

415-440W

SUBSTRATE
GLASS ●
MESH GLASS ●

FRAME TYPE
ALUMINIUM ●

FRAME VARIANT
SILVER ●
BLACK ●

MAXIMUM EFFICIENCY %

22.53

CELL TYPE

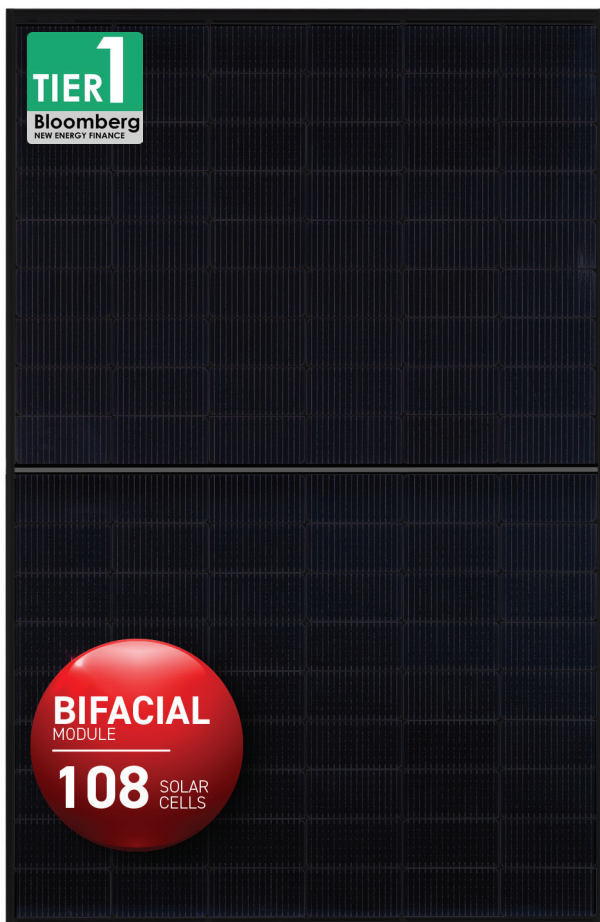
M10 HALF CUT

PRODUCT WARRANTY

12 YEARS

PERFORMANCE WARRANTY

30 YEARS



SUITED FOR ROOFTOP INSTALLATION

- Light weight modules
- Aesthetically appealing with higher efficiency



IMPROVED LONGEVITY

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



PROLONGED SAFETY ASSURANCE

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



HIGHLY AUTOMATED PRODUCTION LINE

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



PREMIUM PERFORMANCE PARAMETERS

- N-TYPE solar cell upto 80% bifaciality, brings higher energy yield from rear side
- Lower temperature coefficient minimizing generation losses at high temperature

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: HYPERSOL VSM DH.54.AAA.05 (AAA=415-440)

ELECTRICAL PARAMETERS | STC^{1,2}

Peak Power P_{max} (Wp)	415	420	425	430	435	440
Maximum Voltage V_{mpp} (V)	31.3	31.5	31.7	31.9	32.2	32.4
Maximum Current I_{mpp} (A)	13.28	13.35	13.42	13.48	13.52	13.59
Open Circuit Voltage V_{oc} (V)	37.3	37.5	37.7	37.9	38.1	38.3
Short Circuit Current I_{sc} (A)	13.92	13.98	14.04	14.1	14.16	14.22
Module Efficiency (%)	21.25	21.51	21.76	22.02	22.28	22.53

1) STC: 1000 W/M² IRRADIANCE, 25°C CELL TEMPERATURE, AM 1.5G 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)	313	317	321	324	328	331
Maximum Voltage V_{mpp} (V)	29.3	29.6	29.8	29.9	30.2	30.4
Maximum Current I_{mpp} (A)	10.68	10.72	10.76	10.81	10.85	10.89
Open Circuit Voltage V_{oc} (V)	35.1	35.3	35.5	35.7	35.9	36.1
Short Circuit Current I_{sc} (A)	11.24	11.29	11.34	11.39	11.44	11.49

