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Solar Panel Guide
Specification Data Sheet

First Solar, Inc.
First Solar Series 4™ 110-122
4117

Also available on the web at
EnergyPal.com/first-solar-inc-solar-panels/4117

First Solar Series 4™ PV Module

ADVANCED THIN FILM SOLAR TECHNOLOGY

122.5 WATT MODULE EFFICIENCY OF 17.0%

INDUSTRY BENCHMARK SOLAR MODULES

As a global leader in PV energy, First Solar's advanced thin film solar modules have set the industry benchmark with over 17 gigawatts (GW) installed worldwide and a proven performance advantage over conventional crystalline silicon solar modules. Generating more energy than competing modules with the same power rating, First Solar's Series 4™ and Series 4A™ PV Modules deliver superior performance and reliability to our customers.

PROVEN ENERGY YIELD ADVANTAGE

- Generates more energy than conventional crystalline silicon solar modules with the same power due to superior temperature coefficient and superior spectral response
- Anti-reflective coated glass (Series 4A™) enhances energy production

ADVANCED PERFORMANCE & RELIABILITY

- Compatible with advanced 1500V plant architectures
- Independently certified for reliable performance in high temperature, high humidity, extreme desert and coastal environments
- Visit PlantPredict.com - The only Energy Prediction Software designed for Utility Scale PV

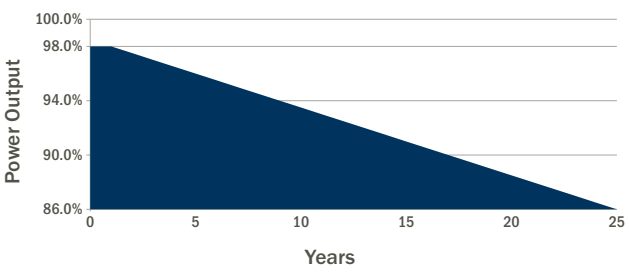
CERTIFICATIONS & TESTS

- PID-Free, Thresher Test, Long-Term Sequential Test, and ATLAS 25+[1]
- IEC 61215/61646 1500V, IEC 61730 1500V, CE
- IEC 61701 Salt Mist Corrosion, IEC 60068-2-68 Dust and Sand Resistance
- ISO 9001:2008 and ISO 14001:2004
- UL 1703 Listed Fire Performance PV Module Type 10[2]
- CSI Eligible, FSEC, MCS, CEC Listed (Australia), SII, InMetro

END-OF-LIFE RECYCLING

- Recycling services available through First Solar's industry-leading recycling program or customer-selected third party.

MODULE WARRANTY[3]



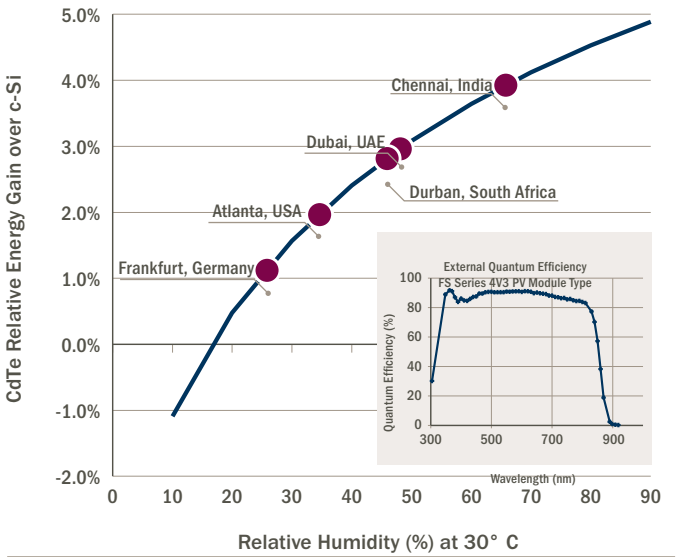
- 25-Year Linear Performance Warranty[4]
- 10-Year Limited Product Warranty

FIRST SOLAR SERIES 4™ PV MODULE

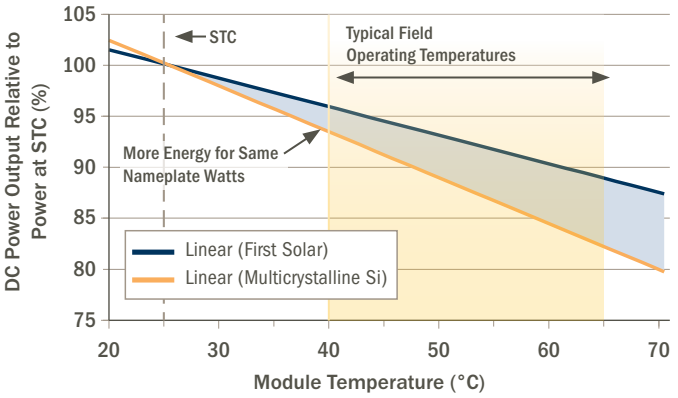
MECHANICAL DESCRIPTION	
Length	1200mm
Width	600mm
Weight	12kg
Thickness	6.8mm
Area	0.72m²
Individual Leadwire	2.5mm², 657mm (minimum from strain relief to connector mating surface)
Connectors	MC4 or MC4-EVO 2[9]
Bypass Diode	None
Cell Type	Thin-film CdTe semiconductor, up to 216 cells
Frame Material	None
Front Glass	3.2mm heat strengthened Series 4A™ includes anti-reflective coating
Back Glass	3.2mm tempered
Encapsulation	Laminate material with edge seal
Load Rating	2400Pa[10]

