HYPERSOL

HIGH EFFICIENCY N-TOPCon PV MODULES

Mono PERC | **nTOPCon** | HJT

MODEL:
HYPERSOL VSMDH.66.AAA.05

690-715W

SUBSTRATE	FRAME TYPE	FRAME VARIANT
GLASS	**ALUMINIUM**	**SILVER**
MESH GLASS	STEEL	BLACK

MAXIMUM EFFICIENCY %	CELL TYPE	PRODUCT WARRANTY	PERFORMANCE WARRANTY
23.02	G12 **HALF CUT**	12 YEARS	30 YEARS

LOWER LCOE

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

0% NEGATIVE POWER TOLERANCE

- Positive power tolerance of upto 0 ~ 4.99Wp
- Module current binning radically reduces string mismatch losses

IMPROVED LONGEVITY

- Excellent anti-PID performance via optimized process and materials control
- Lower susceptibility to LID & LeTID

PREMIUM PERFORMANCE PARAMETERS

- Topcon solar cell upto 85% bifaciality, brings higher energy yield from rear side
- Lower temperature coefficient minimizing generation losses at high temperature

SUPERIOR HAIL TEST PERFORMANCE

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

PRODUCT CERTIFICATES

R-51000566
R-61002070

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

Monocrystalline Solar PV Modules, Bifacial, GG, G12 nTOPCon

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CREATING CLIMATE FOR CHANGE

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TECHNICAL DATA
HYPERSOL 690-715W

THIS DATASHEET IS APPLICABLE FOR: **HYPERSOL VSMDH.66.AAA.05 (AAA=690-715)**

ELECTRICAL PARAMETERS | STC[1,2]

Peak Power P_{max} (Wp)	690	695	700	705	710	715
Maximum Voltage V_{mpp} (V)	39.71	39.88	40.05	40.22	40.39	40.56
Maximum Current I_{mpp} (A)	17.38	17.43	17.48	17.53	17.58	17.63
Open Circuit Voltage V_{oc} (V)	47.32	47.48	47.64	47.8	47.96	48.12
Short Circuit Current I_{sc} (A)	18.29	18.36	18.43	18.5	18.57	18.64
Module Efficiency (%)	22.21	22.37	22.53	22.70	22.86	23.02

1) STC:1000 W/M^2 IRRADIANCE, 25°C CELL TEMPERATURE, AM1.5G SPECTRUM ACCORDING TO EN 60904-3 | 2) TOLERANCE OF RATING AT STC (P_{MPP} / I_{SC} / V_{OC}) [%] : 0-3/±10/±10| ELECTRICAL MEASUREMENT UNCERTAINTY IS WITHIN ± 2%

ELECTRICAL PARAMETERS | NOCT[3]

Peak Power P_{max} (Wp)	519.5	523.4	527.3	531.2	535.1	539
Maximum Voltage V_{mpp} (V)	37.1	37.2	37.3	37.4	37.5	37.6
Maximum Current I_{mpp} (A)	14.03	14.08	14.13	14.18	14.23	14.28
Open Circuit Voltage V_{oc} (V)	44.4	44.6	44.8	45	45.2	45.4
Short Circuit Current I_{sc} (A)	14.78	14.83	14.88	14.93	14.98	15.03

3) NOCT IRRADIANCE 800 W/M^2, AMBIENT TEMPERATURE 20°C, WIND SPEED 1 M/SEC

ELECTRICAL PARAMETERS | BNPI[4,5]

Peak Power P_{max} (Wp)	765	770	776	781	787	792
Maximum Voltage V_{mpp} (V)	39.7	39.9	40.1	40.2	40.4	40.6
Maximum Current I_{mpp} (A)	19.3	19.3	19.4	19.4	19.5	19.5
Open Circuit Voltage V_{oc} (V)	47.3	47.5	47.6	47.8	48	48.1
Short Circuit Current I_{sc} (A)	20.3	20.3	20.4	20.5	20.6	20.7

4) BNPI: 1000W/M^2+ϕ.135, BIFACILITY COEFF. (ϕ) AT BNPI P_{MAX}, I_{SC} IS 80±5% & FOR V_{OC} IS 99±10% , AM 1.5, 25°C | 5) TOLERANCE OF RATING AT BNPI (P_{MPP}/ I_{SC}/ V_{OC}) [%] : 0-3/±10/±10

TEMPERATURE COEFFICIENTS (Tc) PERMISSIBLE OPERATING CONDITIONS

Tc of Open Circuit Voltage (β)	-0.26%/°C
Tc of Short Circuit Current (α)	0.046%/°C
Tc of Power (γ)	-0.30%/°C
Maximum System Voltage	1500V
NOCT	45°C ± 2°C
Temperature Range	-40°C to + 85°C

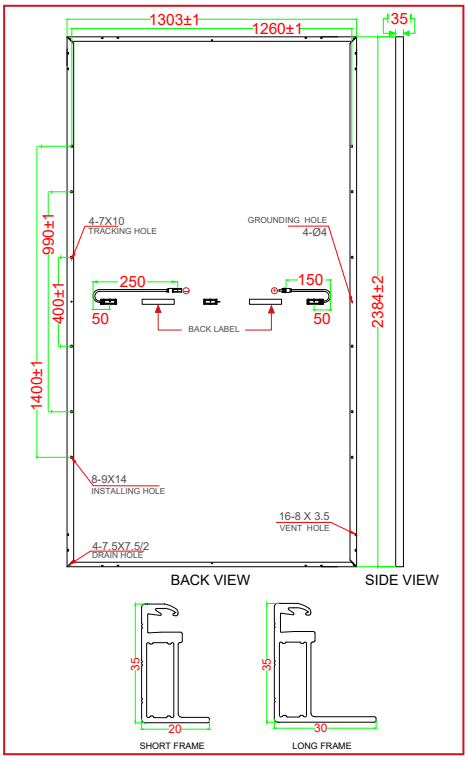
MECHANICAL DATA

Length × Width × Height	2384 X 1303 X 35 mm (93.86 x 51.30 x 1.38 inches)
Weight	39.5 Kg (87.08 lbs)
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	66 (132 half-cells) TOPCon n-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

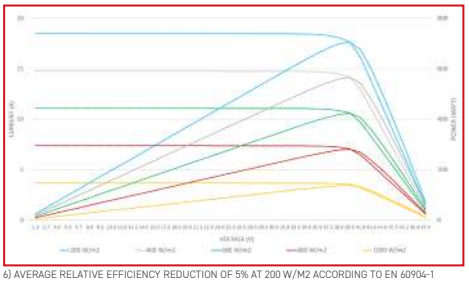
WARRANTY

Product Warranty**	12 years
Performance Warranty**	Linear Power Warranty for 30 years with 1% for 1st year degradation and 0.4% from year 2 to year 30

DIMENSIONS IN MM

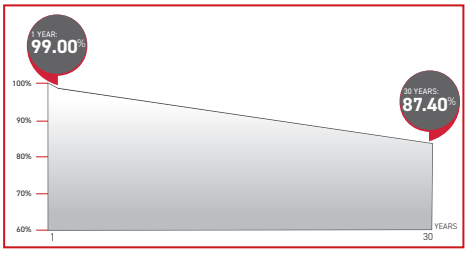


TYPICAL I-V CURVES[6]



6) 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)	17
Quantity/Container (40'HC)	527

^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

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

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