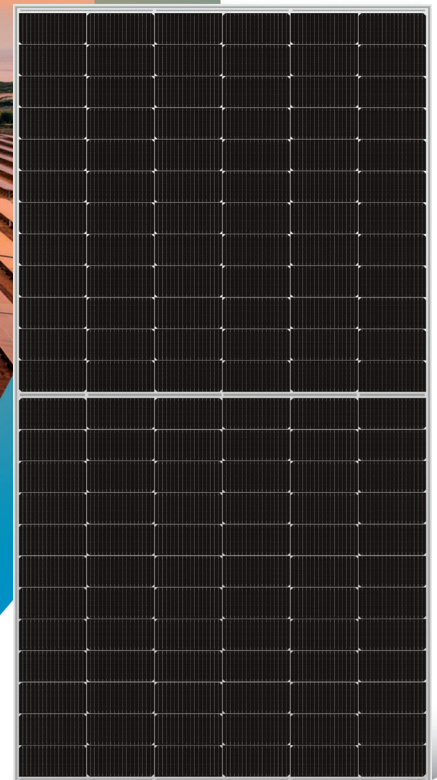




YOUR RELIABLE  
PARTNER FOR  
SOLAR ENERGY  
SINCE 1992



# EMMVEE CRAFTING SMART AND ADVANCED SOLAR ENERGY SOLUTIONS



## TITANIUM DUO

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.

# 144 HALF CUT CELL N-TYPE TOPCON BIFACIAL GLASS TO GLASS MODULE

## TECHNICAL SPECIFICATION

Electrical data at 1000W/m<sup>2</sup>, 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

Model Name	E560HCBG144-T	E565HCBG144-T	E570HCBG144-T	E575HCBG144-T	E580HCBG144-T
Rated Power at STC	560	565	570	575	580
Power Tolerance	+5W	+5W	+5W	+5W	+5W
Module Efficiency at STC	21.68%	21.87%	22.07%	22.26%	22.45%
Open Circuit Voltage-VOC(Volts)(±10%)	50.67	50.87	51.07	51.27	51.47
Short Circuit Current-ISC (AMPS)(±10%)	14.13	14.19	14.25	14.31	14.37
Max Power Voltage-VPM(Volts)	41.95	42.14	42.29	42.44	42.59
Max Power Current-IPM (AMPS)	13.35	13.41	13.48	13.55	13.62

At low irradiance (200W/M<sup>2</sup>, 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

Test uncertainty for Pmax ±3%

### Permissible Operating Conditions

Operating Temperature Range	-40° C TO 85° C
Max.system Voltage	1500V DC
Maximum Snow Load Capacity	5400PA
Resistance Against Hail	MaxØ24mm With Impact Speed of 83km/h
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30A
Bifaciality	80±5%

### Thermal Data

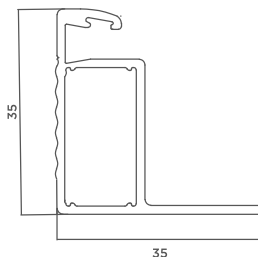
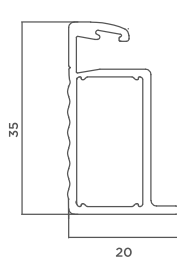
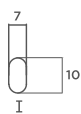
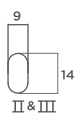
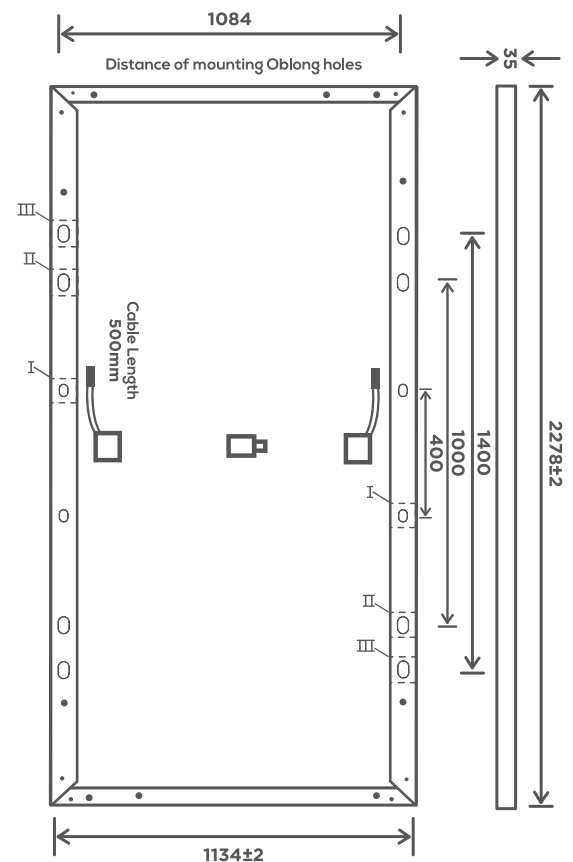
Temp. Coefficient Open-circuit Voltage	-0.25%/°C
Temp. Coefficient Short Circuit Current	0.045%/°C
Temp. Coefficient Rated Power	-0.29%/°C
NOCT (Normal operating cell temperature)	45°C ±2°C

