



solar electricity

May 8, 2009

Sharp Thin Film Product Release

Sharp proudly announces the release of our new Thin Film product. This amorphous/microcrystalline product is designed to handle multi-megawatt, large scale projects. If you would like to participate in the initial deployment of Thin Film, please contact your sales representative to schedule your training by May 15. Please review this document thoroughly to ensure understanding of product adoption requirements:

Product Availability

Sharp will begin shipment of UL Listed, Tandem Junction Thin Film products within the continental United States in early August, 2009.

Module Type

Three modules will be available:

Item Number	Description
NA-V115H5	115 watt module
NA-V121H5	121 watt module
NA-V128H1	128 watt module

Pricing

A formal price list will be announced in the coming weeks. For immediate pricing requirements please contact your sales representative.

Data Sheets

A preliminary data sheet is attached.

Warranty

Thin Film modules include a 25 year limited warranty on power output. An official warranty document will follow in the coming weeks.

Shipment & Purchase Requirements

The Thin Film product will be available direct from Katsuragi, Japan to customers within the continental United States. Modules may be purchased in two configurations:

- *Container: 576 modules
- Pallet: 36 modules

** Modules within a container will be the same item number. Containers will ship directly from the port.*

Forecasting

In support of our planning and manufacturing schedule, we ask that you supply a rolling, 12-month, non-binding forecast for Thin Film modules; to be updated monthly.

Engineering Support & System Performance

We ask that you allow Sharp to access performance data to enable us to build a database and develop simulation models. For your first few projects we request to review your system design in advance of construction so that we may provide recommendations for optimal system performance.

Marketing Communications

To ensure the successful introduction of Sharp Thin Film modules within the United States, we kindly request the right to issue press releases, publish case studies, and obtain print-ready photos of your initial installations.

Training

Please contact your salesperson to schedule training by **Friday, May 15th**. The Thin Film 101 Certification Course is for system designers and will be available in several locations throughout the United States starting in mid-June. Classes will be designed as a 1-day event. All customers who intend to install Thin Film must have at least one system designer complete the course. We will announce class details, such as dates, locations and times, in the coming weeks.

We look forward to working with you in our United States Thin Film roll out!

Sincerely,



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Preliminary Data Sheet

Thin Film Photovoltaic Module

Electrical (Tandem Junction 115 W, 121 W and 128 W Models)

Nameplate value at STC

Model	NA-V115H1	NA-V121H1	NA-V128H1
Power (Pmax), +10% / -5%	115 W	121 W	128 W
Voltage at Max Power (Vpmax)	174 V	180 V	186 V
Current at Max Power (Ipmax)	0.661 A	0.673 A	0.688 A
Open Circuit Voltage (Voc)	238 V	238 V	238 V
Short Circuit Current (Isc)	0.810 A	0.830 A	0.846 A

Initial STC values

Model	NA-V115H1	NA-V121H1	NA-V128H1
Power (Pmax), +10% / -5%	135.4 W	142.4 W	150.6 W
Voltage at Max Power (Vpmax)	190 V	196 V	202 V
Current at Max Power (Ipmax)	0.713 A	0.727 A	0.746 A
Open Circuit Voltage (Voc)	243 V	243 V	243 V
Short Circuit Current (Isc)	0.840 A	0.860 A	0.875 A

* Nominal values are values calculated from the initial value using the results of light-soaking test in accordance with IEC 60904-9.

Temperature Coefficient

Characteristic	Units	Value
Power	%/C	-0.24
Voc	%/C	-0.30
Isc	%/C	+0.07

Mechanical (framed)

Length	1,409 mm
Width	1,009 mm
Depth (with frame)	46 mm
Weight	19 kg

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Design Considerations

Application standard	UL1703
Maximum Series Fuse Rating	2 A
Mounting Orientation	Portrait
Maximum system voltage	600V
Typical Modules in Series (600 V system)	2
Maximum mechanical load	1,600 Pa

25-Year Limited Warranty (refer to complete Warranty Statement for details)

Output from min. rated power, first 10 years	90%
Output from min. rated power, balance of 25 years	80%

Packaging

576 Modules/40' Container	36 Modules/Pallet	2 Modules/Carton
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The above preliminary specifications represent the projected product performance (as of April, 2009) and are subject to change at any time. Based on 0808 Factory Specification.

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