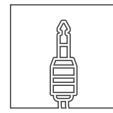


## FEATURES



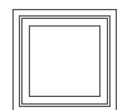
AR Coated High  
Transmission  
Glass



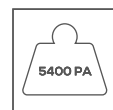
MC4  
Compatible  
Connectors



PID  
Resistance



Anodised  
Aluminium  
Frame

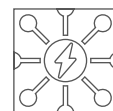


Snow Load  
Resistance  
upto 5400 Pa

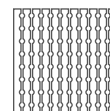
## BENEFITS



Low LCOE,  
Faster Payback  
Period



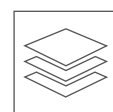
30% More Power  
Best In Class  
Efficiency upto  
21.5%



Multi-Bus Bar  
Technology for  
Better Current  
Collection



Lowest  
Guaranteed First  
Year and Annual  
Degradation



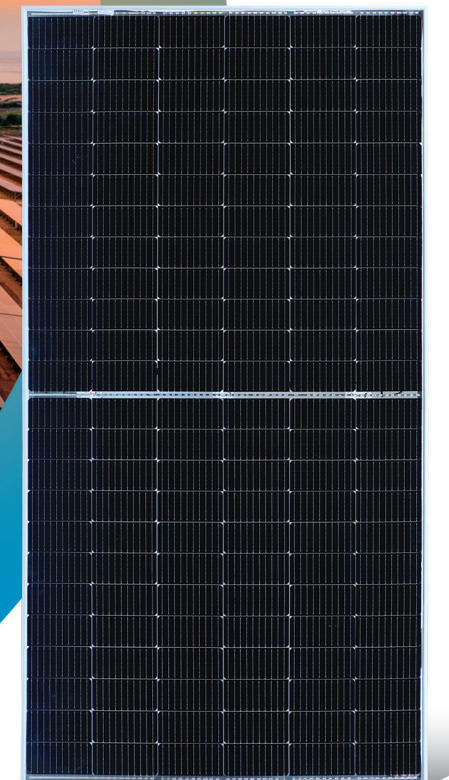
Well-Composed  
Components  
Stress to Reduce  
Micro Cracks



YOUR RELIABLE  
PARTNER FOR  
SOLAR ENERGY  
SINCE 1992



## EMMVEE CRAFTING SMART AND ADVANCED SOLAR ENERGY SOLUTIONS



## SAPPHIRE 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.



### EMMVEE PHOTOVOLTAIC POWER PRIVATE LIMITED

**Global Headquarters:** No. 13/1, International Airport Road, Bettahalasur Post, Bengaluru-562 157, India  
**USA Office:** 1055 Howell Mill Road, Suite 800, Atlanta, GA 30318, United States.  
**Phone:** +1 (844) 366-8331 | info@emmvee.in | www.emmvee.com  
 (An ISO 9001:2015, ISO 14001:2015 & OHSAS 45000:2018 Certified Company)



120 CUT CELL BI-FACIAL 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	E440HCBG120	E445HCBG120	E450HCBG120
Rated Power at STC	440	445	450
Power Tolerance	+5W	+5W	+5W
Model Efficiency at STC	20.28%	20.51%	20.74%
Open Circuit Voltage – VOC (Volts) (±10%)	41.44	41.46	41.56
Short Circuit Current – ISC (Amps) (±10%)	13.55	13.75	13.81
Max Power Voltage – VPM (Volts)	34.21	34.28	34.31
Max Power Current – IPM (Amps)	12.87	12.99	13.12

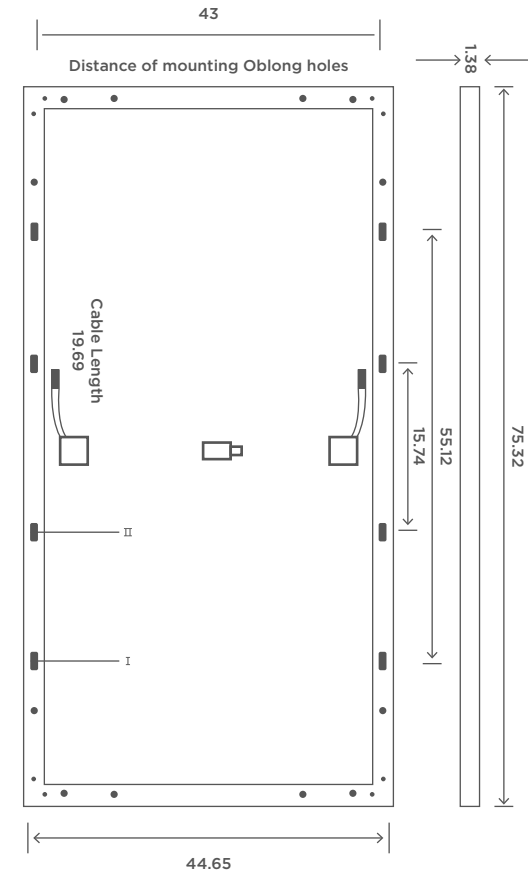
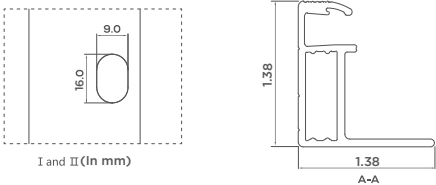
At low irradiance (200W/M², 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

