

# PARADEA

HIGH EFFICIENCY BI-FACIAL GLASS-GLASS PV MODULES

## 535-560W

MAXIMUM EFFICIENCY %

### 21.72

POSITIVE POWER TOLERANCE WP

### 0~+4.99

CELLS

### M10 144

MODULE TECHNOLOGY

### HALF CUT & MICRO GAP DESIGN

WITH IMPROVED SHADE TOLERANCE



**RELIABILITY IS IMPROVED** with minimum exposure to corrosion from sand & salt mist with low risk of module warping & micro cracking



Bifacial gain of **UP TO 25%** with dual glass module, capable of energy generation with both direct and reflected sunlight



Additional Power yield with **30 YEARS OF PERFORMANCE LIFE** with 0.5% annual power degradation



**LCOE IS CUT BACK** with **LESS BOS COST** which improves value proposition of the product with competitive **ROI**



**TWO PEAK PERFORMANCE TIME**, during sun rise and sun set with optimum utilization of dual facial generation



Hassle-free installation with ability to **INSTALL VERTICALLY IN EAST WEST DIRECTION**, with improved soiling resistant



Implementation of bypass diodes in split JB series-parallel connections enable the module to perform in **PARTIAL SHADOW CONDITIONS** with respect to full-cell module



**LOWER INTERNAL RESISTANCE** boosts module power helping to achieve minimal power loss with respect to previous variant modules



FRAME

SILVER

SUPERSTRATE

GLASS

SUBSTRATE

GLASS

#### APPLICATIONS

- On-grid large scale utility systems
- On-grid rooftop industrial and commercial systems
- Rooftop residential systems



**DCR CONTENT MODULE AVAILABLE**

THIS DATASHEET IS APPLICABLE FOR: PARADEA VSMDH.72.AAA.05 (AAA=535-560)

### Electrical Data<sup>1,2</sup> All data refers to STC (AM 1.5, 1000 W/m<sup>2</sup>, 25°C)

Peak Power P <sub>max</sub> (Wp)	535	540	545	550	555	560
Maximum Voltage V <sub>mpp</sub> (V)	41.6	41.7	41.8	41.9	42	42.1
Maximum Current I <sub>mp</sub> (A)	12.87	12.96	13.05	13.14	13.23	13.32
Open Circuit Voltage V <sub>oc</sub> (V)	49.4	49.5	49.6	49.7	49.8	49.9
Short Circuit Current I <sub>sc</sub> (A)	13.56	13.64	13.73	13.82	13.95	14.05
Module Efficiency (%)	20.75	20.94	21.13	21.33	21.52	21.72

1) STC:1000 W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5g spectrum according to EN 60904-3. | 2) Power measurement uncertainty is within +/- 2%.

### Electrical Parameters at NOCT<sup>3</sup>

Power (W)	399.20	402.80	406.70	410.60	414.20	418.10
V@P <sub>max</sub> (V)	38.40	38.40	38.70	38.80	39.10	39.20
I@P <sub>max</sub> (A)	10.39	10.48	10.51	10.58	10.59	10.66
V <sub>oc</sub> (V)	46.00	46.00	46.20	46.20	46.70	46.80
I <sub>sc</sub> (A)	10.96	11.06	11.09	11.17	11.17	11.24

3) NOCT irradiance 800 W/m<sup>2</sup>, ambient temperature 20°C, wind speed 1 m/sec

### Equivalent Bifacial Output

Bifacial Gain	Overall Power output (W)					
5%	551	557	562	567	572	578
10%	578	583	589	594	600	605
15%	604	610	615	621	627	633
20%	630	636	642	648	654	660
25%	656	663	669	675	681	688

### 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	2274 × 1134 × 30mm (89.52 × 44.65 × 1.18 inches)
Weight	33 Kg (72.75 lbs)
Junction Box	IP68, 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 low iron content, semi-tempered glass, AR coated
Cells	72 Mono PERC (144 half-cells) P-Type Bifacial solar cells
Substrate	2.0 mm (0.098 inches) high transmission low iron content, heat strengthened glass
Frame	Anodized aluminium frame with twin wall profile
Mechanical Load Test	5400 Pa (Snow load), 2400 Pa (Wind load)
Cell Encapsulant	Polyolefin (POE)/ EPE
Maximum Series Fuse Rating	25 A

Power measurement uncertainty is within ±2mm.

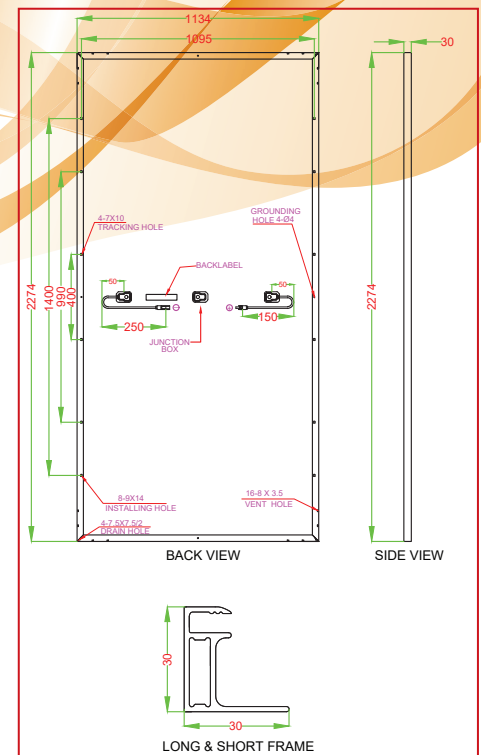
### Warranty and Certifications

Product Warranty**	12 years
Performance Warranty**	Linear Power Warranty for 30 years with 2% for 1st year degradation and 0.5% from year 2 to year 30
Approvals and Certificates^	IEC 61215 : 2016, IEC 61730 : 2016, IEC 61701, IEC 62716, IEC 60068-2-68, IS/IEC 61730, IS 14286, IEC 62804, CE, CEC (California), UL 61215, UL 61730, CAN-CSA

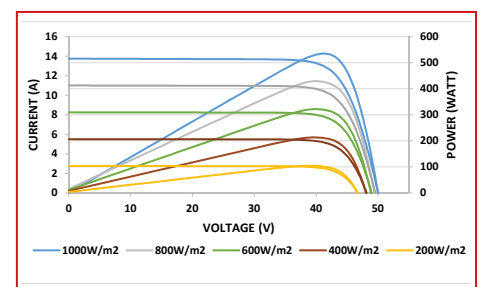
**CAUTION:** READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT.

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### Dimensions in mm

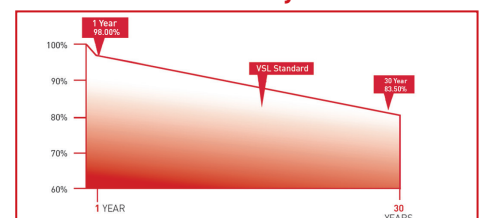


### Typical I-V Curves<sup>4</sup>



4) Average relative efficiency reduction of 5% at 200 W/m<sup>2</sup> according to EN 60904-1.

### Performance Warranty



### Packaging Information

Quantity /Pallet	36
Pallets/Container (40'HC)	20
Quantity/Container (40'HC)	720

\* 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