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Greener | Cleaner | Smarter
True Partner !



OSWAL

SOLAR MODULES

PRODUCT CATALOG



SMART
SOLAR
SOLUTION

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OSWAL SOLAR MODULES
PRODUCT



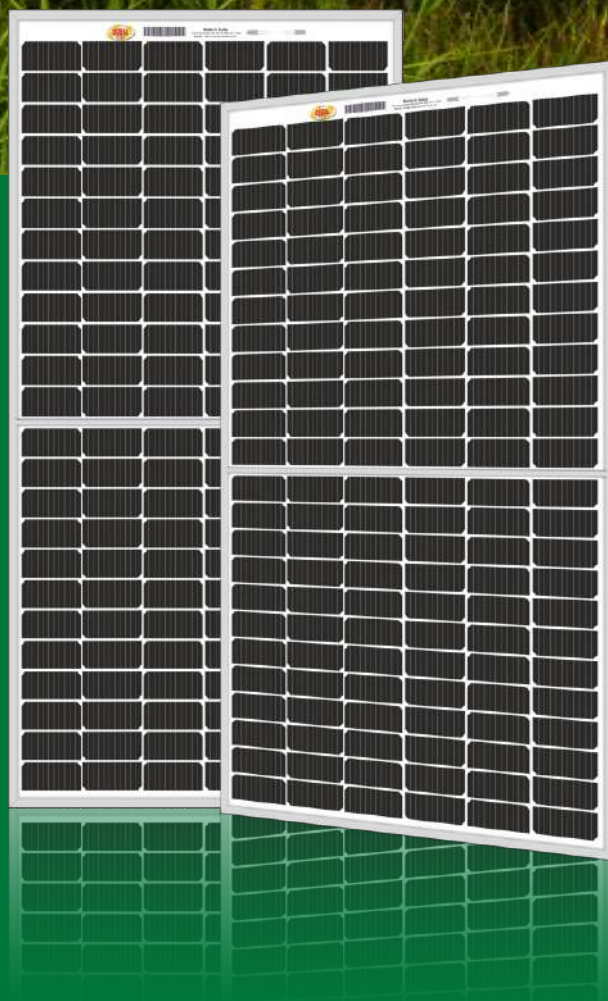


INTRO

Oswal Solar Energy Pvt. Ltd. (formerly known as Oswal Solar Structure Pvt. Ltd.) is a pioneer in the field of manufacturing, encompassing Solar PV modules. Entrenched in December 2023, Oswal Solar Energy Pvt. Ltd. is dedicated to revolutionizing the renewable energy sector through the production of high-quality, durable, and efficient solar panels. At Oswal Solar Energy Pvt. Ltd., we understand the need of the hour for transforming into a clean energy source and reducing dependency on fossil fuels. Our Solar PV modules adopt the power of the sun to generate clean, renewable energy, offering not only environmentally friendly but also cost-effective solutions for residential, commercial, and industrial applications as well.

We aim to collaborate in smart and intelligent ways, bringing together talents that yield the best possible results and effectively harness the energy sector. Our solar systems are suitable for a wide range of uses, including large-scale commercial projects and residential rooftops. Oswal focuses on 100% quality and achieving new heights with stable performance. Our dedicated team is committed to delivering top-quality power solutions that ensure uninterrupted power supply, offering peace of mind during outages.

Changing the face of India.



 भारतीय मानक बोर्ड BUREAU OF INDIAN STANDARDS ISO 9001:2015 CERTIFIED 10017, 10018, 10019, 10020, 10021, 10022, 10023, 10024, 10025, 10026, 10027, 10028, 10029, 10030, 10031, 10032, 10033, 10034, 10035, 10036, 10037, 10038, 10039, 10040, 10041, 10042, 10043, 10044, 10045, 10046, 10047, 10048, 10049, 10050, 10051, 10052, 10053, 10054, 10055, 10056, 10057, 10058, 10059, 10060, 10061, 10062, 10063, 10064, 10065, 10066, 10067, 10068, 10069, 10070, 10071, 10072, 10073, 10074, 10075, 10076, 10077, 10078, 10079, 10080, 10081, 10082, 10083, 10084, 10085, 10086, 10087, 10088, 10089, 10090, 10091, 10092, 10093, 10094, 10095, 10096, 10097, 10098, 10099, 10100, 10101, 10102, 10103, 10104, 10105, 10106, 10107, 10108, 10109, 10110, 10111, 10112, 10113, 10114, 10115, 10116, 10117, 10118, 10119, 10120, 10121, 10122, 10123, 10124, 10125, 10126, 10127, 10128, 10129, 10130, 10131, 10132, 10133, 10134, 10135, 10136, 10137, 10138, 10139, 10140, 10141, 10142, 10143, 10144, 10145, 10146, 10147, 10148, 10149, 10150, 10151, 10152, 10153, 10154, 10155, 10156, 10157, 10158, 10159, 10160, 10161, 10162, 10163, 10164, 10165, 10166, 10167, 10168, 10169, 10170, 10171, 10172, 10173, 10174, 10175, 10176, 10177, 10178, 10179, 10180, 10181, 10182, 10183, 10184, 10185, 10186, 10187, 10188, 10189, 10190, 10191, 10192, 10193, 10194, 10195, 10196, 10197, 10198, 10199, 10200, 10201, 10202, 10203, 10204, 10205, 10206, 10207, 10208, 10209, 10210, 10211, 10212, 10213, 10214, 10215, 10216, 10217, 10218, 10219, 10220, 10221, 10222, 10223, 10224, 10225, 10226, 10227, 10228, 10229, 10230, 10231, 10232, 10233, 10234, 10235, 10236, 10237, 10238, 10239, 10240, 10241, 10242, 10243, 10244, 10245, 10246, 10247, 10248, 10249, 10250, 10251, 10252, 10253, 10254, 10255, 10256, 10257, 10258, 10259, 10260, 10261, 10262, 10263, 10264, 10265, 10266, 10267, 10268, 10269, 10270, 10271, 10272, 10273, 10274, 10275, 10276, 10277, 10278, 10279, 10280, 10281, 10282, 10283, 10284, 10285, 10286, 10287, 10288, 10289, 10290, 10291, 10292, 10293, 10294, 10295, 10296, 10297, 10298, 10299, 10300, 10301, 10302, 10303, 10304, 10305, 10306, 10307, 10308, 10309, 10310, 10311, 10312, 10313, 10314, 10315, 10316, 10317, 10318, 10319, 10320, 10321, 10322, 10323, 10324, 10325, 10326, 10327, 10328, 10329, 10330, 10331, 10332, 10333, 10334, 10335, 10336, 10337, 10338, 10339, 10340, 10341, 10342, 10343, 10344, 10345, 10346, 10347, 10348, 10349, 10350, 10351, 10352, 10353, 10354, 10355, 10356, 10357, 10358, 10359, 10360, 10361, 10362, 10363, 10364, 10365, 10366, 10367, 10368, 10369, 10370, 10371, 10372, 10373, 10374, 10375, 10376, 10377, 10378, 10379, 10380, 10381, 10382, 10383, 10384, 10385, 10386, 10387, 10388, 10389, 10390, 10391, 10392, 10393, 10394, 10395, 10396, 10397, 10398, 10399, 10400, 10401, 10402, 10403, 10404, 10405, 10406, 10407, 10408, 10409, 10410, 10411, 10412, 10413, 10414, 10415, 10416, 10417, 10418, 10419, 10420, 10421, 10422, 10423, 10424, 10425, 10426, 10427, 10428, 10429, 10430, 10431, 10432, 10433, 10434, 10435, 10436, 10437, 10438, 10439, 10440, 10441, 10442, 10443, 10444, 10445, 10446, 10447, 10448, 10449, 10450, 10451, 10452, 10453, 10454, 10455, 10456, 10457, 10458, 10459, 10460, 10461, 10462, 10463, 10464, 10465, 10466, 10467, 10468, 10469, 10470, 10471, 10472, 10473, 10474, 10475, 10476, 10477, 10478, 10479, 10480, 10481, 10482, 10483, 10484, 10485, 10486, 10487, 10488, 10489, 10490, 10491, 10492, 10493, 10494, 10495, 10496, 10497, 10498, 10499, 10500, 10501, 10502, 10503, 10504, 10505, 10506, 10507, 10508, 10509, 10510, 10511, 10512, 10513, 10514, 10515, 10516, 10517, 10518, 10519, 10520, 10521, 10522, 10523, 10524, 10525, 10526, 10527, 10528, 10529, 10530, 10531, 10532, 10533, 10534, 10535, 10536, 10537, 10538, 10539, 10540, 10541, 10542, 10543, 10544, 10545, 10546, 10547, 10548, 10549, 10550, 10551, 10552, 10553, 10554, 10555, 10556, 10557, 10558, 10559, 10560, 10561, 10562, 10563, 10564, 10565, 10566, 10567, 10568, 10569, 10570, 10571, 10572, 10573, 10574, 10575, 10576, 10577, 10578, 10579, 105

