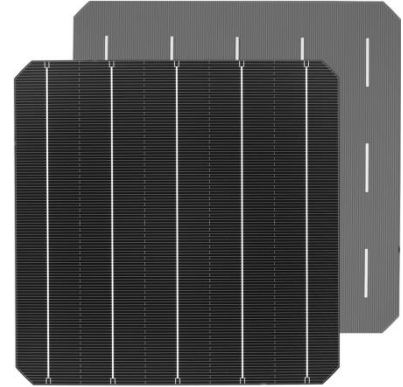
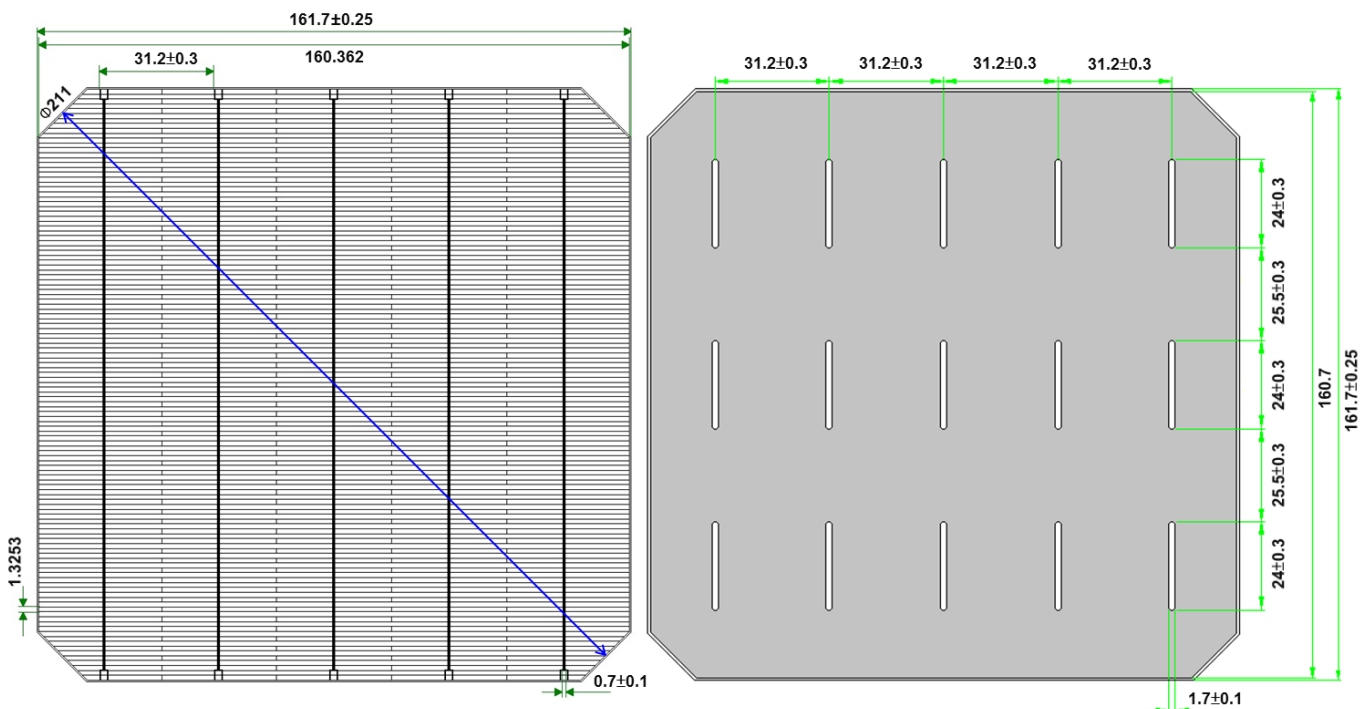


☀ Physical Characteristics

Dimension	161.7 mm x 161.7 mm ± 0.25 mm
Diagonal	211 mm ± 1.0 mm
Thickness(Si)	180 μm ± 20 μm
Front side(-)	Blue silicon nitride anti-reflection coating Five silver bus-bars (0.7 ± 0.1 mm), 122 fingers
Back side(+)	Full-Surface aluminum BSF 5 X 3 soldering pads 1.7mm ± 0.1mm wide Silver / Aluminum bus-bar



☀ Cell Layout



☀ Production and Quality Control

- ❖ 100% PID Resistance.
- ❖ Precision cell efficiency sorting procedures.
- ❖ Reverse current and shunt resistance screening.
- ❖ Stringent criteria for color uniformity and appearance.
- ❖ 100% in-line inspection for optical.



