Assembled with MBB bifacial PERCIUM cells and half-cell configuration, these double glass modules have the capability of converting the incident light from the rear side together with the front side into electricity, providing higher output power, lower temperature coefficient, less shading loss, as well as enhanced tolerance for mechanical loading.

**Higher output power**  
**Less shading effect**  
**More reliable, more stable power generation**  
**Lower temperature coefficient**

**Superior Warranty**
- 12-year product warranty
- 30-year linear power output warranty

0.5% Annual Degradation Over 30 years

| Year | 1 | 5 | 10 | 15 | 20 | 25 | 30
|------|---|---|----|----|----|----|----
| 100% | 97.5%  | 96.5%  | 95.5%  | 94.5%  | 93.5%  | 92.5%  | 91.5%
| 90%  | 93%  | 92%  | 91%  | 90%  | 89%  | 88%  |
| 80%  | 83%  | 82%  | 81%  | 80%  | 79%  | 78%  |

- Additional Value From 30-Year Warranty  
- JA Standard

**Comprehensive Certificates**
- IEC 61215, IEC 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001:2018 Occupational health and safety management systems
**OPERATING CONDITIONS**

- **Maximum System Voltage**: 1500V DC (IEC)
- **Operating Temperature**: -40°C ~ 85°C
- **Maximum Series Fuse**: 20A
- **Maximum Static Load, Front**: 3600Pa, 1.5
- **Maximum Static Load, Back**: 1600Pa, 1.5
- **NOCT**: 45±2°C
- **Bifaciality**: 70±10%

**ELECTRICAL CHARACTERISTICS WITH DIFFERENT REAR SIDE POWER GAIN (REFERENCE TO 435W FRONT)**

- **Backside Power Gain**: 5% 10% 15% 20% 25%
- **Rated Max Power (Pmax) [W]**: 457 479 500 522 544
- **Open Circuit Voltage (Voc) [V]**: 53.60 53.60 53.60 53.70 53.70
- **Max Power Voltage (Vmp) [V]**: 44.35 44.35 44.35 44.45 44.45
- **Short Circuit Current (Isc) [A]**: 10.82 11.33 11.85 12.36 12.88
- **Max Power Current (Imp) [A]**: 10.30 10.79 11.28 11.74 12.23

*Bifaciality = Pmax, rear / Rated Pmax, front*

**CHARACTERISTICS**

- **Current-Voltage Curve**: JAM78D10-440/MB/1500V
- **Power-Voltage Curve**: JAM78D10-440/MB/1500V
- **Current-Voltage Curve**: JAM78D10-445/MB/1500V

**SPECIFICATIONS**

- **Cell**: Mono
- **Weight**: 29.0kg±3%
- **Dimensions**: 2198±2mm × 1005±2mm × 35±1mm
- **Cable Cross Section Size**: 4mm²
- **No. of cells**: 156 (6×26)
- **Junction Box**: IP68, 3 diodes
- **Connector**: Genuine MC4-EVO2 QC 4.10-35/45
- **Cable Length**: Portrait: 300mm (+)/400mm (-); Landscape: 1200mm (+)/1200mm (-)
- **Front Glass/Back Glass**: 2.0mm/2.0mm
- **Country of Manufacturer**: China/Vietnam

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

Measurement tolerance at STC: Pmax ±3 %, Voc ±2% and Isc ±4%