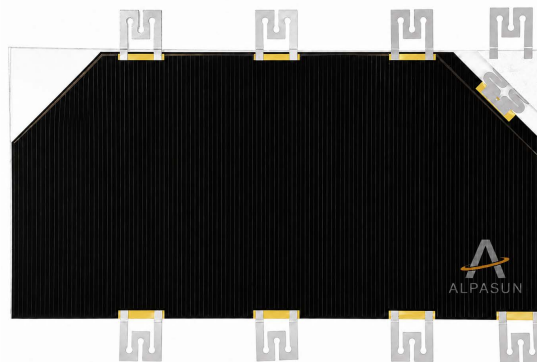
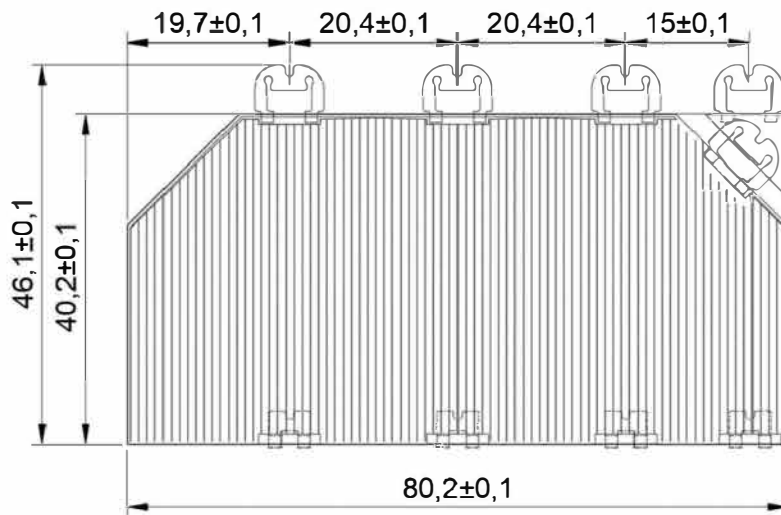


## Flexible Triple Junction GaAs Solar Cell Assembly (40mm×80mm)



### Features

- ◆ Fabricated on germanium substrate by MOCVD epitaxial growth, semiconductor device process and radiation-resistant packaging;
- ◆ GaInP<sub>2</sub>/GaAs/InGaAs (GaInP<sub>2</sub>/GaAs also available) on metal substrate triple junction solar cell assembly;
- ◆ Average Eff ≥ 30.2% (25 °C, AMO 1353 W/m<sup>2</sup>)
- ◆ Reinforced with radiation-resistant coverglass, external Si diode protection, and interconnect soldering of kovar silver-plated components, providing excellent durability to the space environment.

### Contact information

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## Design and Mechanical Data

|                                        |                                                                                 |
|----------------------------------------|---------------------------------------------------------------------------------|
| <b>Base Material</b>                   | GaInP/GaAs/InGaAs on Metal substrate                                            |
| <b>Contact Metallization Thickness</b> | 4~5 $\mu$ m(Ag)                                                                 |
| <b>AR-coating</b>                      | TiO <sub>x</sub> /Al <sub>2</sub> O <sub>3</sub>                                |
| <b>Cell Dimensions</b>                 | (80.2 $\pm$ 0.1mm) $\times$ (40.2 $\pm$ 0.1mm)                                  |
| <b>Cell Area</b>                       | 30.15cm <sup>2</sup>                                                            |
| <b>Areal density</b>                   | $\leq$ 25 mg/cm <sup>2</sup>                                                    |
| <b>Thickness</b>                       | 0.22 $\pm$ 0.03mm                                                               |
| <b>Coverglass thickness</b>            | 100 $\pm$ 20 $\mu$ m                                                            |
| <b>Interconnects</b>                   | kovar, silver coated                                                            |
| <b>Interconnector thickness</b>        | 25 $\mu$ m $\pm$ 4 $\mu$ m                                                      |
| <b>Pull Test</b>                       | $\geq$ 0.83N/mm <sup>2</sup> with 25 $\mu$ m kovar/Ag stripes by pulling at 45° |
| <b>Bypass protection</b>               | External Si diode                                                               |

## Electrical Data

| Data                                    | BOL  | 1.0E+14 | 2.0E+14 | 5.0E+14 | 1.0E+15 |
|-----------------------------------------|------|---------|---------|---------|---------|
| <b>Open Circuit V<sub>oc</sub>(mV)</b>  | 3000 | 2838    | 2836    | 2789    | 2706    |
| <b>Short Circuit I<sub>sc</sub>(mA)</b> | 497  | 496     | 495     | 494     | 486     |
| <b>V<sub>mp</sub> @Max. Power (mV)</b>  | 2600 | 2465    | 2459    | 2428    | 2340    |
| <b>I<sub>mp</sub> @Max. Power (mA)</b>  | 476  | 474     | 473     | 472     | 464     |
| <b>Fill Factor FF (%)</b>               | 85   | 84.0    | 84.0    | 83.0    | 84.0    |
| <b>Average Efficiency (%)</b>           | 30.2 | 29.0    | 28.7    | 27.8    | 25.7    |

## Bypass Diode

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| <b>Forward Voltage V<sub>F</sub></b> | $\leq$ 1.0V (620mA, T=25°C)       |
| <b>Reverse Current I<sub>R</sub></b> | $\leq$ 200 $\mu$ A (4.0V, T=25°C) |
| <b>Operation Temperature</b>         | -180°C to +150°C                  |

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## Temperature Gradients

| DATA                                                             | BOL  | 1.0E+14 | 2.0E+14 | 5.0E+14 | 1.0E+15 |
|------------------------------------------------------------------|------|---------|---------|---------|---------|
| Voltage @max. power (mV/°C)                                      | -5.8 | -6.2    | -6.5    | -6.7    | -6.9    |
| Current @max. power ( $\mu\text{A}/\text{cm}^2/^\circ\text{C}$ ) | 10.8 | 11.2    | 10.9    | 10.7    | 10.4    |

## Absorptivity

|              |                 |
|--------------|-----------------|
| Absorptivity | $\leq 0.88$     |
| Emissivity   | $0.84 \pm 0.03$ |

## Customization, Handling and Support.

- ◆ Product dimensions, configurations and photovoltaic efficiencies can be customized to meet specific customer requirements, subject to technical evaluation.
- ◆ This product is fragile, handle with care during transportation, storage, installation and use.
- ◆ If a product-related quality issue occurs, we will provide timely technical support, investigate the issue and work with the customer toward an effective resolution.

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