SUNPOWER®

M-SERIES RESIDENTIAL SOLAR PANELS

SUPPLEMENTARY TECHNICAL SPECIFICATIONS

APPLIES TO: SPR-M450, SPR-M445, SPR-M440, SPR-M435, SPR-M430, SPR-M425, SPR-M420, SPR-M430-BLK, SPR-M425-BLK, SPR-M420-BLK, SPR-M415-BLK, SPR-M410-BLK, SPR-M405-BLK, SPR-M400-BLK

TESTS AND CERTIFICATIONS (Pending)	
Standard tests	UL61730 (Type 2 Fire Rating)
Quality tests	ISO 9001:2015, ISO 14001:2015
EHS Compliance	RoHS, OHSAS 18001:2007, lead free, REACH SVHC-163
Ammonia test	IEC 62716 (Pending)
Desert test	MIL-STD-810G (Pending)
Salt-spray test	IEC 61701 (max. severity) (Pending)
PID test	1500 V: IEC 62804
Max Design Load	**66 cell Gen 5.2 frame** Wind: 3600 Pa, 367 kg/m² back Snow: 5400 Pa, 550 kg/m² front
Operating Temps	– 40°F to +185°F (– 40°C to +85°C)

WARRANTY, IMPACT RESISTANCE, FUSE RATING, J-BOX	
WARRANTIES	25-YEAR LINEAR POWER WARRANTY 25-YEAR LIMITED PRODUCT WARRANTY
Impact Resistance	(hail) 25mm (1 inch) diameter at 23 m/s (52 mph)
Max Series Fuse	20 A
Connectors	TE PV4S with 1320mm cable length
Junction Box	IP-68

M-SERIES MAJOR GLOBAL MARKET LISTINGS	
Major Market Listing	UL

PLATFORM ELECTRICAL DATA, STC

		At Standard Test Conditions						
Module*	Platform (Number of cells)	Nominal Power	Power Tolerance (%)	Rated Voltage Vmp (V)	Rated Current Imp (A)	Open Circuit Voltage Voc (V)	Short Circuit Current, Isc (A)	Max System Voltage UL Vmax (V)
SPR-M450	66	450	+5/-0	41.0	10.99	48.3	11.61	1000
SPR-M445	66	445	+5/-0	40.7	10.93	48.2	11.60	1000
SPR-M440	66	440	+5/-0	40.5	10.87	48.2	11.58	1000
SPR-M435	66	435	+5/-0	40.3	10.82	48.2	11.57	1000
SPR-M430	66	430	+5/-0	40.0	10.74	48.2	11.56	1000
SPR-M425	66	425	+5/-0	39.8	10.68	48.1	11.55	1000
SPR-M420	66	420	+5/-0	39.6	10.62	48.1	11.53	1000
SPR-M430-BLK	66	430	+5/-0	40.5	10.62	48.2	11.33	1000
SPR-M425-BLK	66	425	+5/-0	40.3	10.58	48.2	11.32	1000
SPR-M420-BLK	66	420	+5/-0	40.0	10.49	48.2	11.30	1000
SPR-M415-BLK	66	415	+5/-0	39.8	10.43	48.1	11.29	1000
SPR-M410-BLK	66	410	+5/-0	39.5	10.37	48.1	11.28	1000
SPR-M405-BLK	66	405	+5/-0	39.3	10.30	48.1	11.26	1000
SPR-M400-BLK	66	400	+5/-0	39.1	10.24	48.0	11.25	1000

***AC version available (SPR-MXXX-H-AC, SPR-MXXX-BLK-H-AC)**

TEMPERATURE COEFFICIENTS & EFFICIENCY REFERENCES

	At STC	Basic Temperature Data				Efficiency Numbers		
Module	Nominal Power	Current (Isc) Temp. Coeff. %/°C	Voltage (Voc) Temp. Coeff. %/°C	Power Temp. Coeff. (%/°C)	NOCT @ 20°C (Value +/- 2 °C)	Module Efficiency (%)	Nominal Peak Power per Unit Area (W/m^2)	Nominal Peak Power per Unit Area (W/ft^2)
SPR-M450	450	0.057	-0.239	-0.29	43	23.3	233	21.6
SPR-M445	445	0.057	-0.239	-0.29	43	23.0	230	21.4
SPR-M440	440	0.057	-0.239	-0.29	43	22.8	228	21.2
SPR-M435	435	0.057	-0.239	-0.29	43	22.5	225	20.9
SPR-M430	430	0.057	-0.239	-0.29	43	22.3	223	20.7
SPR-M425	425	0.057	-0.239	-0.29	43	22.0	220	20.4
SPR-M420	420	0.057	-0.239	-0.29	43	21.7	217	20.2
SPR-M430-BLK	430	0.057	-0.239	-0.29	43	22.3	223	20.7
SPR-M425-BLK	425	0.057	-0.239	-0.29	43	22.0	220	20.4
SPR-M420-BLK	420	0.057	-0.239	-0.29	43	21.7	217	20.2
SPR-M415-BLK	415	0.057	-0.239	-0.29	43	21.5	215	20.0
SPR-M410-BLK	410	0.057	-0.239	-0.29	43	21.2	212	19.7
SPR-M405-BLK	405	0.057	-0.239	-0.29	43	21.0	210	19.5
SPR-M400-BLK	400	0.057	-0.239	-0.29	43	20.7	207	19.2

