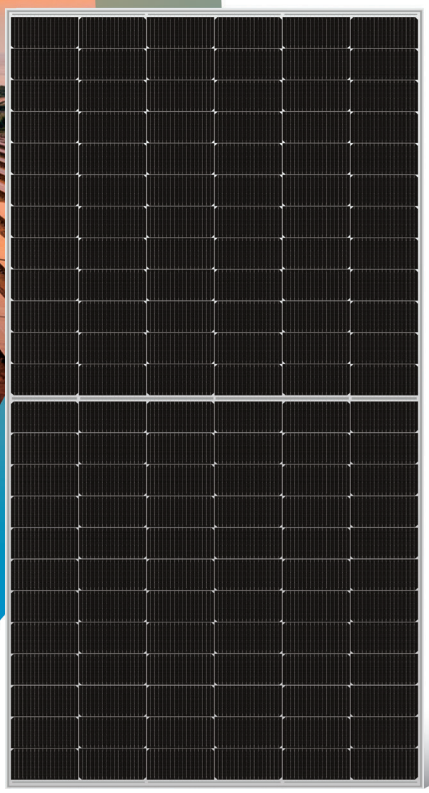
EMMVEE

YOUR RELIABLE PARTNER FOR SOLAR ENERGY SINCE 1992

30 YEARS. POWER FOR GOOD.



EMMVEE CRAFTING SMART AND ADVANCED SOLAR ENERGY SOLUTIONS

TITANIUM DUO

G12R N-TYPE TOPCon BIFACIAL GLASS TO GLASS MODULE

- Committed to Quality, Punctuality, and Customer Support since 1992.
- Over 15 Years of Sustainable Power with Photovoltaic Modules, New High WP Modules United with Quality and Efficiency
- With presence in Green Energy Projects Across the Globe
- Our Mission: Delivering Clean, Reliable Energy while Reducing Carbon Footprint through wide range of Residential and Commercial Solar Offerings.

132 CUT CELL G12R N-TYPE TOPCON BIFACIAL GLASS TO GLASS MODULE

TECHNICAL SPECIFICATION

Electrical data at 1000W/m², 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

Model Name	E610HCBG132-T	E615HCBG132-T	E620HCBG132-T	E625HCBG132-T	E630HCBG132-T	E635HCBG132-T
Rated Power at STC*	610	615	620	625	630	635
Power Tolerance	0 - +5Wp	0 - +5Wp	0 - +5Wp	0 - +5Wp	0 - +5Wp	0 - +5Wp
Module Efficience at STC	22.58%	22.77%	22.95%	23.14%	23.32%	23.51%
Open Circuit Voltage-VOC (Volts)*	48.88	49.01	49.14	49.30	49.43	49.56
Short Circuit Current-ISC (AMPS)*	15.89	15.96	16.04	16.11	16.19	16.26
Max Power Voltage-VPM(Volts)	40.59	40.69	40.82	40.95	41.05	41.18
Max Power Current-IPM (AMPS)	15.05	15.13	15.19	15.27	15.35	15.42

At low irradiance (200W/M² 25°C and AM15) the module yields at least 95% of the STC efficiency.
*Test Uncertainty ±3%

Electrical data at NOCT at 800 W/m², 20 °C ambient temperature, 1 m/s Wind Velocity

Model Name	E610HCBG132-T	E615HCBG132-T	E620HCBG132-T	E625HCBG132-T	E630HCBG132-T	E635HCBG132-T
Rated Power at STC*	463.25	466.80	470.15	474.00	477.80	481.50
Module Efficience at STC	17.15%	17.28%	17.41%	17.55%	17.69%	17.83%
Open Circuit Voltage-VOC (Volts)*	46.68	46.80	46.93	47.08	47.21	47.33
Short Circuit Current-ISC (AMPS)*	12.81	12.87	12.93	12.99	13.05	13.11
Max Power Voltage-VPM(Volts)	38.47	38.57	38.69	38.81	38.91	39.03
Max Power Current-IPM (AMPS)	12.04	12.10	12.15	12.21	12.28	12.34

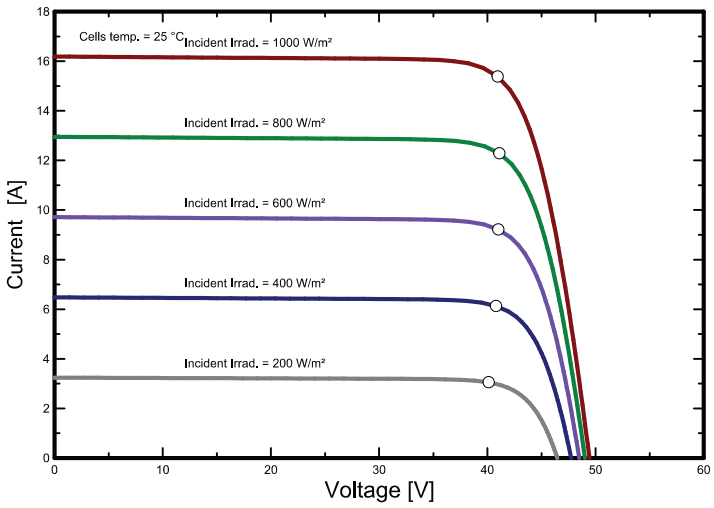
At low irradiance (200W/M² 25°C and AM15) the module yields at least 95% of the STC efficiency.
*Test Uncertainty ±3%

