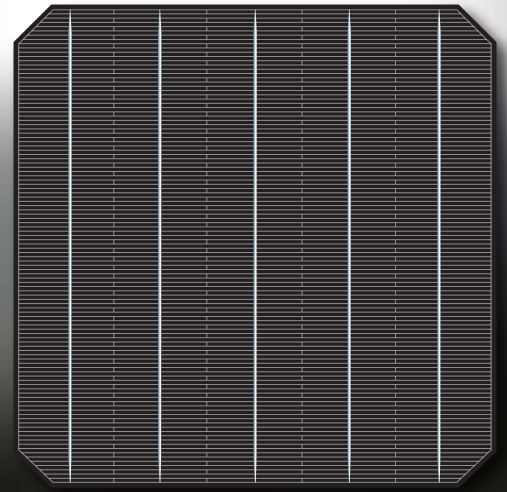


SAPPHIRE Series

S-156-5 ver.D

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**

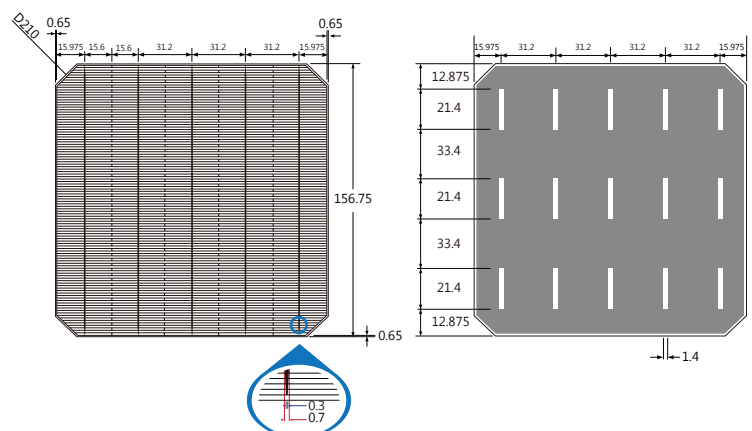
Packaging

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

Physical Characteristics

Dimension	156.75 mm x 156.75 mm \pm 0.25 mm
Diagonal	210 mm \pm 0.5 mm
Thickness (si)	180 μ m - 20 / + 30 μ m 200 μ m \pm 30 μ m
Front Side (-)	Silicon nitride anti-reflection coating 0.7 mm silver busbar
Back Side (+)	Full surface aluminum back surface field 1.4 mm (silver) discontinuous soldering pads

Cell Layout





S-156-5 ver.D

Monocrystalline Solar Cell



Electrical Characteristics

Class	Efficiency Range (%)	Rated Power (Wp)	*Maximum Power Current (A)	*Short Circuit Current (A)	*Maximum Power Voltage (V)	*Open Circuit Voltage (V)
209	20.9-21.0	5.106	9.157	9.743	0.559	0.662
210	21.0-21.1	5.131	9.162	9.744	0.561	0.663
211	21.1-21.2	5.155	9.188	9.745	0.563	0.664
212	21.2-21.3	5.180	9.195	9.747	0.565	0.665
213	21.3-21.4	5.204	9.200	9.757	0.567	0.666
214	21.4-21.5	5.228	9.213	9.765	0.569	0.667
215	21.5-21.6	5.253	9.235	9.780	0.570	0.668
216	21.6-21.7	5.277	9.247	9.785	0.572	0.669
217	21.7-21.8	5.302	9.261	9.792	0.573	0.670
218	21.8-21.9	5.326	9.274	9.799	0.575	0.671

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

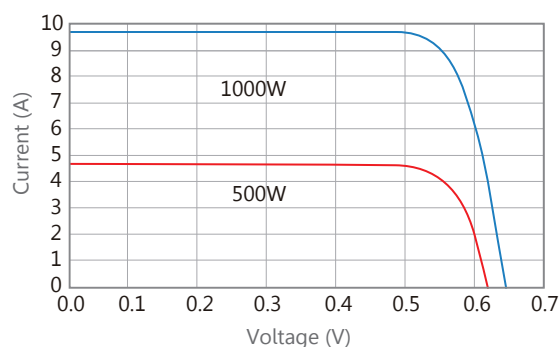
Temperature coefficients

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

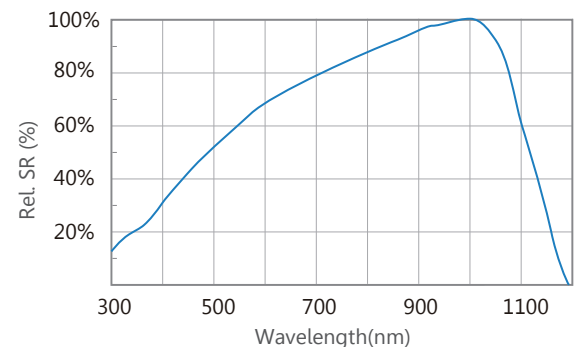
Light Intensity Dependence

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.



Taipei Office
8F., No.760, Sec. 4, Bade Rd., Songshan Dist., Taipei 105, Taiwan
Tel: +886-2-21712388 Fax: +886-2-21712387
E-mail: sales@solartech-energy.com

Hsinchu HQ & Fab
No.16, Guangfu N. Rd., Hsinchu Industrial Park, Hukou, Hsinchu 303, Taiwan
Tel: +886-3-5276888 Fax: +886-3-5276866
Web: www.solartech-energy.com