PLATFORM PERFORMANCE AT NOCT

(800 W/m^2, 20°C ambient, 1 m/s wind speed)

	At STC	Nominal Electrical data at NOCT (NOCT: 800W/m^2, 20 °C amb. Temp., 1m/s wind speed)					
Module	Nominal Power	NOCT Pnom	NOCT Vmpp	NOCT Impp	NOCT Voc	NOCT Isc	NOCT % of rated
SPR-M450	450	359	40.8	8.79	47.9	9.29	79.7%
SPR-M445	445	354	40.5	8.74	47.8	9.28	79.5%
SPR-M440	440	350	40.3	8.70	47.8	9.26	79.6%
SPR-M435	435	347	40.1	8.66	47.8	9.26	79.8%
SPR-M430	430	342	39.8	8.59	47.8	9.25	79.5%
SPR-M425	425	338	39.6	8.54	47.7	9.24	79.6%
SPR-M420	420	335	39.4	8.50	47.7	9.22	79.7%
SPR-M430-BLK	430	342	40.3	8.50	47.8	9.06	79.6%
SPR-M425-BLK	425	339	40.1	8.46	47.8	9.06	79.8%
SPR-M420-BLK	420	334	39.8	8.39	47.8	9.04	79.5%
SPR-M415-BLK	415	330	39.6	8.34	47.7	9.03	79.6%
SPR-M410-BLK	410	326	39.3	8.30	47.7	9.02	79.5%
SPR-M405-BLK	405	322	39.1	8.24	47.7	9.01	79.5%
SPR-M400-BLK	400	319	38.9	8.19	47.6	9.00	79.6%

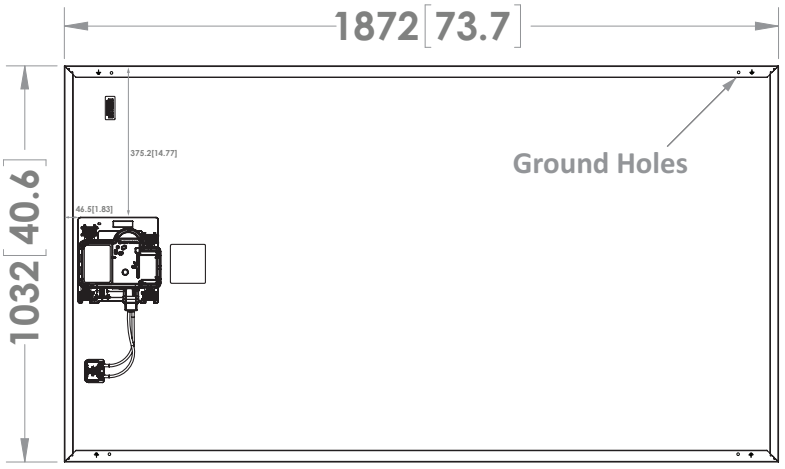
PLATFORM PERFORMANCE AT LOW IRRADIANCE

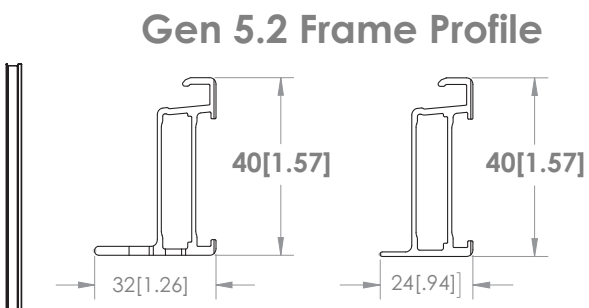
(200 W/m^2. 25ºC cell temperature. air mass 1.5 SSID*)