MODULE NUMBERS AND RATINGS AT STANDARD TEST CONDITIONS (1000W/m², AM 1.5, 25°C)[5]							
NOMINAL VALUES		FS-4110-3 FS-4110A-3	FS-4112-3 FS-4112A-3	FS-4115-3 FS-4115A-3	FS-4117-3 FS-4117A-3	FS-4120-3 FS-4120A-3	FS-4122-3 FS-4122A-3
Nominal Power[6] (-0/+5W)	P_{MPP} (W)	110.0	112.5	115.0	117.5	120.0	122.5
Voltage at P_{MAX}	V_{MPP} (V)	67.8	68.5	69.3	70.1	70.8	71.5
Current at P_{MAX}	I_{MPP} (A)	1.62	1.64	1.66	1.68	1.70	1.71
Open Circuit Voltage	V_{OC} (V)	86.4	87.0	87.6	88.1	88.7	88.7
Short Circuit Current	I_{SC} (A)	1.82	1.83	1.83	1.83	1.84	1.85
Module Efficiency	%	15.3	15.6	16.0	16.3	16.7	17.0
Maximum System Voltage	V_{SYS} (V)	1500 [7,8]					
Limiting Reverse Current	I_R (A)	4.0					
Maximum Series Fuse	I_{CF} (A)	4.0					
RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (800W/m², 20°C air temperature, AM 1.5, 1m/s wind speed)[5]							
Nominal Power	P_{MPP} (W)	83.2	85.1	87.0	89.0	90.8	92.7
Voltage at P_{MAX}	V_{MPP} (V)	63.5	64.5	64.9	65.9	66.3	67.2
Current at P_{MAX}	I_{MPP} (A)	1.31	1.32	1.34	1.35	1.37	1.38
Open Circuit Voltage	V_{OC} (V)	81.6	82.1	82.7	83.2	83.7	83.7
Short Circuit Current	I_{SC} (A)	1.47	1.47	1.48	1.48	1.48	1.49
TEMPERATURE CHARACTERISTICS							
Module Operating Temperature Range	(°C)	-40 to +85					
Temperature Coefficient of P_{MPP}	T_K (P_{MPP})	-0.28%/°C [Temperature Range: 25°C to 75°C]					
Temperature Coefficient of V_{OC}	T_K (V_{OC})	-0.28%/°C					
Temperature Coefficient of I_{SC}	T_K (I_{SC})	+0.04%/°C					

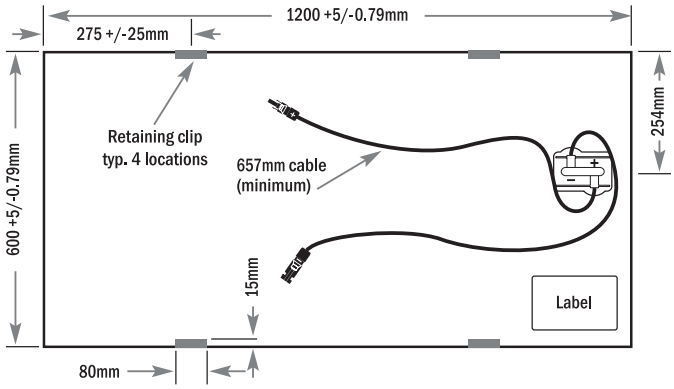
SUPERIOR SPECTRAL RESPONSE



SUPERIOR TEMPERATURE COEFFICIENT



MECHANICAL DRAWING



1 Device package meets Atlas 25+
2 Class A Spread of Flame / Class B Burning Brand. Roof mounted fire rating is established by assessing rack and solar module as a unit
3 Limited power output and product warranties subject to warranty terms and conditions
4 Ensures 98% rated power in first year, -0.5%/year through year 25
5 All ratings ± 10%, unless specified otherwise. Specifications are subject to change
6 Measurement uncertainty applies
7 UL 1703 1500V Listed / ULC 1703 1000V Listed
8 Application Class A for 1000V (class II), Application Class B for 1500V (class 0) with MC4; Application Class A for 1000V and 1500V (class II) with MC4-EVO 2
9 Multi-Contact: MC4 (PV-KST4/PV-KBT4) or MC4-EVO 2 (PV-KST-EVO 2 / PV-KBT-EVO 2).
10 Higher load ratings can be met with additional clips or wider clips, subject to testing