RO
QUALITY RESEARCH ORGANIZATION

Certificate of Registration

This is to certify that

OSWAL SOLAR ENERGY PRIVATE LIMITED
OPPOSITE DD INTERNATIONAL PVT. LTD., LINK ROAD,
VILLAGE KUTAIL, KARNAL, HARYANA – 132037, INDIA,

has been independently assessed by QRO
and is compliant with the requirement of:

Integrated Management System

ISO 9001:2015 ISO 14001:2015 ISO 45001:2018

For the following scope of activities:

MANUFACTURE, ASSEMBLY, TESTING, STORAGE AND DISPATCH OF SOLAR PHOTOVOLTAIC (PV) MODULES, SOLAR PHOTOVOLTAIC (PV) CELLS AND INVERTERS, INCLUDING ASSOCIATED MANUFACTURING AND SUPPORT PROCESSES.

Date of Certification: 14th July 2020
1st Surveillance Audit Due: 13th July 2021
2nd Surveillance Audit Due: 13th July 2023
Certificate Expiry: 13th July 2029

Certificate Number: 305026071455Q

QRO
Quality Research Organization

EGAC
Environmental Governance Accreditation Council

IAF
International Accreditation Forum

Registrar
Head of Certification

*Validity of this certificate is subject to annual surveillance audits to be conducted annually on or before 30 days from date of the audit.
(On-site surveillance audit is not allowed in a year). (On-site audit is required for validation)
The validity of this certificate can be nullified at any moment.
This certificate registration remains the property of QRO. Conditions of use shall be as per our standard membership sign register.

India Office: QRO, C-16 Confluence 1st Flr
1st, 2nd, 3rd Block, Sector 15, Gurgaon, Haryana (India-122001) (PH:0129)
Website: www.qroindia.org Email: info@qroindia.org



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- Floating solar power applications



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Our Solar Modules

MONO PERC HALF-CUT
OSWAL 505 Wp - 560 Wp
Mono-Facial M10

MONO PERC HALF-CUT
OSWAL 505 Wp - 560 Wp
Bi-facial M10

TOPCon M10R
Glass to Glass
OSWAL 580 Wp - 600 Wp

TOPCon G12R
Glass to Glass
OSWAL 600 Wp - 640 Wp

Our Services



9*6 Customer
care access
support
operation



Single point of
support for
customer



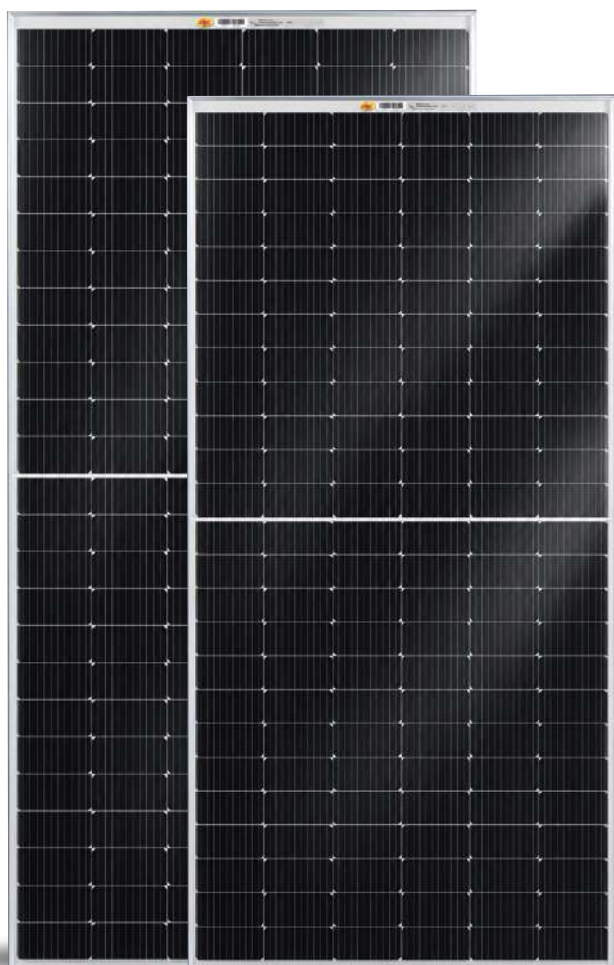
Technical
support



Always
ready to
support



Onsite Service
Solutions



OSWAL SOLAR MODULES MONO PERC HALF-CUT 505 Wp - 560 Wp

Mono-Facial Modules

THE INDUSTRY'S BENCHMARK

Oswal Solar is an internationally renowned leading solar energy cost effective befitting solutions provider having core competency in high efficiency PV module manufacturing and providing wide range EPC solutions. PV modules are the best in class in terms of power output and long-term reliability.

