance)

### SPECIFICATIONS (I)

Cell	Tandem architecture of amorphous and microcrystalline silicon
Cell Circuit	45 cells in series by 6 in parallel per quadrant: 4 quadrants in series
Dimensions	39.7" x 55.5" x 1.8" (1009 x 1409 x 46 mm)
Weight	40 lbs
Connection type	Cable with MC-3 connector
Bypass diodes	4 (one per quadrant)
Fire Rating	Class C

### SPECIFICATIONS (II)

Maximum system voltage	1,000 V <sub>DC</sub>
Maximum mechanical load	2,400 Pa
Series Fuse Rating	2 A
Operating temperature (cell)	- 40 to +90 °C
Storage temperature	- 40 to +90 °C
Storage air humidity	Up to 90 %
Installation orientation	Portrait

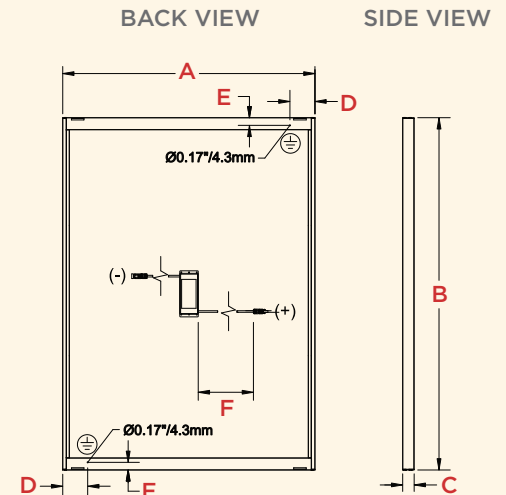
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# SHARP®

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### EXTERIOR DIMENSIONS



<b>A</b> 39.7"/1009 mm	<b>B</b> 55.5"/1409 mm	<b>C</b> 1.8"/46 mm
<b>D</b> 3.9"/100 mm	<b>E</b> 1.2"/30.5 mm	<b>F</b> 35.4"/900 mm