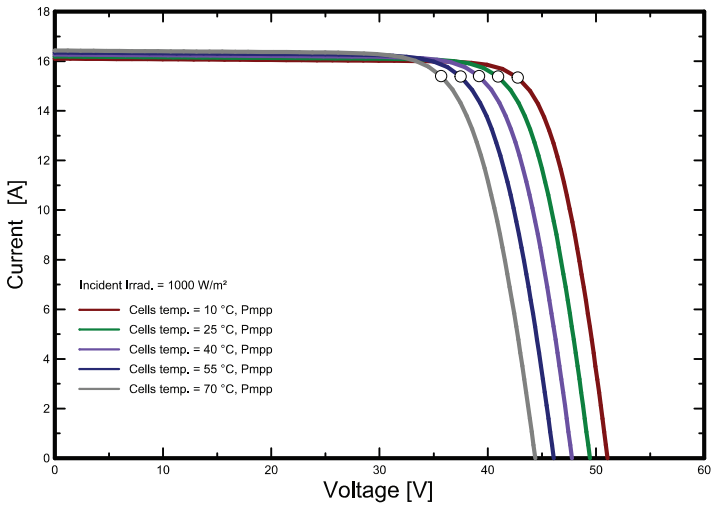
Bifacial Gain**

Model Name	E610HCBG132-T		E615HCBG132-T		E620HCBG132-T		E625HCBG132-T		E630HCBG132-T		E635HCBG132-T	
% Power Gain	Pmax	Eff %	Pmax	Eff %	Pmax	Eff %	Pmax	Eff %	Pmax	Eff %	Pmax	Eff %
5%	640.50	23.71%	645.75	23.91%	651.00	24.10%	656.25	24.29%	661.50	24.49%	666.75	24.68%
10%	671.00	24.84%	676.50	25.04%	682.00	25.25%	687.50	25.45%	693.00	25.66%	698.50	25.86%
15%	701.50	25.97%	707.25	26.18%	713.00	26.40%	718.75	26.61%	724.50	26.82%	730.25	27.03%
20%	732.00	27.10%	738.00	27.32%	744.00	27.54%	750.00	27.77%	756.00	27.99%	762.00	28.21%
25%	762.50	28.23%	768.75	28.46%	775.00	28.69%	781.25	28.92%	787.50	29.15%	793.75	29.39%

**Note: Bifacial power gain will depend on plant design, tilt angle, structure height, Rear Surface condition, GCR, array shadow and Albedo.

IV CURVE





132 CUT CELL G12R N-TYPE TOPCON BIFACIAL GLASS TO GLASS MODULE

TECHNICAL SPECIFICATION

Permissible Operating Conditions

Operating Temperature Range	-40° C to 85° C
Max.system Voltage	1500V DC
Maximun Snow Load Capacity	5400Pa Snow Load and 2400Pa Wind Load
Resistance Against Hail	Max 24mm with impact Speed of 83km/h (52Mph)
Protection Class Against Electrical Shock	II
Application Class	A
Fire Safety Class	Class C
Maximum Reverse Current/Series fuse rating	35A
Bifaciality	80 ± 5%

Thermal Data

Temp. Coefficient Open-circuit Voltage	-0.25% /°C
Temp. Coefficient Short circuit current	0.045%/°C
Temp. Coefficient Rated Power	-0.29% /°C
NOCT (Normal operating cell temperature)	45°C ± 2 °C