明徽能源

MONO PERC CELL M4 5BB

MING HWEI ENERGY

☀ Features

Creating date: 2019/06/13

Revision status: Ver.01

- ❖ Uniform Color and low breakage rate.
- ❖ Laser doping selective emitter.
- ❖ High conversion efficiencies resulting.
- ❖ Superior output power in any condition.
- ❖ 100% inspected performance of products.
- ❖ All products conform to the regulation of RoHS.
- ❖ Excellent mechanical performance proven by all customers.
- ❖ Regularly monitor product performance and soldering properties.
- ❖ Less power deviation of modules ensured by precise matching of cells, sorted 100% in narrow current classes at constant test voltage.

☀ Electrical Performance

Efficiency Code		221	220	219	218	217	216
Efficiency	Eff(%)	22.10	22.00	21.90	21.80	21.70	21.60
Rated Power	Pmpp(W)	5.707	5.682	5.656	5.630	5.604	5.578
Max Power Voltage	Vmp(V)	0.574	0.573	0.571	0.569	0.569	0.567
Max Power Current	Imp(A)	9.943	9.917	9.906	9.894	8.849	9.837
Open Circuit Voltage	Voc(V)	0.671	0.671	0.670	0.670	0.669	0.668
Short Circuit Current	Isc(A)	10.490	10.481	10.468	10.463	10.457	10.450
Efficiency Code		215	214	213			
Efficiency	Eff(%)	21.50	21.40	21.30			
Rated Power	Pmpp(W)	5.552	5.527	5.501			
Max Power Voltage	Vmp(V)	0.564	0.563	0.561			
Max Power Current	Imp(A)	9.845	9.817	9.805			
Open Circuit Voltage	Voc(V)	0.667	0.665	0.664			
Short Circuit Current	Isc(A)	10.446	10.438	10.424			

*Standard testing conditions(STC): 1000 W/m², AM 1.5, 25 °C. Measuring tolerance: Pmpp(W) ± 1.5% rel.

The measurement of cell is calibrated by Fraunhofer ISE. Product part number = **FBK68**

