

156-PP-5 Ver.2 Multicrystalline Cells

Dimension	156.75mm × 156.75mm ± 0.25mm
Thickness(Si)	200μm ± 40μm
Front	Silicon nitride antireflection coatings Wide/narrow alternative silver busbar
Back	Full-surface aluminum back-surface field 1.5mm±0.1mm (silver/aluminum) soldering pads

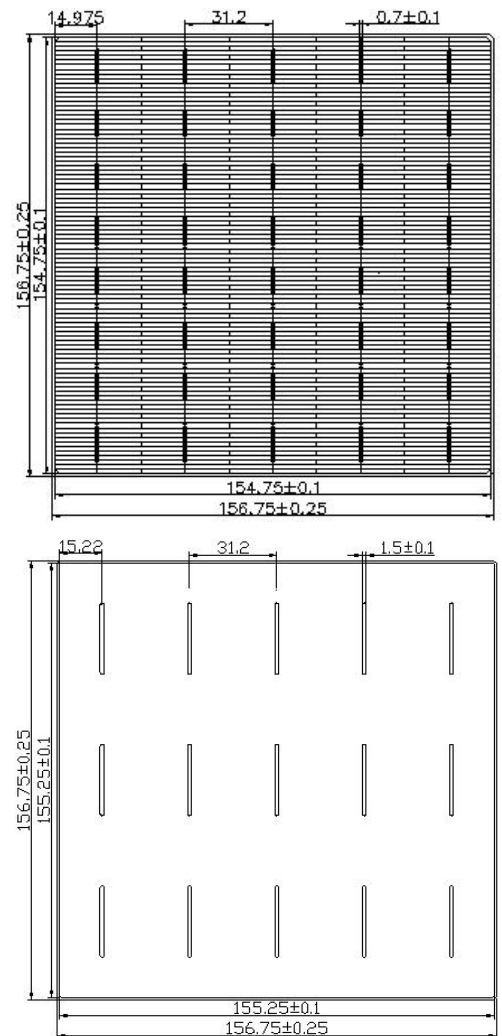
❖ Features

- High conversion efficiency with high reliability
- Uniform cell performance with stable process control
- Low mismatch of cell performance during encapsulation
- Excellent performance under low lighting
- Low hot spot effect
- Low degradation under light exposure

❖ Production and Quality Control

- Proper inspection through incoming production, outgoing and packaging
- Efficiency tested within ± 0.2% accuracy
- 100% checked for reverse current and visual appearance
- Reference cell calibrated from Fraunhofer

❖ Electrical Performance



Efficiency Code (156.75)	Unit	192	191	190	189	188	187	186	185
Efficiency	Eff (%)	19.2	19.1	19	18.9	18.8	18.7	18.6	18.5
Power	Ppm (W)	4.714	4.690	4.667	4.643	4.619	4.596	4.571	4.546
Short Circuit Current	Isc (A)	9.154	9.136	9.116	9.091	9.061	9.033	9.009	8.986
Open Circuit Voltage	Voc (V)	0.636	0.635	0.634	0.633	0.632	0.631	0.631	0.63
Max. Power Current	Ipm (A)	8.705	8.677	8.652	8.629	8.603	8.564	8.536	8.504
Max. Power Voltage	Vpm (V)	0.542	0.541	0.539	0.538	0.537	0.537	0.536	0.535

Efficiency Code (156.75)	Unit	184	183	182	181	180	179	178	
Efficiency	Eff (%)	18.4	18.3	18.2	18.1	18	17.9	17.8	
Power	Ppm (W)	4.522	4.498	4.473	4.448	4.422	4.401	4.373	
Short Circuit Current	Isc (A)	8.966	8.955	8.944	8.927	8.917	8.905	8.894	
Open Circuit Voltage	Voc (V)	0.63	0.63	0.629	0.628	0.627	0.626	0.625	
Max. Power Current	Ipm (A)	8.478	8.466	8.448	8.421	8.403	8.390	8.382	
Max. Power Voltage	Vpm (V)	0.533	0.531	0.529	0.528	0.526	0.525	0.523	

Standard test conditions: AM 1.5, 1000W/m²

❖ Temperature Coefficients

Current Temperature Coefficient	$\alpha(I_{sc})$	0.02%/K
Voltage Temperature Coefficient	$\beta(V_{oc})$	-0.32%/K
Power Temperature Coefficient	$\gamma(P_{max})$	-0.40%/K

Standard test conditions: AM 1.5, 1000W/m²

❖ Spectral Response (SR)

❖ Solderability

Peal Strength Minimum	>1.0N/mm
-----------------------	----------

The above can be obtained by soldering iron at 300°C~400°C with Yingli regular flux and ribbon. However, this may vary due to different flux, ribbons, soldering methods and parameters used by the customers.

❖ IV curve

❖ Light Intensity Dependence

Light Intensity Dependence		
Intensity W/m ²	Vpm	Ipm
1000	100%	100%
800	99.06%	79.99%
600	97.87%	59.99%
400	96.17%	40.00%
200	93.27%	20.00%

