

ONYX

400-415W

(Ultra Black)

High Efficiency Half-Cell Mono PERC Module



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.

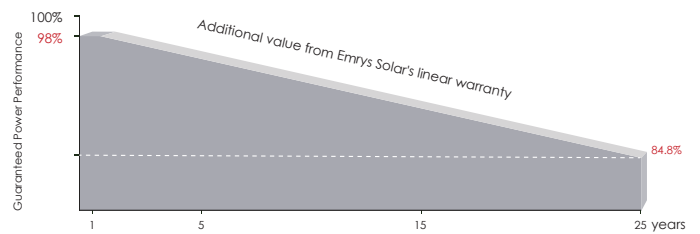


Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa).



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

LINEAR PERFORMANCE WARRANTY



25 years

Product Workmanship Warranty

30 years

Output Power Warranty

COMPREHENSIVE CERTIFICATES



ELECTRICAL DATA(STC)

Part Number	ES400M54-B	ES405M54-B	ES410M54-B	ES415M54-B
Peak Power Watts- $P_{MAX}(Wp)^*$	400	405	410	415
Power Output Tolerance	0~5W			
Open Circuit Voltage- $V_{oc}(V)$	36.98	37.06	37.14	37.31
Short Circuit Current- $I_{sc}(A)$	13.78	13.85	13.92	14.01
Maximum Power Voltage- $V_{MPP}(V)$	30.42	30.52	30.62	30.79
Maximum Power Current- $I_{MPP}(A)$	13.15	13.27	13.39	13.48
Panel Efficiency(%)	20.48	20.74	21.00	21.25

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

ELECTRICAL DATA(NOCT)

Maximum Power- $P_{MAX}(Wp)^*$	298	301	305	309
Open Circuit Voltage- $V_{oc}(V)$	34.90	34.98	35.05	35.21
Short Circuit Current- $I_{sc}(A)$	11.13	11.19	11.24	11.32
Maximum Power Voltage- $V_{MPP}(V)$	28.42	28.56	28.72	28.88
Maximum Power Current- $I_{MPP}(A)$	10.47	10.55	10.62	10.69

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

MECHANICAL DATA

Panel Dimension(H/W/O)	1722 x 1134 x 30 mm
Weight	20.7kg
Cell Type	Monocrystalline PERC
Cell Size	182x91 mm
Cell Number	108
Glass Type	High Transmission, AR Coated Heat Strengthened Glass
Glass Thickness	3.2mm
Encapsulant Type	EVA
Frame Type	Anodized Aluminium Alloy, Silver or Black
Junction Box Diodes	3
Junction Box Protection Class	IP68
Connector Type	MC4 or MC 4 Compitable
Cable	1x4mm ² , (+): 1100mm, (-): 1100mm or Customized Length

TEMPERATURE RATINGS

NOCT(Nominal Operating Cell Temperature)	41°C(±3°C)
Temperature Coefficient of P_{MAX}	-0.34%/°C
Temperature Coefficient of V_{oc}	-0.25%/°C
Temperature Coefficient of I_{sc}	-0.04%/°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	4000pa
Front Side Load	5400pa
Max Series Fuse Rating	25A
Max System Voltage	1500V (IEC)

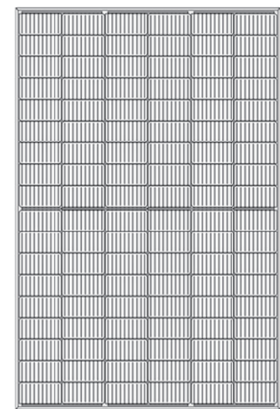
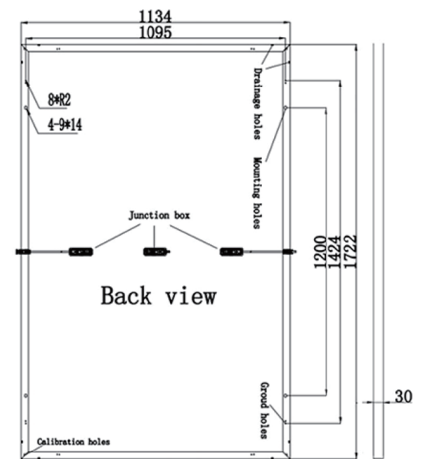
WARRANTY

25 years Product Workmanship Warranty
30 years Output Power Warranty

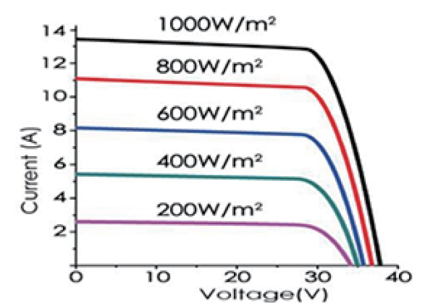
PACKAGING CONFIGURATION

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

DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE



P-V CURVES OF PV MODULE

