

GAMMA SERIES™

RESIDENTIAL SOLAR MONO | MONOFACIAL | PERC | PV MODULE



| | |
|---------------------------|--|
| Power Range: | 430W 435W 440W 445W 450W |
| Technology: | PERC Half cut cell 10 Busbar 120 Cells |
| Design: | Single Glass Black Frame Black Backsheet |
| Module Efficiency: | 20.70% |
| Cell Efficiency: | 22.5%~23.3% |
| Power Tolerance: | 0~+5W |
| System Voltage: | 1000/1500 V DC |
| Module Size: | 75.50 x 44.65 x 1.38 inch |
| Module Weight: | 52.69 lb. |

DESIGNED TO PERFORM AND BUILT TO LAST

Our PV modules are designed with better technology in mind, made from robust product components, under stringent quality control steps and high-tech manufacturing processes.

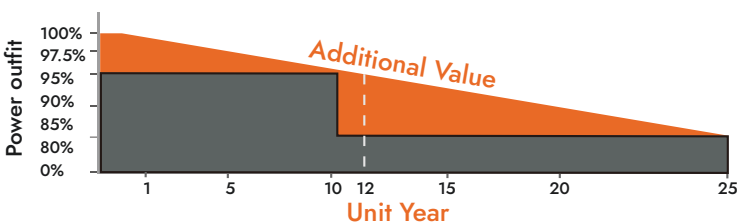
PERC, half-cut, multi-busbar, and large cell designs enables our PV modules to pack more power per module, capture more

photons, produce more energy, and provide reliable, dependable system performance under different installations requirements, difficult weather, or environmental conditions. Whether you are EPC, installer, contractor, or project developer, we have the right and better PV module for your residential, commercial, industrial, and utility scale solar projects.

- Monocrystalline technology
- P-Type semiconductor
- Passivated emitter and rear cell technology
- Half cut cell
- Multi-Busbar cell
- Large wafer design
- Beautiful aesthetic
- Robust product component

WARRANTY

25- Year linear power warranty
12 -Year product warranty



- Output Linear Warranty
 - Standard Warranty
- 1 (12) years product warranty
2 Out linear warranty with 2.5% degradation in the 1st year and less than 0.6% degradation each year from 2nd year to 25th year

CERTIFICATES

UL 61730 | IEC 61215 | IEC 61730 | CE Listed | MCS
ISO 9001 Quality management system
ISO 14001 Environmental management system
OHSAS 18001 Occupational health and safety Management System

*Please contact with Boviet Solar representative for Full list of certificates according to local requirements and PV module product type.

ELECTRICAL CHARACTERISTICS | STC

| Maximum Power (Pmax) | 430W | 435W | 440W | 445W | 450W |
|-----------------------------|--------|--------|--------|--------|--------|
| Maximum Power Current (Imp) | 12.46A | 12.53A | 12.60A | 12.67A | 12.73A |
| Maximum Power Voltage (Vmp) | 34.57V | 34.78V | 34.99V | 35.18V | 35.41V |
| Short Circuit Current (Isc) | 13.26A | 13.32A | 13.38A | 13.45A | 13.54A |
| Open Circuit Voltage (Voc) | 40.97V | 41.21V | 41.46V | 41.69V | 41.96V |
| Module Efficiency | 19.78% | 20.01% | 20.20% | 20.50% | 20.70% |
| Power Tolerance | 0~+5W | 0~+5W | 0~+5W | 0~+5W | 0~+5W |

STC: AM1.5 Irradiance 1000W/m², 25° C

ELECTRICAL CHARACTERISTICS | NOCT

| Maximum Power (Pmax) | 430W | 435W | 440W | 445W | 450W |
|-----------------------------|--------|--------|-------------------|--------|--------|
| Maximum Power (Pmax) | 321.1W | 324.9W | 328.6W | 332.3W | 336.1W |
| Maximum Power Current (Imp) | 9.98A | 10.03A | 10.09A | 10.15A | 10.20A |
| Maximum Power Voltage (Vmp) | 32.23V | 32.42V | 32.62V | 32.80V | 33.01V |
| Short Circuit Current (Isc) | 10.71A | 10.76A | 10.81A <td 10.87A | 10.94A | |
| Open Circuit Voltage (Voc) | 38.33V | 38.56V | 38.79V | 39.00V | 39.26V |

