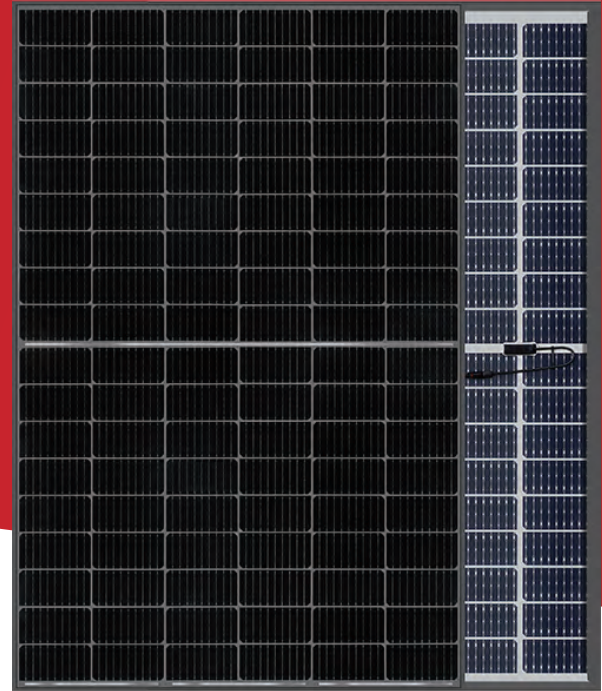


ONYX

400-415W

High Efficiency PERC Bifacial Full Black Module



Bifacial technology enables additional energy harvesting from rear side (up to 30%)



Excellent low irradiance performance.



Better light trapping and current collection to improve module power output and reliability.



Industry leading lowest thermal co-efficient of power.



Optimized electrical design and lower operating current for reduced hot spot loss and better temperature coefficient.

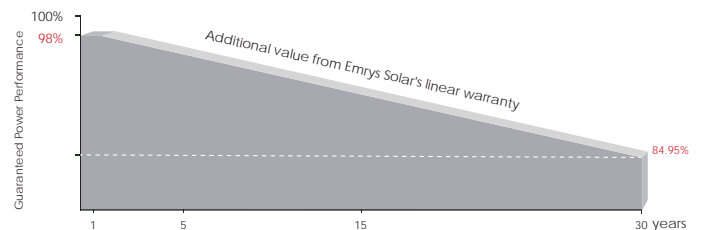


Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa).



100% triple EL test enabling remarkable reduction of hidden crack rate of modules

LINEAR PERFORMANCE WARRANTY



30 years

Product Workmanship Warranty

30 years

Output Power Warranty

COMPREHENSIVE CERTIFICATES

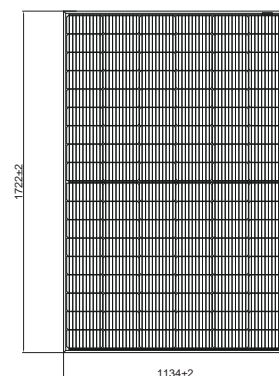


ELECTRICAL DATA(STC)

Model Number	ES400M54-S2-BF	ES405M54-S2-BF	ES410M54-S2-BF	ES415M54-S2-BF
Peak Power Watts- $P_{MAX}(Wp)^*$	400	405	410	415
Power Output Tolerance	0~5W			
Open Circuit Voltage- $V_{oc}(V)$	37.12	37.22	37.32	37.42
Short Circuit Current- $I_{sc}(A)$	13.60	13.70	13.80	13.90
Maximum Power Voltage- $V_{MPP}(V)$	30.81	30.93	31.05	31.16
Maximum Power Current- $I_{MPP}(A)$	12.99	13.10	13.21	13.32
Efficiency(%)	20.48	20.74	21.00	21.25

STC :Irradiance 1000w/m²,Cell Temperature 25°C Air Mass AM1.5 *Power Binning:±/ -5W

DIMENSIONS OF PV MODULE(mm)



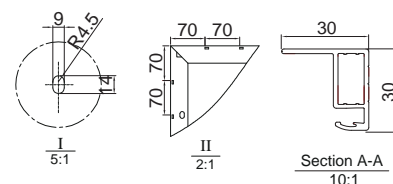
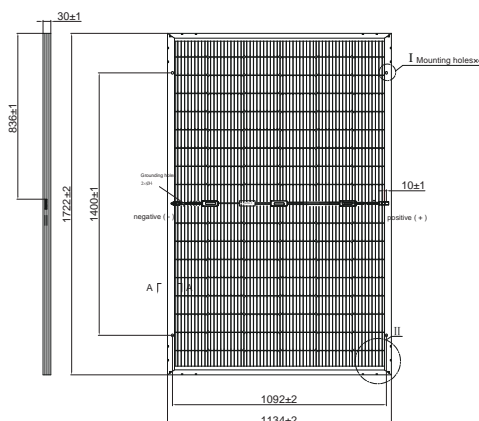
ELECTRICAL DATA(NOCT)

Maximum Power- $P_{MAX}(Wp)^*$	301	304	308	311
Open Circuit Voltage- $V_{oc}(V)$	34.64	34.73	34.81	34.90
Short Circuit Current- $I_{sc}(A)$	10.99	11.07	11.15	11.23
Maximum Power Voltage- $V_{MPP}(V)$	28.82	28.91	29.05	29.19
Maximum Power Current- $I_{MPP}(A)$	10.44	10.51	10.59	10.66

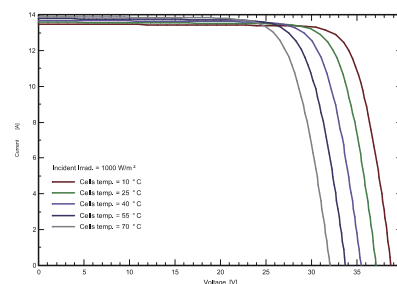
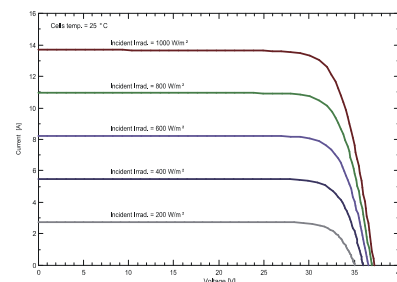
NOCT:Irradiance at 800W/m²,Ambient Temperature 20°C,Wind Speed 1m/s

MECHANICAL DATA

Dimensions	1722 x 1134 x 30mm
Weight	19.5kg
Cell Type	PERC Mono crystalline
Cell Number	108
Front / Back Glass	2mm Double Glass AR coating semi-tempered glass
Frame Type	Black Anodized Aluminium Alloy
Junction Box Diodes	3
Junction Box Protection Class	IP68
Connector Type	PV-TT02
Cable	4.0mm ² ,1100mm(+)/1100mm(-) or Customized Length



I-V CURVES OF PV MODULE



TEMPERATURE RATINGS

NOCT(Nominal Operating Cell Temperature)	45°C(±2°C)
Temperature Coefficient of P_{MAX}	-0.34%/°C
Temperature Coefficient of V_{oc}	-0.26%/°C
Temperature Coefficient of I_{sc}	+0.05%/°C

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

MAXIMUM RATINGS

Operational Temperature	-40~+85 °C
Rear Side Load	2400pa
Front Side Load	5400pa
Max Series Fuse Rating	25A
Max System Voltage	1500V (IEC)

WARRANTY

30 years Product Workmanship Warranty
30 years Output Power Warranty

PACKAGING CONFIGURATION

Modules per box:36pieces
Modules per 40'container:936 pieces