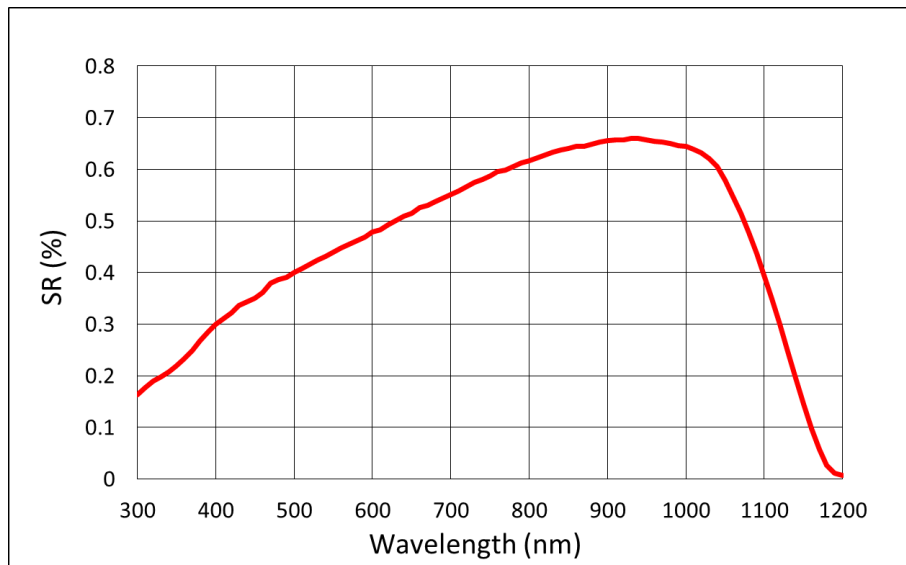
☀ Temperature Coefficients

❖ $V_{oc}(\alpha)$: -0.32 % / °C

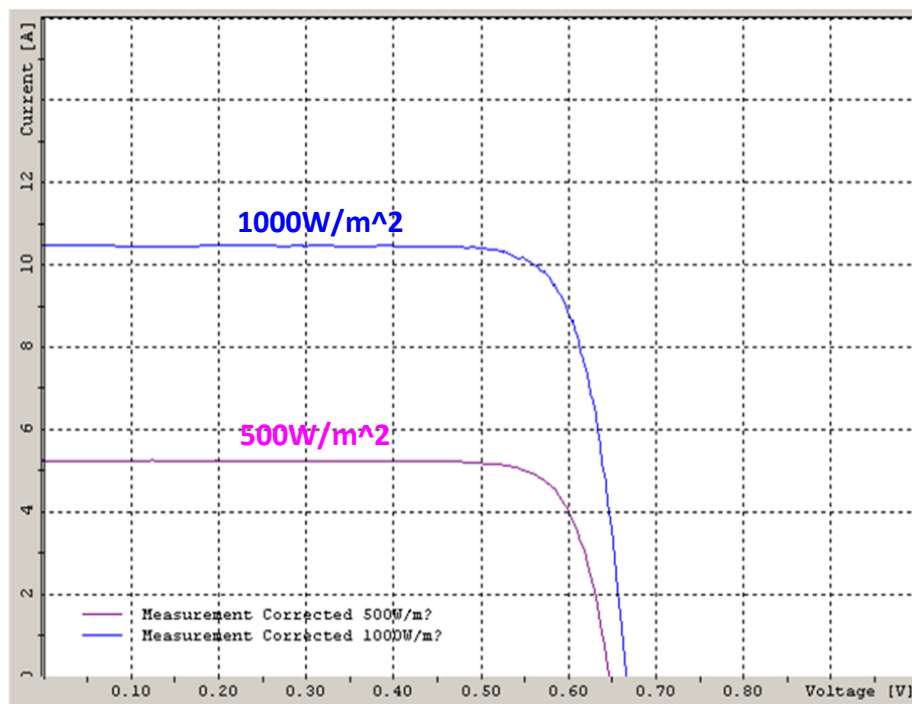
❖ $I_{sc}(\beta)$: 0.05 % / °C

❖ $P_{mp}(\gamma)$: -0.37 % / °C

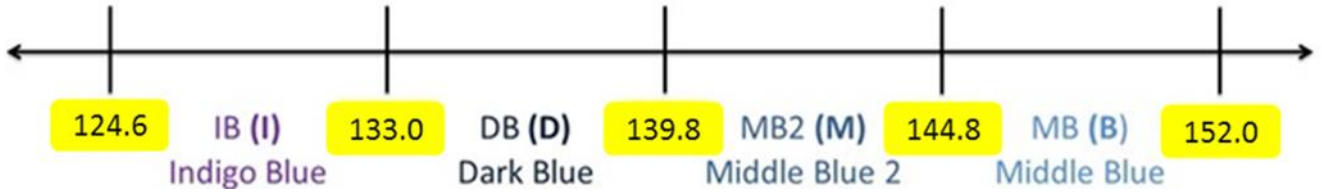
☀ Spectral Response (SR)



☀ IV- Curve



☀ Color Specification



64057 雲林縣斗六市科加路 23 號

No. 23, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan (R.O.C.)



MING HWEI ENERGY

Tel: +886-5-5519968

Fax: +886-5-5519268

E-mail: mhe@mhe.com.tw