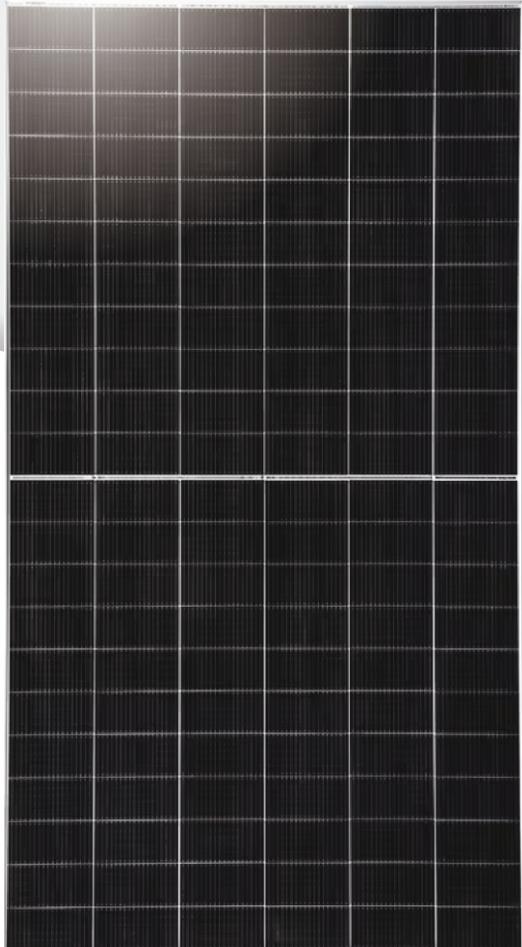
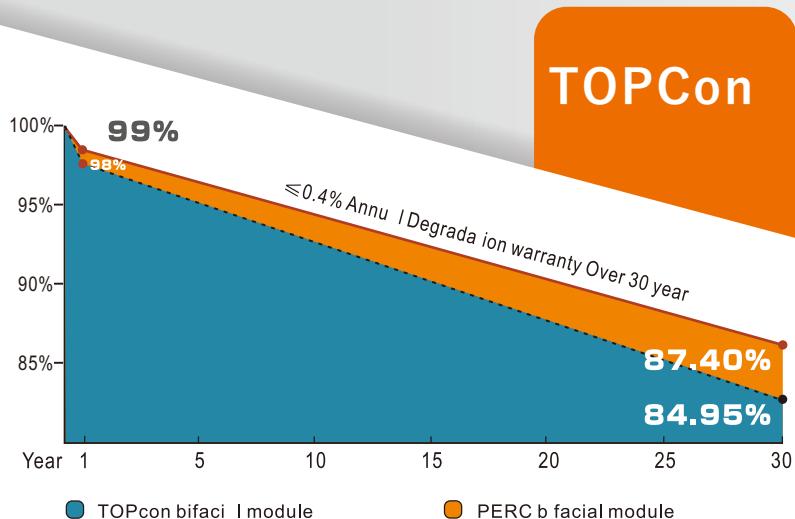


DOUBLE-GLASS BIFACIAL N-TYPE 445~455 Watt



Cutting Free Technology
Minimized micro-crack



Bifacial Mono Module
Capable of generating power at back side, at least 80% efficiency of the front side



Anti-PID(potential induced degradation)
Passed anti-PID test under 85°C damp heat
85% relative humidity for 192 hours



Lower LCOE
Lower shading and resistive loss
Lower temperature coefficient



Outstanding mechanical load resistance
2400 Pa wind load, 5400 Pa snow load



15-year product warranty
30-year linear power output



ISO 90001:2016 - Quality management systems
ISO 14001:2016 - Environmental management systems
ISO 45001:2019 - Occupational health and safety
ISO 50001:2019 - Energy management system
Certificate of Origin