### Mechanical Data

Number of Cells and Cell Type	144 TOPCon Solar Cells (182mm X 91mm)
Dimensions: (L X W X H)	2278 mm X 1134 mm X 35 mm
Weight	32 kg
Front Glass	2 mm High Transmission, Solar Glass
Embedding	EVA/POE/EPE
Back Glass	2 mm High Transmission Solar Glass
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm <sup>2</sup> Solar Cables, Length 500±10mm
Connectors	MC4 Compatible

### Warranty

Product Warranty	12 years
Performance Warranty	30 years



1ST YEAR DEGRADATION 1.0%

YEAR 2-30 POWER DEGRADATION 0.40%

END OF 30 YEARS 87.40%

# 132 HALF CUT CELL N-TYPE TOPCON BIFACIAL GLASS TO GLASS MODULE

## TECHNICAL SPECIFICATION

Electrical data at 1000W/m<sup>2</sup>, 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

Model Name	E510HCBG132-T	E515HCBG132-T	E520HCBG132-T	E525HCBG132-T	E530HCBG132-T
Rated Power at STC	510	515	520	525	530
Power Tolerance	+5W	+5W	+5W	+5W	+5W
Module Efficiency at STC	21.45%	21.66%	21.87%	22.08%	22.29%
Open Circuit Voltage-VOC(Volts)(±10%)	46.98	47.04	47.19	47.34	47.49
Short Circuit Current-ISC (AMPS)(±10%)	13.71	13.77	13.84	13.9	13.99
Max Power Voltage-VPM(Volts)	39.24	39.47	39.65	39.84	39.97
Max Power Current-IPM (AMPS)	13	13.05	13.12	13.18	13.27

At low irradiance (200W/M<sup>2</sup>, 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

Test uncertainty for Pmax ±3%

### Permissible Operating Conditions

Operating Temperature Range	-40° C TO 85° C
Max.system Voltage	1500V DC
Maximum Snow Load Capacity	5400PA
Resistance Against Hail	MaxØ24mm With Impact Speed of 83km/h
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30A
Bifaciality	80±5%

### Thermal Data

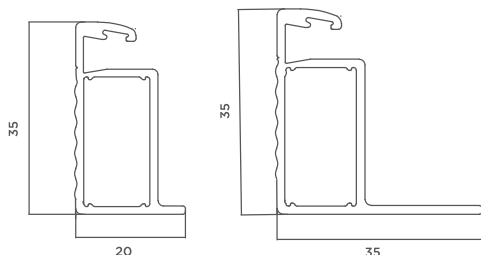
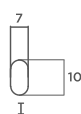
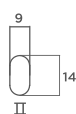
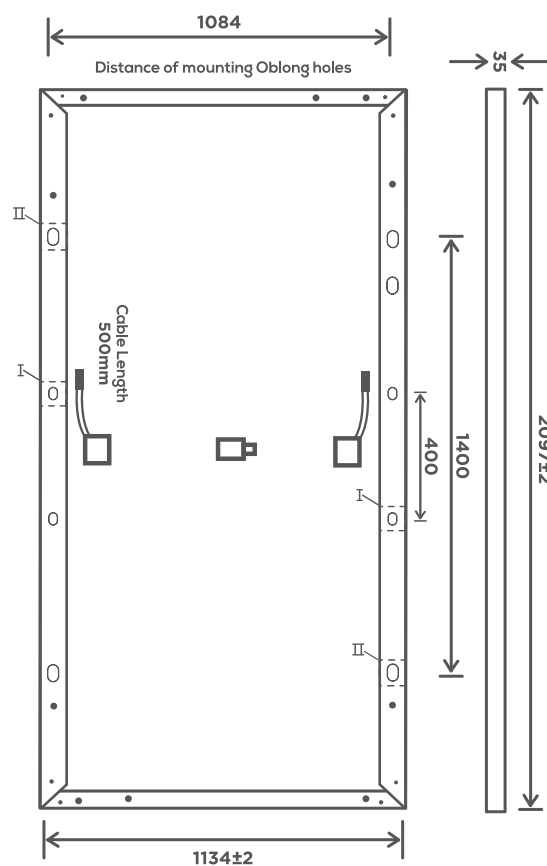
Temp. Coefficient Open-circuit Voltage	-0.25%/°C
Temp. Coefficient Short Circuit Current	0.045%/°C
Temp. Coefficient Rated Power	-0.29%/°C
NOCT (Normal operating cell temperature)	45°C ±2°C

