

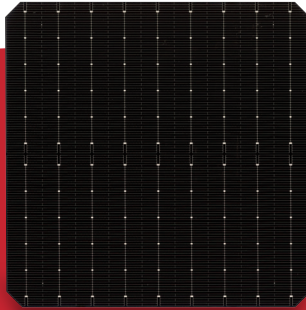
V-Cell

Halfcut Series



TSSBM

Mono c-Si Solar Cell
(Bi-Facial)



Physical Characteristics

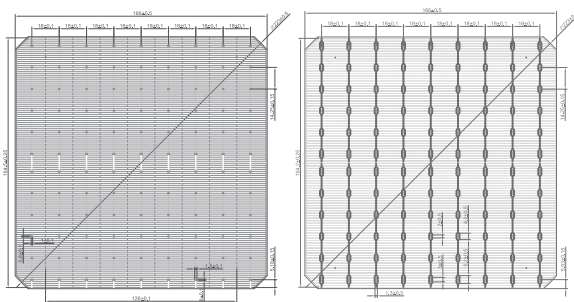
Dimensions	166mm X 166mm ± 0.5mm
Diagonal	223mm± 0.5mm
Thickness(Si)	170μm ± 50μm
Front(-)	Alkaline texturized surface with silicon nitride anti-reflecting coating 9 X 0.08mm ± 0.05mm bus bars Distance between bus bars : 18mm
Back(+)	Local aluminum back surface field 9 X12 soldering pads, 1.3mm±0.3mm wide bus bars Distance between bus bars : 18mm

Features

- High Cell-To- Module ratio through precise cell conversion efficiency sorting, classified efficiency grade by both minimum power and current.
- Excellent electrical long-term stability and reliability by using of best raw materials and through strict quality inspection control.
- Low breakage rate by using high qualified and stable wafers.
- High quality homogeneous appearance by sorting into defined color classes.
- 100% screened for reverse current and shunt resistance.
- Excellent passivation quality of the rear side compared to the traditional solar cell is clearly visible in the long wavelength regime.
- The best solution for PV module with above 360W outputs.

Quality Control and Professional Service

- Regular calibration of test equipment using Fraunhofer ISE reference cell.
- Environmental friendly due to REACH-SVHC and RoHS compliances.
- Professional on-site service and support for module certification.
- Regular light source AAA class calibration for stable conversion efficiency.
- Lowest LID by periodic monitoring and superior wafer incoming control.



Electrical Characteristics

Efficiency Code		229	228	227	226	225	224	223	222	221	220	219
Efficiency	Eff(%)	22.90	22.80	22.70	22.60	22.50	22.40	22.30	22.20	22.10	22.00	21.90
Power	Pmpp(W)	6.28	6.25	6.22	6.20	6.17	6.14	6.11	6.09	6.06	6.03	6.00
Max. Power Current	I _{mp} (A)	10.543	10.510	10.494	10.478	10.463	10.447	10.431	10.415	10.399	10.383	10.367
Short Circuit Current	I _{sc} (A)	11.249	11.235	11.216	11.210	11.198	11.195	11.194	11.180	11.173	11.153	11.148
Max. Power Voltage	V _{mp} (V)	0.596	0.595	0.593	0.592	0.590	0.588	0.586	0.585	0.583	0.581	0.579
Open Circuit Voltage	V _{oc} (V)	0.690	0.689	0.688	0.686	0.685	0.683	0.682	0.681	0.680	0.680	0.678

Standard test condition: AM1.5, 1000W/m², 25°C
Average accuracy of all tests is +/-1.5% rel.

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Temperature Coefficients

Current Temperature Coefficient	$\alpha(I_{SC})$	0.0414%/K
Voltage Temperature Coefficient	$\beta(V_{OC})$	-0.2847%/K
Power Temperature Coefficient	$\gamma(P_{max})$	-0.3451%/K

Standard test condition: AM1.5, 1000W/m², 25°C

Processing Recommendations

Solder Joint

Copper ribbons coated with 15~25µm:
62%Sn/36%Pb/2%Ag or 60%Sn/40%Pb

Standard test condition: AM1.5, 1000W/m², 25°C

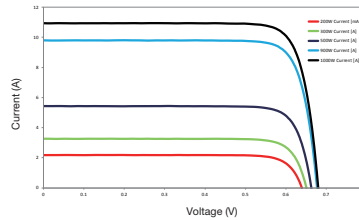
Solderability

Peel Strength Minimum

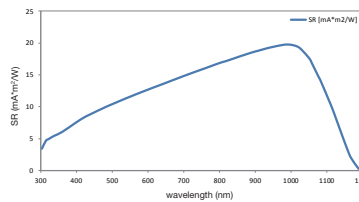
> 1.25 N/mm

Soldering results may differ due to different flux, ribbons, soldering methods, and parameters.

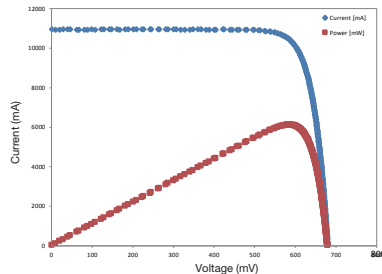
Typical Current-Voltage Curve



Typical Spectral Response



Typical IV-Power Curve

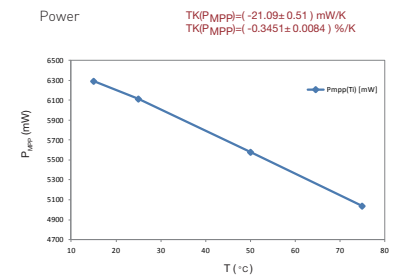
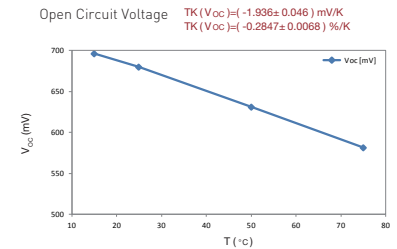
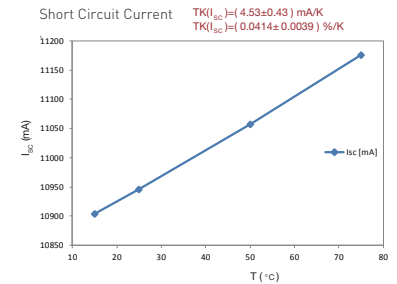


* All data measured under standard testing condition (STC):
1000 W/m², AM 1.5, 25 °C.

* All figures bear ±2% tolerance.

* Reference cell are under testing by Fraunhofer ISE in Freiburg.

Calculated Temperature Coefficients



TSEC Corporation

Taipei Headquarters

8F, No.225, Sec. 3, Beixin Rd., Xindian Dist.,
New Taipei City 23143, Taiwan, R.O.C

t 886 2 2912 2199 f 886 2 2917 5399 m sales@tsecpv.com

Hsinchu Plant

No.85, Guangfu N. Rd., Hukou Township, Hsinchu County 30351,
Taiwan, R.O.C. (Hsinchu Industrial Park)

t 886 3 696 0707 f 886 3 696 0708

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and revision of datasheet.