

Finally, a solar technology that provides superior power performance in a lightweight framed or unframed form factor with unmatched technology innovation and performance attributes.

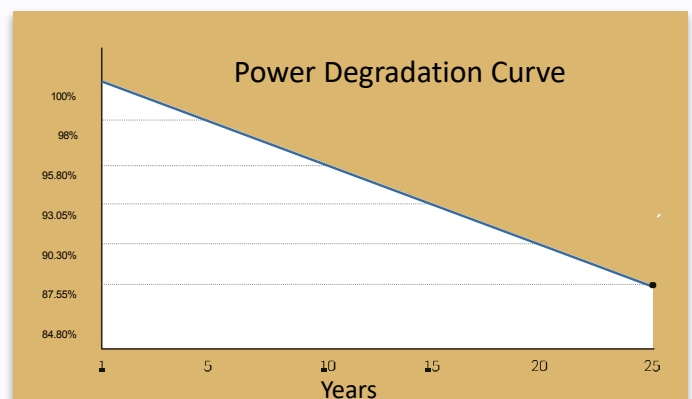
Advantages include:

- M10 half cell configuration to reduce operating temperatures, making the power output more efficient
- Ability to be integrated into non flat surfaces such as vehicles or RV's while protecting the cell integrity with our proprietary lamination processes
- Proprietary extruded fiberglass composite frame reduces weight and installation costs for residential applications.
- Ruggedized (non glass) laminated face allows little to no degradation if one or more cells are damaged from hail or environmental events.
- State of the art robotic manufacturing assures consistent quality and scalability
- Superior power - 15-19% higher power output per sq ft than competitors
- Lightweight - Only 9 / lbs per panel



475-500 Watt Panel

- Planar Electrical Connection(PEC) Technology
- Insulating Encapsulation Composite (IEC)
- 0~+5W power tolerance
- Low Mismatch Loss
- Excellent Low Light Performance
- 4kg/m² Weight and 30mm Thickness
- Excellent Temperature Coefficient (lower operating temp)

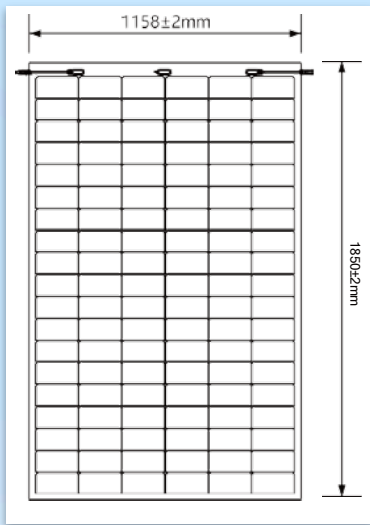


Technology Specifications

22.2 % MAX MODULE EFFICIENCY	0 - 3% POWER TOLERANCE	≤ 2% FIRST YEAR POWER DEGRADATION	0.55% YEAR 2-5 POWER DEGRADATION	IBC HALF-CELL TECHNOLOGY Lower Operating Temperature						
Model(s)	MES 410		MES 415		MES 420		MES 425		MES 430	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Rated Power (P _{mp}) /W	410	309	415	313	420	317	425	320	430	324
Rated Current (I _{mp}) /A	11.97	9.57	12.03	9.63	12.10	9.68	12.16	9.74	12.23	9.79
Rated Voltage (V _{mp}) /V	34.31	32.30	34.53	32.50	34.74	32.71	34.96	32.91	35.17	33.11
Short Circuit Current (I _{sc}) /A	12.80	10.47	12.88	10.53	12.95	10.60	13.03	10.66	13.10	10.72
Open Circuit Voltage (V _{oc}) /V	40.96	38.97	41.18	39.18	41.39	39.39	41.61	39.59	41.82	39.80
Effective Module Efficiency(η) /%	21.17%		21.43%		21.69%		21.94%		22.20%	

STC (Standard Testing Conditions): Irradiance 1000W/m², Air Mass 1.5, Cell Temperature 25°C, Measuring Tolerance ±3%

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20°C, Air Mass 1.5, Wind speed 1m/s

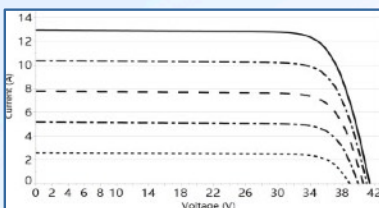


ABSOLUTE MAXIMUM RATING

Operating Temperature	From -40 to +85°C
Maximum Series Fuse Rating	25A
Safety Class	I
Fire Rating (IEC 61730)	C
Maximum System Voltage per string	DC 1500V

MECHANICAL / ENVIRONMENTAL CHARACTERISTICS

Cell Type	Mono-crystalline IBC 182mm x 91.9mm
Effective Module Dimension (L x W)	1763.6mm x 1098.2mm
Dimension (L x W x H)	1850mm x 1158mm x 30mm
Weight	4kg
Cable	4mm (IEC), 300mm or customized length
Junction Box	IP 68 with three bypass diodes
Connector	Original MC4
Wind / Snow Load	IEC 2400pa (141 mph wind / 50 lb per sq. ft. snow)



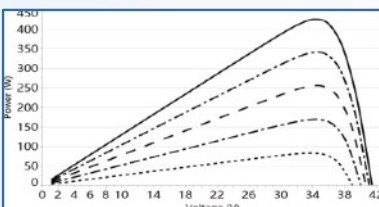
TEMPERATURE RATINGS

Voltage Temperature Coefficient	-0.220%/°C
Current Temperature Coefficient	+0.050%/°C
Power Temperature Coefficient	-0.240%/°C
Tolerance	0 ~ +5 W
NOCT	43 ± 2°C

PACKING CONFIGURATION - (framed modules)

40' HQ Container	Pallet/container	Piece/container
Pieces 50 per pallet	18	900

For OEM, embedded or other applications, contact 3D West for details



3D West is a US licensed distributor of the Quadra solar series

For technical and pricing info, contact:

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Modular Energy Solutions developed the IBT modules and manufactures the Quadra panels in its Niagara Canada manufacturing facility