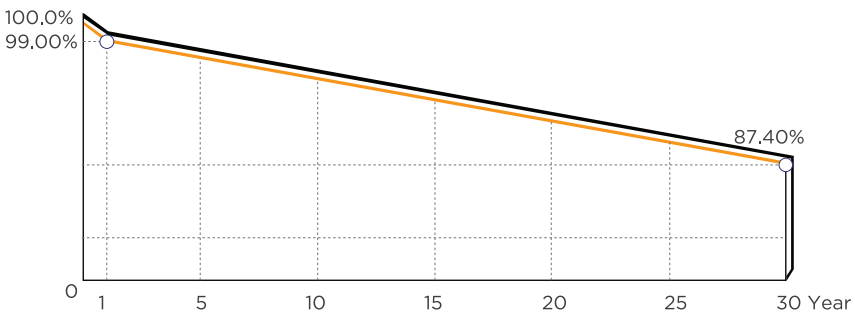
Mechanical Data

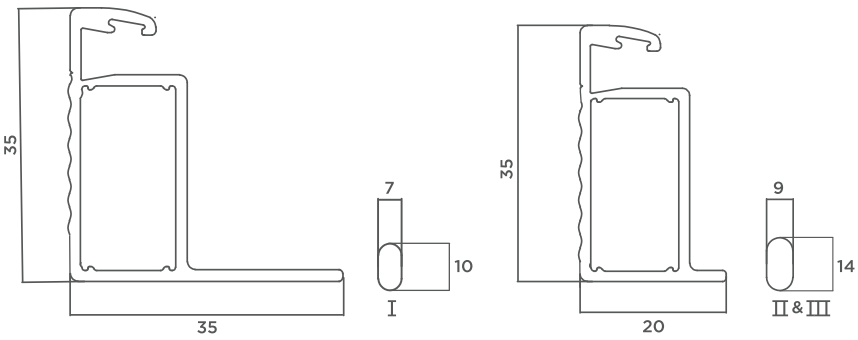
Number of Cells and Cell Type	N Type TopCon132 Cut cell 105 X 182mm (4.13 X 7.16inch)
Dimensions:(LXWXH)	2382mm X 1134mm X 35mm (93.86inch X 44.65inch 1.37inch)
Weight	34kg(74.96lb)
Front Glass	2mm AR Coated Semi Tempered Glass
Embedding	EVA/POE/EPE
Back Glass	2mm Semi Tempered Glass
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm²(12AWG) length 500 ±10mm(19.68 ±0.5inch)
Connectors	MC4 Compatible

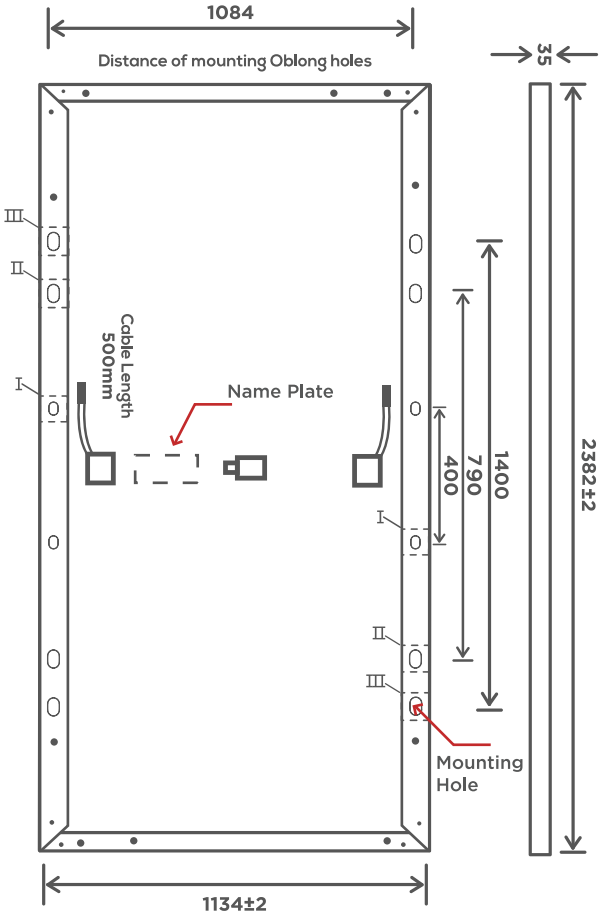
Warranty

Product Warranty	12 Years
Performance Warranty	30 Years

MODULE DEGRADATION CURVE







1ST YEAR DEGRADATION	1.0%	YEAR 2-30 POWER DEGRADATION	0.40%	END OF 30 YEARS	87.40%

FEATURES

AR Coated High Transmission Glass

MC4 Compatible Connectors

PID Resistance

Anodised Aluminium Frame

Snow Load Resistance upto 5400 Pa

BENEFITS

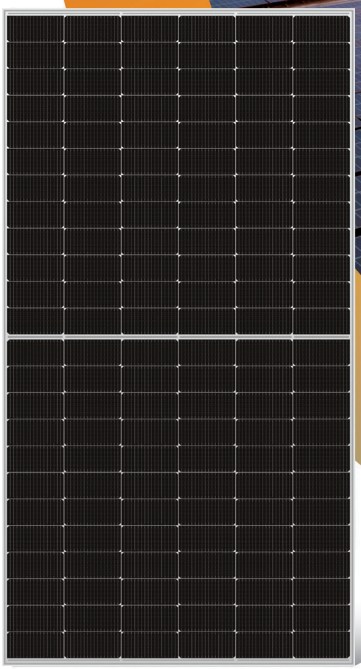
Low LCOE, Faster Payback Period

Best In Class Efficiency upto 23%

Multi-Bus Bar Technology for Better Current Collection

Lowest Guaranteed First Year and Annual Degradation

Well-Composed Components Stress to Reduce Micro Cracks



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(An ISO 9001:2015, ISO 14001:2015 & OHSAS 45000:2018 Certified Company)