PRODUCT CERTIFICATES

 IEC CB Scheme	 Design Qualification	 Safety Qualification	 BS Qualification	 Better Performance
 Certified Mfg Process	 Environmental Mgt. System	 MID - Cell	 Split type - JB	 Better Performance

MADE IN INDIA



27 Years Warranty for
linear performance



Product warranty on
materials and workmanship

PRODUCT | KEY FEATURES



Anti-Reflective (AR) coated glass to enhance solar energy



Excellent module efficiency with Passivated Emitter Rear Cell (PERC) to achieve higher energy conversion efficiency



Positive power tolerance with current binning to prevent mismatch losses



Pre-&Post electroluminescence (EL) High-Resolution Camera to detect hidden defects in the structure of PV Panels such as cell cracks and diode failures



IP68 Junction Box ensures long-term endurance, even in harsh environmental conditions



Hi-Pot test requires to assess the stress on electrical equipment for safety and quality considerations



Multi-Busbar (MBB) half-cut cell technology brings stronger resistance to shade and lower risk of hot spot

OSWAL SOLAR



TECHNICAL DATA

PERFORMANCE UNDER STANDARD TEST CONDITIONS (STC) (Irradiance of 1000 W/m², spectrum AM 1.5, and cell temperature of 25°C)

Nominal Maximum Power (P _{max})	520 W	540 W	545 W	550 W
Optimum Operating Voltage (V _{mp})	41.02 V	42.34 V	42.65 V	42.984 V
Optimum Operating Current (I _{mp})	12.68 A	12.76 A	12.78 A	12.8 A
Open Circuit Voltage (V _{oc})	47.858 V	48.97 V	49.24 V	49.60 V
Short Circuit Current (I _{sc})	13.33 A	13.45 A	13.48 A	13.52 A
Module Efficiency	20.13 %	20.90 %	21.10 %	21.29 %
Fill Factor	80.53 %	80.03 %	82.11 %	82.03 %

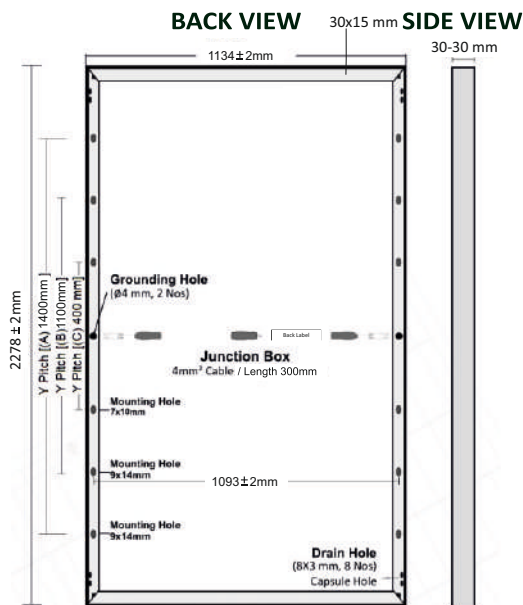
Note: Power measurement uncertainty: <±3%

PERFORMANCE UNDER NOCT (NOCT irradiances of 800 W/m², ambient temperature of 20°C, Wind speed 1m/s, Average NOCT = 45°C)

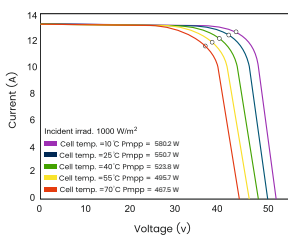
Maximum Power (P _{max})	389 W	412 W	410.4 W	412W
Optimum Operating Voltage (V _{mp})	38.895 V	40.147 V	38.70 V	40.757 V
Optimum Operating Current (I _{mp})	10.227 A	10.292 A	10.59 A	10.324 A
Open Circuit Voltage (V _{oc})	45.379 V	46.433 V	46.70 V	47.038 V
Short Circuit Current (I _{sc})	10.751 A	10.848 A	11.22 A	10.905 A

Mechanical Specifications

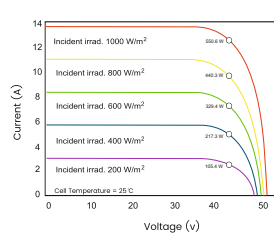
Dimensions (L x W x T in mm)	2278 x 1134 x 30
Weight (Kg)	26.5 kg±0.4 kg
Cell Type / No. Of cell	Mono PERC Half-Cut/144 Cell (12*6, 12*6)
Frame	Silver Anodized Aluminum Alloy (6005, Temper T6, Silver Colour)
Front Cover	ARC Coated Low-Iron Tempered Glass (3.2 mm Thick)
Encapsulate	Ethylene Vinyl Acetate (EVA) Sheet - PID free and UV Resistant
Back Sheet	Fluoro-polymer Based Composite Film / Polymer Based Composite Film
Junction Box	Split Junction Box x (3 units with bypass diode) - Weatherproof (IP68), MC4 Compatible Connectors
Cable	4 sq. mm, 300 mm. / 400 mm. Length (As per Customer Requirement)
Application Class Rating	Class A
Safety Class Rating	Class II
Mechanical Load Test (as per IEC & UL)	5400 Pa-front, 2400 Pa-back
Mounting Holes Pitch (Y)-mm	[A] 1400, [B] 1100, [C] 400
Mounting Holes Pitch (X)-mm	1093 ± 2 mm



IV Curve Varies with Temperature

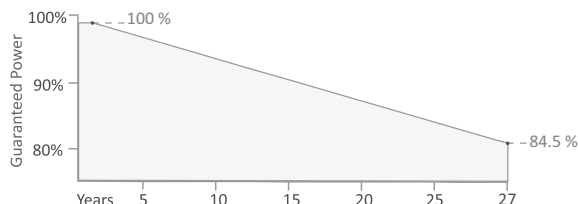


IV Curve Varies with Irradiance



* I-V curves shown for front-side illumination of 550 p panel.

LINEAR PERFORMANCE WARRANTY



*All dimensions are in mm with ± 2 mm tolerance

graphics shown here in above are reference purpose only

MAXIMUM OPERATING CONDITIONS

Operating Temperature:	-40°C to +85°C
Maximum System Voltage:	1500V
Maximum Series Fuse Rating:	25A

TEMPERATURE COEFFICIENTS

Current α(I _{sc}) :	0.041%/°C
Voltage β(V _{oc}) :	-0.259%/°C
Power γ(P _{max}) :	-0.320%/°C

