

590-615W

SUBSTRATE
GLASS ●
MESH GLASS ●

FRAME TYPE
ALUMINIUM ●
STEEL ●

FRAME VARIANT
SILVER ●
BLACK ●

MAXIMUM EFFICIENCY %

21.73

CELL TYPE

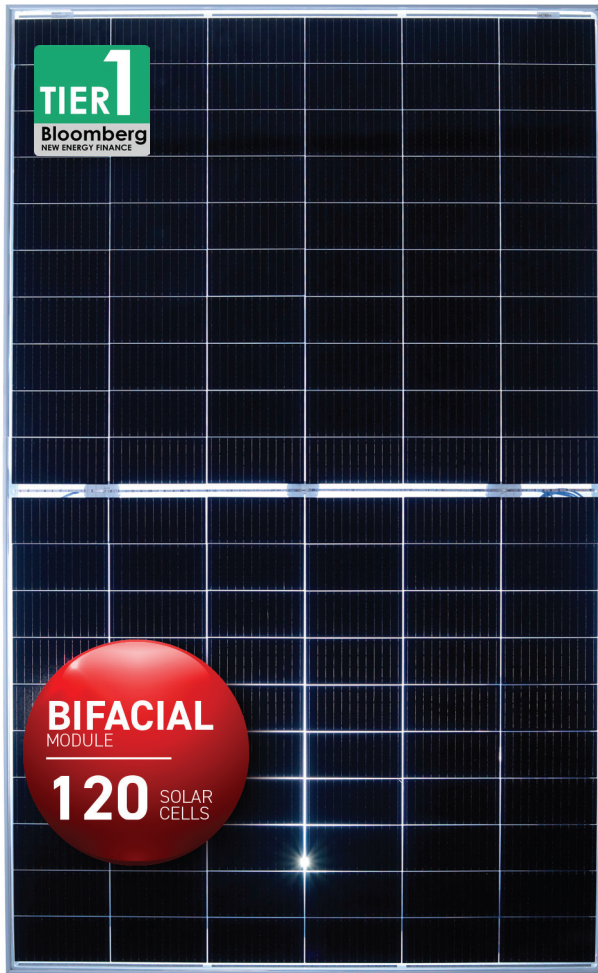
G12 HALF CUT

PRODUCT WARRANTY

12 YEARS

PERFORMANCE WARRANTY

30 YEARS



RELIABILITY IS IMPROVED

- Higher corrosion resistance to severe conditions of sand dust, concentrated ammonia and salt mist
- Low risk of module warping & micro cracking



HIGHLY AUTOMATED PRODUCTION LINE

- Multi stage EL and digitalised visual inspection results in lower defect rates
- Implemented engineering excellence ensures top notch quality



LOWER LCOE

- Lower balance of systems cost
- Improves value proposition of the product with competitive ROI



PROLONGED SAFETY ASSURANCE

- IP68 with potting JB provides higher level of water ingress protection
- High insulation resistance for ensuring electrical safety



SUPERIOR HAIL TEST PERFORMANCE

- ø 45mm hail test passed from third party laboratory with impact velocity up to 27m/s

PRODUCT CERTIFICATES



SYSTEM CERTIFICATES

IEC 61215 : 2021, IEC 61730, UL 61215, UL 61730, IS 14286, IS/IEC 61730, IEC 61701, IEC 62716, IEC 60068-2-68, CAN-CSA

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION:

- ISO 9001:2015/ Quality Management System
- ISO 14001:2015/ Environmental Management System
- ISO 45001:2018/ Occupational Health and Safety Management System
- SA 8000 :2014/ Social Accountability International

THIS DATASHEET IS APPLICABLE FOR: PARADEA VSMDH.60.AAA.05 (AAA=590-615)

ELECTRICAL PARAMETERS | STC^{1,2}

Peak Power P_{max} (Wp)	590	595	600	605	610	615
Maximum Voltage V_{mpp} (V)	34.3	34.5	34.7	34.9	35.1	35.3
Maximum Current I_{mpp} (A)	17.21	17.26	17.31	17.36	17.41	17.46
Open Circuit Voltage V_{oc} (V)	41.3	41.5	41.7	41.9	42.1	42.3
Short Circuit Current I_{sc} (A)	18.22	18.27	18.32	18.37	18.42	18.47
Module Efficiency (%)	20.85	21.02	21.2	21.38	21.55	21.73

¹STC: 1000 W/M² IRRADIANCE, 25°C CELL TEMPERATURE, AM1.5G SPECTRUM ACCORDING TO EN 60904-3 | ² TOLERANCE OF RATING AT STC (P_{max} / I_{sc} / V_{oc}) [%] : 0-3/+5/+5 | ELECTRICAL MEASUREMENT UNCERTAINTY IS WITHIN ± 2%

ELECTRICAL PARAMETERS | NOCT³

Peak Power P_{max} (Wp)	440.4	443.9	447.9	451.7	455.5	459.3
Maximum Voltage V_{mpp} (V)	31.7	31.9	32.1	32.2	32.3	32.4
Maximum Current I_{mpp} (A)	13.88	13.92	13.97	14.01	14.06	14.10
Open Circuit Voltage V_{oc} (V)	38.5	38.7	38.9	39.0	39.1	39.2
Short Circuit Current I_{sc} (A)	14.72	14.76	14.79	14.84	14.88	14.91