TOPCon(N TYPE) 445~455Watt

ELECTRICAL SPECIFICATIONS

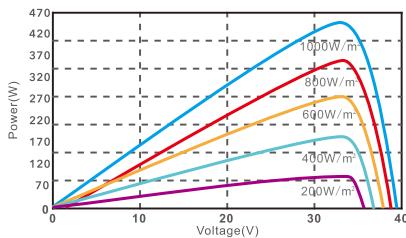
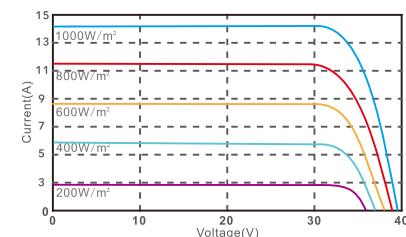
Module Type	MS-445M-108BDGN		MS-450M-108BDGN		MS-455M-108BDGN			
	STC*	NOCT*	STC*	NOCT*	STC*	NOCT*		
Maximum Power (Pmax)	W	445	337	450	341	455	345	
Maximum Power Voltage (Vmp)	V	33.02	30.38	33.22	30.56	33.42	30.75	
Maximum Power Current (Imp)	A	13.48	11.10	13.55	11.16	13.61	11.21	
Open-circuit Voltage (Voc)	V	39.58	36.02	39.78	36.20	39.98	36.38	
Short-circuit Current (Isc)	A	14.30	11.53	14.38	11.60	14.45	11.66	
Module Efficiency STC	%	22.27		22.52		22.77		
Operating Temperature		-40°C~85°C						
Maximum system voltage		DC1500V(IEC)						
Maximum series fuse rating		30A						
Power tolerance		0~+5Watt						
Temperature coefficients of Pmax		-0.29%/°C						
Temperature coefficients of Voc		-0.25%/°C						
Temperature coefficients of Isc		0.046%/°C						
Nominal operating cell temperature (NOCT)		43±2°C						

*STC : Cell temperature: 25°C, Irradiance: 1000 W/m², Air mass: 1.5G

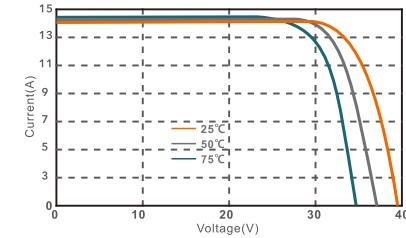
*NOCT: Air temperature: 20°C,Irradiance: 800 W/m²,Air mass:1.5G,Wind speed: 1 m/s

I-V CURVE

I-V characteristics at different irradiations (reference to 450W)

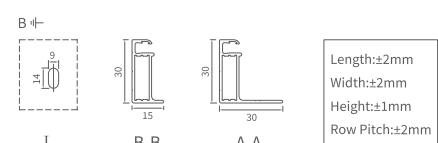
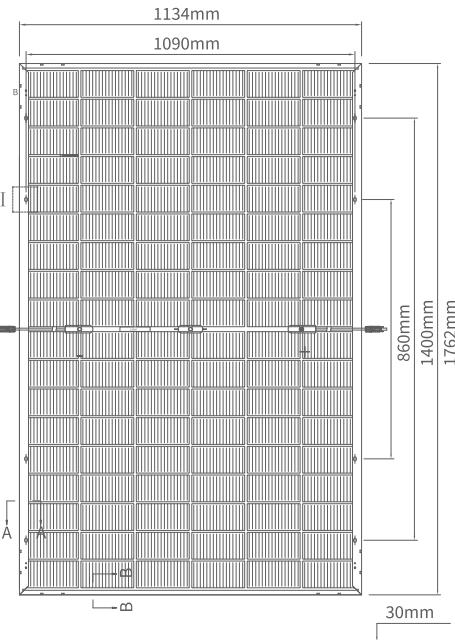


I-V characteristics at different temperature



SPECIFICATIONS

Cell Type	N type Mono-crystalline				
No. of cells	108(6×9×2)				
Dimensions	1762*1134*30mm				
Weight	24.0kg				
Glass	2.0mm+2.0mm,Anti-Reflection Coating,High Transmission,Low Iron,Tempered Glass				
Junction Box	IP68,3diodes				
Connector	MC4 Compatible				
Cable Length (Including Connector)	4mm ² Landscape:(+1200mm/(-1200mm or Customized Length				
Packaging Configuration	Two Box=One Pallet 36pcs/Box,72pcs/Pallet,936pcs/40HQ Container				



Electrical characteristics with different rear side power gain

Pmax/Bт	Voc/B	Isc/A	Vmp/B	Imp/A	Рmax выработка
450	39.78	14.38	33.22	13.55	0%
473	39.78	15.10	33.22	14.22	5%
495	39.78	15.82	33.22	14.90	10%
518	39.78	16.54	33.22	15.58	15%
540	39.78	17.26	33.22	16.26	20%
563	39.78	17.98	33.22	16.93	25%
585	39.78	18.69	33.22	17.61	30%

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