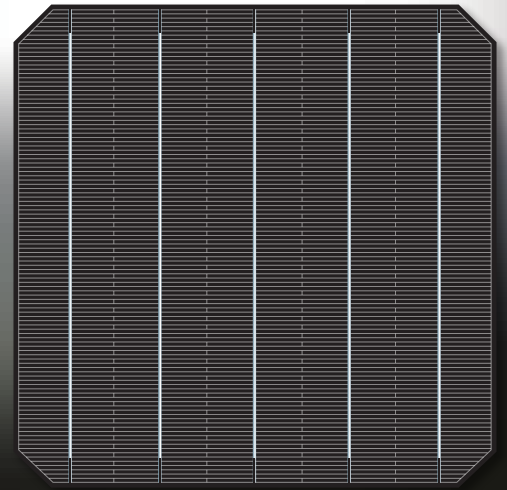




SAPPHIRE Series

S-156-5 ver.B

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**

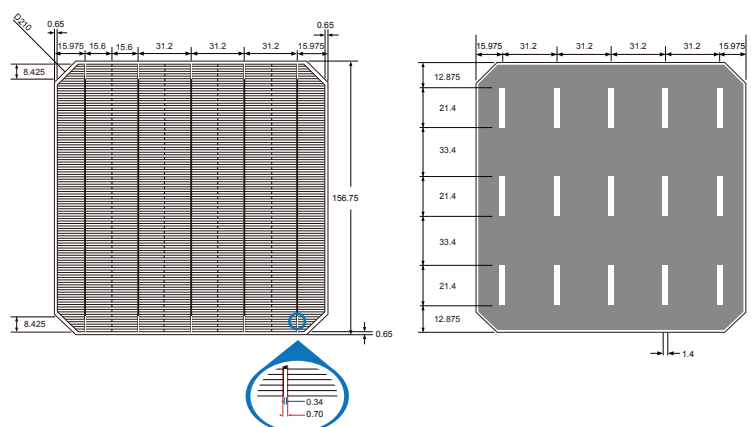
Packaging

- 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 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.B

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) |
|-------|----------------------|------------------|----------------------------|----------------------------|----------------------------|---------------------------|
| 209 | 20.9-21.0 | 5.106 | 9.172 | 9.719 | 0.559 | 0.662 |
| 210 | 21.0-21.1 | 5.131 | 9.180 | 9.728 | 0.561 | 0.663 |
| 211 | 21.1-21.2 | 5.155 | 9.188 | 9.737 | 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 | 9.221 | 9.774 | 0.571 | 0.668 |
| 216 | 21.6-21.7 | 5.277 | 9.230 | 9.783 | 0.573 | 0.669 |

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

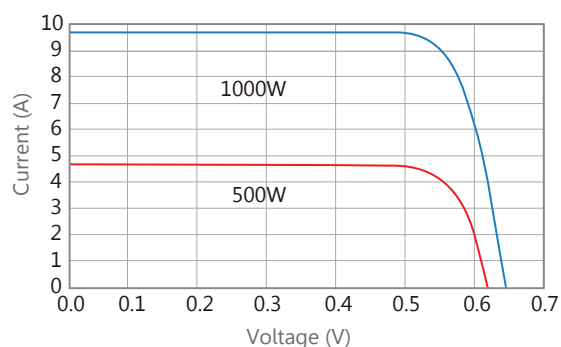
Temperature coefficients

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

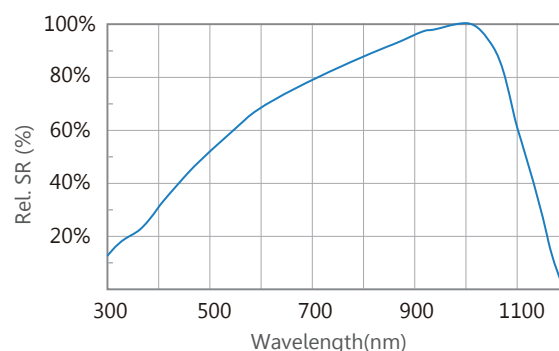
Light Intensity Dependence

| 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.



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