### Mechanical Data

Number of Cells and Cell Type	132 TOPCon Solar Cells (182mm X 91mm)
Dimensions: (L X W X H)	2097 mm X 1134 mm X 35 mm
Weight	28 kg
Front Glass	2 mm High Transmission, Solar Glass
Embedding	EVA/POE/EPE
Back Glass	2 mm High Transmission Solar Glass
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm <sup>2</sup> Solar Cables, Length 500±10mm
Connectors	MC4 Compatible

### Warranty

Product Warranty	12 years
Performance Warranty	30 years



1ST YEAR DEGRADATION 1.0%

YEAR 2-30 POWER DEGRADATION 0.40%

END OF 30 YEARS 87.40%

# 120 HALF CUT CELL N-TYPE TOPCON BIFACIAL GLASS TO GLASS MODULE

## TECHNICAL SPECIFICATION

Electrical data at 1000W/m<sup>2</sup>, 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

Model Name	E460HCMW120-T	E465HCBG120-T	E470HCBG120-T	E475HCBG120-T	E480HCBG120-T
Rated Power at STC	460	465	470	475	480
Power Tolerance	+5W	+5W	+5W	+5W	+5W
Module Efficiency at STC	21.20%	21.44%	21.66%	21.90%	22.13%
Open Circuit Voltage-VOC(Volts)(±10%)	42.52	42.68	42.82	43.01	43.18
Short Circuit Current-ISC (AMPS)(±10%)	13.67	13.74	13.81	13.88	13.94
Max Power Voltage-VPM(Volts)	35.49	35.74	35.91	36.12	36.34
Max Power Current-IPM (AMPS)	12.97	13.02	13.09	13.15	13.21

At low irradiance (200W/M<sup>2</sup>, 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

Test uncertainty for Pmax ±3%

### Permissible Operating Conditions

Operating Temperature Range	-40° C TO 85° C
Max.system Voltage	1500V DC
Maximum Snow Load Capacity	5400PA
Resistance Against Hail	MaxØ24mm With Impact Speed of 83km/h
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30A
Bifaciality	80±5%

### Thermal Data

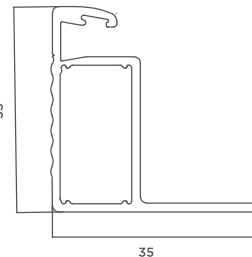
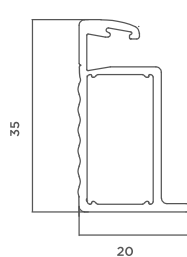
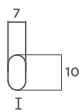
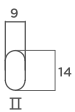
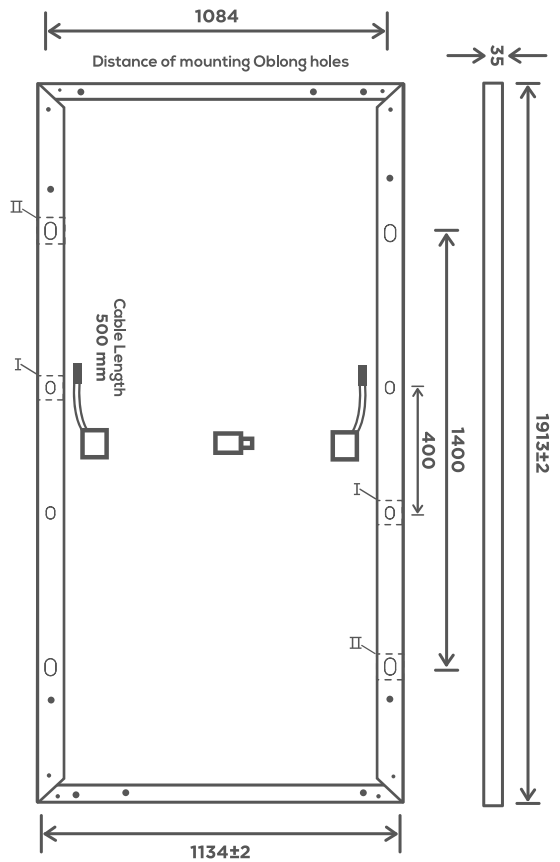
Temp. Coefficient Open-circuit Voltage	-0.25%/°C
Temp. Coefficient Short Circuit Current	0.045%/°C
Temp. Coefficient Rated Power	-0.29%/°C
NOCT (Normal operating cell temperature)	45° C ±2°C