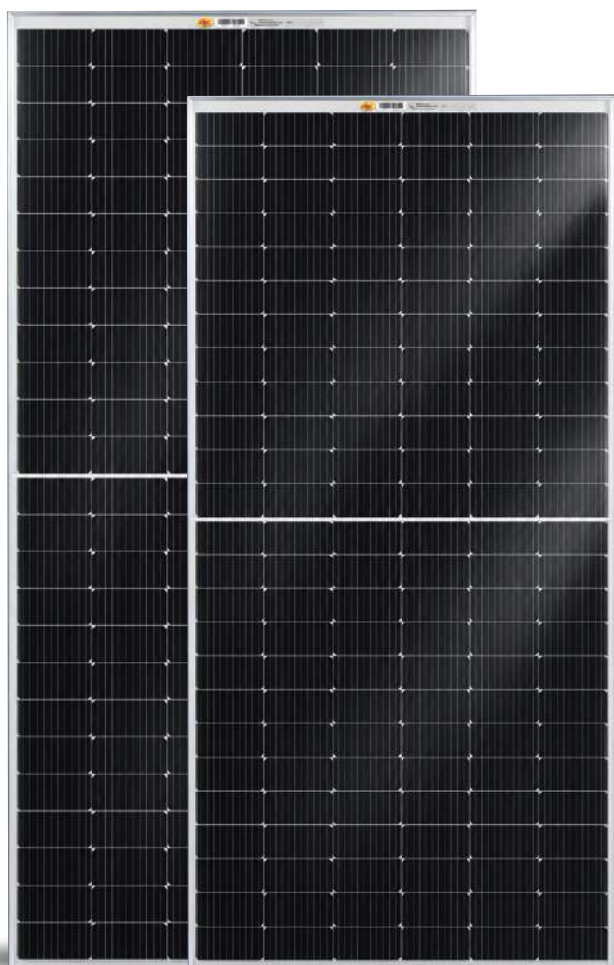
STACKING STANDARD

	19FT	32FT	40FT
No. of Modules	256 Nos	512 Nos	704 Nos
No of Pallets	8 Pallets	16 Pallets	22 Pallets
Modules per Pallet / Weight	32 Nos/886 Kgs.	32 Nos/886 Kgs.	32 Nos/886 Kgs.
Pallet dimensions	2300*1010*1210	2300*1010*1210	2300*1010*1210

Caution: Please read the safety and installation instructions before using this product.

Warranty: Linear power warranty for 27 years, with degradation of up to 2.5% in the first year and 0.5% per year from year 2 to year 27. Please read the Oswal warranty documents thoroughly.

Disclaimer: Specifications included in this datasheet are subject to change without prior notice due to ongoing innovation in product development and R&D. Oswal Solar reserves the right to make any adjustments to the information described here. The data contained in this specification do not represent the performance of an individual module. T&C apply.



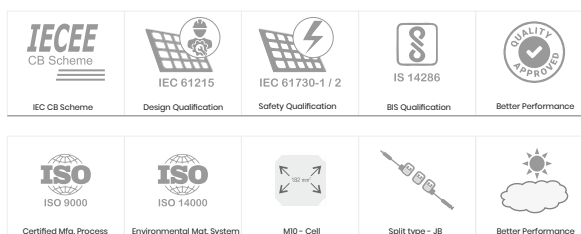
OSWAL SOLAR MODULES MONO PERC HALF-CUT 505 Wp - 560 Wp

Bifacial Modules

THE INDUSTRY'S BENCHMARK

Oswal Solar is an internationally renowned leading solar energy cost effective befitting solutions provider having core competency in high efficiency PV module manufacturing and providing wide range EPC solutions. PV modules are the best in class in terms of power output and long-term reliability.

PRODUCT CERTIFICATES



MADE IN INDIA

27 YEARS 27 Years Warranty for linear performance

12 YEAR Product warranty on materials and workmanship

PRODUCT | KEY FEATURES

-  Anti-Reflective (AR) coated glass to enhance solar energy
-  Excellent module efficiency with Passivated Emitter Rear Cell (PERC) to achieve higher energy conversion efficiency
-  Positive power tolerance with current binning to prevent mismatch losses
-  Pre-&-Post electroluminescence (EL) High-Resolution Camera to detect hidden defects in the structure of PV Panels such as cell cracks and diode failures
-  IP68 Junction Box ensures long-term endurance, even in harsh environmental conditions
-  Hi-Pot test requires to assess the stress on electrical equipment for safety and quality considerations
-  Multi-Busbar (MBB) half-cut cell technology brings stronger resistance to shade and lower risk of hot spot

OSWAL SOLAR



TECHNICAL DATA

ELECTRICAL PERFORMANCE [Note: Power tolerance: 0 ~ +4.99 W. Power measurement uncertainty: <±3%. Average value of NOCT: 45°C]

ELECTRICAL CHARACTERISTICS*	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Nominal Maximum Power (Pmax)	520 W	389 W	540 W	412 W	545 W	410.4 W	550 W	412W
Optimum Operating Voltage (Vmp)	41.02 V	38.895 V	42.34 V	40.147 V	42.65 V	38.70 V	42.984 V	40.757 V
Optimum Operating Current (Imp)	12.68 A	10.227 A	12.76 A	10.292 A	12.78 A	10.59 A	12.8 A	10.324 A
Open Circuit Voltage (Voc)	47.858 V	45.379 V	48.97 V	46.433 V	49.24 V	46.70 V	49.60 V	47.038 V
Short Circuit Current (Isc)	13.33 A	10.751 A	13.45 A	10.848 A	13.48 A	11.22 A	13.52 A	10.905 A
Module Efficiency	20.13 %		20.90 %		21.10 %		21.29 %	
Fill Factor	80.53 %		80.03 %		82.11 %		82.03 %	

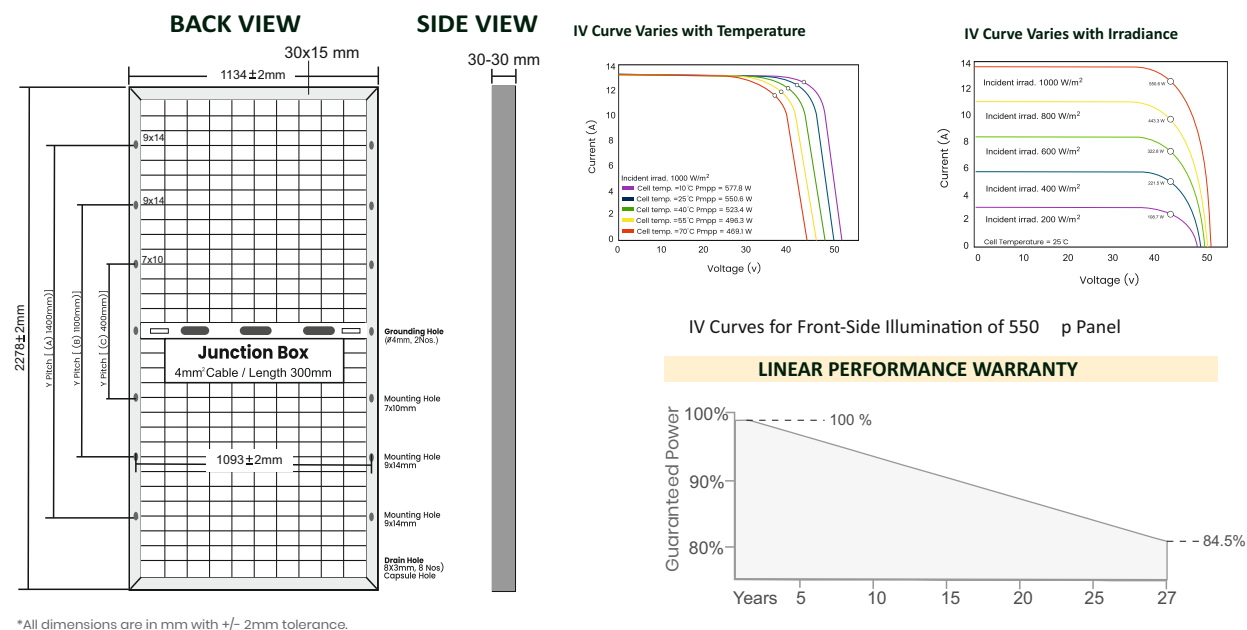
BIFACIAL OUTPUT – BACKSIDE POWER GAIN @ STC* [Bifaciality Factor: 80% ± 10%]

[Note: The bifacial gain depends on the power plant design and conditions. Electrical component ratings should be selected based on the actual bifacial gain at the site (module currents indicated below).]

