



# 明徽能源 MONO PERC CELL M2 4BB

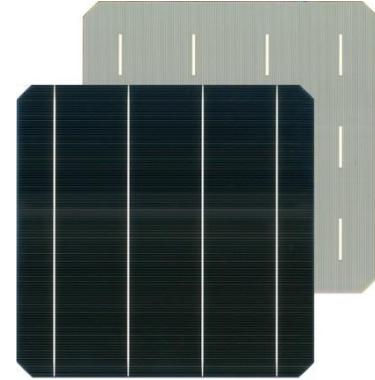
MING HWEI ENERGY

Creating date: 2018/01/18

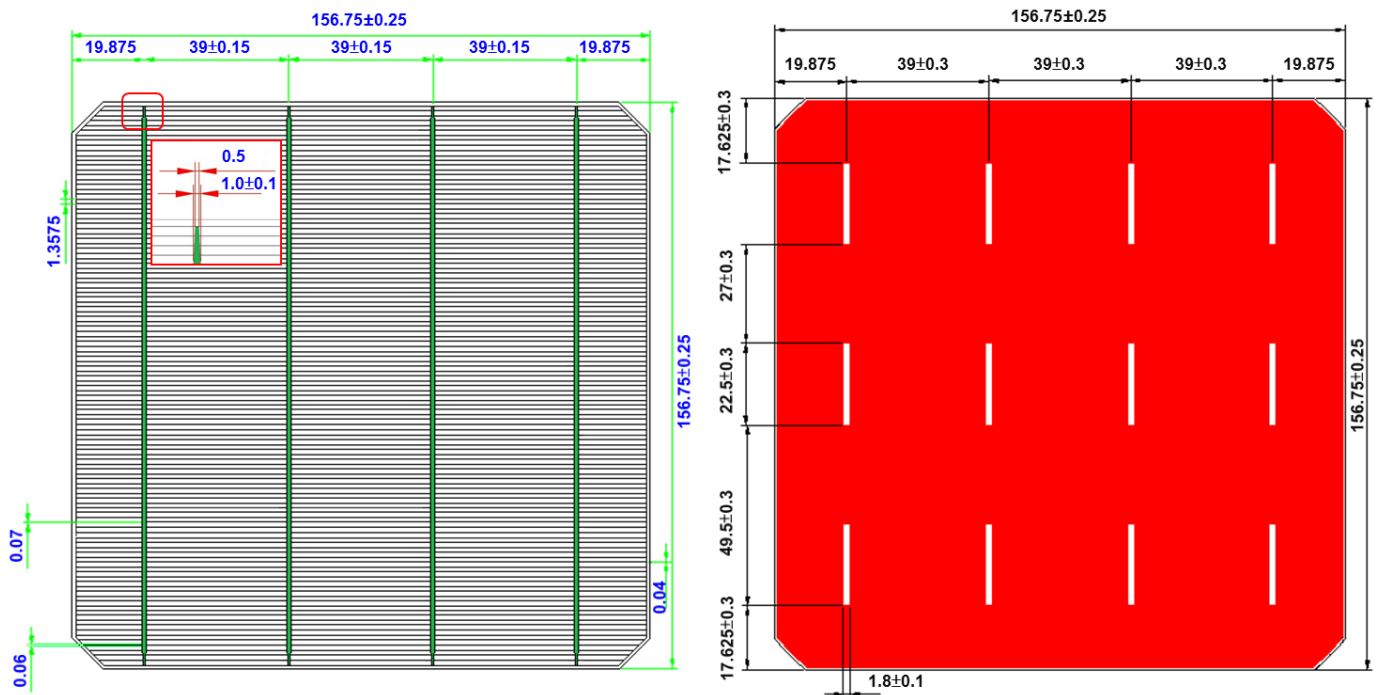
Revision status: Ver.07

## Physical Characteristics

Dimension	156.75 mm x 156.75 mm $\pm$ 0.25 mm
Diagonal	210 mm $\pm$ 1.0 mm
Thickness(Si)	180 $\mu$ m $\pm$ 20 $\mu$ m, 200 $\mu$ m $\pm$ 20 $\mu$ m
Front side(-)	Blue silicon nitride anti-reflection coating 4 silver bus-bars (1.0 $\pm$ 0.1 mm), 115 fingers
Back side(+)	Full-Surface aluminum BSF, 4 x 3 soldering pads 1.8mm $\pm$ 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 M2 4BB