### Mechanical Data

Number of Cells and Cell Type	120 TOPCon Solar Cells (182mm X 91mm)
Dimensions: (L X W X H)	1913 mm X 1134 mm X 35 mm
Weight	26 kg
Front Glass	2 mm High Transmission, Solar Glass
Embedding	EVA/POE/EPE
Back Glass	2 mm High Transmission Solar Glass
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm <sup>2</sup> Solar Cables, Length 500±10mm
Connectors	MC4 Compatible

### Warranty

Product Warranty	12 years
Performance Warranty	30 years



1ST YEAR DEGRADATION 1.0%

YEAR 2-30 POWER DEGRADATION 0.40%

END OF 30 YEARS 87.40%



# 108 HALF CUT CELL N-TYPE TOPCON BIFACIAL GLASS TO GLASS MODULE

## TECHNICAL SPECIFICATION

Electrical data at 1000W/m<sup>2</sup>, 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

Model Name	E415HCBG108-T	E420HCBG108-T	E425HCBG108-T	E430HCBG108-T	E435HCBG108-T
Rated Power at STC	415	420	425	430	435
Power Tolerance	+5W	+5W	+5W	+5W	+5W
Module Efficiency at STC	21.28%	21.53%	21.79%	22.05%	22.30%
Open Circuit Voltage-VOC(Volts)(±10%)	38.35	38.5	38.64	38.9	39.06
Short Circuit Current-ISC (AMPS)(±10%)	13.65	13.73	13.78	13.83	13.91
Max Power Voltage-VPM(Volts)	31.95	32.16	32.39	32.6	32.84
Max Power Current-IPM (AMPS)	12.99	13.09	13.13	13.20	13.26

At low irradiance (200W/M<sup>2</sup>, 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

Test uncertainty for Pmax ±3%

### Permissible Operating Conditions

Operating Temperature Range	-40° C TO 85° C
Max.system Voltage	1500V DC
Maximum Snow Load Capacity	5400PA
Resistance Against Hail	MaxØ24mm With Impact Speed of 83km/h
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30A
Bifaciality	80±5%

### Thermal Data

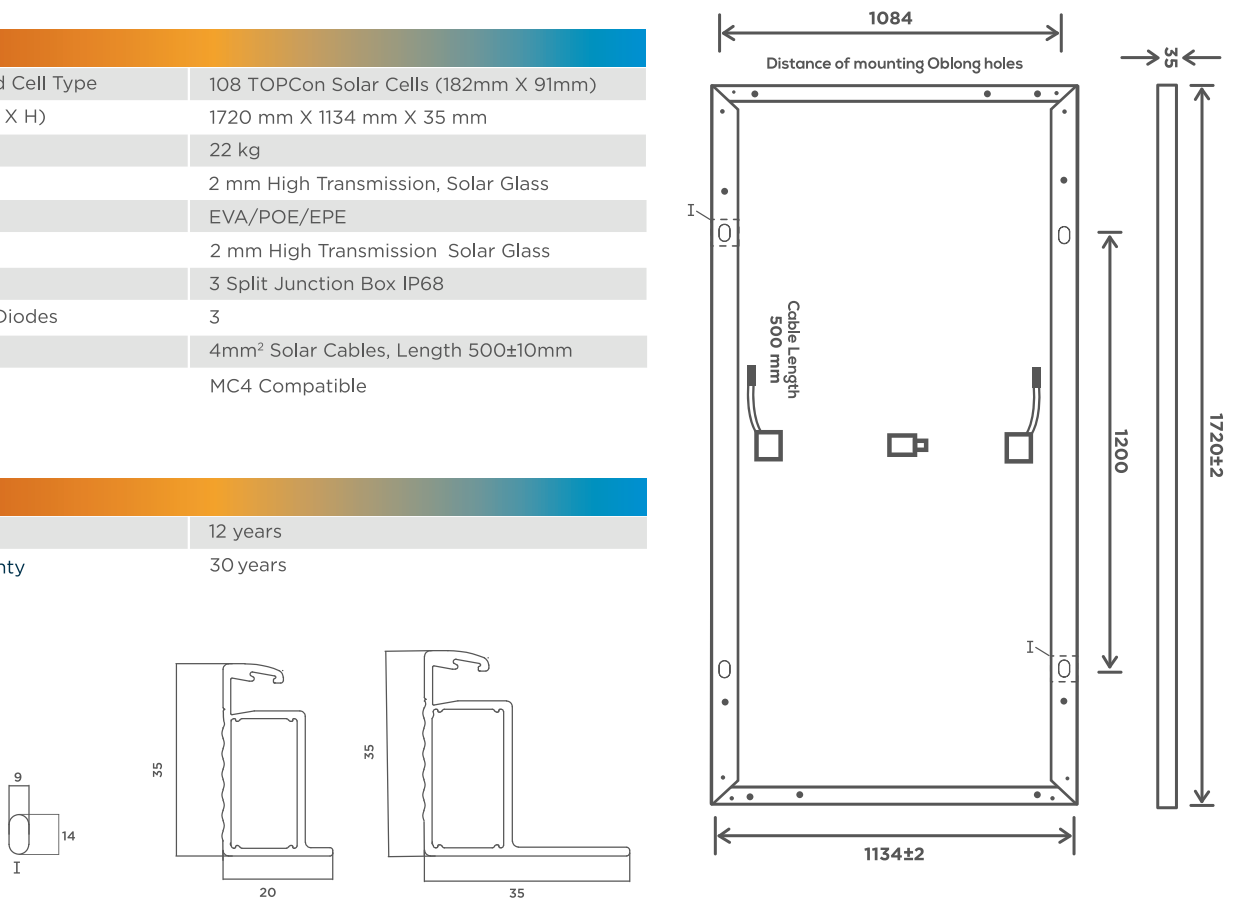
Temp. Coefficient Open-circuit Voltage	-0.25%/°C
Temp. Coefficient Short Circuit Current	0.045%/°C
Temp. Coefficient Rated Power	-0.29%/°C
NOCT (Normal operating cell temperature)	45° C ±2°C