15%	Nominal Maximum Power (Pmax)	598 W	621 W	627 W	633 W
	Module Efficiency	23.15 %	24.04 %	24.26 %	24.48 %
20%	Nominal Maximum Power (Pmax)	624 W	648 W	654 W	660 W
	Module Efficiency	24.16 %	25.08 %	25.32 %	25.55 %
25%	Nominal Maximum Power (Pmax)	650 W	675 W	681 W	688 W
	Module Efficiency	25.16 %	26.13 %	26.37 %	26.61 %

Mechanical Specifications

Dimensions (L x W x T in mm)	2278 x 1134 x 30
Weight (Kg)	26.5 kg ± 0.4 kg
Cell Type / No. Of cell	Mono PERC Half-Cut Bifacial /144 Cell (12*6, 12*6)
Frame	Silver Anodized Aluminum Alloy (6005, Temper T6, Silver Colour)
Front Cover	ARC Coated Low-Iron Tempered Glass (3.2 mm Thick)
Encapsulate	Ethylene Vinyl Acetate (EVA) Sheet - PID free and UV Resistant
Back Sheet	Fluoro-polymer Based Composite Film / Polymer Based Composite Film
Junction Box	Split Junction Box (3 units with bypass diode) - Weatherproof (IP68), MC4 Compatible Connectors
Cable	4 sq. mm, 300 mm. / 400 mm. Length (As per Customer Requirement)
Application Class Rating	Class A
Safety Class Rating	Class II
Mechanical Load Test (as per IEC & UL)	5400 Pa-front, 2400 Pa-back
Mounting Holes Pitch (Y)-mm	[A] 1400, [B] 1100, [C] 400
Mounting Holes Pitch (X)-mm	1093±2mm

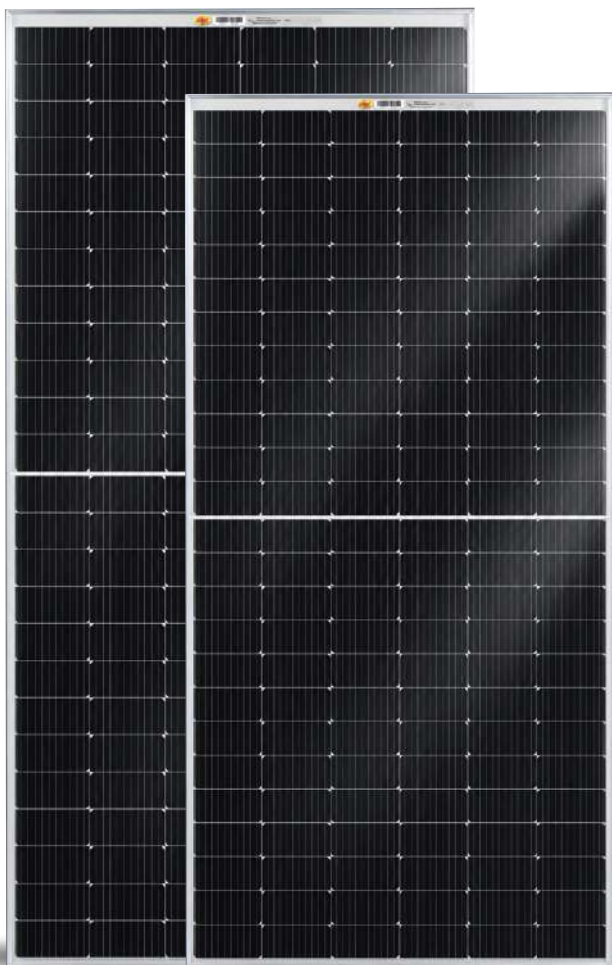


MAXIMUM OPERATING CONDITIONS		TEMPERATURE COEFFICIENT		STACKING STANDARD	32FT	40FT
Operating Temperature :	-40°C to +85°C	Current α(Isc) :	0.041%/°C	No. of Modules :	512 Nos	704 Nos
Maximum System Voltage :	1500V	Voltage β(Voc) :	-0.259%/°C	No of Pallets:	16 Pallets	22 Pallets
Maximum Series Fuse Rating :	25A	Power γ(Pmax) :	-0.320%/°C	Modules per Pallet / Weight :	32 Nos/886 Kgs.	32 Nos/886 Kgs.
				Pallet dimensions:	2300*1010*1210	2300*1010*1210

Caution: Please read the safety and installation instructions before using this product.

Warranty: Linear power warranty for 27 years, with degradation of up to 2.5% in the first year and 0.5% per year from year 2 to year 27. Please read the Oswal warranty documents thoroughly.

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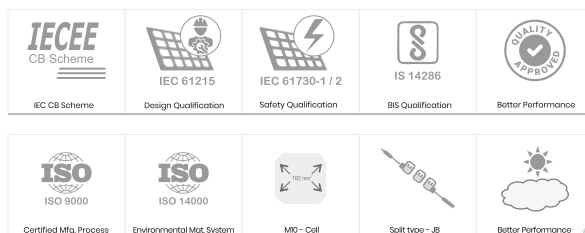
580 Wp - 600 Wp

**N-TYPE TOPCON 16BB
BIFACIAL (GLASS TO GLASS)**

30 Years Warranty for
Linear Performance*



15 Years Product Warranty on
Materials and Workmanship*



MADE IN INDIA

PRODUCT | KEY FEATURES



- Anti-reflective (AR) Coated Glass for Enhanced Power



- Excellent Module Efficiency with Bifacial Power Gain



- Oswal Solar module ensures Long-term reliability



- Positive Power Tolerance with Current Binning to Prevent Mismatch Losses



TECHNICAL DATA



ELECTRICAL PERFORMANCE [Note: Power tolerance: 0 ~ +4.99 W. Power measurement uncertainty: $\leq \pm 3\%$. Average value of NOCT: $45.08 \pm 2^\circ\text{C}$]

