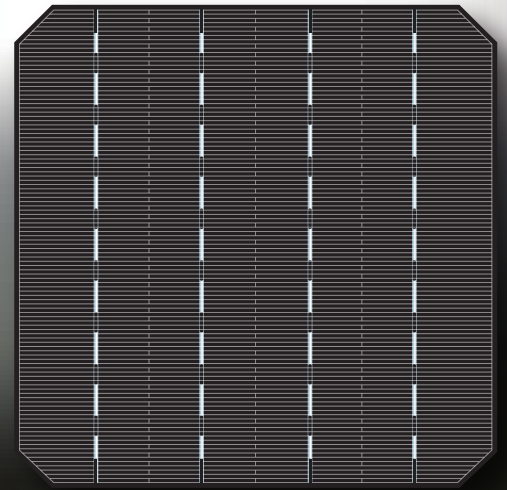




SAPPHIRE Series

S-156-4 ver.F

Monocrystalline Solar Cell



Features

- High-efficiency solar cells with an anisotropically etched surface
- Silicon nitride anti-reflection coating
- Silver front contact bars and full surface aluminum back contact field

Performance and Quality

- Proper handling from incoming inspection through production, outgoing inspection and packaging
- 100% checked for reverse current and visual appearance
- Calibrated against Fraunhofer ISE
- RoHS compliance
- **100% PID Resistance**

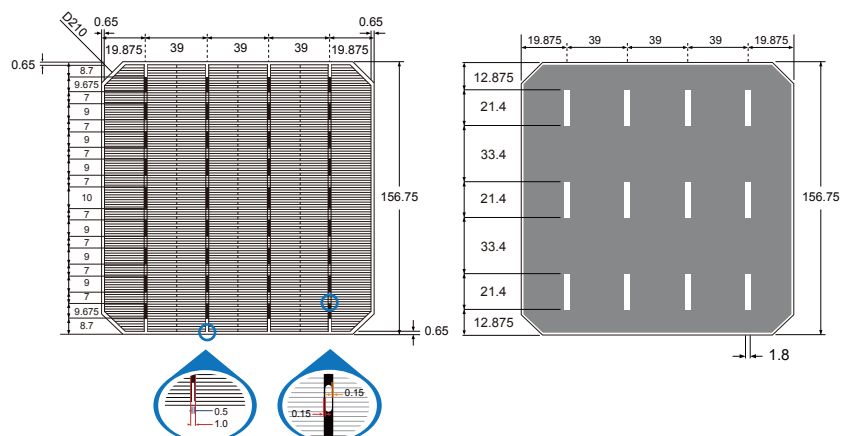
Packaging

- Minimize the risk of broken cells with special design
- Label with product information

Physical Characteristics

Dimension	156.75 mm x 156.75 mm ± 0.25 mm
Diagonal	210 mm ± 0.5 mm
Thickness (si)	180 μm - 20 / + 30 μm 200 μm ± 30 μm
Front Side (-)	Silicon nitride anti-reflection coating 1.0 mm silver busbar
Back Side (+)	Full surface aluminum back surface field 1.8 mm (silver) discontinuous soldering pads

Cell Layout





S-156-4 ver.F

Monocrystalline Solar Cell



Solartech
Energy Corp.

Electrical Characteristics

Class	Efficiency Range (%)	Rated Power (Wp)	*Maximum Power Current (A)	*Short Circuit Current (A)	*Maximum Power Voltage (V)	*Open Circuit Voltage (V)
201	20.1-20.2	4.991	9.044	9.575	0.545	0.651
202	20.2-20.3	4.935	9.059	9.590	0.547	0.652
203	20.3-20.4	4.960	9.073	9.604	0.549	0.653
204	20.4-20.5	4.984	9.088	9.618	0.550	0.655
205	20.5-20.6	5.009	9.102	9.633	0.552	0.656
206	20.6-20.7	5.033	9.117	9.647	0.554	0.657
207	20.7-20.8	5.057	9.131	9.662	0.555	0.659
208	20.8-20.9	5.082	9.142	9.677	0.557	0.660
209	20.9-21.0	5.106	9.152	9.691	0.560	0.661
210	21.0-21.1	5.131	9.163	9.700	0.562	0.663
211	21.1-21.2	5.155	9.175	9.710	0.563	0.664
212	21.2-21.3	5.180	9.189	9.720	0.565	0.666
213	21.3-21.4	5.204	9.203	9.730	0.566	0.667
214	21.4-21.5	5.228	9.223	9.749	0.568	0.668
215	21.5-21.6	5.253	9.248	9.778	0.569	0.669

Test condition : 1000 W / m², AM 1.5, 25°C Power measuring tolerance: ±1.5% rel.

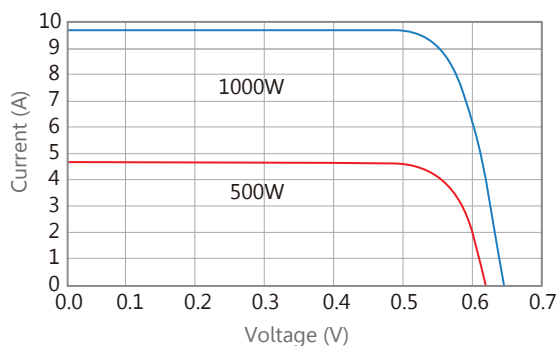
Temperature coefficients

Current (%/K)	0.0398
Voltage (%/K)	-0.3099
Power (%/K)	-0.4070

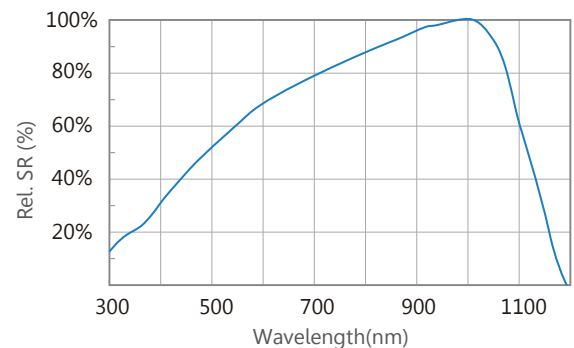
Light Intensity Dependence

Intensity (W/m ²)	V _{mpp} (%)	I _{mpp} (%)
1000	100.0	100.0
900	99.7	90.0
500	97.6	49.9
300	95.5	29.9
200	93.7	19.8

IV-Curve



Spectral Response



Solartech Energy Corp.



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