### Mechanical Data

Number of Cells and Cell Type	108 TOPCon Solar Cells (182mm X 91mm)
Dimensions: (L X W X H)	1720 mm X 1134 mm X 35 mm
Weight	22 kg
Front Glass	2 mm High Transmission, Solar Glass
Embedding	EVA/POE/EPE
Back Glass	2 mm High Transmission Solar Glass
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm <sup>2</sup> Solar Cables, Length 500±10mm
Connectors	MC4 Compatible

### Warranty

Product Warranty	12 years
Performance Warranty	30 years

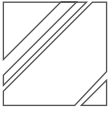


1ST YEAR DEGRADATION 1.0%

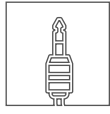
YEAR 2-30 POWER DEGRADATION 0.40%

END OF 30 YEARS 87.40%

# FEATURES



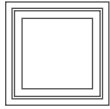
AR Coated High Transmission Glass



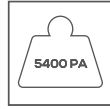
MC4 Compatible Connectors



PID Resistance



Anodised Aluminium Frame

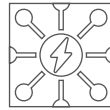


Snow Load Resistance upto 5400 Pa

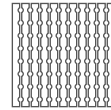
# BENEFITS



Low LCOE, Faster Payback Period



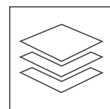
Best In Class Efficiency upto 23%



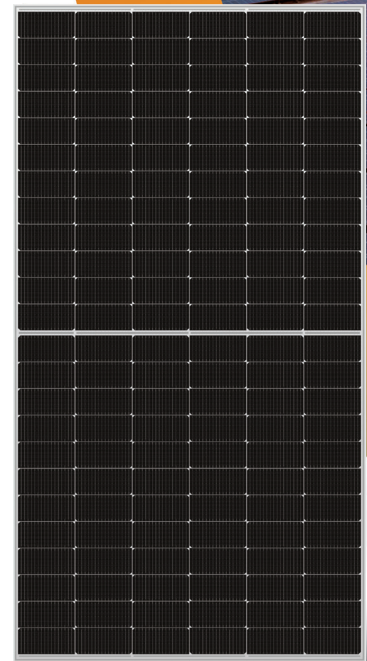
Multi-Bus Bar Technology for Better Current Collection



Lowest Guaranteed First Year and Annual Degradation



Well-Composed Components Stress to Reduce Micro Cracks



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\*Product under testing at TUV for IEC standards.



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**Phone:** +91 80 2217 4328, +91 80 2217 4333 | [info@emmvee.in](mailto:info@emmvee.in) | [www.emmvee.com](http://www.emmvee.com)

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