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	Max Ø24mm with Impact Speed of 83km/h
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30 A
Bifaciality	70±5%

Mechanical Data	
Number of Cells and Cell Type	120 Bi-Facial Solar Cells (182mm X 91mm)
Dimensions: (L X W X H)	75.32 inch X 44.65 inch X 1.38 inch
Weight	57.32 Pounds
Front Glass	2 mm High Transmission, Solar Galss
Embedding	Top EVA, Bottom POE
Back Sheet	2 mm High Transmission, Solar Galss
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm² Solar Cables, Length 500±10mm
Connectors	MC4 Compatible (Staubli Option Available)
Safety Class	Class II
Fire Type	Type 29
Wind Load	2400 pa

Warranty	
Product Warranty	12 years
Performance Warranty	30 years



1ST YEAR DEGRADATION <2.0%

YEAR 2-30 POWER DEGRADATION <0.45%

END OF 30 YEARS <84.95%

144 CUT CELL BI-FACIAL 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	E535HCBG144	E540HCBG144	E545HCBG144	E550HCBG144
Rated Power at STC	535	540	545	550
Power Tolerance	+5W	+5W	+5W	+5W
Module Efficiency at STC	20.71%	20.90%	21.10%	21.29%
Open Circuit Voltage-VOC(Volts)(±10%)	49.35	49.5	49.75	49.9
Short Circuit Current-ISC (AMPS)(±10%)	13.59	13.62	13.88	14.01
Max Power Voltage-VPM(Volts)	41.32	41.54	41.61	41.62
Max Power Current-IPM (AMPS)	12.95	13	13.1	13.2

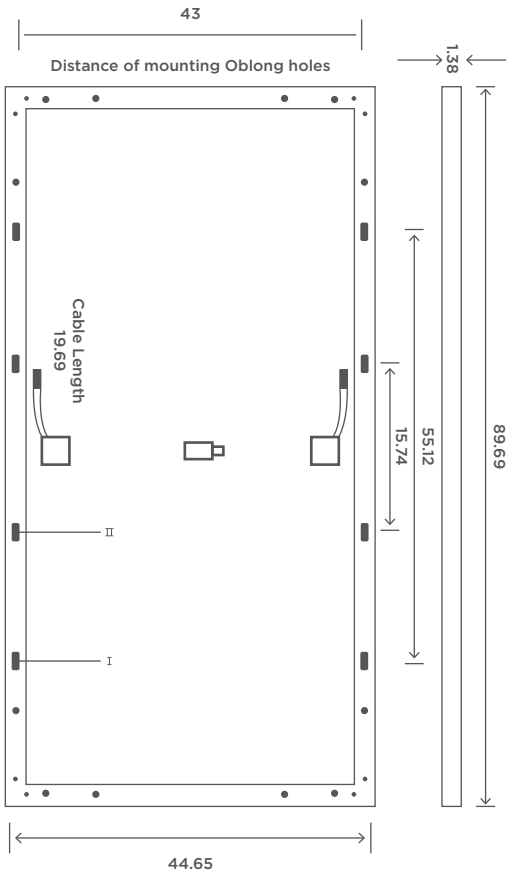
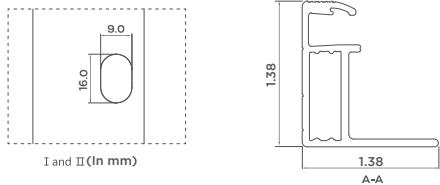
At low irradiance (200W/M², 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

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	Max Ø24mm with Impact Speed of 83km/h
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30 A
Bifaciality	70±5%

Mechanical Data	
Number of Cells and Cell Type	144 Bi-Facial Solar Cells (182mm X 91mm)
Dimensions: (L X W X H)	89.69 inch X 44.65 inch X 1.38 inch
Weight	70.54 Pounds
Front Glass	2 mm High Transmission, Solar Galss
Embedding	Top EVA, Bottom POE
Back Sheet	2 mm High Transmission, Solar Galss
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm² Solar Cables, Length 500±10mm
Connectors	MC4 Compatible (Staubli Option Available)
Safety Class	Class II
Fire Type	Type 29
Wind Load	2400 pa

Warranty	
Product Warranty	12 years
Performance Warranty	30 years



1ST YEAR DEGRADATION <2.0%

YEAR 2-30 POWER DEGRADATION <0.45%

END OF 30 YEARS <84.95%