	At STC	Irradiance vs. Power at Low Irradiance (200W/m^2 and @25ºC (SNL coefficients))					
Module	Nominal Power	Low irradiance Pmpp (W)	Low irradiance Vmpp (V)	Low irradiance Impp (A)	Low irradiance Voc (V)	Low irradiance Isc (A)	Pctg. of nominal power
SPR-M450	450	84.8	38.6	2.20	45.6	2.32	18.8%
SPR-M445	445	83.7	38.3	2.19	45.5	2.32	18.8%
SPR-M440	440	82.8	38.1	2.17	45.5	2.32	18.8%
SPR-M435	435	82.0	37.9	2.16	45.5	2.31	18.8%
SPR-M430	430	80.7	37.6	2.15	45.5	2.31	18.8%
SPR-M425	425	79.9	37.4	2.14	45.4	2.31	18.8%
SPR-M420	420	79.0	37.2	2.12	45.4	2.31	18.8%
SPR-M430-BLK	430	80.9	38.1	2.12	45.5	2.27	18.8%
SPR-M425-BLK	425	80.2	37.9	2.12	45.5	2.26	18.9%
SPR-M420-BLK	420	78.9	37.6	2.10	45.5	2.26	18.8%
SPR-M415-BLK	415	78.0	37.4	2.09	45.4	2.26	18.8%
SPR-M410-BLK	410	76.9	37.1	2.07	45.4	2.26	18.8%
SPR-M405-BLK	405	76.0	36.9	2.06	45.4	2.25	18.8%
SPR-M400-BLK	400	75.1	36.7	2.05	45.3	2.25	18.8%

MODULE PLATFORM DIMENSION

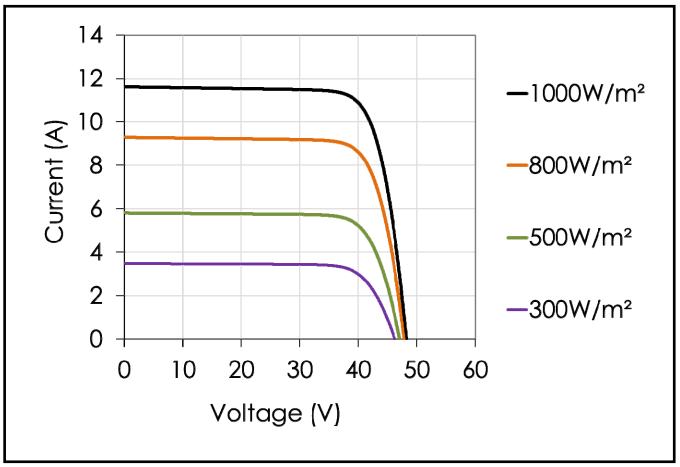
Gen 5.2 Frame - 66 CELL





IV CURVES OF PRIMARY PLATFORM MODELS

SPR-M450



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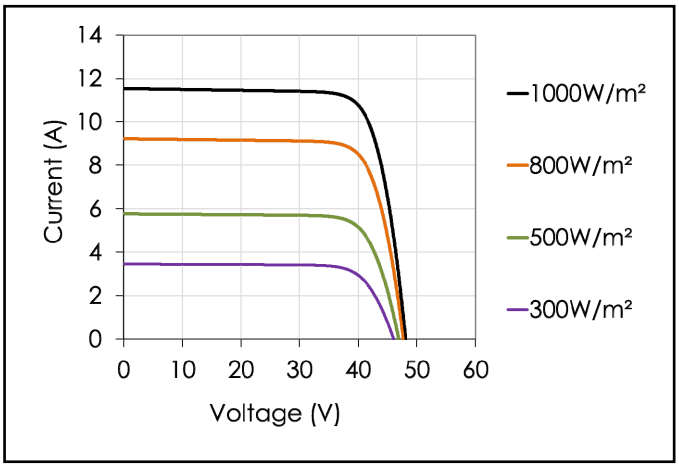
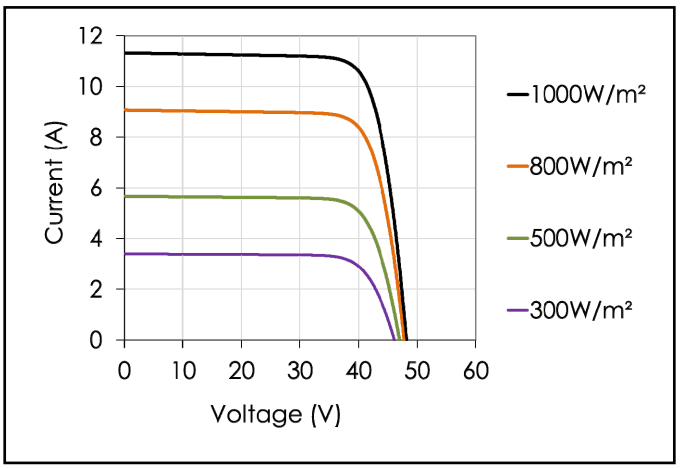


SPR-M430-BLK



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