NOCT: AM 1.5 Irradiance 800/m², 20° C, Wind speed 1m/s

MECHANICAL CHARACTERISTICS

| | |
|---------------------|---|
| Solar Cell | Monocrystalline PERC PV Cells 182mm Cell Half-cut 10 Busbar 120 (6x20) pcs in series |
| Solar Modules | Monofacial 75.50 x 44.65 x 1.38 inch Weight: 52.69lb. |
| Module Glass | 3.2 mm (0.13 inch). High transparency, low iron, AR-coated tempered glass |
| Module Frame | Frame 35 mm Ultra-strong anodized aluminum allow frame |
| Module Junction Box | IP68 rated, 3 bypass diodes |
| Module Output Cable | 4mm ² (EU) 12 AWG (US), 39.38 inch |
| Module Connector | Multi contact (MC4) compatible connectors |
| Module Encapsulant | EVA (ethyl vinyl acetate) |
| Module Backsheet | FFC backsheet |
| Module Fire Type | Type 1 Fire rated |

PACKING INFORMATION

| | |
|-------------------------------|----------------------------|
| Pieces per pallet: | 31 |
| Pallets per container (40HQ): | 24 |
| Pieces per container (40HQ): | 744 |
| Pallet Weight: | 1743.64 lb. |
| Pallet Dimension: | 76.47 x 44.69 x 49.49 inch |

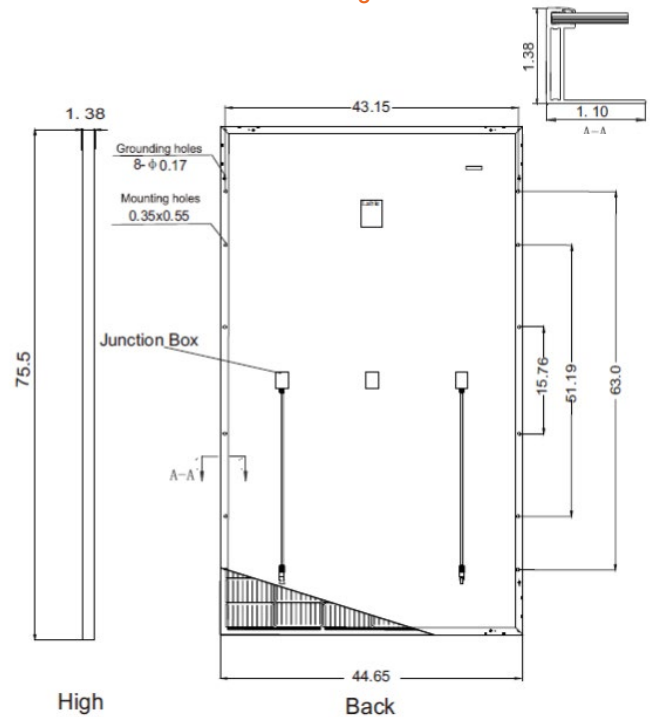
MAXIMUM RATING

| | |
|-----------------------------|---------------|
| Operating Temperature | -40°F~185°F |
| Maximum Series Fuse Rating | 30A |
| Isc Temperature Coefficient | 1000/1500V DC |

THERMAL CHARACTERISTICS

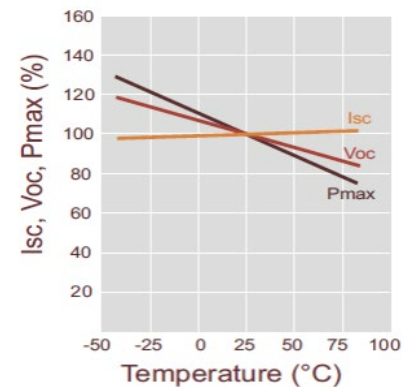
| | |
|------------------------------|------------|
| Pmax Temperature Coefficient | -0.35%/K |
| Voc Temperature Coefficient | -0.28%/K |
| Isc Temperature Coefficient | +0.049%/K |
| NOCT | 113±35.6°F |

PV Module: Mechanical Drawing



PV Module: IV Curve

Irradiance: AM 1.5, 1,000W/m² (450W)



PV Module: IV Curve

I-V Curves at Different Irradiances (450W)
Test Temperature: 25° C