MING HWEI ENERGY

## ☀ Features

Creating date: 2018/01/18

Revision status: Ver.07

- ❖ Uniform Color.
- ❖ Low breakage rate.
- ❖ 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		218	217	216	215	214	213
Efficiency	Eff(%)	21.80	21.70	21.60	21.50	21.40	21.30
Rated Power	Pmpp(W)	5.326	5.302	5.277	5.253	5.228	5.204
Max Power Voltage	Vmp(V)	0.574	0.573	0.572	0.571	0.569	0.567
Max Power Current	Imp(A)	9.279	9.253	9.226	9.201	9.187	9.178
Open Circuit Voltage	Voc(V)	0.667	0.666	0.664	0.664	0.663	0.661
Short Circuit Current	Isc(A)	9.771	9.752	9.744	9.706	9.685	9.674
Efficiency Code		212	211				
Efficiency	Eff(%)	21.20	21.10				
Rated Power	Pmpp(W)	5.179	5.155				
Max Power Voltage	Vmp(V)	0.566	0.564				
Max Power Current	Imp(A)	9.151	9.140				
Open Circuit Voltage	Voc(V)	0.660	0.658				
Short Circuit Current	Isc(A)	9.661	9.647				

\*Standard testing conditions(STC): 1000 W/m<sup>2</sup>, AM 1.5, 25 °C. Measuring tolerance: Pmpp(W) ± 1.5% rel.

The measurement of cell is calibrated by Fraunhofer ISE. Product part number = **MBB56, MBB57**



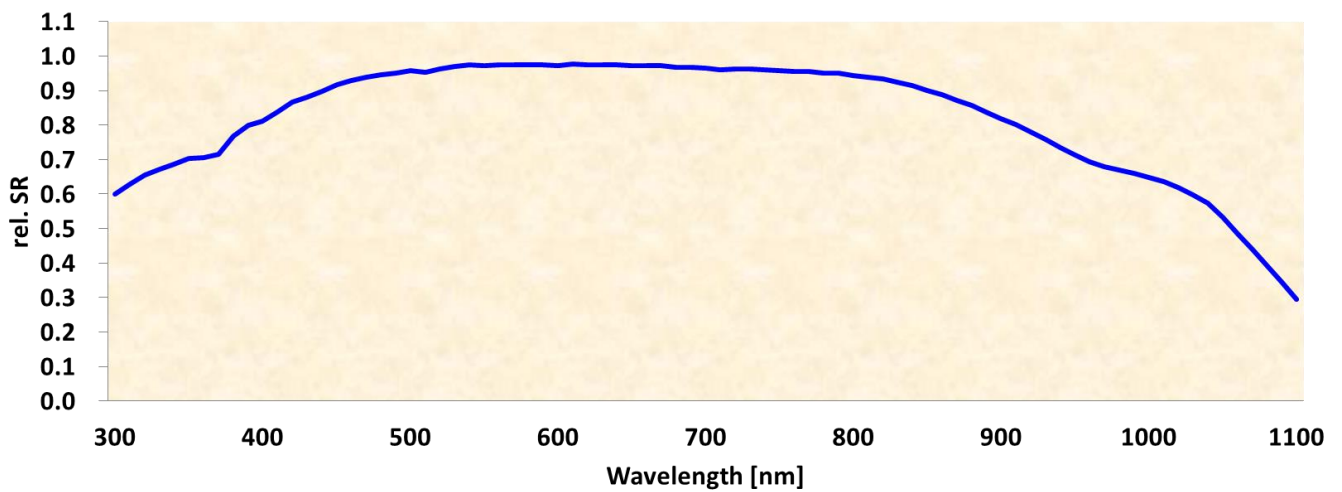
## ☀ Temperature Coefficients

❖  $V_{oc}(\alpha)$  : -0.32 % / °C

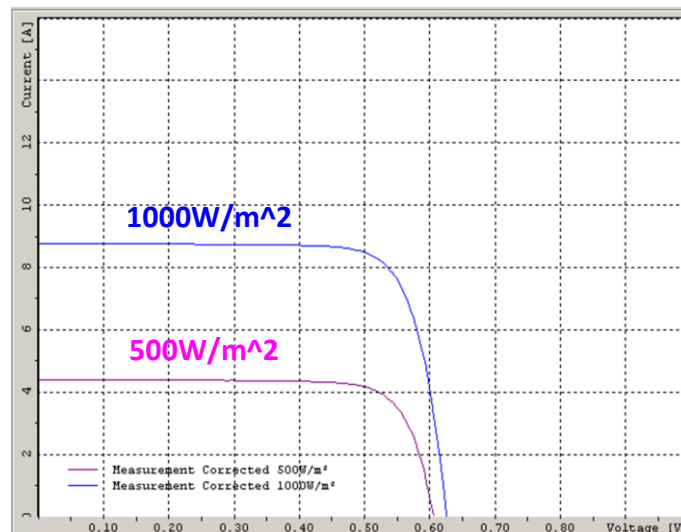
❖  $I_{sc}(\beta)$  : 0.05 % / °C

❖  $P_{mp}(\gamma)$  : -0.37 % / °C

## ☀ Spectral Response (SR)



## ☀ IV- Curve





# 明徽能源

# MONO PERC CELL M2 4BB

MING HWEI ENERGY

Creating date: 2018/01/18

Revision status: Ver.07

## ☀ 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](mailto:mhe@mhe.com.tw)