ELECTRICAL CHARACTERISTICS*

	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Nominal Maximum Power (Pmax)	580 W	435 W	585 W	438 W	590 W	442 W	595 W	446 W	600 W	449 W
Optimum Operating Voltage (Vmp)	44.908 V	42.034 V	45.205 V	42.312 V	45.504 V	42.592 V	45.794 V	42.794 V	45.864 V	42.929 V
Optimum Operating Current (Imp)	12.923 A	10.338 A	12.949 A	10.356 A	12.975 A	10.378 A	13.019 A	10.415 A	13.084 A	10.467 A
Open Circuit Voltage (Voc)	51.402 V	48.832 V	51.541 V	48.964 V	51.768 V	49.180 V	52.056 V	49.453 V	52.344 V	49.727 V
Short Circuit Current (Isc)	13.713 A	11.069 A	13.772 A	11.117 A	13.805 A	11.143 A	13.817 A	11.153 A	13.824 A	10.758 A
Module Efficiency	22.45%		22.55%		22.84%		23.03%		22.23%	

BIFACIAL OUTPUT – BACKSIDE POWER GAIN @ STC* [Bifaciality Factor: 80% $\pm$ 10%]

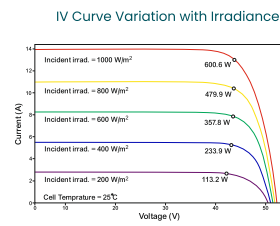
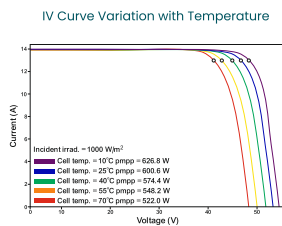
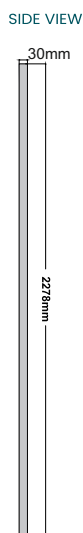
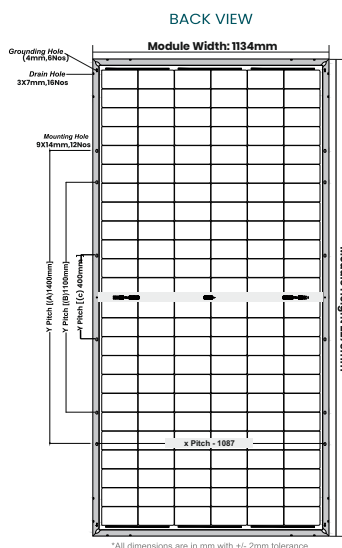
[Note: The bifacial gain depends on the power plant design and conditions. Electrical component ratings should be selected based on the actual bifacial gain at the site]

(module currents indicated below.)

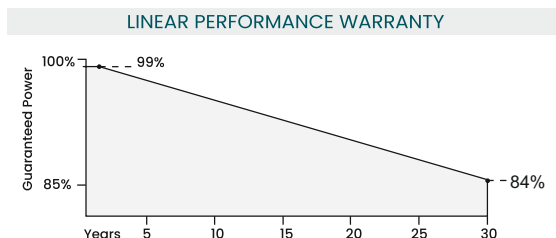
	05%	10%	20%	25%
Nominal Maximum Power (Pmax)	609 W	614 W	620 W	625 W
Module Short-Circuit Current / Efficiency	14.399 / 23.57 %	14.461 / 23.78%	14.495 / 23.98 %	14.508 / 24.18%
Nominal Maximum Power (Pmax)	638 W	644 W	649 W	655 W
Module Short-Circuit Current / Efficiency	15.048 / 24.70%	15.149 / 24.91 %	15.186 / 25.12%	15.199 / 25.34%
Nominal Maximum Power (Pmax)	696 W	702 W	708 W	714 W
Module Short-Circuit Current / Efficiency	16.456 / 26.94%	16.526 / 27.18%	16.566 / 27.41%	16.580 / 27.64%
Nominal Maximum Power (Pmax)	725 W	731 W	738 W	744 W
Module Short-Circuit Current / Efficiency	17.141 / 28.07%	17.215 / 28.31%	17.256 / 28.55%	17.271 / 28.79%

Mechanical Specifications

Dimensions	2278(L) x 1134(W) x 30(T) in mm
Weight(kg)	32.5
Cell type / No Of Cell	144 Half-cut N-type TOPCon Bifacial Solar cells
Frame	Anodized Aluminum Alloy (6005, Temper T6, Silver colour)
Front Cover	Low Iron semi-Tempered AR coated Glass (2 mm thick)
Encapsulate	PID resistant and UV resistant Polymeric Film
Back Cover	Low Iron semi-Tempered Glass (2 mm thick)
Junction Box	30A Split Junction Box (3 nos. with individual Bypass Diode) – Weatherproof (IP68)
Bypass Diode	50 A, 45 V, 200 $^\circ\text{C}$ max. junction temperature
Cable	4 sq. mm, 300 mm length (Customised cable length available on request)
Connectors	MC4 compatible (MC4 original available on request)
Application Class Rating	Class A
Safety Class Rating	Class II
Mechanical Load Test	5400 Pa-Front; 2400 Pa-Back (as per IEC & UL)
Mounting Holes Pitch (Y)-mm	[A] 1400, [B] 1100 [C] 400,
Mounting Holes Pitch (X)-mm	1087



IV Curves for Front-Side Illumination of 600 Wp Panel



MAXIMUM OPERATING CONDITIONS

Operating temperature :	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$
Maximum System Voltage :	1500V
Maximum Series Fuse Rating :	30A

TEMPERATURE COEFFICIENT

Current α (Isc) :	0.045%/ $^\circ\text{C}$
Voltage β (Voc) :	-0.250%/ $^\circ\text{C}$
Power γ (Pmax) :	-0.320%/ $^\circ\text{C}$

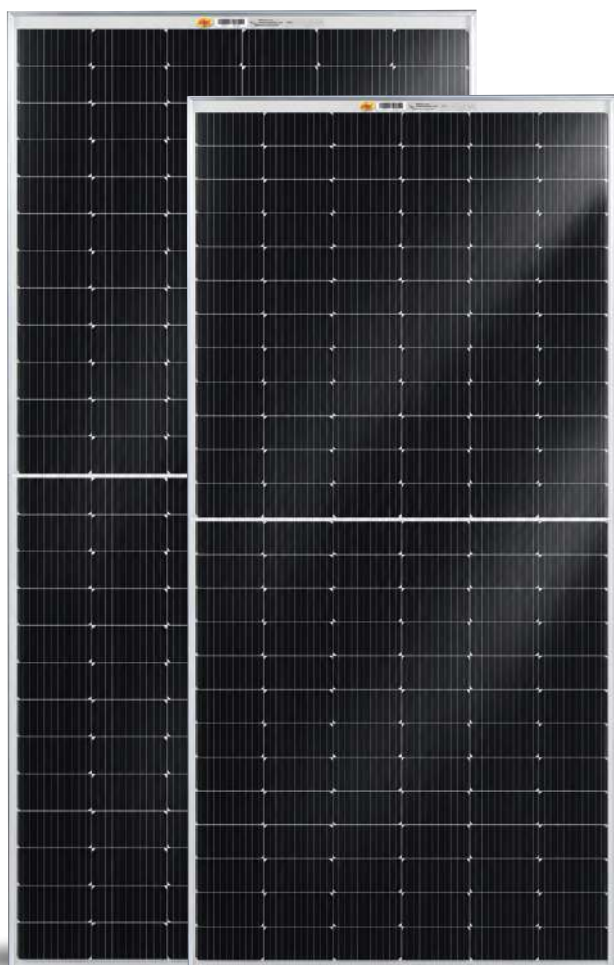
STACKING STANDARD

No. of Modules :	704 Nos
No of Pallets:	22 Pallets
Modules per Pallet / Weight :	32 Nos/1090 Kgs.
Pallet dimensions:	2320*990*1275

Caution: Please read the safety and installation instruction before using this product.