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

ELECTRICAL PARAMETERS | BNPI^{4,5}

Peak Power P_{max} (Wp)	460	465	471	476	482	488
Maximum Voltage V_{mpp} (V)	31.3	31.5	31.7	31.9	32.2	32.4
Maximum Current I_{mpp} (A)	14.71	14.79	14.87	14.94	14.98	15.06
Open Circuit Voltage V_{oc} (V)	37.3	37.5	37.7	37.9	38.1	38.3
Short Circuit Current I_{sc} (A)	15.42	15.49	15.56	15.62	15.69	15.76

4) BNPI: 1000W/M²±q.135, BIFACILITY COEFF. (q) AT BNPI P_{max} , I_{sc} IS 75±5% & 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)	-0.26%/°C
Tc of Short Circuit Current (α)	0.046%/°C
Tc of Power (γ)	-0.28%/°C
Maximum System Voltage	1500V
NOCT	45°C ± 2°C
Temperature Range	-40°C to + 85°C

MECHANICAL DATA

Length × Width × Height	1722 X 1134 X 30 mm (67.28 x 44.65 x 1.18 inches)
Weight	25.10 Kg (55.33lbs)
Junction Box	IP 68, Split Junction Box with individual bypass diodes
Cable & Connectors*	1200 mm (+ve terminal) and 1200 mm (-ve terminal) length cables, Staubli Evo 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	54 (108 half-cells) 16BB 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
Mechanical Load Test	5400 Pa (Snow load), 2400 Pa (Wind load)
Cell Encapsulant	EPE/EVA
Maximum Series Fuse Rating	30 A
Hail Test*	Ø 40mm

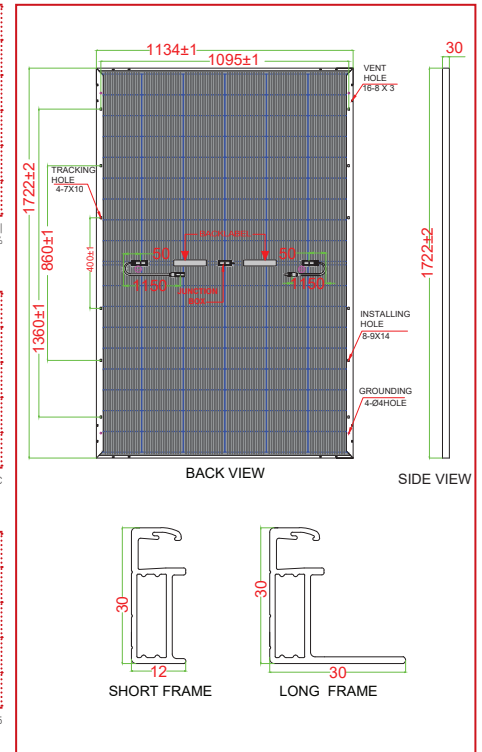
WARRANTY

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

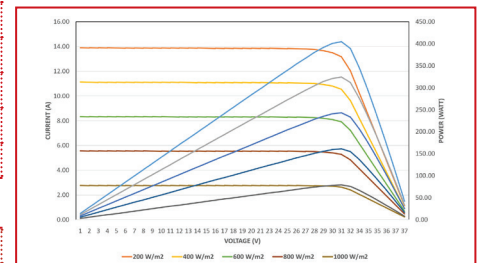
CAUTION: READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT.

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DIMENSIONS IN MM

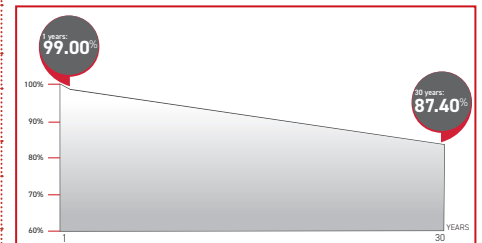


TYPICAL I-V CURVES⁶



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

PERFORMANCE WARRANTY



PACKAGING INFORMATION

Quantity /Pallet	36
Pallets/Container (40'HC)	26
Quantity/Container (40'HC)	936

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