³NOCT IRRADIANCE 800 W/M², AMBIENT TEMPERATURE 20°C, WIND SPEED 1 M/SEC

ELECTRICAL PARAMETERS | BNPI^{4,5}

Peak Power P_{max} (Wp)	646	651	657	662	668	673
Maximum Voltage V_{mpp} (V)	34.3	34.5	34.7	34.9	35.1	35.3
Maximum Current I_{mpp} (A)	18.84	18.89	18.95	19.00	19.06	19.11
Open Circuit Voltage V_{oc} (V)	41.3	41.5	41.7	41.9	42.1	42.3
Short Circuit Current I_{sc} (A)	19.94	20.00	20.05	20.11	20.16	20.22

⁴ BNPI: 1000W/M²±φ.135, BIFACILITY COEFF. (φ) AT BNPI P_{max} , I_{sc} IS 70±10% & FOR V_{oc} IS 99±10%, AM 1.5, 25°C | ⁵ TOLERANCE OF RATING AT BNPI (P_{max} / I_{sc} / V_{oc}) [%] : 0-3/+5/+5

TEMPERATURE COEFFICIENTS (Tc) PERMISSIBLE OPERATING CONDITIONS

Tc of Open Circuit Voltage (β)	-0.27%/°C
Tc of Short Circuit Current (α)	0.050%/°C
Tc of Power (γ)	-0.35%/°C
Maximum System Voltage	1500V
NOCT	45°C ± 2°C
Temperature Range	-40°C to + 85°C

MECHANICAL DATA

Length × Width × Height	2172 X 1303 X 35 mm (85.51 x 51.30 x 1.38 inches)
Weight	36.3 Kg (80.03lbs)
Junction Box	IP 68, Split Junction Box with individual bypass diodes
Cable & Connectors*	200 mm (+ve terminal) and 300 mm (-ve terminal) length cables, MC4 Compatible/MC4 Connectors
Application Class	Class A (Safety class II)
Superstrate**	2.0 mm (0.098 inches) High transmission ARC Semi-tempered glass (low iron content)
Cells	60 Mono PERC (120 half-cells) P-Type bifacial solar cells
Substrate	2.0 mm (0.098 inches) High transmission heat strengthened glass/ mesh glass** (low iron content)
Frame	Anodized aluminium/ Alloy steel frame**
Mechanical Load Test	5400 Pa (Snow load), 2400 Pa (Wind load)
Cell Encapsulant	EPE/ EVA
Maximum Series Fuse Rating	30 A
Hail Test	Ø 45mm Impact Velocity up to 27m/s

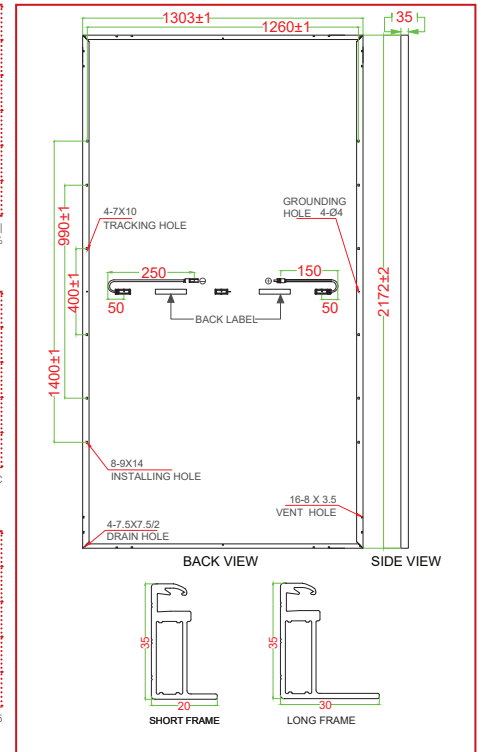
WARRANTY

Product Warranty**	12 years
Performance Warranty**	Linear Power Warranty for 30 years with 2% for 1 st year degradation and 0.5% from year 2 to year 30

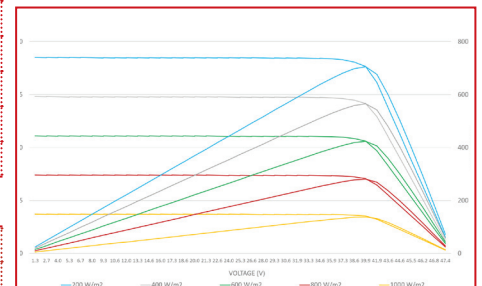
CAUTION: READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT.

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DIMENSIONS IN MM

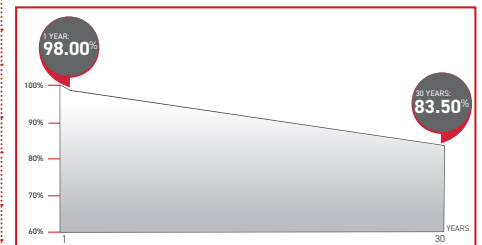


TYPICAL I-V CURVES⁷



⁷ AVERAGE RELATIVE EFFICIENCY REDUCTION OF 5% AT 200 W/M² ACCORDING TO EN 60904-1

PERFORMANCE WARRANTY



PACKAGING INFORMATION

Quantity /Pallet	31
Pallets/Container (40'HC)	18
Quantity/Container (40'HC)	558

All () certifications under progress. | **Refer to Vikram Solar's warranty document for terms and conditions. | *400mm (15.75 inches), 1000mm (39.37 inches), 1200mm (47.24 inches) cable lengths are also available | **Anti-glare Glass is also available | *As per applicable product | **With additional Cost & Lead Time subject to availability | STC : Standard Testing Condition | BNPI : Bifacial Nameplate Irradiance | NOCT : Nominal Operating Cell Temperature