Warranty: Linear power warranty for 30 years, with degradation of up to 1.5% in the first year and 0.5% per year from year 2 to year 30. Please read the Oswal warranty documents thoroughly.

Disclaimer: Specifications included in this datasheet are subject to change without prior notice due to ongoing innovative product development and R&D activities. OSWAL Solar reserves the right to make any adjustments to the information described here. The data contained in this specification do not represent the performance of an individual module. T&C apply.



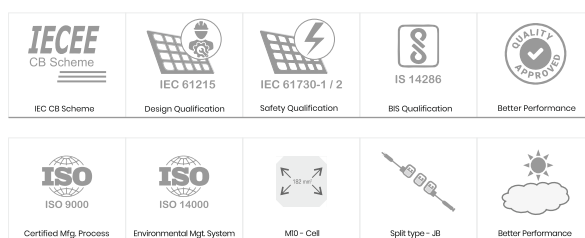
600 Wp - 640 Wp

**N-type TOPCon Dual Glass
Module Technology
G12R 16BB TOPCon
Bifacial Module**

30 Years Warranty for
Linear Performance*



15 Years Product Warranty on
Materials and Workmanship*



MADE IN INDIA

PRODUCT | KEY FEATURES

- Advanced N-type TOPCon Technology
- Bifacial Dual Glass Design (Up to 30% Gain)
- Better Output in Low Irradiance
- Excellent anti-LID, anti-LeTID & anti-PID Performance
- Low Temperature Coefficient
- Bifaciality Factor $80 \pm 10 \%$
- Robust Performance ($<1\%$ first year degradation)

Comprehensive System Certifications

ISO 9001:2015: Quality Management system

ISO 14001:2015: Environment Management system

ISO 45001:2018: Occupational health and safety

OSWAL SOLAR

TECHNICAL DATA

ELECTRICAL CHARACTERISTICS*

	STC	STC	STC	STC	STC	STC	STC	STC	STC
Maximum Power (Pmax) (W)	600	605	610	615	620	625	630	635	640
Optimum Operating Voltage (Vmp) (V)	39.964	40.104	40.244	40.384	40.524	40.664	40.804	40.944	41.084
Optimum Operating Current (Imp) (A)	15.025	15.095	15.165	15.235	15.305	15.375	15.445	15.515	15.585
Open Circuit Voltage (Voc) (V)	47.337	47.537	47.737	47.937	48.137	48.337	48.537	48.737	48.937
Short Circuit Current (Isc) (A)	15.920	15.980	16.040	16.100	16.160	16.220	16.280	16.340	16.400
Module Efficiency	22.19%	22.38%	22.56%	22.75%	22.93%	23.12%	23.30%	23.49%	23.67%

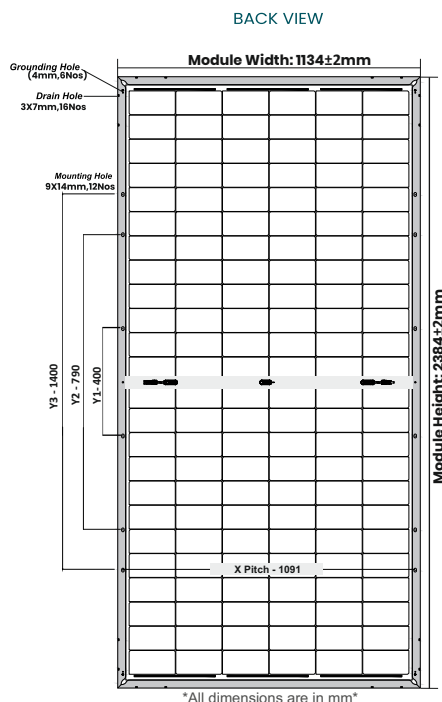
Note: STC: Irradiance 1000W/m², Cell Temperature 25°C, AM 1.5 according to EN/IEC 60904. Power tolerance 0 ~ +4.99W. Measurement uncertainty ≤3%. Except Pmax, all other above parameters have tolerance ±3%.

ELECTRICAL CHARACTERISTICS WITH BIFACIAL POWER GAIN AT STC* [Bifaciality Factor: 80% ± 10%]

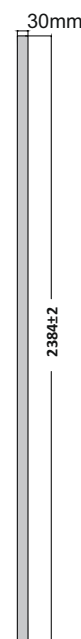
		STC	STC	STC	STC	STC	STC	STC	STC
05%	Pmax (W)	630	635	641	646	651	656	662	667
	Efficiency	23.30%	23.50%	23.69%	23.89 %	24.08%	24.27%	24.47%	24.66%
10%	Pmax (W)	660	666	671	677	682	688	693	699
	Efficiency	24.41%	24.62%	24.82%	25.02%	25.23%	25.43%	25.63%	25.84%
20%	Pmax (W)	720	726	732	738	744	750	756	762
	Efficiency	26.63%	26.85%	27.08%	27.30%	27.52%	27.74%	27.96%	28.19%
25%	Pmax (W)	750	756	763	769	775	781	788	794
	Efficiency	27.74%	27.97%	28.20%	28.44%	28.67%	28.90%	29.13%	29.36%
30%	Pmax (W)	780	787	793	800	806	813	819	826
	Efficiency	28.85%	29.09%	29.33%	29.57%	29.81%	30.05%	30.29%	30.53%

Note: The bifacial gain depends on the power plant design, ground reflectance (Albedo), bifaciality factor and conditions. Electrical component ratings should be selected based on the actual bifacial gain at the site.

