First Solar Series 6™

NEXT GENERATION THIN FILM SOLAR TECHNOLOGY

MODULE DATASHEET

HIGH-POWER PV MODULES

First Solar Series 6™ photovoltaic (PV) module sets a new industry benchmark for reliable energy production, optimized design and environmental performance. Series 6 modules are optimized for every stage of your application, significantly reducing balance of system, shipping, and operating costs.

MORE ENERGY PER MODULE

- More watts per connection and per lift than 72-cell silicon modules
- With superior temperature coefficient, spectral response and shading behavior, Series 6 modules generate up to 8% more energy per watt than conventional crystalline silicon solar modules
- Anti-reflective coated glass enhances energy production

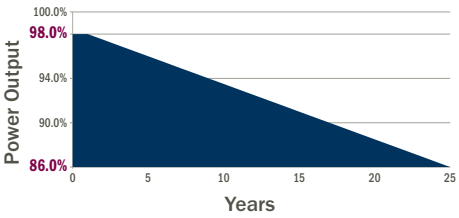
INNOVATIVE MODULE DESIGN

- Under-mount frame allows for simple and fast installation
- SpeedSlots™ combine the robustness of bottom mounting with the speed of top clamping while utilizing fewer fasteners
- Dual junction box optimizes module-to-module connections
- Under-mount frame provides the cleaning and snow-shedding benefits of a frameless module, protects edges against breakage and enables horizontal stacking

INDUSTRY-LEADING MODULE WARRANTY[1]

98% WARRANTY START POINT

0.5% WARRANTED ANNUAL DEGRADATION RATE



- 25-Year Linear Performance Warranty
- 10-Year Limited Product Warranty

PROVEN LONG-TERM RELIABILITY

- Manufactured using methods and process adapted from Series 4 modules – the most tested solar modules in the industry
- Independently tested and certified for reliable performance that exceeds IEC standards in high temperature, high humidity, extreme desert and coastal applications

BEST ENVIRONMENTAL PROFILE

- Fastest energy payback time and smallest carbon and water footprint in the industry
- Global PV collection and recycling services available through First Solar or customer-selected third-party

FIRST SOLAR SERIES 6™

MODEL TYPES AND RATINGS AT STANDARD TEST CONDITIONS (1000W/m², AM 1.5, 25°C)[2]							
NOMINAL VALUES		FS-6390 FS-6390A	FS-6395 FS-6395A	FS-6400 FS-6400A	FS-6405 FS-6405A	FS-6410 FS-6410A	FS-6415 FS-6415A
Nominal Power[3] (-0/+5%)	P_{MPP} (W)	390.0	395.0	400.0	405.0	410.0	415.0
Efficiency (%)	%	15.8	16.0	16.2	16.4	16.6	16.8
Voltage at P_{MAX}	V_{MPP} (V)	173.9	175.0	176.1	177.2	178.3	179.3
Current at P_{MAX}	I_{MPP} (A)	2.24	2.26	2.27	2.29	2.30	2.31
Open Circuit Voltage	V_{OC} (V)	214.8	215.4	216.1	216.8	217.4	218.1
Short Circuit Current	I_{SC} (A)	2.49	2.50	2.51	2.52	2.52	2.53
Maximum System Voltage	V_{SYS} (V)	1500[5]					
Limiting Reverse Current	I_R (A)	6.0					
Maximum Series Fuse	I_{CF} (A)	6.0					
RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (800W/m², 20°C air temperature, AM 1.5, 1m/s wind speed)[2]							
Nominal Power	P_{MPP} (W)	294.5	298.3	302.1	305.8	309.7	313.4
Voltage at P_{MAX}	V_{MPP} (V)	162.7	163.9	165.1	166.2	167.4	167.6
Current at P_{MAX}	I_{MPP} (A)	1.81	1.82	1.83	1.84	1.85	1.87
Open Circuit Voltage	V_{OC} (V)	202.7	203.4	204.0	204.6	205.3	205.9
Short Circuit Current	I_{SC} (A)	2.01	2.02	2.02	2.03	2.03	2.04

TEMPERATURE CHARACTERISTICS		
Module Operating Temperature Range	(°C)	-40 to +85
Temperature Coefficient of P_{MPP}	T_K (P_{MPP})	-0.32%/°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

CERTIFICATIONS AND TESTS

IEC

61215 & 61730 1500V[5], CE
61701 Salt Mist Corrosion[4]
60068-2-68 Dust and Sand Resistance[4]

UL

UL 1703 1500V Listed[5]

REGIONAL CERTIFICATIONS[4]

CSI Eligible[4]
MCS
InMetro[4]
JET[4]
SII[4]

EXTENDED DURABILITY TESTS[4]

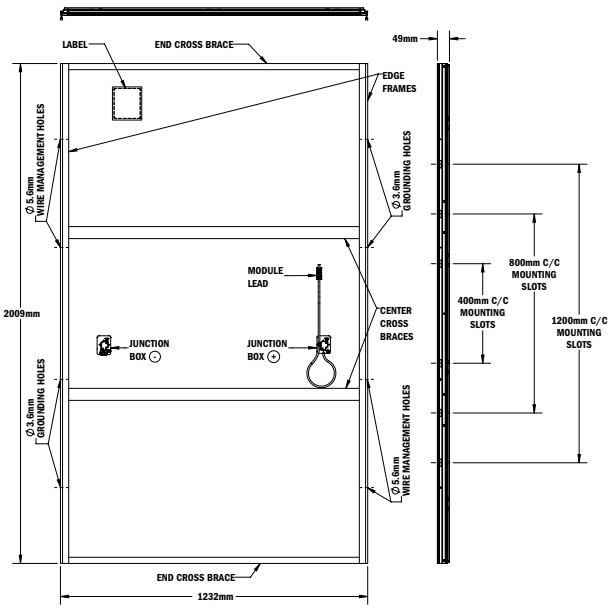
Long-Term Sequential[4]
Thresher Test[4]
PID Resistant

QUALITY & EHS

ISO 9001:2015 & 14001:2015
OHSAS 18001:2007
ISO 45001:2018

MECHANICAL DESCRIPTION	
Length	2009mm
Width	1232mm
Thickness	49mm
Area	2.47m²
Module Weight	36kg
Leadwire[6]	2.5mm², 720mm (+) & Bulkhead (-)
Connectors	MC4-EVO 2
Bypass Diode	N/A
Cell Type	Thin film CdTe semiconductor, up to 264 cells
Frame Material	Anodized Aluminum
Front Glass	2.8mm heat strengthened Series 6A™ includes anti-reflective coating
Back Glass	2.2mm heat strengthened
Encapsulation	Laminate material with edge seal
Frame to Glass Adhesive	Silicone
Wind Load[7]	2400Pa

MECHANICAL DRAWING



Install in portrait only

PACKAGING INFORMATION			
Modules Per Pallet	26	Pallet Dimensions (L x W x H)	2200 x 1300 x 1150mm (86 x 51 x 45in)
Pallet Weight	1051kg	Pallets per 40' Container	18

1 Limited power output and product warranties subject to warranty terms and conditions
2 All ratings ±10%, unless specified otherwise. Specifications are subject to change
3 Measurement uncertainty applies
4 Testing Certifications/Listings pending
5 IEC 61730-1: 2016 Class II | ULC 1703 1000V listed
6 Leadwire length from junction box exit to connector mating surface
7 Higher load ratings can be met with additional support, subject to testing