

220

235 240 245

# **ELECTRICAL SPECIFICATIONS**

| STC rated output (Pmpp)                              | 220 Wp                                  | 225 Wp     | 230 \ | Wp                                         | 235 Wp                      | 240 Wp   | 245 Wp   | 250 Wp   |
|------------------------------------------------------|-----------------------------------------|------------|-------|--------------------------------------------|-----------------------------|----------|----------|----------|
| PTC rated output                                     | 199.9 Wp                                | 204.6 Wp   | 209.2 | 2 Wp                                       | 213.9 Wp                    | 218.5 Wp | 223.2 Wp | 227.9 Wp |
| Standard sorted output                               |                                         |            |       | (Pmpp + 2.5 Wp) > Prlash ≥ (Pmpp - 2.5 Wp) |                             |          |          |          |
| Measurement Tolerance                                | +/- 3%                                  | +/- 3%     | +/- 3 | %                                          | +/- 3%                      | +/- 3%   | +/- 3%   | +/- 3%   |
| Warranted power output STC $(P_{mpp min})$           | 217.5 Wp                                | 222.5 Wp   | 227.5 | 5 Wp                                       | 232.5 Wp                    | 237.5 Wp | 242.5 Wp | 247.5 Wp |
| Rated voltage (Vmpp) at STC                          | 28.02 V                                 | 28.40 V    | 28.78 | 8 V                                        | 29.16 V                     | 29.54 V  | 29.92 V  | 30.30 V  |
| Rated current ( $I_{mpp}$ ) at STC                   | 7.86 A                                  | 7.92 A     | 7.99  | A                                          | 8.06 A                      | 8.13 A   | 8.20 A   | 8.27 A   |
| Open circuit voltage ( $V_{oc}$ ) at STC             | 36.92 V                                 | 37.14 V    | 37.3  | 5 V                                        | 37.56 V                     | 37.77 V  | 37.98 V  | 38.19 V  |
| Short circuit current ( $I_{sc}$ ) at STC            | 8.46 A                                  | 8.49 A     | 8.53  | A                                          | 8.56 A                      | 8.59 A   | 8.62 A   | 8.65 A   |
| Module Efficiency                                    | 13.4%                                   | 13.7%      | 14.0  | %                                          | 14.3%                       | 14.6%    | 14.9%    | 15.2%    |
| Rated output (Pmpp) at NOCT                          | 165.0 Wp                                | 168.8 Wp   | 172.5 | 5 Wp                                       | 176.3 Wp                    | 180.0 Wp | 183.8 Wp | 187.5 Wp |
| Rated voltage ( $V_{mpp}$ ) at NOCT                  | 25.36 V                                 | 25.74 V    | 26.08 | 8 V                                        | 26.42 V                     | 26.75 V  | 27.06 V  | 27.37 V  |
| Rated current (Impp) at NOCT                         | 6.51 A                                  | 6.56 A     | 6.61  | A                                          | 6.67 A                      | 6.73 A   | 6.79 A   | 6.85 A   |
| Open circuit voltage (V $_{oc}$ ) at NOCT            | 33.73 V                                 | 33.93 V    | 34.12 | 2 V                                        | 34.31 V                     | 34.50 V  | 34.70 V  | 34.89 V  |
| Short circuit current ( $I_{sc}$ ) at NOCT           | 7.12 A                                  | 7.15 A     | 7.18  | A                                          | 7.21 A                      | 7.23 A   | 7.26 A   | 7.28A    |
| Temperature coefficient $\alpha$ (P <sub>mpp</sub> ) | - 0.469                                 | - 0.469%/K |       | Maxim                                      | Maximum system voltage SCII |          | 1000 Vdc |          |
| Termperature coefficient $\beta$ (Isc)               | + 0.052%/K<br>- 0.008%/K<br>- 0.463 %/K |            |       | Maximum system voltage NEC                 |                             | 600 Vdc  |          |          |
| Temperature coefficient $\delta$ (Impp)              |                                         |            |       | Numb                                       | er of Diodes                |          | 6        |          |
| Temperature coefficient ε (V <sub>mpp</sub> )        |                                         |            |       | Max. series fuse rating                    |                             | 15 A     |          |          |
| Termperature coefficient $\times$ (V <sub>oc</sub> ) | - 0.344                                 | %/K        |       |                                            |                             |          |          |          |
| Normal Operating Cell Temperature (NOCT)             | 43 <i>°</i> C                           |            |       |                                            |                             |          |          |          |





# **ASTRONERGY**

#### **QUALIFICATION AND WARRANTIES**

| Product standard                                             | IEC 61215, 61730 / UL 1703 |
|--------------------------------------------------------------|----------------------------|
| Extended product warranty                                    | 5 years                    |
| Output warranty of 90% performance $P_{mpp}$ (STC)           | 10 years                   |
| Output warranty of 80% performance $P_{mpp}\left(STC\right)$ | 25 years                   |
|                                                              |                            |

1652 x 994 x 45 mm

65.04 x 39.13 x 1.77 inch

Aluminum, silver anodized

Glass / EVA / Backsheet (white)

#### **CELL TECHNOLOGY**

| Cell type                          | polycrystalline |
|------------------------------------|-----------------|
| Number of cells / cell arrangement | 60 / 6 x 10     |
| Cells Dimension                    | 6"              |
|                                    |                 |

#### **MECHANICAL SPECIFICATIONS**

Outer dimensions (L  $\times$  W  $\times$  H)

Frame technology

Module compound

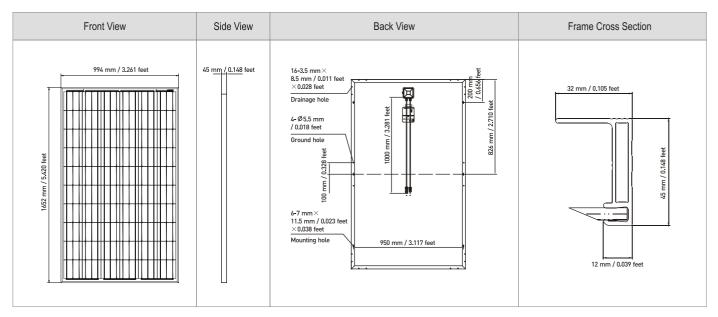
## **MISCELLANEOUS**

| Packing unit           | 22 modules        |
|------------------------|-------------------|
| Weight of packing unit | 480 kg / 1056 lbs |

## ARTICLE NUMBER (ner nanel)

| Weight (module only) 20          | 0 kg / 44.0 lbs              | ARTICLE NUMBER (per panel) |                  |                 |
|----------------------------------|------------------------------|----------------------------|------------------|-----------------|
| Front glass thickness 3.         | .2 mm / 0.13 inch            | Power Class                | Article No.(IEC) | Article No.(UL) |
| Junction Box IP rating IP        | P 65                         | 220 Wp                     | 200016           | 200023          |
| Cable length / diameter (UL) 10  | 000 mm / 39.37 inch / 12 AWG | 225 Wp                     | 200017           | 200024          |
| Cable length / diameter (IEC) 10 | 000 mm / 39.37 inch / 4 mm²  | 230 Wp                     | 200018           | 200025          |
| Maximum load capacity 54         | 400 Pa                       | 235 Wp                     | 200019           | 200026          |
| Fire Class C                     |                              | 240 Wp                     | 200020           | 200027          |
| Connector type (UL) M            | lulti Contact Type 4         | 245 Wp                     | 200021           | 200028          |
| Connector type (TUV) M           | IC Type 4 compatible         | 250 Wp                     | 200022           | 200029          |

## MODULE DIMENSION DETAILS



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