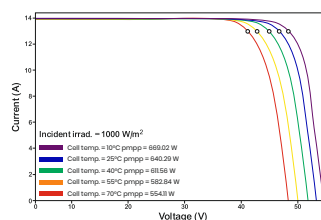
Mechanical Specifications		Operating Condition	
Dimensions	2384 ± 2 mm x 1134 ± 2 mm x 30 ± 1 mm	Maximum System Voltage	1500 VDC
Weight	33.8 Kg	Operating Temperature	-40°C to +85°C
Cell Type	132 Half-cut, G12R N-type TOPCon Bifacial Solar cells	Maximum Series Fuse Rating	30A
Frame	Anodized Aluminum Alloy (6005, Temper T6, Silver colour)	Mechanical Load	5400 Pa (Front) / 2400 Pa (Back)
Front Cover	Low Iron semi-Tempered AR coated Glass (2 mm thick)	Application Class Rating	Class A
Encapsulant	PID resistant and UV resistant Polymeric Film	Safety Class Rating	Class II
Back Cover	Low Iron semi-Tempered Glass (2 mm thick)	Temperature Characteristics	
Junction Box	IP68, 3 Bypass Diode	Tc of Current (α) Isc (%/°C)	0.0452% ± 0.01
Cable	4 sq. mm, 300 mm length (As per customer requirement)	Tc of Voltage (β) Voc (%/°C)	-0.2505% ± 0.02
Connectors	MC4 compatible (MC4 original available on request)	Tc of Power (γ) Pmax (%/°C)	-0.2991% ± 0.02
Mounting Holes Pitch (Y)-mm	400, 790, 1400	NOCT	45°C (±2°C)
Mounting Holes Pitch (X)-mm	1091 ± 2 mm		



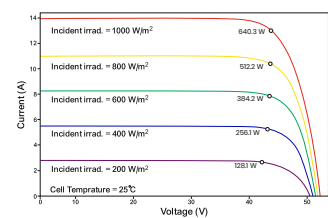
SIDE VIEW



IV Curve Variation with Temperature

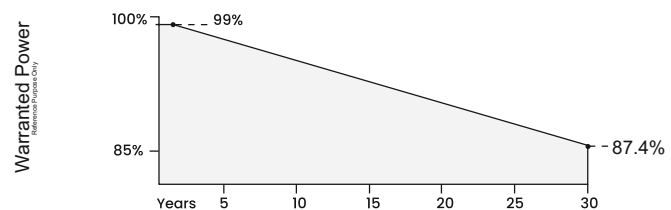


IV Curve Variation with Irradiance



IV Curves for Front-Side Illumination of 640 Wp Module

LINEAR PERFORMANCE WARRANTY



PACKING STANDARD

No. of Modules:
No of Pallets:
Modules per Pallet / Weight:
Pallet dimensions:

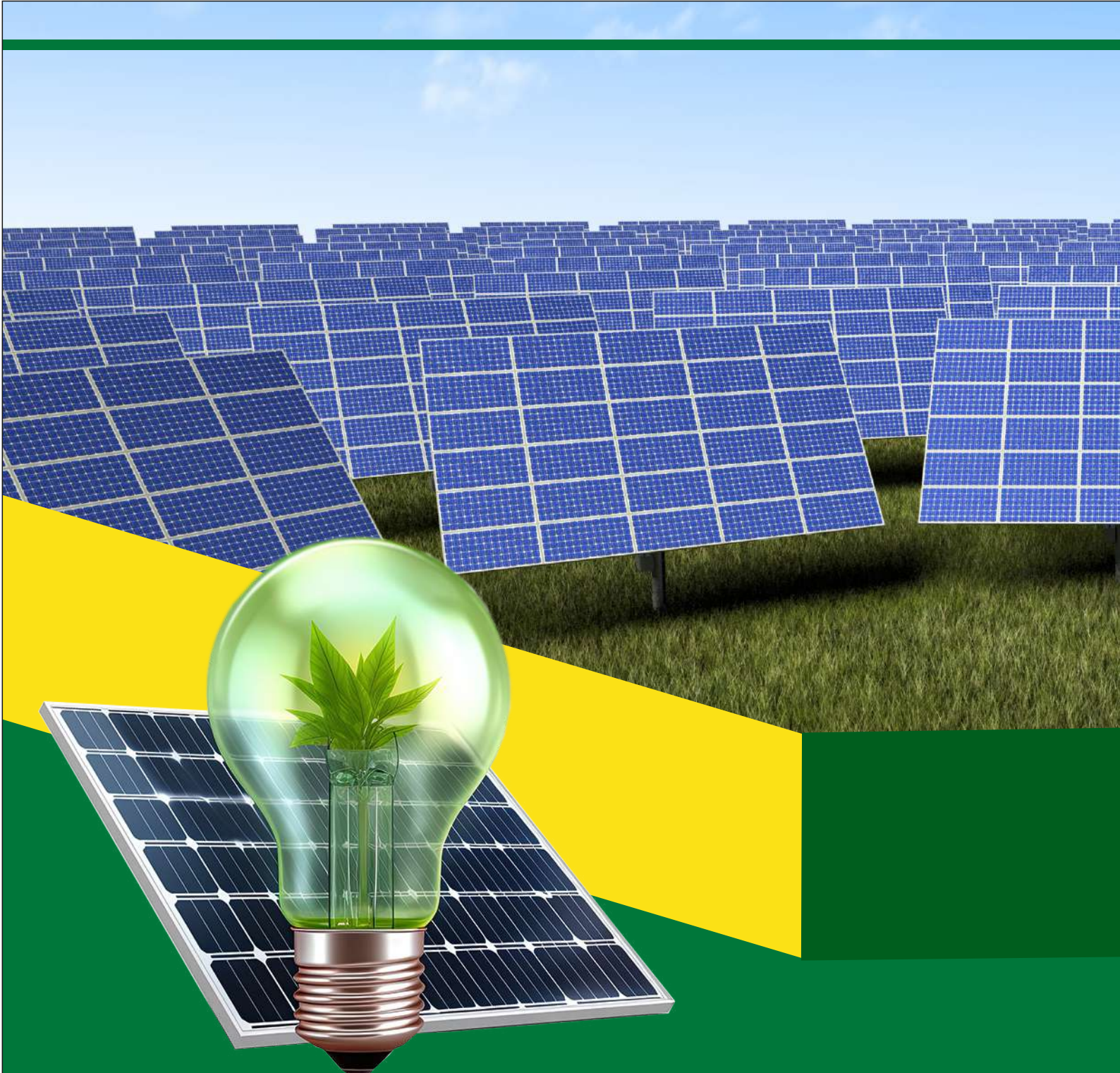
40FT

704 Nos
22 Pallets
32 Nos/1120 Kg.
2400*980*1275

Caution: Please read the safety and installation instructions before using this product.

Warranty: Linear power warranty for 30 years, with degradation of up to 1% in the first year and 0.4% per year from year 2 to year 30. Please refer the Oswal Solar warranty document thoroughly.

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Solar Energy Solutions



Industrial
Solar



Residential
Rooftop Solar



Solar R&D
Support System

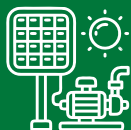


Solar Business
Models

Solar makes your life better



AC Solar
Plants



Agriculture Solar
(Water Pumps)



Agricultural Solutions
(VFD-based Flour Mill,
Oil expellers, and Others)



Commercial Solar



OSWAL

RENEWABLE ENERGY

Greener | Cleaner | Smarter

True Partner !



Oswal Solar Energy Private Limited
(formerly known as Oswal Solar Structure Private Limited)

Opposite DD-International Pvt. Ltd, Link Road, Village-Kutail, Karnal-132037, Haryana, India.

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