



# Spark<sup>TM</sup> Solar



## RAPID

120 Cell Series

SMART MODULE

### FEATURES



Remarkable performance in shaded condition

$$+ \frac{W}{m^2}$$

#### High Power Density

High conversion efficiency and more power output per square meter.



#### Durability

Durable PV modules, independently tested for harsh environmental conditions and known PID risk factors.



#### PID Resistant

Advanced cell technology and qualified materials lead to high PID resistance

### QUADRATECH | SMART TECHNOLOGY



#### Half cut cells

With high-precision laser cut cells, the current (I) flowing in each busbar is halved resulting in lower electrical resistance and an increased overall efficiency of about 2.5%



#### Three piece junction box

The unique three piece design lowers series resistance avoids diode heating and enable quicker heat dissipation, which guarantees long-term stable performance and improved power efficiency.



#### Passivated Emitter Rear Cell (PERC)

Higher efficiency is achieved with the option of latest cell technology which captures more wavelengths of light through mirror like reflector behind the solar cell



#### Special four bus bar design

A shorter distance for electrons to travel vastly reduces electrodes resistance and raise in conversion efficiency. Less residual stress, less micro-cracks and hotspot risks.

### HOW IT WORKS

Spark Rapid 120 Cell Series module produces energy even if part of the module is shaded. Whereas if standard module is partially shaded minimum one string will completely stop producing power, this accounts to one third reduction in power generation. Moreover, it can even completely stop generating power if shaded across its breadth. Rapid 120 Cell Series module is split into two parts. Each section of 60 half cut cells generates power on standalone basis but combines again before current exits the module. This structure results in power generation in non-shaded area of the module even if one of the section is partially or completely shaded, resulting in higher overall energy yield as compared to standard module.

# Spark - Rapid 120 Series

upto **17%** EFFICIENCY

**10** YEAR PRODUCT WARRANTY

**25** YEAR LINEAR POWER OUTPUT WARRANTY

(max. degression in performance of 0.7% p.a.)

## TEMPERATURE RATINGS

Nominal operating cell temperature (NOCT)	44.7°C (±2°C)
Temperature coefficient of $P_{MPP}$ (Y)	-0.40 %/°C
Temperature coefficient of $V_{OC}$ (β)	-0.30 %/°C
Temperature coefficient of $I_{SC}$ (α)	+0.04 %/°C

## GENERAL DATA

Cell type	: 120 Half Cut multi-crystalline
Cell Matrix	: 6 strings of 20 cells (156 x 78 mm)
Junction box	: Split (3-part) with bypass diodes, 4mm <sup>2</sup> cable, protection class IP67
Frame	: Anodized aluminum (silver)
Glass	: 3.2 mm solar glass with anti-reflective coating
Connectors	: Multi-Contact MC4 (4 mm <sup>2</sup> )

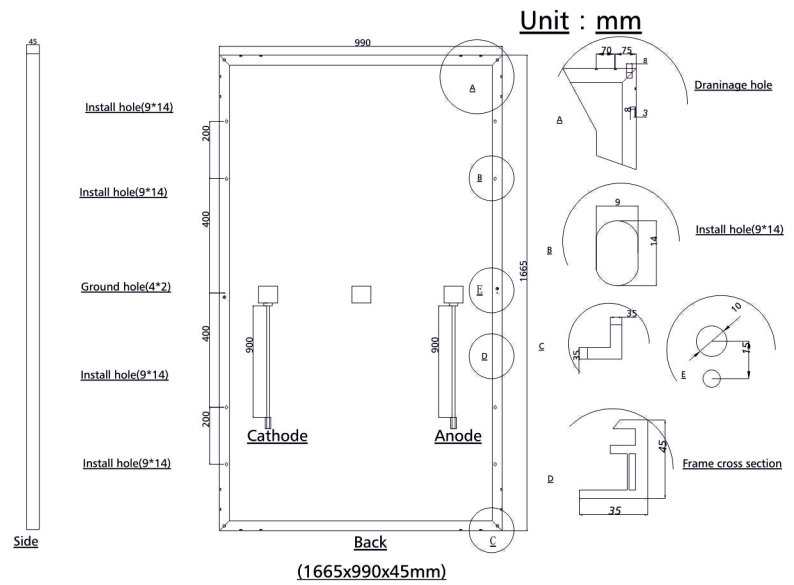
## MAXIMUM RATINGS

Operating temperature (Permitted Module Temperature on Continuous Duty)	: -40 upto +85°C
Maximum system voltage	: 1000 V
Max series fuse rating	: 15 A
Max reverse current	: 15 A
Maximum wind load	: 244 kg/m <sup>2</sup> (2400 Pa)
Maximum snow load	: 550 kg/m <sup>2</sup> (5400 Pa)
Max. hailstone impact (diameter / velocity)	: 255mm /23m/s
Safety Class	: II
Fire Rating	: C

## MECHANICAL SPECIFICATION

Dimensions	: 1665 x 990 x 45 mm
Area	: 1.65 m <sup>2</sup>
Weight	: 19.5 kg (43 lbs)

Note: Specification subject to change without notice. Installation instructions must be followed. See the installation manual or contact technical service department for further information on approved installation. Atleast 97% of nominal power during first year. Thereafter max. degression in performance of 0.7% p.a. See warranty conditions for further details.



## ELECTRICAL DATA @ STC

		Rapid 250	Rapid 265	Rapid 270	Rapid 275	Rapid 280
Nominal Power	- $P_{MPP}$ (Wp)	250	265	270	275	280
Short Circuit Current	- $I_{SC}$ (A)	9.06	9.1	9.14	9.3	9.4
Open Circuit Voltage	- $V_{OC}$ (V)	36.6	38.2	38.4	38.7	39
Nominal Power Current	- $I_{MPP}$ (A)	8.29	8.5	8.65	8.75	8.8
Nominal Power Voltage	- $V_{MPP}$ (V)	30.5	31.2	31.25	31.48	31.84
Panel Efficiency	- (%)	15.2	15.9	16.3	16.6	17.00
Power Tolerance	- (W)	0/+5	0/+5	0/+5	0/+5	0/+5

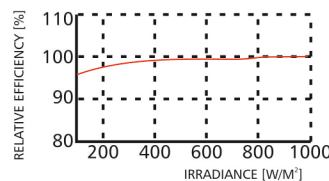
Values at standard test conditions STC (airmass AM 1.5, irradiance 1000 W/m<sup>2</sup>, cell temperature 25°C).

## ELECTRICAL DATA @ NOCT

		Rapid 250	Rapid 265	Rapid 270	Rapid 275	Rapid 280
Nominal Power	- $P_{MPP}$ (Wp)	186	193	198	202	205
Short Circuit Current	- $I_{SC}$ (A)	7.1	7.35	7.39	7.42	7.49
Open Circuit Voltage	- $V_{OC}$ (V)	34.87	34.9	35.5	35.69	36.3
Nominal Power Current	- $I_{MPP}$ (A)	6.7	6.74	6.88	6.96	6.97
Nominal Power Voltage	- $V_{MPP}$ (V)	27.9	28.7	28.8	29.05	29.44

Nominal operating cell temperature NOCT (800 W/m<sup>2</sup>, AM 1.5, windspeed 1 m/s, ambient temperature 20°C). Typical values, actual values may differ

## PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison STC conditions (25 °C, 1000 W/m<sup>2</sup>).

## PACKAGING INFORMATION

Quantity Per Pallet	: 28
Pallets/Container (40'HC)	: 28
Quantity/Container (40'HC)	: 784